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İstanbul Üniversitesi, İstanbul Tıp Fakültesi,

Çocuk Sağlığı ve Hastalıkları Anabilim Dalı,

Turgut Özal Millet Cad., 34093, İstanbul, Türkiye

Telefon / Phone: +90 (212) 414 20 00

E-mail: itfped@istanbul.edu.tr

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EDITORIAL

What is Social Pediatrics and Why is It Important?

Perran Boran & Nick Spencer

We are often asked "What is social pediatrics?" as, for many pediatricians and child health professionals, it is an unfamiliar concept. We are most grateful to the Journal for giving us the opportunity to introduce social pediatrics. Social pediatrics is akin to social medicine which is a long-established medical specialty dating back to the 19th century. Although social pediatrics is a relatively new pediatric sub-specialty, many of its basic concepts were established by Abraham Jacobi (1830-1919) who was the first US professor of children's diseases. The formation of the francophone Club Internationale de Pediatrie Sociale in 1969 and the anglophone European Society for Social Pediatrics (ESSOP) in 1977 brought together leading pediatricians who recognized the importance of social influences on child health. The leading Turkish pediatrician, the late Professor Ihsan Dogramaci, was one of the founders of ESSOP. The International Society for Social Pediatrics and Child Health grew out of ESSOP in 2012 in recognition of the global challenges to child health and well-being.

Social pediatrics has developed in some countries (including Turkey) into a specialism, but we believe it is an essential component of the work of all pediatricians & child health professionals. The quote below from the Glossary of social pediatrics we published in 2004 (1) defined social pediatrics as:

"A global, holistic, and multidisciplinary approach to child health; it considers the health of the child within the context of their society, environment, school, and family, integrating the physical, mental, and social dimensions of child health and development as well as care, prevention, and promotion of health and quality of life. Social paediatrics acts in three areas—child health problems with social causes, child health problems with social consequences, and child health care in society—and encompasses four areas of child health care—curative paediatrics, health promotion, disease prevention, and rehabilitation." [p. 106]

As part of the move to a global focus, ISSOP has extended the approach to encompass the promotion of, and advocacy for, child rights through the articles of the UNCRC (UN Convention on the Rights of the Child) (2), the promotion of, and advocacy for, equity in child health and development (3) and the imperative for pediatricians, child health professionals and their organizations to address the huge global challenges to child survival, health and well-being. To this end, ISSOP has published, disseminated, and sought the endorsement of a series of Declarations on children on the move (4), violence against children (5), the impact of the COVID pandemic on children (6) and the climate crisis and child health (7). Thanks to ISSOP, social pediatrics is now at the forefront of pediatric responses to these major global challenges through joint work with international pediatric and child health organizations (International Pediatric Association (IPA), Latin American Pediatric Association (ALAPE), European Academy of Pediatrics (EAP), International Society for the Prevention of Child Abuse and Neglect (ISPCAN)) and global NGOs (Save the Children, UNICEF, World Vision).

Social pediatric specialist areas – child protection; child development; health education & protection; vaccination etc.; population pediatrics (child public health)

Social pediatricians are medical doctors who have graduated from medical school followed by specialist training in pediatrics. In Turkey, social pediatricians undertake an additional 4 to 5 years of PhD training in social pediatrics. Although the majority of social pediatricians practice in universities, hospitals, and community clinics, they integrate clinical practice with public health actions for multiple levels of disease prevention involving the child, family and community. Social Pediatricians contribute to 10 essential public health services by assessing and monitoring health; investigating, diagnosing and addressing health problems; informing, educating and empowering families and health care providers concerning child health issues; strengthening and mobilizing community partners; developing and implementing policies; enforcing laws; providing equitable child and family-centered care; building and supporting a competent public health workforce; building and maintaining a strong organizational infrastructure; and improving public health actions through research.

Maternal nutrition, physical and mental health, and parenting quality during the first 1000 days can influence long term child health, determining the onset risk of noncommunicable diseases. Therefore, social pediatricians work towards improving both maternal and child health outcomes at the individual and population levels. They function as maternal and child public health specialists by early identification of health and social risks, preventing disease, treating disease, and promoting healthy life styles. They empower families in their caregiving roles by guiding them to acquire knowledge of their child's health and developmental status, offering management strategies and connecting them with community resources.

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Social pediatricians specialize in child and maternal health including child and maternal nutrition (breastfeeding, complementary feeding), child and maternal immunization, child and maternal emotional wellbeing, early childhood development and growth, and child protection. They work in hospital-based child protection centers, serve on the advisory boards of immunization and intervention programs, and Baby friendly Hospital boards. They are responsible for the assessment, management and coordination of services for developmental delay, child protection services, and special immunization clinics.

Social pediatricians work at the policy, organization, and local level to improve the overall health of children, reduce inequalities in the health of children, and advocate for the rights of children. They extend preventive and curative health services beyond health facilities into communities through research.

Working on strategies such as promoting breastfeeding, healthy diet and healthy lifestyles and promoting responsive parenting are the most effective strategies for reducing chronic diseases like malnutrition, cancer, depression, allergy, and diabetes. Yet, an overemphasis on acute medical conditions undermines the importance of Social Pediatrics in tertiary care centers.

Individual prevention approaches that are based in the well-child outpatient clinics include promoting breastfeeding, delivering immunizations, tracking through registries, providing age-appropriate anticipatory guidance, early recognition of disease by surveillance, and empowering parents. Population based approaches include developing health promoting programs, and implementing education and training activities. Social pediatricians who specialize in immunization provide guidance on the population to be vaccinated and work in committees to review the safety and effectiveness of vaccines. They work with partners to develop resources and tools for health care providers to make informed decisions about vaccines. They support national, and local efforts to educate health-care providers about evidence-based strategies for answering questions about vaccine effectiveness, safety, and the diseases they prevent. Social pediatrics plays an important role in supporting immunization systems through training vaccine providers as well.

Social pediatricians who are specialized in child abuse often work within a multidisciplinary team at the hospital. They are contacted by the police, health professionals, or parents. They also work with multi-agency partners and health care professionals to identify and target families at risk of Sudden Unexpected Infant Death (SUID) to ensure improved outcomes for children.

Social pediatricians who specialize in development evaluate, counsel and provide treatment for regulatory disorders including behavioral sleep disorders, feeding problems, discipline issues, and language delays.

Challenges in pediatric practice – e.gs of social pediatrics in neonatology & respiratory pediatrics

In addition to the specialist Social Pediatrics areas considered above, the social pediatric approach to the health of the child in the context of their society, environment, school and family has relevance to all pediatric specialisms. Two examples serve to illustrate the importance of the social pediatric approach to the appropriate management of childhood illnesses.

The management of premature and low birth weight infants presents major clinical and technological problems for neonatologists. However, as a consequence of the social and economic factors which contribute to prematurity and low birth weight (8), they frequently need to deal with complex social issues which directly impact their management of the infant and the infant's wellbeing. Thus, while clinical and technical expertise is essential in optimal neonatal care, awareness and management of social and family context is also necessary for comprehensive neonatal care.

Asthma is one of the most common chronic recurrent conditions in childhood and, like so many common childhood conditions, prevalence is highest in disadvantaged communities (9). Clinical treatment focuses on medication and allergy avoidance as well as advice on reducing tobacco smoke exposure. Regular inhaler use requires parental understanding and active cooperation, without which the medication regime is rendered ineffective. For optimal results, the pediatrician must enter into a partnership with parents in the management of young children's asthma and with adolescents in managing their own treatment. Knowledge of, and sensitivity to, the family living conditions, and education level is vital for successful results. Liaison with kindergartens and schools is also essential for the effective management of asthma to ensure the child has access to inhalers and to reduce school absence.

These two examples illustrate the manner in which social context affects management of childhood illnesses. Awareness of social context and knowledge of the social pediatric approach enhance the quality of care of ill children.

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EDITORIAL

Contents of this journal issue

This special issue aimed to cover a wide range of topics related to Social Pediatrics and considered theoretical review papers, perspectives, and original research in the local and global context. Social pediatricians contributed on a wide range of topics. Social pediatrics training is described in an opinion perspective by Gökçay et al. (10), providing a historical review of Social Pediatrics in Turkey. Çelik, & Yurdakök (11) review environmental threats to child health. They summarize the evidence for the adverse health effects of air pollution in childhood including respiratory diseases, obesity, neurodevelopmental disorders, intrauterine growth retardation, and prematurity. Climate change is closely linked to air pollution and Gözderesi & Özmert (12), based on the ISSOP Climate Change Seminar Series, review the impact of climate change on child health. The COVID-19 pandemic caused considerable challenges for children and their families. Spencer (13), in his opinion piece, characterizes the combination of the pandemic and the unequal social circumstances it revealed as a syndemic which has exposed children globally to increased threats to their health and wellbeing.

There have been considerable changes in parenting practices over the last two decades. Until the 20th century, infant sleep was not considered an issue of concern for parents. Blunden and Boran (14), in their review, discuss the importance of sleep and the proliferation of sleep training and sleep coaches providing individualized services to families of young children at a high cost. Early childhood is a critical period of time when nurturing care is essential for the healthy development of a child. Özmert (15) considers the pediatricians' role in promoting early childhood development.

Original research articles deal with a range of aspects of Social Pediatric practice and challenges to children's wellbeing. Vinocur et al [16] analyze how the media reported on children during the COVID-19 pandemic in Argentina. Quatranji et al. (17), using a qualitative methodology, evaluate patient and family-centered care in a pediatric clinic in Turkey. An ecological study by Tuzun (18). based on provincial data, reports on factors related to infant and under-5 mortality rates in Turkey. Turkish parents' awareness of indoor and outdoor injury risk and education of parents using infographics are evaluated by Keskindemirci et al. (19). Korcum et al. (20) examine the difficult issue of informed refusal in pediatric practice in a Turkish tertiary children's hospital. Eren et al, identify the risk factors that cause early weight loss in newborns before hospital discharge (21).

This issue of the journal addresses challenges to the health and well-being of children in Turkey and internationally from the perspective of the concepts and practice of Social Pediatrics. We invite colleagues interested in the approach to child health reflected in this issue to consider joining the International Society for Social Pediatrics and Child Health at www.issop.org/membership/

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ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

Factors Related to Infant Mortality Rate and Under-Five Mortality Rate in Turkey: An Ecological Study with Provincial Data

Türkiye'de Bebek Ölüm Hızı ve Beş Yaş Altı Çocuk Ölüm Hızıyla İlişkili Etmenler: İl Verileriyle Ekolojik Bir Araştırma

Hakan Tüzün[1]

[1]Gazi University, Faculty of Medicine, Department of Public Health, Ankara, Turkey

ORCID ID: H.T. 0000-0002-6376-8979

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ABSTRACT

Objective: To determine the factors related to the infant mortality rate (IMR) and under-five mortality rate (U5MR) in Turkey.

Material and Methods: An ecological study was conducted using the provincial data of the Turkish Statistical Institute (TURKSTAT) and the Ministry of Health.

Results: IMR and U5MR (r values for these two parameters are respectively mentioned in parenthesis) had a statistically significant relationship with total fertility rate (TFR) (r=0.661 and 0.718), ratio of adolescent births to total births (r=0.542 and 0.587), gross domestic product (GDP) per capita (r=−0.555 and −0.591), proportion of women aged ≥18 with high school or higher education (r=−0.434 and −0.470), number of physicians per 100,000 people (r=−0.352 and −0.398), number of hospital beds per 100,000 people (r=−0.244 and −0.286), and number of newborn intensive care beds per thousand births (r=−0.324 and −0.359).

In bivariate models for IMR, the effect of all of the abovementioned parameters on the model was statistically significant, except for the number of hospital beds per 100,000 people. In bivariate models for U5MR, the effect of all the above-mentioned parameters on the model was statistically significant. TFR was the only variable with a statistically significant effect on the multivariate model for both IMR (standardized β=0.621, R^2=0.385) and U5MR (standardized β=0.667, R^2=0.445).

Conclusion: The results showed the presence of a weak correlation for the variables related to the numbers of healthcare professionals and hospital beds, thereby indicating that the effect of healthcare service provision is rather indirect. Health promotion programs can be developed for infant and child mortality with the aim of changing high fertility preferences and preventing adolescent pregnancies. Economic policies that improve income distribution and initiatives to increase education levels of girls can be life-saving for infants and children.

Keywords: Infant mortality rate, under-five mortality rate, ecological study, determinants of health

ÖZ

Amaç: Türkiye'de bebek ölüm hızı (BÖH) ve beş yaş altı ölüm hızı (BYAÖH) ile ilişkili etmenleri saptamak amaçlanmıştır.

Gereç ve Yöntemler: Türkiye İstatistik Kurumu (TÜİK) ve Sağlık Bakanlığı'nın il bazlı verileri kullanılarak ekolojik tipte bir araştırma yapılmıştır.

Bulgular: BÖH ve BYAÖH'nin (r değerleri bu iki parametre için sırası ile belirtilmiştir), toplam doğurganlık hızı (TDH) (r=0,661/r=0,718), adölesan doğumların toplam doğumlar içindeki oranı (r=0,542/r=0,587), kişi başı Gayrisafi Yurt İçi Hasıla (GYSH) (r=-0,555/r=-0,591), 18 yaş ve üzeri için lise ve üzeri eğitim alan kadınların oranı (r=-0,434/r=-0,470), yüz bin kişiye düşen hekim sayısı (r=-0,352/r=-0,398), yüz bin kişiye düşen hastane yatak sayısı (r=-0,244/r=-0,286), bin doğuma düşen yeni doğan yoğun bakım yatak sayısı (r=-0,324/r=-0,359) ile istatistiksel olarak anlamlı ilişkisi vardır.

BÖH için iki değişkenli modellerde, yüz bin kişiye düşen hastane yatak sayısı haricinde yukarıda belirtilen parametrelerin tümünün modele etkisi istatistiksel olarak anlamlıdır. BYAÖH için iki değişkenli modellerde yukarıda belirtilen parametrelerin tümünün modele etkisi istatistiksel olarak anlamlıdır. TDH, Hem BÖH (standardize β=0,621, R^2=0,385) hem de BYAÖH (standardize β=0,667, R^2=0,445) için çok değişkenli modele etkisi istatistiksel olarak anlamlı bulunan tek değişkendir.

Sonuç: Sağlık insan gücü ve yatak sayısı ile ilişkili değişkenler için zayıf ilişki saptanması, sağlık hizmet sunumunun etkisinin daha dolaylı olduğunu göstermektedir. Bebek ve çocuk ölümlerine yönelik sağlığı geliştirme programları, yüksek doğurganlık tercihlerini değiştirmeye ve adölesan gebelikleri önlemeye yönelik olarak geliştirilebilir. Gelir dağılımını düzeltici ekonomi politikaları ve kız çocuklarının eğitimini artırmaya yönelik girişimler, bebekler ve çocuklar için hayat kurtarıcı olabilir.

Anahtar Kelimeler: Bebek ölüm hızı, beş yaş altı ölüm hızı, ekolojik araştırma, sağlığın belirleyicileri

Corresponding Author/Sorumlu Yazar: Hakan Tüzün **E-mail:** drtuzunh@yahoo.com

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INTRODUCTION

Mortality during infancy and childhood continues to be a public health problem, despite the fact that there have been several remarkable improvements over time. The worldwide under-five mortality rate (U5MR) declined from 93 per thousand (12.6 million deaths) in 1990 to 38 per thousand (5.2 million deaths) in 2019 (1). Infant mortality rate (IMR) decreased from 65 per thousand (8.7 million deaths) in 1990 to 29 per thousand (4.0 million deaths) in 2018 (2). Notably, a significant majority of these deaths are due to preventable and treatable causes such as preterm birth complications, perinatal asphyxia, birth traumas, pneumonia, diarrhea, and malaria (1).

In Turkey, IMR was approximately 200, 130, and 80 per thousand in the late 1950s, mid-1970s, and mid-1980s, respectively. In TDHS (Turkey Demographic and Health Survey) for the years 2003–2008 and 2013, IMR was respectively 29, 17, and 13 per thousand, whereas U5MR was found to be 37, 24, and 15 per thousand, respectively (3). According to the data from the Ministry of Health, IMR was 9.0 per thousand in 2019 in Turkey. Currently, IMR in Turkey is below the global average (28.2 per thousand); however, it is above the figures for the WHO (World Health Organization) European region (6.1 per thousand), OECD (Organization for Economic Cooperation and Development) (3.7 per thousand), and the EU (European Union) (3.2 per thousand) (4). U5MR was 11.1 per thousand in 2019 in Turkey, which is below the global average (37.7 per thousand) but above the WHO European region (7.1 per thousand), OECD (4.4 per thousand), and the EU (3.9 per thousand) (4).

Infant and child mortality are among the most basic parameters for revealing the healthcare level and evaluating the outcomes of healthcare services in a country (5). Targets of the 2030 Agenda for Sustainable Development include reducing the neonatal infant mortality rate to 12 per thousand and reducing the U5MR to 25 per thousand (6). In Turkey, IMR and U5MR are among the key performance indicators in the Ministry of Health's 2019–2023 Strategic Plan. Targets for the end of the Plan period have been determined to be 8.5 per thousand for IMR and 10.6 per thousand for U5MR (7).

Despite these developments, several inequalities between countries and regions in terms of infant and child mortality remain. IMR in the WHO Africa region (52 per thousand) is more than 7 times higher than that in the WHO European region (7.1 per thousand) (2). Sub-Saharan Africa and central and southern Asia have 52% of the world's under-five population, but 80% of the world's under-five deaths occur in these regions (1). There are also geographical inequalities in infant and child mortality within countries. A study examining under-five deaths in 99 low- and middle-income countries revealed intercountry geographic inequalities, which were as high as up to seven-fold in the case of Vietnam. The study revealed that if geographic inequalities could be avoided, 58% of the child deaths that occurred between 2000 and 2017 could have been prevented in the countries examined (8). Regional inequalities in infant and child mortality also exist in Turkey. According to NUTS 1 (Nomenclature of Territorial Units for Statistics), IMR is 13.5 per thousand in Southeast Anatolia, where it has the highest value, whereas it is 5.9 per thousand in the Eastern Black Sea region, where it has the lowest value. U5MR is 16.9 per thousand in Southeast Anatolia, where it has the highest value, while it is 7.3 per thousand in the Eastern Black Sea region, where it has the lowest value (4).

Social determinants may reportedly be more important than healthcare services or lifestyle choices in influencing health. It has been estimated that the effects of areas outside the healthcare sector are more significant than the effects of the healthcare sector on health. Studies reveal that 30%–55% of health outcomes can be attributed to social determinants (9). Infancy and childhood mortality rates are significantly higher among lower socioeconomic groups. Factors most closely associated with childhood mortality, including malnutrition, exposure to infections, and healthcare service use have been reported to be worse among deprived groups (10). Factors associated with infant mortality are variables that can be grouped under the headings of medical, demographic, and socioeconomic variables, including variables such as maternal age, parity, and mother's diseases such as diabetes/anemia/preeclampsia, as well as variables such as education, employment status, and social security of the mother (11).

Ecological studies are studies conducted by investigators based on data belonging to groups, and not directly based on data obtained from individuals within the scope of the study (12). Therefore, comparison-in-analysis is a comparison made based on groups, and not on singular individuals. The challenges resulting from time and resource constraints that are associated with conducting studies involving a large number of individuals can be overcome with ecological studies (13). The advantage of ecological studies is that data obtained from societies with different characteristics or from different data sources can be used (14).

In the national literature, it is observed that the current studies using the ecological method for factors associated with IMR and U5MR are very limited. These studies consist of a study based only on data from Eskişehir province and a study based on national data from 1997 or the closest previous period (15, 16). Revealing the current socioeconomic factors associated with IMR and U5MR in Turkey may lead to results that are guiding for policies and intervention initiatives aimed at reducing mortality. The aim of this study was to determine the factors related to IMR and U5MR based on provincial data from TURKSTAT (Turkish Statistical Institute) and the Ministry of Health.

MATERIAL AND METHODS

Data Sources and Variables

The Ministry of Health Statistics Yearbook 2019 was used for the data source from the Ministry of Health, as it contains the most up-to-date data disclosed to the public (4). For other data sources, the researcher aimed to use the data from a period closest to 2019. The data for the year 2019 from TURKSAT (Turkish Statistical Institute) were taken from the "provincial

indicators" and "central distribution system" datasets (17, 18). Since the latest statistical report published by the General Directorate of Public Hospitals was from 2017, the data from this report was used as a source (19).

The dependent and independent variables and data sources within the scope of the study are shown in Table 1.

The categories of "high school or equivalent vocational school," "college or university," "master's degree," and "PhD" in the TURKSTAT dataset were included in the calculation of the proportion of women aged ≥18 who received high school or higher education (17, 18). The rural population ratio is defined as "the ratio of the population living in places with a population of 20,000 and below to the total population" in the Statistics Yearbook of the Ministry of Health (4).

Statistical method

The conformity of the data to normal distribution was evaluated with the Kolmogorov Smirnov test. IMR, which was one of the dependent variables examined, did not conform to normal distribution (p=0.009). However, U5MR was normally distributed (p=0.163). Among the independent variables examined, the population per family medicine unit (p=0.200) and the number of patient beds per 100,000 people (p=0.073) were the normally distributed variables. Other independent variables were not found to be normally distributed. Most of the independent variables examined did not conform to normal distribution, and Spearman's test, which is a non-parametric method, was used in all correlation analyses in order to use the same analysis method for all variables.

Reportedly, there is a strong relationship when the correlation coefficient (r) between two variables is higher than 0.7 or 0.8 (20, 21). In this study, it was suggested that the independent variables with correlation coefficients (r) <0.70 within themselves should be included in the linear regression model.

Bivariate linear regression models were created with IMR and U5MR for the independent variables, for which a statistically significant relationship was found in the correlation analysis. Then, a multivariate linear regression model was created for IMR and U5MR, including all independent variables that were found to have a statistically significant relationship in the correlation analysis.

IMR, which was one of the two dependent variables considered in the study, did not conform to normal distribution. The natural logarithmic method (Napierian Logarithm), which is used in the creation of linear regression models of non-normally distributed variables, was used for both IMR and U5MR to allow for a standardized evaluation of the analysis results of two dependent variables. The purpose of using this method in linear regression analysis is to adapt the dependent variables to normal distribution (15, 22).

While creating the multivariate regression model, the "stepwise regression" method was used as the "variable selection method." Statistical significance was considered at p<0.05.

Scope of ethical approval

Since public datasets were used in this ecological study, it is outside the scope of ethics committee approval.

RESULTS

The provinces with the lowest IMR in Turkey are Karabük (3 per thousand), Giresun (4.7 per thousand), Bartın (4.8 per thousand), Yalova (5.5 per thousand), and Kütahya (5.8 per thousand). The provinces with the highest IMR are Hakkari (14.1 per thousand), Nevşehir (14.1 per thousand), Kırşehir (14.2

Table 1: Variables and data sources within the scope of the study

Variable	Data source	Year
Dependent variables		
Infant mortality rate (per thousand)	TURKSTAT	2019
Under-5 mortality rate (per thousand)	TURKSTAT	2019
Independent variables		
GDP per capita (thousand TL)	TURKSTAT	2019
Proportion of women aged 18 and over with high school or higher education (percent)	TURKSTAT	2019
Ratio of municipal population served by a sewerage network to total municipal population (%)	TURKSTAT	2019
Rural population ratio (percent)	MoH Statistics Yearbook	2019
Number of physicians per 100,000 people	MoH Statistics Yearbook	2019
Population per family medicine unit	MoH Statistics Yearbook	2019
Number of hospital beds per 100,000 people	MoH Statistics Yearbook	2019
Number of newborn intensive care beds per thousand births	Statistical Report of KHGM	2017
Total fertility rate (per thousand)	TURKSTAT	2019
Ratio of adolescent births to total births(percent)	TURKSTAT	2019

TURKSTAT: Turkish Statistical Institute, KHGM: General Directorate of Turkish Public Hospitals, MoH: Ministry of Health, GDP: gross domestic product

per thousand), Şanlıurfa (15.3 per thousand), and Gaziantep (16.2 per thousand). The provinces with the lowest U5MR are Karabük (3.0 per thousand), Giresun (5.7 per thousand), Bilecik (6.7 per thousand), Bartın (6.9 per thousand), and Artvin (7.2 per thousand). The provinces with the highest U5MR are Siirt (16.2 per thousand), Kırşehir (16.7 per thousand), Hakkari (16.9 per thousand), Gaziantep (19.1 per thousand), and Şanlıurfa (19.6 per thousand). Table 2 shows the values of dependent and independent variables indicated in the data sources for Turkey and the median values calculated based on provincial data.

Table 3 shows the results of the correlation analyses between IMR and U5MR and independent variables. The variables that were not found to have a statistically significant relationship with either IMR or U5MR were the ratio of the municipal population served by the sewerage network to the total municipal population, the rural population ratio, and the population per family medicine unit (p>0.05).

There was a statistically significant positive relationship between both IMR and U5MR and total fertility rate (TFR) (p<0.01) and the ratio of adolescent births to total births (p<0.01). Both IMR and U5MR had a significantly negative statistical relationship with gross domestic product (GDP) per capita (p<0.01), proportion of women aged ≥18 with high school or higher education (p<0.01), number of physicians per 100,000 people (p<0.01), number of hospital beds per 100,000 people (p<0.05 for IMR and p<0.01 for U5MR), and number of newborn intensive care beds per thousand births (p<0.01) (Table 3).

When a correlation analysis was performed for all independent variables, which were found to be statistically significant in the correlation analysis with IMR and U5MR, with each other, it was observed that all correlation coefficients obtained were <0.7. Therefore, all of these variables were included in the linear regression analysis.

Table 2: Mean, median, minimum, and maximum values of dependent and independent variables

Variables	Turkey	Median of provincial data (min–max)
Infant mortality rate	9.1	8.5 (3.0-16.2)
Under-five mortality rate	11.2	10.6 (3.0-19.6)
GDP per capita (thousand TL)	52.3	36.8 (16.7-86.8)
Proportion of women aged ≥18 with high school or higher education (percent)	41.1	37.2 (23.1-55.1)
Ratio of municipal population served by a sewerage network to total municipal population (%)	91	93 (31.0-100.0)
Rural population ratio (percent)	11.5	34.8 (0.0-76.7)
Number of physicians per 100,000 people	117	156.9 (104.3-310.1)
Population per family medicine unit	3141	3095 (2679-3430)
Number of hospital beds per 100,000 people	286	264 (119-506)
Number of newborn intensive care beds per thousand births	5.3	5.6 (1.2-14.6)
Total fertility rate (per thousand)	1.9	1.7 (1.3-3.9)
Ratio of adolescent births to total births (percent)	0.8	0.69 (0.1-2.7)

GDP: gross domestic product

Table 3: Correlation matrix for dependent and independent variables

	Infant mortality rate (r)	Under-five mortality rate (r)
GDP per capita (thousand TL)	-0.555**	-0.591**
Proportion of women aged 18 and over with high school or higher education (percent)	-0.434**	-0.470**
Ratio of municipal population served by a sewerage network to total municipal population (%)	-0.129	-0.177
Rural population ratio (percent)	0.037	0.020
Number of physicians per 100,000 people	-0.352**	-0.398**
Population per family medicine unit	-0.122	-0.062
Number of hospital beds per 100,000 people	-0.244*	-0.286**
Number of newborn intensive care beds per thousand births	-0.324**	-0.359**
Total fertility rate (per thousand)	0.661**	0.718**
Ratio of adolescent births to total births (percent)	0.542**	0.587**

*:p<0.05, **: p<0.01 GDP: gross domestic product

In the bivariate regression analysis of the natural logarithm of IMR, it was found that the individual effects of all independent variables, except for the number of hospital beds per 100,000 people, on the models were statistically significant. However, in the bivariate regression analysis of the natural logarithm of U5MR, the effects of all individual variables on the model were found to be statistically significant (Table 4).

The only variable that had a statistically significant effect on the multivariate model created for IMR was the total fertility rate. According to the model, it was found that each unit increase in the total fertility rate caused an increase of 0.621 units in the natural logarithm of IMR (Standardized β=0.621). Total fertility rate could explain 38.5% of the change in IMR (R^2=0.385). The only variable that had a statistically significant effect on the multivariate model created for U5MR was, again, the total fertility rate. Based on the model, each unit increase in the total fertility rate caused an increase of 0.667 units in the natural logarithm of U5MR (Standardized β=0.667). Total fertility rate could explain 44.5% of the change in U5MR (R^2=0.445) (Table 4).

Figure 1 shows the variation in IMR with respect to the total fertility rate, and Figure 2 shows the variation in U5MR with respect to the total fertility rate.

Table 4: Linear regression analysis of factors associated with natural logarithms of infant mortality rate and under-five mortality rate

	Standardized β	p	R^2
Bivariate models for the natural logarithm of IMR			
GDP per capita (thousand TL)	-0.422	<0.001	0.178
Proportion of women aged ≥18 with high school or higher education (percent)	-0.401	<0.001	0.160
Number of physicians per 100,000 people	-0.295	<0.01	0.087
Number of hospital beds per 100,000 people	-0.201	>0.05	0.040
Number of newborn intensive care beds per thousand births	-0.286	<0.05	0.082
Total fertility rate (per thousand)	0.621	<0.001	0.385
Ratio of adolescent births to total births (percent)	0.468	<0.001	0.219
Multivariate model for the natural logarithm of IMR			
Total fertility rate	0.621	<0.001	0.385
Bivariate models for the natural logarithm of U5MR			
GDP per capita (thousand TL)	-0.450	<0.001	0.202
Proportion of women aged 18 and over with high school or higher education (percent)	-0.435	<0.001	0.189
Number of physicians per 100,000 people	-0.333	<0.01	0.111
Number of hospital beds per 100,000 people	-0.240	<0.05	0.058
Number of newborn intensive care beds per thousand births	-0.341	<0.01	0.116
Total fertility rate (per thousand)	0.667	<0.001	0.445
Ratio of adolescent births to total births (percent)	0.489	<0.001	0.240
Proportion of women aged 18 and over with high school or higher education (percent)			
Multivariate model for the natural logarithm of U5MR			
Total fertility rate	0.667	<0.001	0.445

GDP: gross domestic product

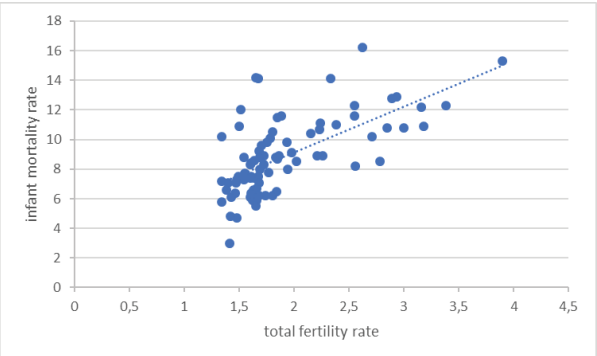

Figure 1: Variation of infant mortality rate according to total fertility rate

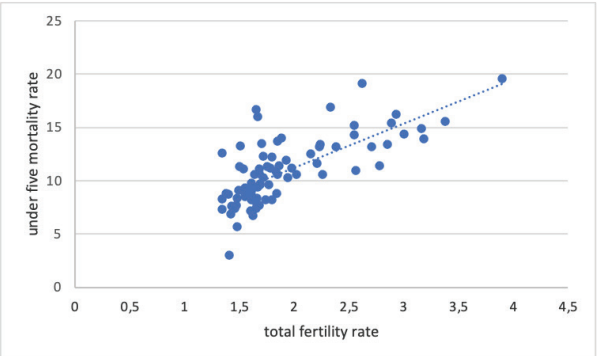

Figure 2: Variation of under-five mortality rate according to total fertility rate

DISCUSSION

Although Turkey seems to perform relatively well compared to the rest of the world, the decline needs to continue in order to reduce the current IMR to 3.2 per thousand and U5MR to 3.9 per thousand, as in the EU (4). In terms of the efforts made regarding this issue, it would be instructive to determine the factors related to IMR and U5MR taking into account the country as a whole.

The "Infant Mortality Monitoring System" was established in Turkey in order to monitor all infant deaths, determine their causes, and take the relevant precautions. Since 2014, the infant mortality monitoring system has been integrated with the "Death Notification System," where all deaths are recorded at the national level. All cases of stillbirth and infant death are examined by the "Provincial Investigation Boards" established by the Provincial Health Directorates (23). However, there is no publicly available national report on the causes of infant mortality and factors associated with infant mortality based on these data.

Total fertility rate and infant/child mortality

It has been observed that TFR has a moderate positive relationship with IMR, and a strong positive relationship with U5MR. TFR stands out as the only parameter whose effect on the multivariate model is statistically significant. In different ecological studies, TFR has been found to be associated with IMR and U5MR. According to a study conducted with data from 181 countries, TFR was the variable with the strongest effect in the bivariate models created for IMR (24). In a study involving 46 least developed countries, TFR was among the factors found to have an effect in the multivariate model for U5MR (25). TFR was also among the factors affecting IMR in a multivariate model from a study conducted in Brazil (22).

In Turkey, TFR shows a significantly declining trend to such an extent that while it was 2.38 in 2001, it decreased to 1.76 in 2020. In addition, when a comparison was made for the TFR data from 2019, it was found that TFR was 1.86 in Turkey while it was 1.86 in France, which has the highest value in the EU, and 1.14 in Malta, which has the lowest value in the EU, and that the average value for EU-27 was 1.53 (26).

The relationship between high fertility and infant and child mortality has been clearly demonstrated through various assessments in TDHSs. According to TDHS 2013, while IMR was 17 per thousand for the 1st birth, it is 15 per thousand for the 2nd-3th births, 22 per thousand for 4th–6th births, and 32 per thousand for 7th or higher birth orders (3). U5MR was 19 per thousand for the first birth and for the 2nd-3th birth orders, 25 per thousand for the 4th–6th births, and 33 per thousand for the 7th and higher birth orders (3). In the TDHS 2018 report, the risk ratio was calculated for each high-risk category by comparing the rate of deaths among births in this category with the rate of deaths among births that were not in any high-risk category. Accordingly, among the single risk categories, the risk ratio for higher than third birth order was 1.23. The births in this category constituted 7.1% of the total births examined. Among the multiple high-risk categories, the highest risk ratio was 2.31, which was calculated for birth intervals of <24 months and for birth orders more than third (27).

However, a gap between the current fertility status and the required fertility level in Turkey remains. It has been found that 14.8% of all births are not wanted and 10.6% of all births are earlier than wanted. Although TFR was 2.3, the wanted TFR was 2.0 according to TDHS 2018 (27). The unmet need for family planning, which is another aspect of the issue, was 15% in TDHS 1993, while it tended to decrease over time and fell to 6% in TDHS 2013. It is noteworthy that it reached 12% with a 100% increase in TDHS 2018 (27). Moreover, according to a study based on a separate sample representing Syrian migrants under temporary protection in Turkey, 21% of women had unmet family planning needs (28). However, the decisions made at the Nairobi Summit held at the 25th anniversary of the International Conference on Population and Development and the Sustainable Development Goals envisage that the unmet need for family planning should be reduced to zero for everyone (29).

In addition, reproductive healthcare services were also among the healthcare services whose provision was negatively affected by the COVID-19 pandemic. An estimated 10% reduction in the supply of modern family planning methods worldwide was noted, resulting in an increase of 49 million in the number of women who have unmet family planning needs worldwide (30). In a report prepared by the Family Health and Planning Foundation of Turkey, it was indicated that the stocks of contraceptive materials in public health institutions were depleted and new materials could not be provided during the pandemic period. It was reported that access to contraceptive methods might be a factor leading to an increase in unwanted pregnancies during this period (31, 32). The results of our study on the relationship between TFR and IMR raise the concern that an increase in infant mortality may be among the long-term adverse consequences of the pandemic.

TFR can explain 38.5% of the change in IMR and 44.5% of the change in U5MR in multivariate models. Factors that may explain the remaining variation in IMR and U5MR are other independent variables that are not included in the multivariate model. In a study conducted in Brazil, the R^2 values were found to be 0.36 and 0.32 in the multivariate models created for the years 1991 and 2000, respectively (22). These data indicate that IMR and U5MR are dependent variables that may be associated with many factors. The fact that many factors with significant effects were found in the bivariate model in our study also supports this assessment.

Adolescent fertility and infant/child mortality

Another parameter related to fertility, which was found to be associated with IMR and U5MR in our study, was the ratio of adolescent births to total births. It is known that adolescent mothers have more adverse pregnancy outcomes and higher maternal death than non-adolescent mothers (27). In an ecological study evaluating 192 countries, the adolescent

fertility rate was among the variables found to be associated with IMR in the bivariate analysis (33).

Adolescent pregnancies remain among the issues that require intervention in Turkey. According to TDHS 2018, 2.8% of adolescents (15–19 years of age) had a live birth, and about 1% of them were pregnant with their first child during the study. However, 10% of women aged 19 already gave birth to their first child or were pregnant (27). Developing initiatives to prevent adolescent pregnancies will also contribute to reducing infant and child mortality.

Income and infant/child mortality

In this study, a moderate negative correlation was found between GDP per capita and IMR and U5MR. While GDP per capita has an effect in the bivariate model, it does not have any effect in the multivariate model. There are studies that include data from different countries and show that IMR decreases as per capita income increases in multivariate models. One of these studies is an ecological study evaluating 192 countries using data from the World Bank, and there is another ecological study that includes data from 152 countries with low, medium, and high development levels (33, 34). In a study conducted with the data of 181 countries from 2015, similar to our study, per capita income was one of the factors found to have an effect on IMR in the univariate model (24). Based on the examples at the country level, it was found that income level had a significant effect in the multivariate models in Brazil and India, while it had a significant effect in the univariate model in Italy (22, 35, 36). Income is among the variables that are also associated with U5MR in groups of countries at different levels of development. In a study involving OECD countries, U5MR was associated with GDP per capita in a multivariate model (37). Per capita income was also found to be associated with U5MR in a multivariate model in an ecological study involving 46 least developed countries (25).

In an ecological study based on data from 2007 for Turkey, GDP per capita was among the variables that were found to have an effect on the model for both IMR and U5MR in the univariate model (16). It has been observed that income is associated with IMR and U5MR in a multivariate model in some ecological studies, and in a univariate model, similar to our study, in others. However, based on the household welfare level, IMR ranged from 23 per thousand in the lowest group to 8 per thousand in the highest group, and U5MR ranged from 28 per thousand in the lowest group to 8 per thousand in the highest group in TDHS 2013 (3). The relationship between income and infant and child mortality, which has been demonstrated many times at the national and international levels, reveals that socioeconomic determinants of health affect people's lives starting from the mother's womb in a way that can have fatal consequences.

Education and infant/child mortality

Another socioeconomic variable that was found to be negatively associated with IMR and U5MR in the study is the proportion of women with high school or higher education. In different studies, the education level of women was found to be associated with IMR. In a study that included data from 152 countries, the proportion of illiterate women was associated with IMR in a multivariate model (34). In other studies that include country data, a relationship was found between IMR and the number of years women went to school (24, 33).

Education-related parameters were among the variables found to have an effect in both ecological studies conducted so far regarding the issue in the national literature for Turkey. According to the results of an ecological study based on provincial data from Eskişehir, the only factor affecting the model for logarithmic IMR in multivariate linear regression analysis is the proportion of women who did not go to school (standardized β=0.589, R^2=0.566) (15). In an ecological study based on data from 2007 for Turkey, the rate of illiterate women was among the factors found to have a significant effect in the multivariate model for both IMR and U5MR (16).

According to TDHS 2013, it was found that IMR varied from 26 per thousand in the no/incomplete education group to 9 per thousand in the high school and above group, and U5MR from 30 per thousand in the no/incomplete education group to 12 per thousand in the high school and above group (3). Studies have revealed that prevention of infant and child mortality would be among the results obtained through the multiplier effect of the education of girls.

Provision of healthcare services and infant/child mortality

In our study, the variables that were found to have a weak negative relationship with IMR and U5MR were the number of physicians per 100,000 people, the number of hospital beds per 100,000 people, and the number of newborn intensive care beds per thousand births. In an ecological study based on data from 2007 for Turkey, the variables that had an effect on the model for both IMR and U5MR included the population per physician, the population per community health center, and the number of beds per ten thousand people for the univariate model (16). However, it has been observed that the studies that found a relationship between the variables related to healthcare service provision and child mortality were conducted mostly in developing countries (38-40). The weak relationship with the parameters related to healthcare service provision in our study indicates that their effects are indirect. This result is pleasing in terms of the adequacy of the healthcare service capacity in Turkey. However, it should be noted that inadequacies on a provincial basis may have an effect.

Limitations

The variables included in the model in this study include data that can be obtained from TURKSTAT and the Ministry of Health on a provincial basis. The number of parameters included in the model is a limitation of this study. In the literature, there are other parameters that have been found to be associated with IMR or U5MR, in addition to the variables included in our study. For example, a relationship has been found between IMR and the rate of health expenditures in Brazil, the Gini coefficient

and unemployment rate in Italy, and the unemployment rate in India (22, 35, 36). In studies evaluating different countries collectively, the variables associated with IMR included access to drinking water, immunization rate, maternal mortality rate, out-of-pocket health expenditures, per capita health expenditures, and the Gini coefficient (33, 34, 41). In a study involving sub-Saharan African countries, the factors associated with U5MR included immunization rate, access to healthy drinking water, and Gini coefficient (38).

This study is an ecological study. As an epidemiological study type, ecological studies have certain disadvantages in addition to their advantages. "Ecological fallacy" or "ecological bias" refer to the differences between studies based on individual data and ecological data. Ecological bias occurs due to different intra-group distributions of independent variables and confounders, whose effects are being investigated, in different groups (12). The reason for ecological bias is that the relationship between variables observed at the group level is not necessarily representative of the relationship at the individual level (14).

In the stepwise selection method, which is one of the variable selection methods used in linear regression analysis, the aim is to select the variables that are not related to each other and that affect the dependent variable to the greatest extent after determining the independent variables that can affect the dependent variable. The most important benefit of the stepwise selection method is that it resolves the multicollinearity problem arising from the possible correlation between the independent variables included in the model (42). In this study, in order to reduce the effect of the multicollinearity problem, the variables that were found to be strongly correlated with each other in the correlation analysis (the ones with a correlation coefficient higher than 0.7) were not included together in the model. For the same purpose, the stepwise regression method was used in the linear regression analysis. However, in our study, multicollinearity may have played a role in the fact that the variables that were found to have a significant effect in the bivariate model were not significant in the multivariate model (43). Considering the studies conducted, it may be observed that many variables are associated with IMR or U5MR in bivariate analyses, whereas the number of associated parameters is less in number in multivariate analyses. In some ecological studies, similar to our study, the effect of only one variable was found to be significant in the multivariate model. Literacy rate among women in India and unemployment rate in Italy were the only variables found to be significant for IMR, and adult literacy rate was the only significant variable for U5MR in a study involving countries that include Turkey (35, 36, 41).

CONCLUSION AND RECOMMENDATIONS

Factors that were found to be associated with IMR and U5MR included factors associated with fertility preferences such as TFR and adolescent births, socioeconomic factors such as income and education level, and factors associated with healthcare service provision such as the number of physicians and number of beds. When the correlation coefficients are examined, it may be observed that the strongest relationship is with variables related to fertility preferences, followed by socioeconomic variables, and the variables related to service provision have the weakest relationship. In the multivariate model, the only variable with a significant effect was TFR. Accordingly, intervention policies for infant and child mortality should primarily focus on health promotion programs aiming for appropriate changes in individuals' health-related behaviors regarding high fertility preferences and initiatives aimed at reducing socioeconomic inequalities. However, initiatives should be developed to prevent adolescent marriages. It appears that approaches that prioritize solving the problem only with initiatives to improve healthcare service provision would only be making an effort for relatively indirect causes.

It may be useful to identify new interventional aspects with studies on the determinants of fertility preferences. The effect of TFR demonstrates the importance of the unmet need for family planning. It should be borne in mind that interruptions in reproductive health services in the post-pandemic period will be a potential factor for an increase in IMR.

The fact that income and education are associated with IMR and U5MR in bivariate analyses has revealed the severe consequences of inequalities in health. Economic policies aimed at correcting income inequalities and initiatives to increase girls' education levels will lead to life-saving outcomes for infants and children.

Etik Komite Onayı: Bu ekolojik çalışmada halka açık veri setleri kullanıldığından, çalışma etik kurul onayı kapsamı dışındadır.

Bilgilendirilmiş Onam: Katılımcılardan bilgilendirilmiş onam alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Çıkar Çatışması: Yazarlar çıkar çatışması beyan etmemişlerdir.

Finansal Destek: Yazarlar finansal destek beyan etmemişlerdir.

Ethics Committee Approval: Since public datasets were used in this ecological study, it is outside the scope of ethics committee approval.

Informed Consent: Written consent was obtained from the participants.

Conflict of Interest: Authors declared no conflict of interest.

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ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

Evaluation of Patient- and Family-Centered Care in a Paediatric Clinic in Turkey: a Qualitative Study

Türkiye'deki Bir Çocuk Kliniğinde Çocuk ve Aile Merkezli Bakımın Değerlendirilmesi: Niteliksel Çalışma

Lubna Qutranji[1], Burçin Yorgancı Kale[1], Hatice Ezgi Barış[1], Kübra Tezel Gökçe[2], Okan Çetin[3], Esra Yılmaz[3], Emine Nural Öztürk[3], Perran Boran[1]

[1]Marmara University, School of Medicine, Department of Paediatrics, Division of Social Pediatrics, Istanbul, Turkey
[2]Marmara University, School of Medicine, Department of Pediatrics, Istanbul, Turkey
[3]Marmara University, School of Medicine, Istanbul, Turkey

ORCID ID: L.Q. 0000-0001-8507-1278; B.Y.K. 0000-0002-0115-754X; H.E.B. 0000-0003-3396-8002; K.T.G. 0000-0002-9846-0544; O.Ç. 0000-0003-1672-4743; E.Y. 0000-0002-7488-2558; E.N.Ö. 0000-0002-2313-3426; P.B. 0000-0002-9885-7656

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ABSTRACT

Objective: Patient- and family-centered care (PFCC) involves the engagement of both the patients and their families, considering them as an essential member of the healthcare team. The aim of this study was to evaluate PFCC experience of hospitalized children's parents in our hospital, assess current areas of strength and identify areas for growth for future improvement.

Material and Methods: The inclusion criteria for the study were parents of children who were hospitalized for at least three consecutive days. The data of 27 mothers, who were the child's primary caregiver in the hospital, were collected through face-to-face interviews. Children using immunosuppressive treatment were excluded from the study. Interviews lasted between 20 and 30 minutes. Data were analyzed using thematic framework analysis.

Results: Mothers reported both positive and negative experiences during their hospitalization period. One of the main findings of our current study was that Turkish parents usually do not prefer to take an active role during the decision-making process. However, they do expect to be fully informed about the disease, diagnostic procedures, treatment, and expected complications.

Conclusion: It is important to emphasize the importance of comprehensive implementation of PFCC for better healthcare outcomes. Recommendation includes offering communication skills training and education to healthcare providers and starting initiatives to improve the hospitals' environment.

Keywords: Family, Child, Patient Care, Decision Making, Health Personnel, Qualitative Research

ÖZ

Amaç: Hasta ve aile merkezli bakım hizmeti hem hastaların hem de bakım veren ebeveynlerin sağlık ekibinin önemli bir parçası olarak kabul edilmesini içerir. Bu çalışmanın amacı, hastanemizde yatan çocukların ebeveynlerinin hasta ve aile merkezli bakım hizmetleriyle ilişkili deneyimlerini değerlendirmek, olumlu kısımları saptamak ve geliştirilme ihtiyacı olan alanları belirlemektir.

Gereç ve Yöntemler: En az üç gün hastanede yatışı olan çocukların ebeveynleri çalışmaya dahil edilmiştir. Annelerin çocuklarının öncelikli bakım verenleri olması nedeniyle 27 çocuğun anneleri ile yüz yüze görüşme metodu kullanılarak veriler elde edilmiştir. İmmunsupresif kullanan çocuklar çalışma dışında bırakılmıştır. Görüşmeler oratalama 20-30 dakika sürmüştür. Görüşme çıktıları analiz edilip, tema rehberi belirlenmiştir.

Bulgular: Anneler tarafında yatışları süresince olumlu ve olumsuz deneyimler bildirilmiştir. Ana bulgulardan biri; ülkemizdeki ebeveynlerin karar verme sürecinde aktif rol almayı tercih etmemesidir. Bununla birlikte ebeveynler mevcut hastalık, tanı, tedavi prosedürleri ve olası komplikasyonlarla ilgili bilgilendirilmek istedikleri belirtilmiştir.

Sonuç: Daha iyi sağlık sonuçları elde edebilmek adına hasta ve aile merkezli bakım hizmetlerinin etkin bir şekilde uygulanması çok önemlidir. Sağlık çalışanlarına iletişim becerileri konusunda eğitim vermek ve hastane ortamını iyileştirmeye yönelik girişimlerde bulunulması önerilmektedir.

Anahtar Kelimeler: Aile, Çocuk, Hasta bakımı, Karar verme, Sağlık çalışanları, Niteliksel araştırma

Corresponding Author/Sorumlu Yazar: Lubna Qutranji **E-mail:** lubna996@hotmail.com

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INTRODUCTION

Patient- and family-centered care (PFCC) involves the engagement of both the patients and their families, considering them as an essential member of the healthcare team (1). In pediatric health care delivery, PFCC is thought to be the ideal care aimed to be reached by hospitals and healthcare professionals (2). It has been found to decrease children's length of stay in hospital and readmission rates (3). Moreover, it has been reported to increase parental satisfaction, decrease parental anxiety, and is linked to more positive clinical outcomes (4, 5). Yet, overemphasis on medical conditions undermines the importance of the social pediatrics approach in tertiary care centers, where partnership may be especially valuable in disease management.

All children have rights to the essential requirements for healthy growth and development for an optimal life. A nurturing care framework has been built on children's rights and has been proposed to ensure that children reach their developmental potential (6, 7). The framework specifically outlines the importance of access to medical care for health promotion. However, inequities related to unequal opportunities may interfere with health promotion. PFCC has been shown to mitigate the inequities resulting from social disparities in health care coordination (8). Therefore, pediatricians should recognize the importance of PFCC in promoting the health and well-being of children.

There is limited literature available about the family-centered care practices in Turkey. Numerous studies reported negative parental experiences. Parents did not have an active role in the decision-making process and many of them were not informed appropriately about their children's illness or course of the disease (9, 10). These findings highlight the importance of social pediatricians who aim to empower parents by guiding them to acquire knowledge of their child's health condition, understand their role in promoting their own children's health, and become active participants in their children's care.

In our study, we aimed to evaluate the PFCC experience of parents of hospitalized children in our hospital and assess current areas of strength and identify areas for growth for future improvement.

MATERIAL AND METHODS

Participants and Setting

The participants were recruited from the Pediatric ward of Marmara University Teaching and Research Hospital, a tertiary care hospital in Istanbul, Turkey, between January and March 2020.

Parents of children who were hospitalized for at least three consecutive days were included. Parents whose children were under immunosuppressive treatment were excluded because of increased risk of infection. The participants were purposively selected based on their age and reason for hospitalization to allow maximum variation in the sample. The interviews were conducted with more parents until a saturation point was reached, so that no further new themes emerged.

Data collection

The data of twenty-seven mothers were collected through face-to-face interviews. Mothers were chosen as they were the child's primary caregiver in the hospital. Children older than 3 years old were asked to fill in a poster with their wishes and priorities during their hospitalization period. A verbal explanation of the study was given to all the participants. Those who gave consent were interviewed. An interview topic guide was developed according to the general literature review, National Center for Family-Centered Care, and the policy statement published by the American Academy of Pediatrics (1, 11). The topic guide was pilot tested with five mothers and revised based on the feedback received. In-depth interviews aimed to explore 1) the core principles of PFCC, 2) participants' opinions on the children's clinic ward, and 3) children's wishes and needs during their hospitalization period.

Participants were interviewed in private rooms to maintain confidentiality. All the interviews lasted between 20 and 30 minutes and were audio-recorded.

Data analysis

Audio recordings were transcribed and analyzed in Turkish. Personal identifying data were removed, and data were analyzed using thematic framework analysis. To improve the rigor of the data analysis, each transcript was analyzed by two researchers. Similar codes were grouped to form the themes. The process of development of the thematic framework was supervised by the senior researcher (PB) and any discrepancies were discussed with the research team to clarify the findings.

RESULTS / FINDINGS

1. Sociodemographic characteristics

The sociodemographic characteristics are presented in Table 1. The age distribution of participants ranged from 23 to 50 years (median 34 years). The number of hospitalization days ranged from 3 to 75 days (median 6 days).

2. Core principles of patient- and family-centered care

2.1. Decision-making team

It was notable that most parents were only passively participating in the decision-making process, leaving the treatment choice and disease management to the health care providers.

- We do not interfere (with decision making), we respect healthcare providers (doctors) in that regard; I think they will not do anything unless it is necessary. *(37-year-old single woman, mother of two children, university graduate, nurse)*

2.2. Respect and attentive listening

Even though most parents were not actively participating in the decision-making process they seek detailed, trustful, and

Table 1: General sociodemographic characteristics of participants

Mother's age, median (IQR), years	34 (23-50)
Duration of hospitalization, median (IQR), days	6 (3-75)
Mother's education	
Illiterate, n (%)	6 (22.2)
Primary school, n (%)	8 (29.6)
Middle school, n (%)	7 (26)
High school, n (%)	5 (18.5)
University, n (%)	1 (3.7)
Employment Status	
Unemployed/Stay-at-home parent, n (%)	25 (92.5)
Employed, n (%)	2 (7.5)
Consanguineous marriage, n (%)	4 (14.8)
Number of children per family, median (IQR)	2 (1-4)
Children's age, median (IQR), years	4.5 (0-16)
Children age group, n (%)	
<12 months	10 (37)
≥12 months	17 (63)
Number of individuals per house, median (IQR)	4 (3-7)
Income per family in USD, median (IQR)	475 (235-595)

consistent information about the disease, test results and treatment options.

- There is not enough information about the interventions. I went several times to know the results of blood tests; I was told on the third time. *(25-year-old, married woman, mother of two children, middle-school graduate, stay-at-home parent)*

- I know it is not possible to talk to everyone individually, but at least when we ask a question, it's enough for them to say, "I am busy now, can you wait for just a second?" instead of "OK, wait!". *(23-year-old, married woman, mother of two children, high-school graduate, stay-at-home parent)*

Parents also commented on the communication skills of the health care personnel. It was interesting that some parents preferred a closer relationship with their healthcare provider instead of a more formal relationship.

- I feel that doctor K. feels as upset as I am when I talked to her. She understands me. *(20-year-old, married woman, mother of one child, primary-school graduate, stay-at-home parent)*

- There is a doctor who talks very casually with me; I loved her very much. *(21-year-old, married woman, mother of one child, primary-school graduate, stay-at-home parent)*

2.3. Flexibility

Some mothers complained of the complexity of the appointment system and its lack of flexibility.

- We had an appointment (in this hospital) about a week ago, but my child was hospitalized in another hospital at the same time. So, I missed the appointment given here. Even though I called the hospital to ask if it was possible to change my appointment to after 10 days or 1 month or even 2 months; it could not be done. *(34-year-old, married woman, mother of two children, primary-school graduate, stay-at-home parent)*

2.4. Information sharing

Getting a comprehensive explanation about their children's illness was the most emphasized point made by parents. They needed a detailed description of the disease including likely causes, pathophysiology, and complications.

- I would like to know how I should be followed up regarding his disease. I don't know if this is a permanent condition, I am wondering if she will have any complications. *(42-year-old, married woman, mother of two children, primary-school graduate, stay-at-home parent)*

- They changed the medications, but they didn't inform me of the change. *(28-year-old, married woman, mother of four children, no school history, stay-at-home parent)*

Some parents also criticized the use of medical jargon in the family-provider communication.

- They use big medical words which we don't understand. *(25-year-old, married woman, mother of two children, middle-school graduate, stay-at-home parent)*

On the other hand, explanation and using simpler terms were appreciated by patients.

- I should be able to get answers to my questions easily. For example, I have seen the word "Pneumonia". When I asked if you could explain it to me in a way that is understandable, they explained it to me as an infection. *(21-year-old, married woman, mother of one child, primary-school graduate, stay-at-home parent)*

A couple of mothers expressed that the bedside visits should be more informative for the family, and not just discussion among themselves.

- They talk about the test results during the visits between themselves, mostly without telling us the results. They are already talking about the results, and they can also share the results with us during the visits. *(25-year-old, married woman, mother of two children, middle-school graduate, stay-at-home parent)*

2.5. Supporting the family as the constant in the child's life

A mother emphasized that she would like to be listened to and taken seriously when she shares her observations about her child's illness.

- I'm telling them that the noise is aggravating her seizures, but they did not take it seriously. *(34-year-old, married woman, mother of three children, no school history, stay-at-home parent)*

2.6. Collaboration and involving children

It was noted that most parents realized how busy the healthcare providers were, but still they expect that children are appropriately informed or prepared for medical testing and procedures.

- I understand that the nurses are too busy, but they are rushing us when placing intravenous catheters without leaving us time to prepare my child for the procedure. *(28-year-old married woman, mother of two children, high-school graduate, stay-at-home parent)*

Most parents mentioned that healthcare providers should also communicate with the child.

- Doctors should also talk to the child, ask her/him questions, and listen to the child. *(34-year-old, married woman, mother of two children, primary-school graduate, stay-at-home parent)*

However, some parents were against sharing detailed information with their children.

- For example, they say that she has cancer next to her (the child). I don't think it is true. The child feels bad when the doctor talks about what the disease can do to her. (*49-year-old, married woman, mother of two children, middle-school graduate, stay-at-home parent)*

3. Inpatient ward environment

Overall, parents expressed that the clinic wards should be more child oriented, such as paintings on the wall or playrooms, even though there were some paintings on the walls.

- Corridors should be more colorful. There should be more picture books for little children in the library and children's channels on TV. Moreover, there should be wallpapers, closets, and curtains suitable for children. *(37-year-old single woman, mother of two children, university graduate, nurse)*

- The kitchen is on the other side of the corridor. I can't leave my baby alone and go there. I had to wash my baby's milk bottles in the bathroom sink. *(25-year-old single woman, mother of two children, middle-school graduate, stay-at-home parent)*

One of the mothers mentioned the need for peer-to-peer support.

- My child gets bored. There must be activities for the children. Children need friends. *(49-year-old, married woman, mother of two children, middle-school graduate, stay-at-home parent)*

3.1. Children's views and needs

Children were asked to fill in a poster with the three most important things that matter to them or they want during their hospitalization period. However, due to age differences and different hospitalization reasons, not all children were able to participate. (See supplementary file 1 for a compilation of collected posters)

Most children wanted a designated playroom and tastier food.

- I want to eat kebab (6 years old, girl)

- I want cakes and sweets (4 years old, girl)

- I want a place full of activities for children (15 years old, girl)

One of the children wanted the internet and added three stars next to it to emphasize how much he needs it.

- Internet (9 years old, boy)

DISCUSSION

This study showed that Turkish parents usually do not prefer to take an active role during decision making processes. However, they do expect to be fully informed about the disease, diagnostic procedures, treatment, and expected complications. Furthermore, most pediatric healthcare professionals fail to apply the principles of PFCC during their everyday practices.

Parents were mostly passive in the decision-making process. It was noted that they usually see their involvement as interference with the healthcare provider's work. One possible reason may be low health literacy. Health literacy has been found to be correlated with one's willingness to participate in decision making (12). Another study suggested that relatives of patients in critical conditions were more likely to be anxious and depressed and as a result prefer not to be involved in decision making (13). On the other hand, shared decision-making is largely influenced by the physician's communication skills. The use of partnering and facilitative communication, such as asking directly for the parents' opinions encourages parents to express their concerns (14, 15).

In our study, most parents felt that healthcare providers did not take their observations into consideration. Similarly, numerous studies reported that the majority of parents were dissatisfied with both the quality and quantity of time spent with their healthcare providers (9, 10, 16, 17). Families should be acknowledged as the constant in a child's life, so their observations should be respected.

Another crucial component of PFCC is adequate information sharing. This includes giving detailed information about the child's illness in easy-to-understand language free of medical jargon (18). Bedside, rounds are an opportunity for information sharing. In our study, even though bedside rounds involved the presence of a parent, it did not involve their direct participation with the child's care. Parents observed that the medical team would discuss the child's laboratory results only among themselves. Introduction of family centered multidisciplinary rounds (FCMR), which is a component of PFCC, in the form of teaching session directed at residents and medical students is crucial (19, 20).

Sharing honest and unbiased information with the parents and children has been defined as a component of PFCC. In our study, parents expected healthcare providers to inform their children about their illness, but this involved 'simple' diseases only. Parents preferred to shield their children from diseases with poor prognosis. This might be related to cultural reasons. A qualitative study in Iran reported that nurses would have to intentionally conceal the diagnosis in front of the hospitalized child to comply with the parents' wishes (21). Reports indicate that healthcare providers fail to involve children in health care decisions and information sharing which is a violation of a child rights regarding rights to obtain information, giving own opinions and expressing concerns (22). Pediatric healthcare providers should be trained about respecting children's rights when delivering healthcare and about the importance of sharing information with children in an age-appropriate manner.

We also found that parents appreciated when doctors supported them emotionally and preferred casual conversations. Emotional support and responsiveness were found to be effective in building rapport with the healthcare providers and in decreasing anxiety in patients (21, 23). This again emphasizes the importance of giving the family a safe space to express their feeling toward their child's illness. In order to ensure that healthcare providers can provide psychosocial support to parents, it is important to deliver appropriate education to staff to prevent burnout, compassion fatigue, and secondary traumatic stress syndrome (24).

Providing both formal and informal support is one of the key aspects of PFCC. Healthcare providers should screen for the families' wellbeing and need for support. This was rarely seen among our population and healthcare providers tended to focus more of their attention on the medical side of the illness. Social determinants of health play a vital role in health promotion and societal protection of the children and families from adverse outcomes and inequities (7). Healthcare providers should be aware of the available community services to refer the parents in case of emotional or social problems as they adversely affect the health and emotional or social well-being of their child (25).

Another important principle of PFCC is ensuring flexibility in organizational policies and procedures. Healthcare providers in tertiary care centers may specifically focus on the medical aspect of the diseases and treatment while social pediatricians who have the training for the skills and knowledge required to deliver PFCC may be the team leader to coordinate healthcare for the patients.

In our study, parents mentioned the need for informal support in terms of family-to-family and peer support. Social activities such as medical students visiting hospitalized children and spending time with them can be organized. Other efforts to ensure that families meet other families with children suffering similar healthcare conditions and providing opportunities for them to form support groups should be coordinated. Support groups provide a safe zone for parents to share their feelings. It acts as a platform for them to ask questions freely and feel confident in becoming advocates for their children (26-29).

Regarding the ward environment, parents suggested child friendly paintings, furniture, and playrooms. Current evidence shows that the display of visual art has a positive effect on health outcomes including decreased levels of anxiety. This was shown to be particularly important for children staying in shared rooms, which is the case in our hospital (30). A study in an oncologic center showed higher parental satisfaction rate after redecorating the hospital ward to be more child oriented (31). Furthermore, kitchen location within the ward seemed to be problematic. Involving parents during ward design can direct interior designers into a more accessible design. Additionally, posters can be hung up in each room showing instructions on how to connect to the hospital's Wi-Fi.

Our study has several limitations. Firstly, our findings are not generalizable. Participants of different socioeconomical statuses or hospitalization in a private healthcare facility may lead to different views and opinions. Secondly, even though purposive sampling was used to achieve maximum variation, data was collected based on acceptance, which may limit the diversity of the data. However, interviews were conducted till maximum saturation was reached, to overcome this limitation. Finally, data were collected, while the child was still in the hospital, which may interfere with the parents' opinions. Even though all parents were assured about the confidentiality of data sampling, some parents may not have shared their negative opinions about their healthcare providers, worrying about being mistreated.

CONCLUSION

Overall, the findings of our study showed both strengths and weaknesses in our hospital's implementation of PFCC. Primary areas to improve on were patient doctor communication and shared decision making. Recommendation includes offering communication skills training and education to healthcare providers and starting initiatives to improve the hospital's environment. Social pediatricians should play an active role to ensure application of PFCC practices in tertiary care centers, particularly by taking a role in care coordination, ensuring care respecting child rights, recognizing families' needs and prompting community services to mitigate the effects of inequities.

Informed Consent: Written consent was obtained from the participants.

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RESEARCH ARTICLE / *ARAŞTIRMA MAKALESİ*

Childhood and the Media during the COVID-19 Pandemic

Pablo Vinocur[1], Patricia Ferrante[2], Belén Igarzábal[2], Monica Waisman[3], Martin Rajnerman[2], Raul Mercer[1]

[1]CFLACSO, Area of Human Development and Health, Buenos Aires, Argentina
[2]FLACSO, Area of Communication and Culture, Buenos Aires, Argentina
[3]SAP (Sociedad Argentina de Pediatría), Buenos Aires, Argentina

ORCID ID: P.V. 0000-0002-3820-9614; P.F. 0000-0003-1994-0759; B.I. 0000-0003-4720-6623; M.W. 0000-0002-1857-1640; M.R. 0000-0001-5906-4824; R.M. 0000-0002-8616-0827

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ABSTRACT

Introduction: During the coronavirus (COVID-19) pandemic, the Argentinian Government established a nationwide policy of Preventive and Mandatory Social Isolation. As a consequence of the measures, children were confined to their homes. During this period children adopted multiple symbolic images generated by the media. In order to evaluate how children were affected during the first months of lockdown we decided to analyze the way in which children were considered on digital media.

Objectives: To identify the space children had on digital media in Argentina at the beginning of the pandemic and to characterize those aspects related to child rights during that period.

Methods: Using a quantitative method, information about children and digital media in Argentina was collected from 10th March to 9th June 2020. In total 119,103 news items which made reference to the COVID-19 pandemic were found. Out of this universe, 14,543 (12.3%) matched the selected search terms. All the articles were checked one by one to discard those that did not make reference to the selected dimensions related to child rights. Descriptive statistics was applied for selected categories.

Results: The news reports analyzed (a total of 1,620) were distributed between the following categories: Education (26.42%), Play (26.05%), Health care (18.52%), General care (11.23%), Violence (5.06%), Nutrition (4.94%), Protection (3.95%), Children's voice (2.28%), Poverty (1.54%). The way the media characterized child rights categories varied according to the type of media (national or regional) and the rights considered. The space given by the media to children at this stage in the pandemic was much lower compared to that given to the adult population.

Conclusions: The space devoted to childhood in the digital media was based on emergent situations associated with COVID-19. During the period of analysis, and in the light of the rights paradigm, children were affected in the recognition of their rights. This situation demands a proactive response from different sectors of society to identify and recognize child rights violations.

Keywords: Childhood, Media, Pandemic, Argentina, Child Rights

INTRODUCTION

In response to the COVID-19 pandemic, the Argentinian National Government established a country-wide policy of Preventive and Mandatory Social Isolation (ASPO) from March 20th, 2020. This measure, passed in response to the WHO's declaration of the pandemic (1), established that all people should remain in their homes, refraining from going to work. The use of transport, gatherings in public spaces, attendance at educational institutions, cultural, recreational, sport and religious events and commercial activity with some exceptions were prohibited.

During this period, the children adopted different images and stereotypes generated by the media, which ranged from their being ignored to their stigmatization as potential contagious agents.

In this scenario of restrictions, children's rights were partially invisible to the different social actors. The pandemic arrived and inequalities that affect vast segments of the population grew worse (2, 3).

After a study carried out by UNICEF Argentina (4) on the negative effects of lockdown on children, adolescents and their families, the President of Argentina authorized 1-hour

Corresponding Author/Sorumlu Yazar: Raul Mercer **E-mail:** rmercer@flacso.org.ar
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outings on weekdays for both boys and girls up to a distance of 500 meters from their homes. Despite what was clearly stated in the decree, the authorities of the more populated jurisdictions refused to obey it, creating growing pressure on political leadership and health authorities to modify such restrictions (5).

Due to the restrictions, various consequences resulted in unequal access to virtual learning for children and no possibilities of socializing other than by being connected to the internet. Professionals, academic institutions and children's rights organizations reacted to this via the media and social networks, questioning leaders and citizens about the harmful consequences of virtual learning, and how this situation affected other rights.

In this context, an innovative method was applied to monitor the response of digital media in relation to children during the initial period of the pandemic in Argentina.

The purpose of this study is to describe how childhood appears in the journalistic discourse in terms of topics and representative ideas. Our hypothesis was that the media do not treat children as being subject to rights but as being in a different category from others. Our main objective was to understand how children were considered and depicted by the digital media during the first months of the pandemic.

The conceptual framework of this project is centered in the recognition of infancy as a collective in society given its demographic, social and health importance. In population studies, children are subsumed in the domestic sphere and the institutions that house them. Consequently, there is an idea of conferring on them not only a collective identity but also an entity and representative character.

Second, and in regards to the effects of COVID-19, the project highlights the syndemic approach (6). The third approach is related with how child rights are considered.

Aims of this study

- To identify the space children had in digital media in Argentina at the beginning of the pandemic (March-June 2020).
- To characterize those aspects related to the rights of boys and girls during the period of lockdown.
- To analyze the different narratives found in digital media which included experiences of children during periods of lockdown.

MATERIAL AND METHODS

With the aid of software provided by Global News that identified search words and metrics in digital media, a quantitative method was used to collect information about children and digital media in Argentina. The sampling framework is presented on Figure 1.

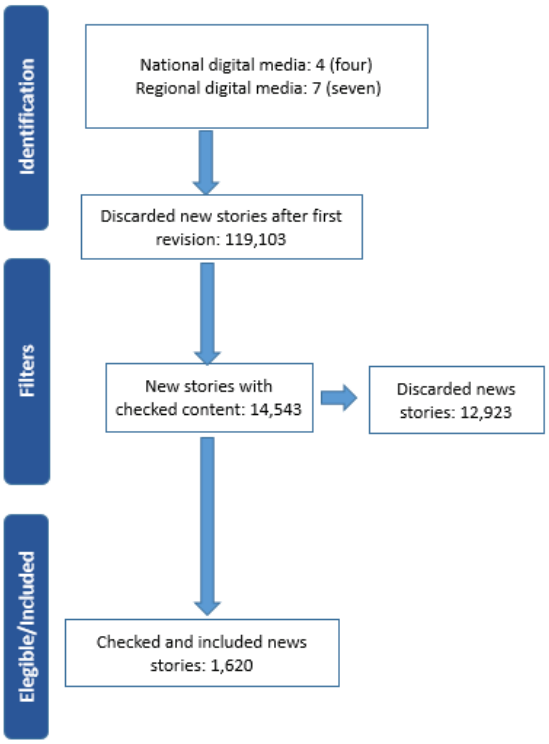

Figure 1: Sampling framework composition of this study

Two groups of words were compared to configure the search procedure:1) Pandemic: COVID 19 - coronavirus - pandemic - quarantine – confinement and 2) Children: childhood - boy - girl - kid - infancy - kids - sons - daughters. The following online media were selected: National media: Clarín, La Nación, Pagina 12, Infobae, and Regional (Provincial) media: La Gaceta (Tucumán), Norte (Chaco), Diario Río Negro (Rio Negro), Los Andes (Mendoza), La voz del interior (Córdoba), La Capital (Santa Fe) and El Día (Buenos Aires). These media are the most widely read in Argentina both at national and local level.

From 10th March to 9th June 2020, 119,103 news stories that made reference to the COVID-19 pandemic were found. Out of these, 14,543 (12.3%) matched the search terms. All articles were checked to discard those that were not related to child rights topics: Education, Health, Health care, Protection, Life conditions, Violence, Children's voices (participation), Play, and Nutrition. The age group under consideration was up to 12 years old.

For analytical purposes, sub-dimensions were created for the first four dimensions (Education, Play, Health and Care) to make the differences between the articles explicit. In the cases in which the article could be classified under more than one sub-dimension, and to simplify the analysis, only one relevant category was chosen. The chosen dimensions and their relations with child rights are described in Table 1.

Table 1: Dimensions, Articles from the CRC and typologies adopted to characterize media news

Dimensions	Articles from the Convention on the Rights of the Child about the identified typologies	Typologies related to childhood during the pandemic
Education	**Article 28** · Recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity. · Make educational and vocational information and guidance available and accessible to all children. · Take measures to encourage regular attendance at schools and the reduction of drop-out rates. Ensure that school discipline is administered in a manner consistent with the child's human dignity. · Contribute to the elimination of ignorance and illiteracy throughout the world. · Facilitate access to scientific and technical knowledge and modern teaching methods. **Article 29** · Development of the child's personality, talents and mental and physical abilities to their fullest potential. · Development of respect for human rights and fundamental freedoms.	**Subject to educate:** -Schools -Homeschooling -Teaching methods **Educational Policies:** -Governmental decisions in relation with schools' opening and closure -Changes in the syllabus, in the way of evaluation -Broadband **Transmission agents:** -Boys and girls as transmission agent
Play	**Article 31** · The right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts. · The right of the child to participate fully in cultural and artistic life will be respected and promoted.	**Entertainment:** -Space at home -Cultural resource –Screens **Leisure:** -The importance of outings -Physical activity -Socialization
Health	**Article 6** · Every child has the inherent right to life. The survival and development of the child shall be ensured to the maximum extent possible. **Article 24** · The right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. · To diminish infant and child mortality. · To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution. · To ensure appropriate pre-natal and post-natal health care for mothers **Article 25** · The right of a child who has been placed by the competent authorities for the purposes of care, protection or treatment of his or her physical or mental Health.	**Transmission agents:** -Boys and girls as a threat -Risk factors **Mental health:** -Consequences and symptoms due to confinement. **Prevention/Promotion:** -Access to health care. Fears about the future. **Disability:**
General care	**Article 3** · In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration. · Ensure that the institutions, services and facilities responsible for the care or protection of children shall conform to the standards established by competent authorities. **Article 9** · Ensure that a child shall not be separated from his or her parents against their will, except when such separation is necessary for the best interests of the child. **Article 18** · Ensure recognition of the principle that both parents have common responsibilities for the upbringing and development of the child. · Render appropriate assistance to parents and legal guardians in the performance of their child-rearing responsibilities and ensure the development of institutions, facilities and services for the care of children. · Take all appropriate measures to ensure that children of working parents have the right to benefit from child-care services and facilities for which they are eligible. **Article 19** · Take all appropriate legislative, administrative, social and educational measures to protect the child from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse. **Article 34** · Protect the child from all forms of sexual exploitation and sexual abuse.	**Recommendations:** -Advice from the media and experts to help boys and girls deal with quarantine **Family Organization:** -Measures that affect the family -Separated parents. Girls and boys transportation. **Parental care role:** -Parental care responsibility at home.

Table 1: Dimensions, Articles from the CRC and typologies adopted to characterize media news (continued)

Dimensions	Articles from the Convention on the Rights of the Child about the identified typologies	Typologies related to childhood during the pandemic
Children's voice (Participation)	**Article 12** · Assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child. · Provide the child the opportunity to be……? **Article 13** · Have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds. **Article 14** · Respect the right of the child to freedom of thought, conscience and religion. **Article 15** · Respect the rights of the child to freedom of association and to freedom of peaceful assembly. · No restrictions may be placed on the exercise of these rights other than those imposed in conformity with the law.	-Right to be heard
Poverty	**Article 9** · States Parties shall promote the strengthening of international cooperation in order to address the root causes, such as poverty and underdevelopment, contributing to the vulnerability of children.	-Impact of confinement. -Restrictions to take part
Violence	**Article 19** · Take all appropriate legislative, administrative, social and educational measures to protect the child from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse.	-Violence -Negligent treatment -Abuse
Nutrition	**Article 24** · To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution. · Have Access to basic knowledge of child health and nutrition, and of the advantages of breastfeeding. **Article 27** · Recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development. · The parent(s) or others responsible for the child have the primary responsibility to secure, within their abilities and financial capacities, the conditions of living necessary for the child's development. · Take appropriate measures to assist parents and others responsible for the child to implement this right and in case of need provide material assistance and support programmes, particularly with regard to nutrition, clothing and housing. · All appropriate measures to secure the recovery of maintenance for the child from the parents shall be taken.	- Nutrition - Packed lunch - Food safety
Protection	**Article 20** · A child temporarily or permanently deprived of his or her family environment, or in whose own best interests cannot be allowed to remain in that environment, shall be entitled to special protection and assistance provided by the State. **Article 26** · States Parties shall recognize for every child the right to benefit from social security, including social insurance.	- Safety measures associated with the pandemic

RESULTS

During the selected period, the topics mostly related to children were centered in Education, Health care, Play and General care. The total of news reports analyzed was 1,620 (100%) and the number and percentage of topics in these dimensions is shown in Table 2.

The news reports expressed the concern of the adult population regarding the implications of home confinement for children. The topic of how the education process and play should be continued is included in more than half of the news reports. The inclusion of topics related to health care occurs in 7 out of 10 published news reports.

The treatment of the topics was similar when comparing national and regional media. However the level of importance they provided was different. The relative weight given to news reports on education in the regional media was higher than that in national ones (32% vs 21%), whereas the proportion of news reports related to the right to play (leisure and entertainment) was higher in national than regional ones (28% vs 22%) (Figure 2).

Table 2: Dimensions and subdimensions of children's rights published in digital media in Argentina during the first period of the COVID-19 pandemic with the correspondent Articles of the CRC

Dimensions	Proportion % and (n)	Subdimensions	Proportion % and (n)	Articles of the CRC
Education	26.42 (428)	Subject to educate	44.39 (190)	28 29
		Educational policies	39.25 (167)	
		Transmission agents	16.36 (71)	
Health care	18.52 (300)	Tansmisssion agents	58.00 (174)	6 24 25
		Mental health	20.00 (60)	
		Prevention/promotion	11.67 (36)	
		Disabilities	10.33 (30)	
General care	11.23 (182)	Recommendations	42.86 (79)	3, 9 18, 19 34
		Family organization	41.21 (74)	
		Parental care role	15.93 (29)	
Play	26.05 (422)	Entertainment	66.59 (21)	31
		Leisure	33.41 (10)	
Violence	5.06 (82)			19
Nutrition	4.94 (80)			24 27
Protection	3.95 (64)			20 26
Participation (Children's voices)	2.28 (37)			12, 13 14, 15
Poverty	1.54 (25)			9

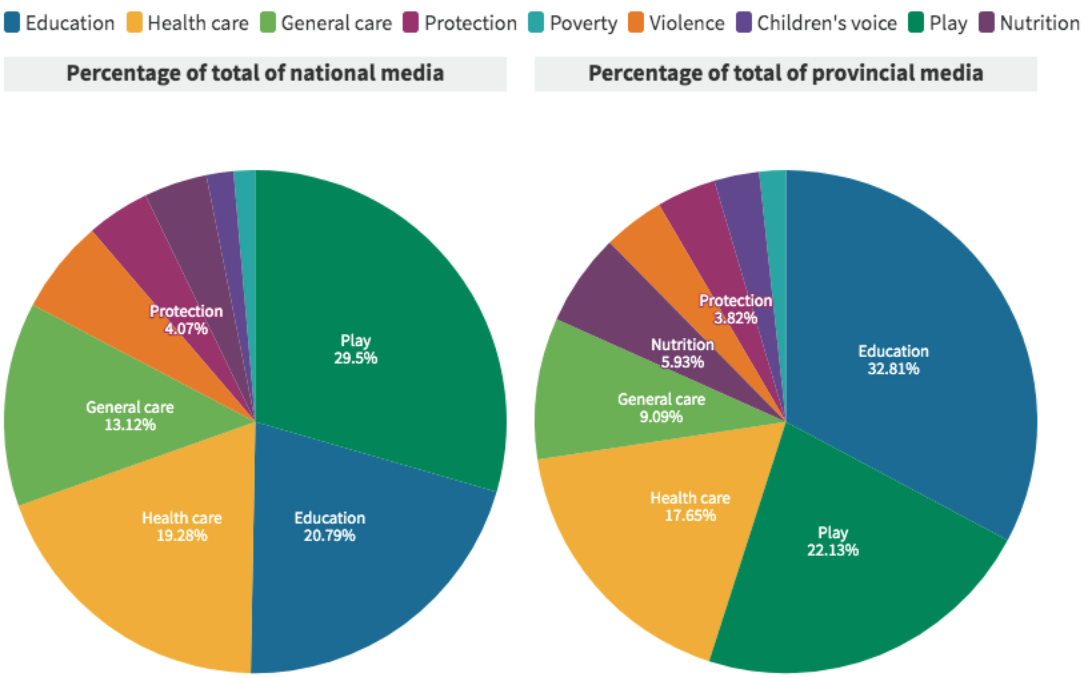

Figure 2: Distribution of news in national and regional (provincial) media (%)

From a monthly cross-sectional analysis, it can be seen how the first news reports analyzed were related to Health and Education. From March 30th onwards, the category Play was positioned between Education and Health (Figure 2).

Monthly cross-sectional variation by dimension

Taking into account the content of the news reports and its development, we get the following results for each dimension.

Education

As regards the right to education, most news pieces were related to virtual learning and the challenges of the "School at home". At the same time, concern about unequal access to technologies and the difficulties of families who do not have access to the Internet, or have limited access through their phones, is reflected. Reports related to education policies represented 39.25% of the news about education, focusing primarily on the school lockdown.

Within the category of education, and in regard to children as agents of infectious transmission (16.36% of the reports on education), the temporal evolution of the information could clearly be seen in the uncertainty and changes of stance about the need of keeping schools open or closed which seemed to be tied to the definition of children as possible virus carriers.

In relation to the education dimension in general, local news reports about protocols, closures, openings, grading methods and online sexual education appeared in some places in particular. Given the central place that school has as an institution that organizes the social life of millions of children and their families, education was a central topic in the media's coverage of the pandemic.

Play

As regards the news reports on Play (26.05% of the total), a distinction can be made between what was considered as entertainment and as leisure. The sub-category of entertainment was related to the domestic sphere and mainly included activities at home and games and resources to be used "without leaving home". The reports had to do with reading recommendations, series, movies, games and activities to be adopted during quarantine. The entertainment category appeared in 66.6% of the reports and leisure in the remaining 33.4%.

There were initiatives from different sectors, public and private organizations, institutions (UNICEF), cable channels (Disney, Discovery Kids, Paka Paka), and actors that helped children at home.

The subcategory Leisure relates to the public space, outings and playing outside. It was only after the first month of ASPO that the debate about children and the need to go outside became visible in the media. Figure 4 shows how news reports on Leisure increased from April 2020 and includes the possibility of openings and outings.

Health

As regards Health (18.52% of the total), most of the news reports considered children to be agents of infectious

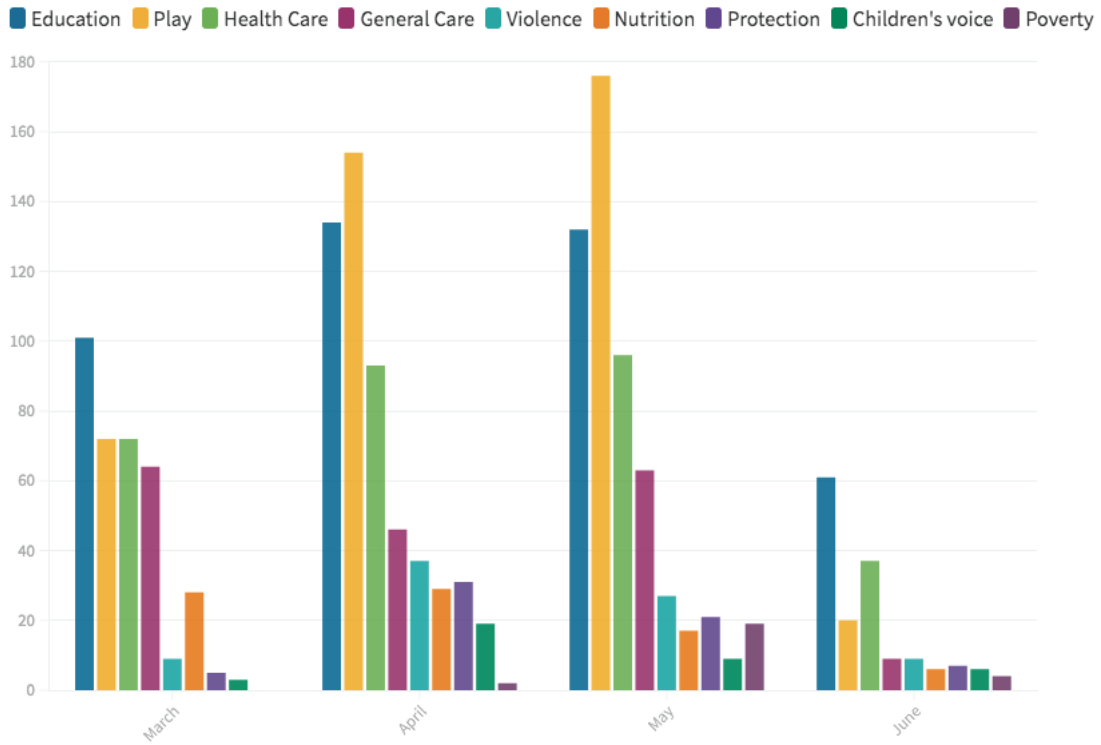

Figure 3: Monthly cross-sectional variation by dimension

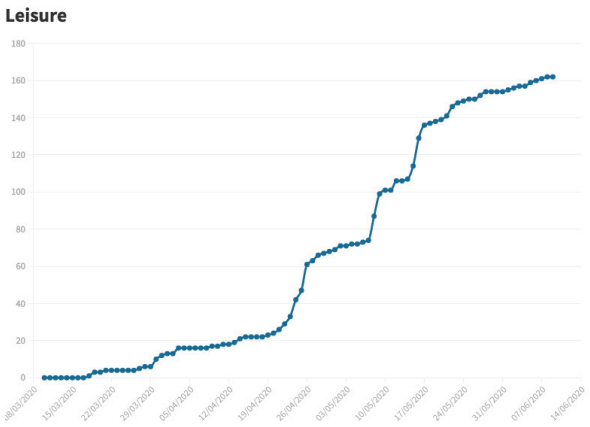

Figure 4: Temporal variation in news regarding leisure during April 2020 in Argentine digital media

transmission (58%). This was followed by Mental Health (20%), Prevention/Promotion (11.67%), and Disabilities (10.33%).

The topic of children as potential carriers of infection can be seen in news reports from the beginning of the ASPO. From May onwards there were news reports in different regions regarding cases of hospitalized children with suspicious symptoms. Some examples included the few reports on Kawasaki disease and Multiple Inflammatory Syndrome, both associated with COVID-19.

The prohibition on children entering places such as post offices, supermarkets or other stores was also reported. In addition, contradictory positions on the severity of the disease in children and the possibilities of transmission were expressed in the media. News reports within the category of Health which were related to disability focused mainly on the autism spectrum, the difficulties due to confinement and the need for specific protocols and outings. The reports related to mental health (20%) included the topic of the emotional consequences (anguish, anxiety and fear) of life in lockdown.

Lastly, within the topic of health promotion and risk prevention, the focus was on the continuity of the vaccination plans, a possible new outbreak of measles and the importance of pediatric controls on children despite lockdown.

In relation to the news reports on general care (11.23% of the total), most had to do with tips and recommendations (42.86%) and family organization (41.21%), and fewer with parental care roles (15.93%). Most of the news reports related to family organization focused on logistics and how families separated by divorce should be organized.

The reports on tips and recommendations were mainly about what to do with children in quarantine, how to promote less exposure to screens and how to talk about coronavirus with the youngest family members. Since the information analysis corresponded to the first months of ASPO, knowledge about the characteristics of the coronavirus and transmission mechanisms was new.

The reports on parental care roles were mostly related to making the role of the mother more visible by focusing on bigger responsibilities in care tasks, emphasizing "mothers and teachers", emphasizing the importance of sharing and acknowledging how difficult it is to harmonize work and care. The reports on general care, in comparison with the rest of the categories, focused more on children and the importance of their care.

Violence

Most of the news reports related to violence (5.6% of the total of reports) referred to two groups of topics: first intrafamily violence and second, to a lesser extent, child abuse, cyberbullying and violence against native communities.

Nutrition

Reports on nutrition (4.94% of the total) focused on how difficult lockdown was for families with children in more vulnerable populations. Such reports gave information about community kitchens, community meals and packed meals. They appeared both in regional and national media. The Minister of Social Affairs recognized that mandatory confinement increased the number of people who benefitted from community kitchens. Also, but to a lesser extent, there were reports on *Tarjeta Alimentar* (National protection program to access to the basic basket of food).

Child Protection

As regards the news reports on child protection (3.95% of the total), the main topics presented had to do with the vulnerable situation of children's homes, the consequences on legal processes for child adoption, and the importance of the protection of children.

Children's voices

The reports on children's voices (2.28% of the total) were based on anecdotes and experiences of boys and girls who sent their questions to the National President expressing doubts about coronavirus. These reports also included expressions of thanks from the president for the messages and drawings. Drawings and letters to teachers and health staff were also included.

Poverty

As an expression of multidimensional approach to child rights, poverty appeared in 1.54% of the news reports. This topic focused on the consequences of the pandemic in relation to a rise in inequality and poverty and "hard data" were presented, as in the following examples: "Coronavirus: by the end of 2020 there will be 756 thousand new poor children and adolescents" (21/5, Página 12); "Child poverty in Argentina will reach 58.6% by the end of the year" (20/5, Diario Norte).

DISCUSSION

The COVID-19 pandemic constitutes a total social event (7), which captures and impacts every other field of culture and society. As such, it impacted journalism and news production. Facing an unknown disease created a global scenario characterized by uncertainty in which the media

took center stage as privileged sources of information that also built different representations related to the pandemic (8). Moreover, given the fast expansion of the virus worldwide and its unpredictability, it was also an object of public and media knowledge before being an object of scientific and medical knowledge (9).

The digital News Report 2021 produced by Reuters and the Oxford Internet Institute (10) confirms that news consumption and trust in the news grew during 2020, though one key finding reports that the media were seen to be representing young people (especially young women) less fairly. This situation creates opportunities to foster more inclusive and trained newsrooms in which children's rights feature more prominently.

Our research shows how the digital media's dedication of space to the topic of childhood was based on emergent situations related to the characterization of boys and girls and to assumptions associated with the COVID-19 problematic. During the period of analysis and considering a rights paradigm, children as a social group have been affected by the lack of recognition and respect for their rights. This is not new in terms of how the media narrates and depicts children, mostly from an adult perspective, as victims or passive actors (11). During the extraordinary days of the pandemic, the media reproduced this dynamic which in turn provided an opportunity to rethink and to improve practices.

During the first stage of the pandemic, the way that children were depicted was based on an expression of ignorance and a lack of recognition of their rights. Assumptions were made which associated children with the mortality that accompanied the pandemic in this country. These categorizations evolved and were modified as the pandemic progressed.

Our findings show that, during the studied period, children were initially reported as being possible agents of transmission (58% of the news reports on health). The reports referred to the risks that being with children implied, to the possibility of their transmitting the virus, to the quantity of infected children and to the numbers of those in hospital.

The news during the first months of ASPO centered around the private sphere and focused on how to educate at home and how the home became the learning institution. There was also a great focus on the syllabus, more than on the social and emotional aspects that take place at school. As regards entertainment, the focus centered on how to generate play spaces at home.

During the period of this study, the news regarding children and adolescents which appeared on the digital media in most cases reflected a collective imagination of middle-class families from big population clusters mainly from the City of Buenos Aires and its suburbs.

The assumption was made that each home had several digital devices, all of them with connectivity, and that boys and girls continued their teaching-learning process and could spend their free time enjoying video games (entertainment) and socializing with friends through the net. There were scarcely any news reports that showed another reality. In July 2020, the National Ministry of Education and UNICEF surveyed remote school practices and reported deep inequalities in terms of access and connectivity (12, 13). Pedagogical continuity frequently entailed adults going to school to pick up handouts which had to be completed with the children at home, and which were then handed in to their teachers for correction. It also relied on a massive use of WhatsApp to keep teachers and students connected (14, 15).

The disposition and capacity of the adults at home to daily accompany the learning process was taken for granted, ignoring other obligations which demanded time and effort, such as their regular jobs (home office) or leaving the house for essentials such as odd jobs, going to community kitchens and getting packed lunches, groceries, and doing other necessary household chores.

School closures imposed a major commitment on care givers, not only in regard to increased time spent on attending to the needs of the children, but also to participating in their education process in a more active way than when schools were open.

In the same way, preventive measures against the pandemic, such as washing hands, cleaning surfaces, hygiene with alcohol or diluted bleach on the food and other products that entered the house, presuppose the availability of tap water in all homes. However, there are thousands of families who do not have access to drinking water at home, and consequently, these families had bigger risks of becoming victims of the pandemic, as they are, in fact, of all infectious diseases.

Many of the news reports on children and adolescents in the context of Health and Education place children as potential carriers of infection. This deepens the social atmosphere of fear and uncertainty about children as potential spreaders and those responsible for transmission.

Moreover, living conditions in working-class neighborhoods, with overcrowded homes and all sorts of limitations that people suffer who live there, make confinement to the home difficult. In such conditions children are forced to be outside their house much of the time. In these neighborhoods, the lockdown was limited to the borders of the neighborhood, which, in some cases, turned into actual "ghettos", guarded by security forces, when things turned worse some months later.

In Argentina in 2019, before the pandemic, more than half of children were poor. This percentage increased considerably as a consequence of COVID-19. Currently, according to UNICEF, more than 60% of those under 18 years of age are poor. The seriousness of this situation was not reflected in social media.

Was the authorities' and media's tendency to "invisibilize childhood" supported by an intention to "hide" the magnitude of poverty in this population? Even though this question does

not have a correct answer from the analysis of the news reports published in the first three months of the pandemic in the country, we can certainly state that the way the media referred to children from Argentina was scarcely representative of the different children who live there . And not recognizing their deprivations, which were worsened by the pandemic, translated into a ratification of the negation of their rights.

As usually happens when complex social phenomena take place, the partial improvement in the recognition of children's rights needed a proactive role from different sectors of society: health and social sciences professionals, intellectuals, NGOs, and organized communities.

As regards the recognition of children rights, this study participates in different debates. One of these is that public opinion, the media and political discourse give more importance to certain rights (for example health) than to others (education, play, protection, cares, among others). Today's debate is not consistent with the meaning and exercise of rights where social co-responsibility (from the State and civil society) is central when guaranteeing them. There are no rights more important than others, they are all essential for life, they are all equally important, they are universal.

CONCLUSIONS

- As a total social event, the pandemic poses a series of challenges in terms of children´s rights and the key role of the media in fostering a better social consciousness about them. Based on our report, we share some conclusions seeking to contribute with new lines of research about children and digital media from a rights perspective.
- As previous research shows, children are frequently depicted from an adult centered perspective and childhood is considered as an undifferentiated urban middle class age group. Approaching Girls and boys in their diversity can promote a better understanding of different situations, addressing inequality as a phenomenon that deeply affects children´s lives and rights.
- More discussion is needed about how health issues related to children are addressed by the media. This is not only a newsroom problem. It needs to be tackled by different public and civil society actors in order to reach an ethical agreement.
- The media plays a very important role in amplifying the reach of the children´s rights approach. There is an opportunity to extend training and build case studies about children, and the media can greatly contribute to this with the construction of a rights-based critical perspective towards children and the media, particularly during the COVID 19 pandemic.

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ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

Risk Factors for Early Weight Loss in Breastfed and Term Newborns

Anne Sütü ile Beslenen ve Term Yenidoğanlarda Erken Kilo Kaybı için Risk Faktörleri

Tijen Eren[1], Bahar Kural[2], Gülbin Gökçay[3]

[1]Koç University, Faculty of Medicine, Department of Family Medicine, Istanbul, Turkey
[2]Bakırköy Dr. Sadi Konuk Research and Training Hospital, Department of Pediatrics, Istanbul, Turkey
[3]Istanbul University, Institute of Child Health Department of Social Pediatrics, İstanbul, Turkey

ORCID ID: T.E. 0000-0001-9650-3734; B.K. 0000-0001-9528-1009; G.G. 0000-0003-1042-0407

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ABSTRACT

Objective: Newborns lose some of their birth weight before hospital discharge. This loss is accepted as "physiological" up to 5-7%. Infants with weight loss over this range may receive undue formula supplementation. Formula supplementation disrupts exclusive breastfeeding, does not have the benefits of mother's milk, and may cause low breastfeeding success in the long run. Identification of the risk factors affecting infant weight loss percentage in the few days following the birth will increase exclusive breastfeeding success. The aim of this study is to identify the risk factors that cause early weight loss in newborns before hospital discharge.
Material and Methods: Weight loss in infants born between January 1, 2011, and December 31, 2014, at Vehbi Koç Foundation American Hospital was evaluated retrospectively. The hospital records of 3812 babies who completed the inclusion criteria were included in the study. The variables yielding significant results in binary tables were further evaluated by "Multivariate Logistic Regression".
Results: Delivering via caesarean section, primiparity, early term gestational week, older maternal age and female gender of the infant were statistically significant risk factors for early weight loss in newborns.
Conclusion: To increase the success of breastfeeding in babies who are exclusively breastfed, the mother-infant pair identified with risk factors that contribute to infant weight loss must be closely monitored. Breastfeeding counselling should be repeated, and breastfeeding should be supported. Suggested intervention list is created aligned with the findings to assist mothers in risk management.

Keywords: Early weight loss, new-born, risk factors

ÖZ

Amaç: Yenidoğan bebekler hastane taburculuğu öncesi doğum kilolarının bir kısmını kaybetmektedirler. Belli bir orana kadar bu kayıp (%5-7) 'fizyolojik' olarak kabul edilmektedir. Kilo kaybı bu oranı geçen bebeklerde erken dönemde yersiz takviye başlanabilmektedir. Erken dönemde mama ile takviye sadece anne sütü ile beslenmeyi kesintiye uğratmakta, anne sütünün faydalarına sahip olmadığı gibi ve uzun vadede anne sütü ile beslenme başarısında düşüklüğe sebep olabilmektedir. Yenidoğan bebeklerde doğumu takip eden birkaç günde kilo kaybına etki eden risk faktörlerinin tespiti sadece anne sütü ile beslenme başarısını arttıracaktır. Çalışmanın amacı taburculuk öncesi yenidoğan bebeklerdeki kilo kaybına sebep olan risk faktörlerinin değerlendirilmesidir.
Gereç ve Yöntemler: Vehbi Koç Vakfı Amerikan Hastanesi'nde 1 Ocak 2011- 31 Aralık 2014 arasında doğan bebeklerdeki kilo kaybı retrospektif dosya taraması olarak değerlendirilmiştir. Çalışmaya dahil edilme kriterlerini dolduran 3812 bebek çalışmaya alınmıştır. İkili tablolarda anlamlı sonuç veren değişkenler 'Multivariate Lojistik Regresyon' ile değerlendirilmişlerdir.
Bulgular: Sezaryen doğum, parite, gestasyon haftasına göre erken term olma, ileri anne yaşı ve kız bebek cinsiyeti yenidoğanda erken kilo kaybı için istatiksel olarak anlamlı risk faktörleri olarak tespit edilmiştir.
Sonuç: Sadece anne sütü alan bebeklerde emzirme başarısının artması için, kilo kaybında artışa sebep olan risk faktörlerine sahip olan gruplarda anne- bebek ikilisi yakın takip edilmelidir. Gerekirse emzirme danışmanlığı tekrarlanmalı ve anne sütü ile beslenme desteklenmelidir. Annelere risk yönetiminde yardımcı olmak için bulgulara uyumlu olarak önerilen müdahale listesi oluşturulmuştur.

Anahtar Kelimeler: Erken kilo kaybı, yenidoğan, risk faktörleri

Corresponding Author/Sorumlu Yazar: Bahar Kural **E-mail:** drbsalihoglu@hotmail.com

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INTRODUCTION

As a global public health recommendation, The World Health Organization (WHO) and United Nations International Children's Fund (UNICEF) promote exclusive breastfeeding during the first 6 months of life for infants to achieve optimal growth, development, and health (1). The first few days after the delivery, colostrum is produced which is scarce in amount and low in calories. For exclusively breastfed babies, weight loss following the first three days after birth is accepted as being "physiological" if around 5-7%. Most clinicians are concerned when infant weight loss exceeds 10% of their birth weight (2). Above 10%, weight loss is considered "pathological" and may suggest breastfeeding problems (3). Excessive weight loss after birth may cause maternal anxiety and reduce breastfeeding success, potentially leading to serious problems like hypernatremia and hyperbilirubinemia (4-6). Early onset of breastfeeding problems may lead to supplementing with formula and falling short of exclusive breastfeeding targets (7). Therefore, it is important to identify the risk factors associated with infant weight loss during the first few days following birth. In review of medical literature, problems related to infant weight loss may be breastfeeding related, infant-related, mother-related or any combination of these. Common causes of breastfeeding difficulties may be poor latch, ineffective suckling, nipple problems and mother-infant separation (2). Infant-related problems may be infant size, gestational week, metabolic and neurological disorders (2). Mother-related risk factors may be breast surgery, mammary hypoplasia, retained placenta, hypothyroidism, Sheehan syndrome, polycystic ovarian syndrome, advanced maternal age, and education level (8, 9).

Early term infants, born between 37 0/7 and 38 6/7 weeks of gestation, are also at higher risk compared to term infants, born between 39 0/7 and 41 6/7 weeks of gestation, for reduced breastfeeding initiation rate and duration (10).

The aim of this study is to identify significant risk factors for early weight loss in breastfed, healthy early term and term newborns in a setting where Caesarean section (CS) rates are high. There are few studies about early weight loss in newborns in Turkey (11, 12). In one study, risk factors were evaluated only in a very small number (n=34) of newborns (12). This study is first of its kind of this scale in detecting significant risk factors for early weight loss in breastfed, healthy newborns in Turkey.

MATERIAL AND METHODS

Study design and Subjects

This retrospectively designed cohort study was based on the evaluation of postnatal hospital records of newborns and mothers. Changes in weight for all newborns after delivery during hospital stay were analysed.

Newborns delivered in Vehbi Koç Foundation American Hospital between 1 January 2011 and 31 October 2014 were included in the study. All mothers were offered 'breastfeeding education' between 30-36 weeks of pregnancy. Newborns were evaluated by a paediatrician immediately after birth. Skin to-skin contact and breastfeeding within one hour after delivery were early goals. A family medicine specialist who was also an International Board-Certified Lactation Consultant (IBCLC) evaluated all mother-infant pairs during hospital stay to reduce breastfeeding problems. Rooming in and exclusive breastfeeding were prioritised unless there was direct refusal from the mother, or the presence of a medical complication related to the mother or the baby. As soon as these conditions improved, newborns were placed to the breast.

A total of 3812 babies were included in the study. Babies who were non-breastfed, gestational week of <37 or ≥42 weeks, with presence of any metabolic or congenital disease, NICU admittance or/and APGAR score lower than 7 or born as multiples (twins, triplets) were excluded from the study. Birth weight was not considered as an exclusion criterion. A flowchart of the study is given in Figure 1.

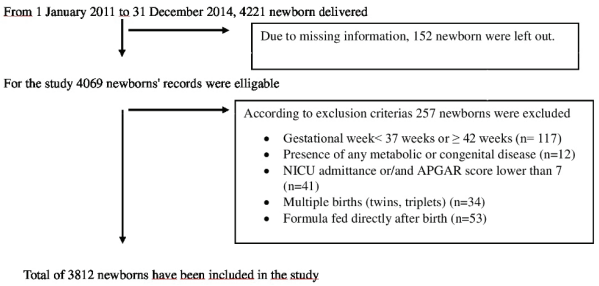

Figure 1: Flowchart of the study

Routine weight measurements were performed until discharge, the first one being immediately in the delivery room and then daily. Every day the babies were visited by a paediatrician and an IBCLC. When weight loss reached 7% of the birth weight, measurements were taken every 12 hours or more frequently. In such cases, re-evaluation of the breastfeeding technique and additional breastfeeding consultancy was provided. If latch was not successful, manually expressed milk was given by cup feeding. In the study, those babies who were given expressed mother's own milk (MOM) are included in the exclusively breastfed baby group. If MOM is inadequate and weight loss reached ≥10%, formula feeding was initiated by order of the paediatrician.

Data were collected by an IBCLC between 1 January 2015 and 1 June 2015 from postnatal hospital records of newborns and mothers. Physiologic weight loss is defined as 5-7% loss of the birth weight (10). In this study, weight loss over 7% was identified as increased weight loss. Risk factors related to neonatal weight loss that were evaluated by the study are listed in Table 1. Early term refers to babies born between 37 0/7– 38 6/7 weeks of gestation (10). The method of anaesthesia during delivery (spinal or general anaesthesia) and the method of conception (spontaneous or In Vitro Fertilisation -IVF) were noted from hospital records. The underlying conditions of the mother were inclusive of Gestational Diabetes Mellitus (GDM), glucose intolerance and hypothyroidism. Maternal

Table 1: Risk factors evaluated in the study

Maternal age
Parity
Gestational week
Delivery Mode
Anesthesia Method
Conception method
Birth weight
Infant gender
Maternal hypothyroidism
Maternal gestational diabetes mellitus
Maternal increased insulin resistance

GDM and hypothyroidism are among the potential risk factors for exclusive breastfeeding (13, 14). All mothers included in the study were screened for GDM during pregnancy with a laboratory-based screening test(s) using blood glucose levels. Maternal hypothyroidism was detected by obtaining TSH levels with free thyroid hormone levels. In the study, maternal metabolic and hormonal diagnosis were based on pregnancy follow-up notes found in the maternal records.

Ethical consideration

Ethics committee approval was received from the local ethics committee for the study with decision number 2105-058-IRB2-024 dated 19.03.2015. Informed consent was not obtained since the study is retrospective. The study was conducted in accordance with the guidelines of the Declaration of Helsinki.

Data analysis

The Number Cruncher Statistical System 2007 (NCSS Kaysville, UT, USA) was used for the statistical analysis. In analysis, descriptive statistical methods such as mean, standard deviation, median, frequency and ratio were used. The Pearson Chi-Square test was employed for the comparison of qualitative data. Multivariate data were assessed byLogistic Regression (Backward Stepwise) analysis. All the results were evaluated in the 95% confidence interval, with $p<0.05$ level of significance.

RESULTS

The hospital records of 3812 healthy, term newborns were evaluated. All newborns were initially exclusively breastfed after delivery. During their stay, 14.9 % (n=565) of the newborns were supplemented by formula.

Most mothers were over 30 years of age (79.5%). The majority of the mothers were primiparous (61.3%). The gestational week was early in nearly half of the study group (51.5%). Babies were predominantly delivered via Caesarean section (71.8%) and mainly under epidural anaesthesia (85.3%). A total of 311 mothers conceived with IVF techniques. Many of the mothers did not have any underlying medical conditions (85%). The male gender comprised of 51.4% of the infants. The characteristics of the mothers and newborns are given in Table 2.

Table 2: Characteristics of mothers and newborns (n=32)

	Min-Max	Mean±SD
Maternal age	19-52	33.83±4.09
Parity	1-5	1.44±0.60
Gravida	1-9	1.93±1.08
Gestation week	37-41.29	38.90±0.84
Birth weight	2050-5190	3378.17±398.86

When analysing the risk factors, the first set of risk factors that were statistically significant after univariate analysis for early weight loss were; maternal age, parity, type of anaesthesia, in-vitro conception, gestational week, Caesarean section, and the gender of the baby (Table 3). Hypothyroidism, insulin resistance and gestational diabetes mellitus were identified as underlying conditions and were evaluated as one group (Table 3).

The number of weight measurements, time intervals and weight changes of newborns are given in Table 4. The babies were separated as one group with a loss less than 7% and a second group with weight loss over 7%. Overall, 58.3% (n=2224) of the newborns experienced weight loss that exceeded 7% of their birth weight. Weight loss above 7%of the birth weight was mostly observed between 24-72 hours after birth (Table 4). The rate of exclusively breastfed newborns during hospital stay was 85.2%. Only 14.8 % (n=565) were supplemented with formula alongside breastfeeding.

Only five of the risk factors revealed by univariate analysis turned out to be statistically significant after logistic regression analysis (Table 5). Namely these factors were caesarean section, lower parity, an early gestational week, an older maternal age and the female gender of the infant.

Caesarean section was the most prominent risk factor that increases the chance of early weight loss by 7.92 times (Table 5).

Lower parity was the second factor that came out statistically significant ($p<0.01$) for higher rates of birth weight loss. Weight loss over 7% for babies born to primiparous women was 61.2% and weight loss and the number of births were inversely correlated; 54.2% for para 2, 52.6% for para 3, 42.9% for para 4 and 40% for para 5 women. (OR:1.918 (%95 CI:1.638-2.245) (Table 5).

The gestational week was the next identified risk factor for early weight loss. Babies born as early term had a higher risk of losing over 7% of their birth weight in comparison with term babies (OR: 1.012 (%95 CI:1.21-1.042) (Table 5).

Older maternal age was the fourth significant risk factor for neonatal weight loss. The weight loss percentages were evaluated for four different groups of mothers and these groups are as follows: younger than 30 years of age, between 31-35 years, between 36-40 years and above 40 years of age. Babies born to older mothers lost significantly more weight in comparison with the babies born to the younger mothers, for

Table 3: Evaluated risk factors of mothers and newborns in univariate analysis (n=3812)

		n	%	Weight loss >7% n(%)	*p*
Maternal Age	**19-30**	780	20.5	399 (51.2)	*0.001**
	31-35	1767	46.4	1004 (56.8)	
	36-40	1069	28.0	684 (64)	
	> 40	196	5.1	137 (66.9)	
Parity	**Primipara**	2338	61.3	1430(61.2)	*0.001**
	Multipara	1474	38.7	794 (53.9)	
Gestational Week Distribution	**Early Term (37-38w)**	1962	51.5	1266(64.5)	*0.001**
	Term (>39w)	1850	48.5	958(51.8)	
Delivery Mode	**Cesarean**	2736	71.8	1961(71.8)	*0.001**
	Vaginal birth	1076	28.2	260 (24.2)	
Anaesthesia	**None**	137	3.6	37 (27.0)	*0.001**
	Used	3675	96.4	2187 (59.5)	
General		422	11.1	311 (73.7%)	*0.001**
Epidural		3253	85.3	1876 (57.7 %)	
Conception	**Spontaneous**	3501	91.8	2010 (57.4)	*0.001**
	IVF	311	9.2	214 (68.8)	
Underlying Conditions	**None**	3249	85.2	1879 (57.8%)	0.126
	Present	563		345 (61.3 %)	
Birth Weight Distribution (g)	**2050-2500**	36	0.9	19 (52.8%)	0.051
	2501-2999	584	15.3	321 (55.0%)	
	3000-3999	2946	77.3	1724 (58.5 %)	
	>=4000	246	6.5	160 (65.0 %)	
Gender	**Boy**	1958	51.4	1093 (55.8 %)	*0.001**
	Girl	1854	48.6	1131 (61.0 %)	

Table 4: Weight changes of newborns in the early postnatal period

		n	Min- Max	Mean	SD	Weight loss >7% n(%)
Weight (gr)	**Birth weight**	3812	2050-5190	3378,17	398,86	--
	0-24 hours	3784	1995-4990	3248,88	388,59	19 (52.8%)
	24-48 hours	3521	1920-4780	3146,89	374,17	321 (55.0%)
	48-72 hours	2738	1890-4660	3129,76	378,12	1724 (58.5%)
	≥73 hours	259	2090-4555	3136,54	408,34	160 (65.0%)
Weight loss (%)	**0-24 hours**	3784	0-10,29	3,86	1,76	124 (3.3%)
	24-48 hours	3521	0-13,45	6,92	1,70	1791 (47.0%)
	48-72 hours	2738	0,27-13,89	7,57	2,13	1704 (44.7%)
	≥73 hours	259	-1,18-12,33	6,91	2,54	139 (3.6%)

Table 5: Significant risk factors for higher than 7 % weight loss

	p	Odds Ratio	%95 CI	
			Lower	Upper
Maternal Age				
<30yrs	0,001			
31-35 yrs	0,014	1,275	1,051	1,547
36-40 yrs	0,001	1,665	1,335	2,076
>40 yrs	0,002	1,780	1,226	2,584
Parity (primiparous)	0,001	1,918	1,638	2,245
Gestational Week (37 and 38 wk)	0,012	1,210	1,042	1,405
Mode of Delivery (Cesarean Section)	0,001	7,923	6,686	9,390
Gender (female)	0.001	1,330	1,150	1,538

every group and for every measurement (p<0.01 for all groups). Maternal age over 35 years was found to increase the risk of early weight loss nearly 2 times (Table 5).

Finally, the female gender of the infant was found to be significant after logistic regression analysis (OR: 1.330 (%95 CI:1.150-1.538) (Table 5).

DISCUSSION

The identification of significant risk factors for excessive weight loss in newborns before hospital discharge is crucial for developing prevention strategies. Further benefits would reflect on exclusive breastfeeding rates. These risk factors may change from country to country (15). To the best of our knowledge, this is the most extensive study in Turkey that has investigated risk factors for early weight loss in breastfed, early term and term newborns. Caesarean section, primiparity, gestational week, maternal age, and female gender were the significant risk factors found in the study. By using the same cohort presented here, early weight loss percentile charts in exclusively breastfed infants according to the mode of delivery were also plotted (16).

WHO has stated that no robust evidence existed for ideal Caesarean section rate (15). The rate in our study was quite high (71.8%). In Turkey, the CS rate increased five Fold between 1993 and 2013 (17). The most recent CS rate reported in the Turkey Demographic and Health Survey of 2018 (2019) was 52% (18). There are studies of small-scale stating CS delivery as a barrier for breastfeeding (19, 20). However, its effects are not separately pinpointed from other risk factors due to the study size. This study evidently defines the effect of CS, clear of the effects of other risk factors like maternal age or parity, due to its large cohort size. Contributing factors like late skin to skin, post-operative pain and IV fluid administration were associated with lower success rates in exclusive breastfeeding following CS (21,22). As a progressive method of lactation support for women who deliver via CS, skin to skin may be expedited, post-op pain may be managed more effectively and the use of IV fluids may be done sensibly (Table 6).

Being primiparous was another noticeable risk factor of the study. This finding is similar to the study mentioned above where the maternal age and parity were evaluated jointly (23). In this study, increased weight loss above 7% was high (61.3%) among babies born as the first child of the family and primiparity was identified as an independent risk factor. Research suggests that maternal inexperience and anxiety may be related (4, 24). Such anxieties may have a detrimental effect on successful breastfeeding (25). Multiparas show an earlier start of breastfeeding which may be associated with a previous experience (26). An intervention for successful breastfeeding may be providing early lactation consultancy to primiparous women (Table 6).

It was found that 64.5% of the early term babies lost over 7% of their birth weight, whereas the percentage of excess weight loss for term babies was 51.5% (Table 3). This notable difference may be due to increased morbidities and prolonged hospital stays for early term babies (27). Difficulty in regulating blood glucose, undesired respiratory conditions and neonatal intensive care admissions may contribute (27, 28). The sleepiness and reduced ability to effectively latch on is a major problem of early term babies (10). Even if some early term infants may seem to latch on properly, they may not be able to transfer an adequate amount of breastmilk. A modified approach may be to give additional attention in breastfeeding support to this group and showing their mothers how to stimulate these babies to feed effectively and how to use supportive equipment like nipple shields (Table 6).

The neonatal weight loss rate was statistically significant for a maternal age above 35 years. This is comparable to previous findings from various studies (20, 23). However, many studies

Table 6: Suggested interventions to identified risks

Risks	Suggested Interventions		
	Prenatal	**Perinatal**	**Postnatal**
CS	Perinatal courses	Perioperative sensible IV fluid administration	· Early skin-to skin contact · Repeated lactation consultancy · Postoperative pain management
Primipar	Perinatal courses	Encouraging normal birth	· Postpartum anxiety management · Lactation consultancy
Advanced maternal age	Perinatal courses	Encouraging normal birth	Closer breastfeeding follow-up · Galactagogue use
Gestational week	Perinatal courses · Managing sleepy baby · Explaning physiology of lactation (stimulus leads to production)	Encouraging normal birth	Closer breastfeeding follow-up · Assisted breastfeeding techniques · Hand expression · Cup feeding · Possible mechanical expression
Gender	Routine follow-up	Routine follow-up	Closer breastfeeding follow-up in light of new research

analyse the combined effect of maternal age and parity (29, 30). The large data pool of this study made it possible to identify maternal age as an independent risk factor from parity. A lactation intervention for delayed childbearing and following breastfeeding problems could be galactagogue use (31) (Table 6).

Findings about gender as a risk factor for early weight loss are controversial. In one study where risk factors for early lactation problems among primiparous mothers were investigated, the male gender of the infant was observed as a risk factor (24). Another study listed reasons for sex-specific differences in infant suckling as maturation, gender-based differential behaviours in mothers or the subjective observer association (30). In another study, where 414 newborns were evaluated for the risk factors over 8% weight loss, a gender difference was not found to be significant (20). In this study, being a girl was found to be a risk for early weight loss. In "Child Growth Standards" publication, WHO states that "weight losses between birth and day 7 were slightly attenuated in girls compared to boys" (32). Obviously, there are physiological differences between genders in terms of early weight loss. Further prospective studies that investigate the effect of gender on infant weight loss after birth are needed before suggesting gender-based lactation support interventions.

Limitations

Maternal gestational diabetes mellitus, maternal increased insulin resistance and maternal hypothyroidism were evaluated under the heading of "underlying conditions". Future research is essential for individual analysis of these morbidities in relation to breastfeeding success. The study group consisted mainly of women who were administered anaesthesia, general or epidural. This may have limited the expression of the group of mothers that received no anaesthesia.

CONCLUSIONS

Delivery by Caesarean section, parity, gestational week, older maternal age and being primiparous are the identified risk factors determined for early weight loss. Perinatal courses may inform mothers about how they can overcome breastfeeding problems (33). Attentive breastfeeding support immediately after delivery for those mother-infant pairs with identified risk factors may decrease early weight loss (33).By helping mothers making informed decisions about the mode of delivery and the use of anaesthesia is beneficial on many levels: awake mothers who do not miss out the on the 'Golden Hour' and babies with lower anaesthetics in their bloodstream (34). Assisted breastfeeding techniques can be used and close follow-ups for early term babies will likely ensure a prolonged successful exclusive breastfeeding period (10).

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ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

Informed Refusal in Pediatric Practice: a Single Center Experience of a Tertiary Care Children's Hospital

Pediatri Pratiğinde Bilgilendirilmiş Ret: Üçüncü Basamak Bir Çocuk Hastanesinin Tek Merkez Deneyimi

Mine Korcum[1], Özlem Bağ[2], Sevay Alşen Güney[3]

[1]University of Health Sciences, İzmir Behçet Uz Pediatrics and Surgery Training and Research Hospital, Department of Pediatrics, İzmir, Turkey
[2]University of Health Sciences, İzmir Behçet Uz Pediatrics and Surgery Training and Research Hospital, İzmir, Turkey
[3]Dokuz Eylul University Faculty of Medicine, Department of Child and Adolescent Psychiatry and Diseases, İzmir, Turkey

ORCID ID: M.K. 0000-0002-7432-9453; Ö.B. 0000-0003-2178-4695; S.A.G. 0000-0003-1064-6115

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ABSTRACT

Objective: Informed consent and refusal of medical procedure and treatment are patient rights that are used by parents or legal representatives of children. This study was conducted to determine the most common treatments and medical procedures refused by parents, their distribution according to clinics, and the frequency of reporting the refusal as child medical neglect to governmental and/or judicial authorities.

Materials and Methods: In this cross-sectional study, the files in the hospital database of all patients who were admitted to the emergency department, intensive care units, all general pediatrics, pediatric subspecialities and surgery clinics of our hospital between 1 January and 30 June 2019 were retrospectively reviewed. All patients whose medical procedures and treatment were refused during the study period were included in our study.

Results: The study group consisted of 348 patients whose medical procedure and treatment were refused by signing an informed refusal form during the study (median age: 1 year 9 months; Male/Female: 197/151). The overall refusal rate was 2.7%. Most of the refusals had occurred in the emergency department. The most common refused recommendation was hospitalization (303/348; 87%), while the most common refused invasive procedure was lumbar puncture (18/39; 46%). There were no cases who refused end-of-life support in the study group, including intensive care units and palliative care units. Only 7.5% of the patients were evaluated as child abuse and neglect, and reported to the governmental/judicial authorities.

Conclusion: Discharge against medical advice, which has been reported to increase in recent years, is the most common form of refusal in our study group. Children whose medical procedures and treatment were refused should be carefully evaluated for child abuse and neglect.

Keywords: Refusal of treatment, refusal of medical procedures, child abuse and neglect, medical neglect, informed refusal

ÖZ

Amaç: Aydınlatılmış onam ve beraberinde gelen tıbbi işlem ve tedaviyi reddetme hakkı, çocukluk çağında ebeveynler veya yasal temsilciler tarafından kullanılmaktadır. Bu çalışma, çocukluk çağında reddedilen tıbbi işlem ve tedavilerin neler olduğu ve kliniklere göre dağılımı ile ret sonrası çocuk istismarı ve ihmali açısından bildirim sıklığının saptanması amacıyla yürütüldü.

Gereç ve Yöntem: Bu kesitsel araştırma, üçüncü basamak olarak hizmet veren ve aynı zamanda eğitim araştırma hastanesi olan bir çocuk hastanesinde yapıldı. Hastanemiz acil servis, yoğun bakım üniteleri, tüm genel pediatri, yan dal ve cerrahi kliniklerinde 1 Ocak- 30 Haziran 2019 tarihleri arasında izlenmiş tüm hastaların, hastane veri tabanındaki dosyaları geriye dönük olarak incelendi. Belirtilen çalışma süresi boyunca tıbbi işlem ve tedavi reddi yapılan tüm hastalar çalışmamıza dahil edildi.

Bulgular: Çalışma grubu, çalışma süresince tıbbi işlem ve tedavisi, bilgilendirilmiş ret formu imzalanarak reddedilen 348 hastadan oluştu (ortanca yaş: 1 yaş 9 ay; Erkek/Kız: 197/151). Genel ret oranı %2,7 (348/12844) olarak belirlendi. Tıbbi işlem ve reddin en çok oluştuğu birimin acil servis olduğu görüldü. En sık reddedilen durum, hastaneye yatırılarak izlem (303/348; %87), en sık reddedilen girişimsel işlem lomber ponksiyon (18/39; %46) idi. Yoğun bakımlar ve palyatif bakım ünitesi dahil olmak üzere, çalışma grubunda yaşam sonu desteği reddedilen olgu saptanmadı. Hastaların sadece %7,5'i çocuk ihmali olarak değerlendirilerek adli ve idari makamlara bildirilmişti.

Sonuç: Son yıllarda giderek arttığı bildirilen, tıbbi öneriye rağmen hastaneden ayrılma, çalışma grubumuzda en sık rastlanan ret şeklidir. Tıbbi işlem ve tedavisi reddedilen çocuklar, çocuk istismarı ve ihmali açısından dikkatli değerlendirilmelidir.

Anahtar Kelimeler: Tedavi reddi, tıbbi işlem reddi, çocuk istismarı ve ihmali, tıbbi ihmal, bilgilendirimiş ret

Corresponding Author/Sorumlu Yazar: Özlem Bağ **E-mail:** bagozlem78@yahoo.com

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INTRODUCTION

Informed consent is a process for getting permission before conducting a healthcare intervention on a person after being informed about the diagnosis and treatment methods to be applied, the benefits and risks of other applications that can be an alternative to them, and to comprehend the informed decision without any external intervention (1, 2). Obtaining informed permission from parents or legal guardians before medical interventions on pediatric patients has become standard within our medical and legal culture (1). The process consists of a total of five items: competence, information, comprehension, volunteerism, and autonomy (3-5). Autonomy is to enable the individual to have information on the subject, to make decisions independently, and to take action in line with their own values and beliefs. Respect to autonomy in the medical field is a professional obligation and a fundamental patient right (6). If the individual has the competence to give consent for intervention, is adequately informed about the subject, can comprehend the information presented, acts voluntarily, and makes a rational decision about the intervention, he/she would give informed consent. When the individual is a child, parents or their legal surrogates are included in their informed consent process (7).

Children's participation in the medical decision-making process requires open communication between the physician, parent, and the child. Physician-parent-child communication is the basis for both children and parents to be satisfied with medical care, and thus, is an important factor for patient cooperation. Involving children in the treatment plan directly enables them to cooperate in the treatment process. Children's participation also develops a sense of control in themselves facilitating the process of treatment adherence. In addition, involving children in medical decision-making demonstrates respect for children's capacities and can provide them with more opportunities for their development (7-9).

In some circumstances, the refusal of medical intervention or treatment may occur in pediatric practice. Treatment refusal is defined as the overt refusal of the patient or his/her legal guardian of any type of investigative procedure, medical care, or surgery recommended or ordered by medical professionals for a potentially curable disease (4, 10). In case of refusal, if the treatment is optional, there is no ethical challenge; but in case of a life-threatening treatment, physicians should evaluate the severity of the situation and the risk-benefit ratio for the patient (11). As much as possible, the use of pressure and force on children and adolescents should be avoided (12). But, if the recommended intervention and treatment will save the child's life or if serious harm may occur in case of refusal, the physician has the obligation to prevent potential harm to the minor (1, 7, 13, 14).

The refusal of hospitalization or leaving hospital before the medical team recommends discharge is called 'discharge against medical advice (DAMA)' which causes ethical, legal, and moral dilemmas in pediatric practice (15, 16). It has been reported to increase during the last decade both in adult and pediatric populations with increased risk of mortality and morbidity (17, 18).

The aim of the study was to determine the frequency of informed refusal for medical procedures and treatment in pediatric age including DAMA and define the characteristics of the patient groups and departments in which refusal occurs more commonly in pediatric practice.

MATERIAL AND METHODS

Study design, Patients, and Data

This is a cross-sectional study conducted in the Behçet Uz Children's Hospital which is a tertiary hospital for children and adolescents. The documents in the hospital database system of all patients who were admitted in our hospital's Emergency Service, Intensive Care Units, Clinics of General Pediatrics and pediatric subspecialties, and Clinics of Pediatric Surgery between January 1 and June 30, 2019, were evaluated retrospectively. The patients and/or their legal guardians who had refused medical procedures and/or treatment in the specified 6-month period were included in our study. Written patient files were also obtained to evaluate the signed refusal forms of the study group. Patients with insufficient file information and/or lack of signed 'informed refusal forms' in the written hospital files were excluded. Patients who had left without signing the 'informed refusal form' and were examined in outpatient clinics were not included in the study.

The patients' demographic and clinical characteristics (gender, age, diagnosis, presence of chronic disease, medical procedure/intervention refused, department in which the refusal occurs, time of refusal, post-refusal notification) were recorded. As patient files of the Emergency Department (ED) did not include detailed demographic properties of the patients, sociodemographic data were obtained for only hospitalized patients.

Legal aspect

The Turkish Ministry of Health has legalized the right of treatment refusal for adult patients (Regulation No. 25). Legal guardians also have the right to refuse any type of medical treatment on behalf of the minors under their guardianship (Regulation No. 24, 26) (19).

Ethics

This is a retrospective analysis of patient records and does not include any personal identification data. The study was carried out after it was approved by the Ethics Committee of the Behçet Uz Children's Hospital (Approval date: 19.12.2019 Approval number: 2019/17-11).

Statistics

Statistical analyses of the data obtained from the study were performed using the SPSS version 22.0 software. The main statistics used are frequency distributions and percentage calculations. Categorical data are presented as percentages, whereas numerical data with Gaussian distribution are presented as mean ± standard deviation.

RESULTS

The study group included 348 children [median age: 1 year 9 months (minimum 12 days - maximum 18 years); male/female: 197/151] whose parents had signed an 'informed refusal form' for any medical intervention and/or treatment during the study period. According to hospital records, the total number of patients who were hospitalized and followed up was 12844 in the same period (between January 1, 2019, and June 30, 2019), thus, the refusal rate was determined as 2.7%. Most of the refusals had occurred in ED (n=176; 50.6%) and Clinics of Pediatrics including General Pediatrics and pediatric subspecialties (n=126; 36.2%). Only twenty patients (5.7%) were from the Neonatal Intensive Care Unit (NICU), all of which were from 1st degree NICU, and 3 (0.9%) were from the Surgical Intensive Care Unit (SICU). There were no patients from the Pediatric Intensive Care Unit (PICU). The main characteristics of the study group and distribution according to age groups and departments are presented in Table 1.

Table 1: The main characteristics of the study group and the distribution according to age groups and departments

Variables	Participants n=348 (n,%)
Median age	1 year 9 months (min 12 days-max 18 years)
Male/Female	197/151
Neonatal	21 (6.0)
Infant	105 (30.2)
Pre-school child	125 (35.9)
School child	51 (14.7)
Adolescent	46 (13.2)
DEPARTMENTS	
Emergency Department	176 (50.6)
Clinics of Pediatrics	126 (36.2)
Neonatal Intensive Care Unit (1st degree)	20 (5.7)
Surgery Clinics	19 (5.5)
Palliative Care Unit	4 (1.1)
Surgical Intensive Care Unit	3 (0.9)
Neonatal Intensive Care Unit (2nd and 3rd degree)	0
Pediatric Intensive Care Unit	0

Table 2 presents the rates of informed refusal forms to the total number of patients followed up during the same period in different departments. According to our results, although the low number of patient counts, the highest rate of informed refusals had occurred in the pediatric palliative care unit (5.2%). All of the refused treatments were offered invasive interventions including LP, urethral catheterization, etc. in this population, and there was no refusal for life-sustaining treatments in this unit during the study period.

Table 2: The rates of informed refusal forms to the total number of patients followed up during the same period in different departments

Clinics/Departments	Refusals/Total (n)	(%)
Palliative Care Unit	4/78	5.1
Emergency Department	176/5082	3.4
Clinics of Pediatrics	126/4109	3.0
Neonatal Intensive Care Unit (1st degree)	20/909	2.2
Surgery Clinics	19/2424	0.7
Surgical Intensive Care Unit	3/399	0.7
Neonatal Intensive Care Unit (2nd-3rd degree)	0	0
Pediatric Intensive Care Unit	0	0

Table 3 summarizes the refused medical procedures (hospitalization/ intervention/ examination/ treatment). Most of the refusals (n=303, 87%) were for hospitalization. The parents had mostly refused to stay at the hospital for recommended durations and left the hospital at any stage of the treatment (beginning/continuing) and recorded as DAMA. The rate of DAMA in our hospital during the study period was 2.3%. The most common diagnosis for DAMA were bronchopneumonia/pneumonia (n=91, 26.1%), epilepsy/convulsion (n=43, 12.3%), fever with unknown origin (unknown/prolonged) (n=28, 8%), and acute gastroenteritis (n=20, 5%). When evaluated in terms of existing chronic diseases; it was observed that 36% (n=128) of the patients had a chronic disease. The most common chronic diseases in the study group were neurologic disorders [e.g., epilepsy (n=31, 24.2%; cerebral palsy (n=8, %6), chronic cardiac disorders (n=14, 10.9%), and reactive airway disease/asthma (n:13, 10%)]. The rate of prematurity in the study group was 9.3%. The acute and chronic diseases of DAMA patients are presented in Table 4.

Table 3: Distribution of refused medical procedures and interventions

Refused medical procedures (n=348)	Participants, n (%)
Hospitalization	303 (87.1)
Invasive interventions	39 (11.2)
Physical examination	3 (0.9)
Ordered medications during hospital stay	3 (0.9)
Refused interventions (n=39)	**Participants, n (%)**
Lumbar puncture	18 (46.1)
Nasogastric tube catheterization	9 (23)
Surgical operation	7 (17.9)
Urethral catheterization	3 (7.6)
Vaccination	2 (5)

Table 4: Distribution of DAMAs in terms of hospitalization diagnoses and existing chronic diseases

Diagnosis For Refusing Hospitalization	Participants, n	%
Bronchopneumonia/Pneumonia	91	26.1
Epilepsy/Convulsion	43	12.3
Fever With Unknown Origin (Unknown/Prolonged)	28	8.0
Acute Gastroenteritis	20	5.0
Chronic Diseases of Patients		
Epilepsy	31	24.2
Chronic Cardiac Disorders	14	10.9
Reactive Airway Disease/Asthma	13	10.0
Prematurity	12	9.3
Cerebral Palsy	8	6.0

Thirty-nine parents had refused a recommended medical intervention for diagnosis and/or treatment. The most common refused intervention was lumbar puncture (18/39, 46%). Other interventions refused by parents were nasogastric tube insertion (11/39, 28%), surgical operation (7/39, 17%), and insertion of urethral catheter (3/46, 7%) (Table 3).

When we evaluated the parents who signed the refusal form, 209 of them were mothers (60%), 123 (35.3%) were fathers, and 16 (4.6%) were the mother and father, together. There were no informed refusal forms signed by the children and adolescents. 47.7% (n=166) of the refusals had occurred during working hours while 52.3% (n=182) occurred during duty hours. Only 26 refusals (7.5%) were evaluated to threaten the child's well-being by the medical professionals, and reported to judicial authorities as child abuse and neglect.

Thirty-seven of the patients were Syrian refugees (37/348; 10.6%). Sociodemographic properties including educational levels of the study group were evaluated in only hospitalized patients (n=172). 3.2% of the mothers were illiterate while 37.7% of the mothers were elementary school graduates, 21.1% were secondary school graduates, 23% were high school graduates, and 6.1% were graduated from university/higher. The rates of being illiterate, graduating from elementary school, second-degree school, high school, and university/higher education among fathers were 1.8%, 35.7%, 24.8%, 24.4%, 10.8%, 2.5%, respectively.

DISCUSSION

The results of this study show that the overall refusal rate of medical procedures including discharge against medical advice (DAMA) and refusal of invasive medical interventions is 2.7% in pediatric patients. The most common type of informed refusal was DAMA in our study group that constitutes 87% of the study group and thus, the rate of DAMA was 2.3% in our hospital. The rate of DAMA is known to vary across countries, age groups, diseases, and hospital departments and accounts for approximately 1-2% of all hospital discharges among adult patients while the rates of DAMA among pediatric patients are reported to range from 1.5% to over 6% (20-22). A very recent study from Australia reported that the overall rate of DAMA seen in their cohort was 0.8% of all admissions (23). Osuorah *et al.* (24) have suggested that DAMA rates are two times higher in low and middle-income countries than in high-income countries; most likely related to financial issues. In our country, all children are treated for free due to the government health insurance policy in hospitals, including the hospital where the study was conducted and financial problems cannot be reasons for refusing hospitalization in this study group. Thus, although the rate of DAMA in our study seems to be similar to previous reports, we can speculate that this is a relatively high rate despite the lack of financial problems.

According to our results, 50.6% of the refusals had occurred in ED. The reason for this may be related to the nature of the ED. Admissions to emergency services require urgent evaluation and prompt interventions. However, the informed consent process requires adequate time and care for being informed about the diagnosis, the planned interventions and treatment methods, and the benefits and risks of alternative applications. Although this study did not evaluate the reasons for refusal from ED, we can speculate that allocating more time and care during the informed consent process may reduce the rate of refusals in all departments including ED. Sealy et al. (23) have recently reported that planned admissions were less likely than emergency admissions to refuse treatment in the study in which they described the rates and characteristics of a pediatric tertiary care setting. The authors hypothesized that this was related to patients' and their families' expectations and capacity to plan life conditions. In our study, there were no cases of informed refusal in PICU, and 2nd 3rd degree NICU, while only 12 cases had DAMA in 1st degree NICU. There was not any refusal for life-sustaining treatment in ICUs in the study group. Only 2 patients had refused chemotherapy for recurrence of the primary oncologic disease in which the expected benefit of the treatment was low. When we evaluated the rates of refusals in different departments of our hospital, the highest rate of refusals was observed in the pediatric palliative care unit. All of the refusal types observed in the palliative care unit were the refusal of invasive procedures; in addition, none of the refusals were about limiting life-sustaining treatment, indicating that the parents do not desire their children to suffer invasive interventions during hospitalization.

In a previous study from our country, Gündüz *et al.* (25) reported that lumbar puncture was the second most commonly refused treatment following the refusal of hospitalization just as observed in our current study. The most common refused interventions were lumbar puncture (18/39, 46%), nasogastric tube insertion (11/39, 28%), surgical operation (7/39, 17%), and insertion of urethral catheter (3/39, 7%) in our study group. Parental refusal rates for offered pediatric LP are known to be high, often exceeding 30%. Although the rates of LP refusal tend to be lower in high-income countries, in several studies it was observed that LP refusal is not associated with economic status

among individuals (26). The results of a very recent study showed that the rate of LP refusal among offered patients was only 5% in our country (27). During the study period, we do not know the number of patients offered LP in our hospital and thus, the results of this study do not reveal the rates of LP refusal among patients that were indicated for diagnostic/therapeutic purposes.

Refusal of medical and surgical interventions other than medications is common among patients with advanced chronic disease in the adult population(28), but there is no data reported about having chronic diseases increase the risk of treatment refusal or not in the pediatric population. The rate of having a chronic disease in our study group was 36%. Although the rate of children with chronic diseases in the study group seems to be higher than in the pediatric population, our data was limited to evaluate whether chronic disorders affected refusal of treatment rates. Prospective studies should be conducted to evaluate a possible relationship between chronic diseases and refusal of treatment in the pediatric population.

In the revised policy statement of the American Academy of Pediatrics in 2016, it is affirmed that patients should participate in the decision-making process commensurate with their development; they should provide assent to care whenever reasonable (29). Although it is clearly supported that children with sufficient maturity to understand the nature and effect of healthcare treatment are able to consent to that treatment, there are some conflicts about refusals. A child's capacity to consent to treatment has not been extended to refusal of treatment in many court decisions, and though a competent child is able to consent, they may not necessarily be competent to refuse that same treatment (30). All of the refusal forms were signed by the parents in the study group (by mothers 60%, by father 35.3%, and 4.6% both). There was no signature of the patients on the informed refusal forms including adolescent patients in our study group.

After treatment is refused by parents, pediatricians should consider their legal and ethical duties to provide a standard of care that meets the pediatric patient's needs and rather than the parents' desire or request (29). Although historically and legally, medical decision-making in children has focused on the best-interest standard, and set the threshold for intervention in cases of abuse and neglect, the best interest standard proves dificulties in practice (31). Diekema (32, 33) has suggested that the Harm Principle provides a more appropriate threshold for state intervention than the Best Interest standard. In our study, only 7.5% of the refusals were reported to governmental authorities, supporting that the 'harm principle' is being used as the threshold of reporting child abuse and neglect in our hospital, too.

The sociodemographic properties were only evaluated in hospitalized patients except for ED, and were limited to the educational status of the parents. Prospectively designed studies evaluating sociodemographic properties should be conducted to evaluate sociodemographic risk factors for refusal of treatment in pediatric practice.

Limitations

This study was conducted in the ED and inpatient departments of a tertiary care hospital for the pediatric age and provides data about the informed refusal of treatment in acutely ill children. Other limitations of this study depend on the retrospective design. Researchers firstly evaluated electronic files if any refusal of treatment was recorded on the hospital database system. In case of missing data on electronic patient files, the written patent files were not checked by the researcher, thus the number of patients with a refusal of treatment may be slightly higher than reported. In addition, as the standard written informed consent forms used in our hospital do not include information about the reasons for refusal and sociodemographic properties of the families, we were unable to evaluate the reasons and sociodemographic risk factors of treatment refusals.

CONCLUSION

Discharge against medical advice is the most common type of refusal to treatment in this study which was previously reported to increase over the past decade and carry a risk of readmission and have increased morbidity and mortality. Among the invasive interventions, lumbar puncture is the most commonly refused medical intervention in the study group, which is also reported to have a significant effect on the treatment, hospital stay, and disposition outcomes in pediatric settings (34). Most cases of refusal of treatment occur in ED but patients in the pediatric palliative care unit have higher rates of refusal of invasive procedures. There were no cases to refuse life-sustaining support either in the ICUs or the palliative care unit in pediatric practice.

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ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

Informed Parents- Safe Environment for Children*

Bilgili Ebeveynler- Çocuklar için Güvenli Ortam

Gonca Keskindemirci[1], Öykü Özbörü Aşkan[2], Hüray Kök[3], Ebru Şenol[3], Pınar Yılmazbaş[4], Yeşfa Şebnem Özbay[3], Gülbin Gökçay[2]

[1]İstanbul University, İstanbul Medical Faculty, Department of Pediatrics Division of Social Pediatrics, İstanbul, Turkey
[2]İstanbul University, Institute of Child Health Department of Social Pediatrics, İstanbul, Turkey
[3]İstanbul University, Institute of Health Sciences and Institute of Child Health Social Pediatrics PhD Program, İstanbul, Turkey
[4]University of Health Science, Prof. Dr. Cemil Taşçıoğlu City Hospital, Well Child Outpatient Clinic, İstanbul, Turkey

ORCID ID: G.K. 0000-0003-1797-2802; Ö.Ö.A. 0000-0002-4139-5497; H.K. 0000-0001-7519-0185; E.Ş. 0000-0001-9015-1846; P.Y. 0000-0002-1283-1712; Y.Ş.Ö. 0000-0003-3473-0135; G.G. 0000-0003-1042-0407

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ABSTRACT

Objective: Childhood injury is a significant public health problem. This study aimed to evaluate the awareness of families about accident/injury risks both indoors and outdoors and provide counselling within the scope of parent education by using tools related to environmental safety.

Material and Methods: This study was a two-centered, prospective study conducted with the participation of parents with children under the age of five. Initially, a preliminary assessment was made using a questionnaire. Then, face-to-face training was provided using an infographic brochure from the "Basic Information for Families for Child Health and Safety in the First 5 Years" booklet created by the Child Health Association (https://cocuksagligidernegi.org/). Parents were given a "Safety Checklist" so they could assess child safety at home. In the third and sixth months, families were called and asked questions again about their attitudes and behaviors towards preventing accidents/injuries.

Results: A total of 157 parents were included in the study. It was determined that the rates of safe behavior in-car safety, sleep safety, toy safety, kitchen and bathroom safety, and indoor arrangements increased statistically.

Conclusion: Family counseling and education can lead to behavioral change to create a safe environment for children and prevent accidents/injuries. Multifaceted initiatives are more likely to successfully reduce injuries at home and increase the effectiveness of education with the use of infographic materials, continuity of education, preparing checklists to be applied at home and sharing them with families.

Keywords: Accident/Injury, child safety, education

ÖZ

Amaç: Çocukluk çağında yaralanmalar önemli bir halk sağlığı sorunudur. Çalışmamızda, ailelerin hem iç, hem de dış mekanlarda kaza/yaralanma riskleri konusundaki farkındalıklarını değerlendirmeyi ve çevre güvenliği ile ilgili araçlar kullanarak anne baba eğitimi kapsamında danışmanlık vermeyi amaçladık.

Gereç ve Yöntemler: Çalışmamız, beş yaşından küçük çocuğu olan anne babaların katılımı ile yürütülen iki merkezli, ileriye dönük bir çalışmadır. Başlangıçta, anket kullanılarak ön değerlendirme yapıldı. Çocuk Sağlığı Derneği (https://cocuksagligidernegi.org/) tarafından hazırlanan "İlk 5 Yaşta Çocuk Sağlığı ve Güvenliği İçin Ailelere Temel Bilgiler" kitapçığından hazırlanan bir infografik broşür kullanılarak yüz yüze eğitim verildi. Anne babalara evlerinde çocuk güvenliğini değerlendirebilmeleri için bir "Güvenlik Kontrol Listesi" verildi. Üçüncü ve altıncı aylarda aileler aranarak kazaları/yaralanmaları önlemeye yönelik tutum ve davranışlarını değerlendiren sorular tekrar soruldu.

Bulgular: Çalışmaya toplam 157 anne baba alındı. Eğitimden sonra; araç içi güvenlik, uykuda güvenlik, oyun ve oyuncak güvenliği, mutfak ve banyo güvenliği ve iç mekan düzenlemelerine ilişkin güvenli davranış oranlarının istatistiksel olarak arttığı saptandı.

Sonuç: Aile danışmanlığı ve eğitimi, çocuklar için güvenli bir ortam yaratmak ve kazaları/yaralanmaları önlemek için davranış değişikliğine yol açabilmektedir. İnfografik materyallerin kullanılması, eğitimin sürekliliğinin sağlanması, evde uygulanacak kontrol listelerinin hazırlanması ve ailelerle paylaşılması eğitimin etkinliğini artıracağından çok yönlü girişimlerin evdeki yaralanmaları başarılı bir şekilde azaltması daha olasıdır.

Anahtar Kelimeler: Kaza/yaralanma, çocuk güvenliği, sağlık eğitimi

*This study was presented as an oral presentation at the "2nd International Eurasian Congress of Social Pediatrics and 6th National Congress of Social Pediatrics".

Corresponding Author/Sorumlu Yazar: Gonca Keskindemirci **E-mail:** keskindemirci@hotmail.com

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INTRODUCTION

Child injury is a significant public health problem. As a result of unintentional injuries, more than 2000 children die every day, and millions of children suffer non-fatal injuries that could cause long-term hospitalization and rehabilitation (1). Children are more susceptible to accidents than any other age group because of their specific behavioral, physiological, and developmental characteristics (2). Most injuries among young children occur in the home environment, and are associated with the family's socio-economic factors, the physical home environment, and the child's developmental characteristics (3). As children are curious by nature, learn with experience, cannot realize cause-effect relationships, spend most of their time on the floor, and their motor coordination development is not fully accomplished, the risk of injuries increases (2-4). It is known that falls, burns, foreign body aspirations, and intoxications are the most common injuries in the pre-school age group, and these injuries mostly take place in the living room, kitchen, and bathroom (5, 6). Turkish data shows indoor injuries as the second most common cause of death following traffic accidents in children ages one to seventeen. The most common indoor injuries specified are falls, drowning, burns, and intoxications (4, 7).

The WHO report announces that 90% of injuries are preventable with relatively simple yet proven measures such as car seats, bicycle helmets, fencing swimming pools, child-resistant containers, window bars, and hot water temperature legislation (2). Therefore, primary prevention practices should be a priority in preventing injuries and providing children's wellbeing. Previous studies showed that questioning the injury risks and safety measures in well child follow-ups, family education, and home visits were effective methods in prevention of childhood unintentional injuries (8-11). Prevention studies that use infographics in parental education are limited in the literature.

In this study, the primary aim was to evaluate the parents' awareness about injury risks both indoors and outdoors and to provide counseling within parental education using infographics about environmental safety. The secondary aim was to compare parents' knowledge before and after education and its reflection on environmental safety practices.

MATERIAL AND METHODS

Our study was a two-centered, prospective, interventional study conducted in Istanbul University, Istanbul Faculty of Medicine, Department of Pediatrics, Division of Social Pediatrics Well-Child Outpatient Clinic and Health Sciences University Okmeydanı Training and Research Hospital, in the Well-Child Outpatient Clinic in Istanbul, Turkey between February 2020 and March 2020. Parents with children less than five years of age and who consented were included in the study. Growth and developmental evaluation, vaccination, and authoritative parenting consultancy were given to parents of all applied children.

Data on social-demographic characteristics, parental age, family income level (below or above the minimum wage) educational year, working status, number of households, and the age of the child were recorded at baseline. Then, a pre-evaluation questionnaire consisting of eight questions was completed in a face-to-face interview to evaluate the knowledge on practices of a safe environment (Table 1). After the pre-evaluation questionnaire, child health professionals working in social pediatrics gave face-to-face training using the Informed Parents-Safe Society brochure. The booklet "Basic Information

Table 1: The comparison of assessments before the training and at the third month after the training

Injury prevention (n¶)	Age	n¶¶ (%)	p
Car safety (n=86)	0. month	45 (52)	0.000*
	3rd month	57 (66)	
Sleep safety (Sleeping position) (n=147)	0. month	58 (40)	0.000**
	3rd month	97 (66)	
Sleep safety (Pillow use) (n=150)	0. month	117 (78)	0.000*
	3rd month	143 (95)	
Right knowledge of a small object definition (139)	0. month	2 (1)	0.029*
	3rd month	24 (17)	
Balloon safety (n=151)	0. month	98 (65)	0.062
	3rd month	128 (85)	
Poison safety (safe storage of household cleaning products, etc.) (n=86)	0 .month	19 (22)	0.000*
	3rd month	24 (28)	
Safe use of furniture and TV (n=150)	0. month	41 (27)	0.000**
	3rd month	64 (43)	

**Fischer-Exact Test; **Chi-square Test.*
¶ number of parents who responded to this ¶¶number of parents who answered correctly

for Families for Child Health and Safety in the First 5 Years" prepared by the Child Health Association was used (https://cocuksagligidernegi.org/) was used as a model for the brochure used in the study. The brochure of infographics consisted of information on practices of car safety, sleep safety (especially sleep position and pillow use), safe toys for children (especially knowledge of a small object and balloon safety), providing a safe area in the kitchen and bathroom (especially safe storage of household cleaning products), and the living room with furniture and television (TV). Four Social Pediatrists trained the families separately and the training took 15-20 minutes.

After the training, a "Security Checklist" which was adopted from the documents by Baysal et al. (12) was given to the family to evaluate home safety. The checklist consisted of forty-three items including car safety (6 items), safety in living room, sleep safety, safe toys (18 items), safety in the kitchen (11 items), safety in the bathroom (6 items) and safety outdoors (2 items). In the third and sixth months, families were called and questions evaluating the attitudes and behaviors about preventing injuries were asked again. We evaluated whether the unsafe practices persisted or not and made repetition about the inappropriate ongoing practices.

The Istanbul University, Istanbul Medical Faculty Ethical Committee approved the study (Protocol No: 2019/1290) and all participants gave written informed consent.

RESULTS

A total of 157 parents who agreed to participate in the study filled out a pre-evaluation form and were informed using a brochure. Mothers made up 94.3% of the participants and median (IQR) age of the participants was 33 (29-37) years. Mean education time of the participants was 12 (±3.9) years. Median (IQR) age of the children was 12 (5-30) months and 46.5% of children were singleton.

A total correct answer score given in the pre-training questionnaire was correlated with the participants' education year (p=0.005, r=0.221). However, no correlation was found between participants' education year and the score difference between pre-training questionnaire and the questionnaire 3 and 6 months after training.

After training, there was an increase in car safety behaviors, the correct safe sleep position, knowing the age limit for pillow use, the definition of small objects/toys, paying attention for age about playing with balloons, safe storage of cleaning materials in the kitchen and bathroom, and safe use of furniture and TV in the living room (n=151 [3 months], n=135 [6 months]). These differences were statistically significant. Education levels were not statistically significant among parents. The comparisons of pre-training evaluation and evaluations at 3 and 6 months after the training are given in Table 1-3.

DISCUSSION

In the present study, parents' awareness about injury risks both indoors and outdoors was evaluated by a pre-evaluation questionnaire and questionnaire after training using infographics about environmental safety. Their awareness was evaluated at the third and sixth month after training. After training, correct car safety behaviors, safe sleeping positions, knowing the age limit for pillow use, the definition of small objects/toys, paying attention for age about playing with balloons, safe storage of cleaning materials in the kitchen and bathroom, and safe use of furniture and TV were

Table 2: The comparison of assessments before the training and at the sixth month after the training

Injury prevention (n¶)	Age	n¶¶ (%)	p
Car safety (n=77)	0. month	38 (49)	0.000*
	6th month	59 (77)	
Sleep safety (Sleep position) (n=132)	0. month	51 (39)	0.007*
	6th month	106 (80)	
Sleep safety (Pillow use) (n=134)	0. month	106 (79)	0.209*
	6th month	133 (99)	
Right knowledge of a small object definition (n=134)	0. month	2 (4)	0.074*
	6th month	52 (39)	
Balloon safety (n=135)	0. month	91 (67)	0.005*
	6th month	128 (95)	
Poison safety (safe storage of household cleaning products) (n=72)	0. month	18 (25)	0.000**
	6th month	19 (26)	
Safe use of furniture and TV (n=134)	0. month	34 (25)	0.000*
	6th month	58 (43)	

*Fischer-Exact test **chi-square test
¶ number of parents who responded to this ¶¶number of parents who answered correctly

Table 3: The comparison of assessments at the third month and at the sixth month after the training

Injury prevention (n¶)	Age	n¶¶ (%)	p
Car safety (n=76)	3rd month	47 (62)	0.000*
	6th month	57 (75)	
Sleep safety (Sleep position) (n=128)	3rd month	84 (66)	0.000*
	6th month	104 (81)	
Sleep safety (Pillow use) (n=129)	3rd month	122 (95)	0.054*
	6th month	128 (99)	
Right knowledge of a small object definition (n=120)	3rd month	20 (17)	0.000**
	6th month	43 (36)	
Balloon safety (n=129)	3rd month	109 (87)	0.001*
	6th month	122 (95)	
Poison safety (safe storage of household cleaning products) (n=129)	3rd month	34 (26)	0.000**
	6th month	43 (36)	
Safe use of furniture and TV (n=129)	3rd month	53 (41)	0.000**
	6th month	55 (43)	

**Fischer-Exact test **chi-square test*
¶ number of parents who responded to this ¶¶number of parents who answered correctly

increased statistically. In addition, this study showed that family counselling and training are an essential part of well-child visits.

The most effective way to protect children from motor vehicle traffic accidents is to use a child car seat system. The National Highway Traffic Safety Administration "NHTSA" reported that when these systems are used correctly in the USA, infant deaths under one year will be reduced by 71% and child deaths aged 1-4 years by 54% (13). According to 2013 data from the Health Statistics Yearbook of the Ministry of Health of the Republic of Turkey, the rate of travelling in the back seat of their private car and wearing a seat belt was 17.3% in 0-5-year-olds (14). In the study of Andijani, the parents' rate of use of car seats was 30% and was significantly associated with education level and family income (15). Our study determined that the use of child car seats was low before training, but the use of it increased significantly after training with infographics. Family education plays a crucial role in child health follow-up, and our study shows the positive results of education.

The American Academy of Pediatrics reports that the most appropriate sleeping position to prevent Sudden Infant Death Syndrome is the supine position (lying on the back). Lying on the back does not pose a risk in terms of suffocation or aspiration (16-18). In our study, the number of parents who knew the correct sleeping position increased significantly after training. Therefore, it is vital that family counselling be started in the prenatal period, not postnatally, or as early as possible to reduce sudden infant death rates significantly.

Pillows are not recommended for infants under one year of age due to the risk of suffocation. In our study, while the use of pillows decreased significantly in the 3rd month after the training, no significant decrease was found in the use of a pillow in the following months. The parents do not know that using a pillow may pose a risk in terms of baby safety. It is recommended for the baby to sleep on a hard, flat sleeping surface to reduce the risk of suffocation (19).

Children tend to put the items in their mouths as a part of their behavioral and motor development. In the study conducted by Öz et al. (5) which aimed to develop an injury control list and evaluate the risk of injury in 570 children aged 0-5 years, 6.9% of the children suffered from foreign body aspiration (5). In a study conducted in the USA, it was reported that the annual foreign body aspiration rate per 10,000 children increased from 9.5 in 1995 to 18 in 2015, which increased by 91.5% (20). The researchers in this study observed that the families did not have clear information about the dimensions of objects that would pose a risk for foreign body aspiration. Therefore, a toilet paper roll is recommended as a measuring tool (21). In this study, training was given on its use as a measuring tool and feedback was received after the education that parents used this information in their daily lives to identify small-piece toys for their children and thus take precautions for foreign body aspiration.

The U.S. Consumer Product Safety Commission (CPSC) has reported balloons as the leading cause of childhood deaths from suffocation among all children's products. In addition, there is a risk of suffocation while trying to inflate the balloon, or the pieces of a burst balloon cause a risk of suffocation (22). The awareness and knowledge of families increased after the training on playing with balloons in the study.

In a study conducted by Kurt et al., the number of household injuries experienced by children in a year were examined, and it was determined that 67.3% of children had a home accident

once, 23.5% had two accidents, and 9.2% had three or more accidents in their home environment. It has been reported that home accidents occur mainly in the living room, kitchen, and bathroom (23). The study of Kondolot et al., which evaluated the poisoning cases admitted to the pediatric emergency service, found that caustic/corrosive substance intake was the highest cause of poisoning admission in children aged eight months to five years. (24). Güloğlu et al. retrospectively analyzed the forty-two children admitted to the emergency room because of television-related injuries. Five children lost their lives, and the most frequent deaths were between 1-3 years old (25). In this study, an infographic brochure was used to educate parents about the precautions that must be taken in the kitchen, bathroom, and living room. After training, the researchers learned that arrangements improving home conditions were made. The study found that giving prevention checklists to reinforce parent training and education was effective.

Studies assessing the multifaceted interventions were found effective to prevent injuries in the literature (8-10). Our study was compatible with the literature as a multifaceted intervention using infographic training and a home checklist.

As a limitation, our study coincided with the COVID-19 pandemic period; the number of participants was less than expected, and all of the interviews were done by telephone due to the pandemic in the 3rd and 6th months.

In conclusion, family counselling and training are effective for those who take care of children to create a safe environment for minimizing injuries. In addition, multifaceted interventions are more likely to successfully reduce injuries in the home as using infographics, ensuring the continuity of the training, preparing the checklists to be applied at home and sharing them with the families will increase the effectiveness of the training.

This study was presented as an oral presentation in 2nd International Eurasian Congress of Social Pediatrics and 6th National Congress of Social Pediatrics.

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REVIEW / *DERLEME*

Social Pediatrics Training in Turkey

Türkiye'de Sosyal Pediatri Eğitimi

Gülbin Gökçay[1,3], Bahar Kural[2], Gonca Keskindemirci[1,3], Olcay Neyzi[4]

[1]Istanbul University, Institute of Child Health Department of Social Pediatrics, Istanbul, Turkey
[2]Istanbul University, Institute of Health Sciences and Institute of Child Health Doctorate Program İstanbul, Turkey
[3]Istanbul University Istanbul Medical School Department of Child Health and Diseases Division of Social Pediatrics, İstanbul, Turkey
[4]Emeritus Professor of Pediatrics/Administrator, İstanbul, Turkey

ORCID ID: G.G. 0000-0003-1042-0407; B.K. 0000-0001-9528-1009; G.K. 0000-0003-1797-2802; O.N. 0000-0003-4786-0780

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ABSTRACT

Training in Social Pediatrics at Medical Schools has deep roots in Turkey. Nowadays, there are Social Pediatrics divisions under the departments of child health and disease in many medical schools. Academicians in Social Pediatrics Divisions give lectures starting from the first year of medical education. Social Pediatrics is not a subspeciality yet in Turkey. There are universities with institutes providing postgraduate training in Social Pediatrics. This article aims to present the history and developments of training in Social Pediatrics in Turkey.

Keywords: Social Pediatrics, Turkey, child health

ÖZ

Ülkemizde Sosyal Pediatri alanındaki tıp eğitimi köklü bir geçmişe sahiptir. Günümüzde birçok tıp fakültesinde Çocuk Sağlığı ve Hastalıkları Anabilim Dallarına bağlı olarak Sosyal Pediatri Bilim Dalları açılmakta ve çocuk sağlığı alanındaki lisans ve lisansüstü eğitimler bu bilim dallarındaki akademisyenler tarafından verilmektedir. Sosyal pediatri henüz yan dal olmadığı için Sosyal Pediatri alanındaki lisans üstü eğitim bazı üniversitelerdeki enstitüler tarafından gerçekleştirilmektedir. Bu makalenin amacı ülkemizde sosyal pediatri alanındaki eğitimin gelişimini ve günümüzdeki durumunu ayrıntıları ile sunmaktır.

Anahtar Kelimeler: Sosyal pediatri, çocuk sağlığı, Türkiye

INTRODUCTION

The COVID-19 pandemic brought the importance of the concepts of social and preventive health to the forefront and helped to galvanize them into the idea of general health. As for child health, a broader approach is needed. In 2005, Spencer et al. described Social Pediatrics as "a global, holistic, and multidisciplinary approach to child health; it considers the health of the child within the context of their society, environment, school, and family, integrating the physical, mental, and social dimensions of child health and development as well as care, prevention, and promotion of health and quality of life" (1).

History

The roots of Social Pediatrics date back to early 1800's. Louis-René Villermé studied mortality in Paris in the 1830s and concluded that social conditions in poor areas were associated with increased mortality (2). The connection between child health and the social context in which children live was first documented by Virchow. The discovery of pathogens and antibiotics has started a new era in medical practice. The importance of vaccination, nutrition, and other public health measures had started to be known in the mid 1900s (3). Prof. Allan Macy Butler was a pioneer in publishing measures to improve healthcare delivery in the U.S in 1939 (4). Professor Olcay Neyzi was trained by him at Harvard University in 1956-57 and thereafter continued her training and studies in the İstanbul University Medical School Department of Pediatrics (5).

Ege University Medical School was the first institution in Turkey to start Social Pediatrics lectures in 1957. Lecture notes later were turned into the first book on Social Pediatrics for medical students, and it was published in 1968 in Turkish. In the book, the authors (Professor Sabiha Özgür and Professor Tugrul

Corresponding Author/Sorumlu Yazar: Gülbin Gökçay **E-mail:** drgulbin@gmail.com
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Özgür) defined Social Pediatrics as follows: "Social Pediatrics is a science that teaches physicians the pleasure of being useful to the society and shows the way that they will follow in the development of society" (6).

Departments of Social Pediatrics were founded in accordance with the decision of the Higher Education Council dated December 23, 1982 (number 82/655) at two institutions in Turkey, the Institute of Child Health at Istanbul University and the Institute of Child Health at Hacettepe University.

Professor Nusret Fişek worked in the field of public health and implemented a national program in Turkey which included free immunization and the promotion of breastfeeding. These measures reduced infant mortality significantly in the 1960s.

Professor İhsan Doğramacı was a founding member of the European Society for Social Pediatrics (ESSOP) in 1977 and he was another pioneer of Social Pediatrics in Turkey. In 2012, ESSOP became the International Society for Social Pediatrics (ISSOP), in recognition of increasing international membership and a global society (7, 8).

Undergraduate Education in Social Pediatrics

Undergraduate medical education starts after high school and achievement of the required score in the General University Entrance Examination. There are currently 114 universities with medical schools in Turkey (9). Medical school education lasts 6 years and students graduate as general practitioners. In medical schools, Social Pediatrics lectures are taught from the first year. The main contents of the lectures given by Social Pediatricians are shown in Table 1. If specialization in a medical field is desired, then graduates need to take a medical specialization examination. Subsequently, a four-year fellowship program offered in medical schools or in state training and research hospitals must be completed to become a pediatrician. For subspecialization in pediatrics in fields such as pediatric rheumatology, pediatric emergency, etc., another general exam is required.

Table 1: Main Social Pediatrics topics in medical school

Breastfeeding and breastfeeding counseling
Child survival principles
Child health surveillance
Vaccines and principles of immunization
Children with special needs
Principles of child care in the community
Health of school children
Vaccination in special conditions
Complementary nutrition
Childhood accidents and prevention methods
Approach to cases of neglect and abuse in children
Children's rights
Screenings
Child health situations in the world and in Turkey

Social Pediatrics is not a subspeciality yet in Turkey. However, departments of pediatrics (departments of child health and diseases) define Social Pediatrics as a division since 1982. There are Social Pediatrics divisions in 24 medical schools (Table 2). Academicians in Social Pediatrics in these medical schools give lectures on the topics shown in Table 1. There are well child units and immunization units in all these medical schools run by the Social Pediatrics divisions and in some training and research hospitals in Turkey.

Table 2: Medical schools with Social Pediatrics divisions in Turkey (City)

Acıbadem University (İstanbul)
Adıyaman University (Adıyaman)
Akdeniz University (Antalya)
Ankara University (Ankara)
Çukurova University (Adana)
Dokuz Eylül University (İzmir)
Ege University (İzmir)
Erciyes University (Kayseri)
Gazi University (Ankara)
Gaziantep University (Gaziantep)
Hacettepe University (Ankara)
İstanbul University (İstanbul)
İstanbul University-Cerrahpaşa (İstanbul)
Kırıkkale University (Kırıkkale)
Kocaeli University (Kocaeli)
Marmara University (İstanbul)
Medipol University (İstanbul)
Muğla Sıtkı Koçman University (Muğla)
Namık Kemal University (Tekirdağ)
On Dokuz Mayıs University (Samsun)
Osmangazi University (Eskişehir)
Pamukkale University (Denizli)
Sivas Cumhuriyet University (Sivas)
Yıldırım Beyazıt University (Ankara)

Postgraduate Education in Social Pediatrics

There are six universities with institutes providing postgraduate training in Social Pediatrics. The names of the universities and the types of postgraduate programs are given in Table 3. Social Pediatrics encompasses four main areas of child healthcare: disease prevention (includes vaccination, health surveillance, nutrition, nurturing care practices), health promotion (being brought up with healthy life choices and habits), curative pediatrics, and rehabilitation. Social Pediatrics training programs in Turkey are generally conducted at the doctoral level. The aim of this program is to provide the student with the ability to conduct independent scientific research, to interpret events by examining them with a broad and deep perspective, and to determine the necessary steps to reach new syntheses. Pediatricians are the candidates for these programs. Although the language of instruction is Turkish, sufficient and documented knowledge of English is required. Institutional requirements may differ, but a personal interview and general aptitude test are held for candidates. There is no tuition or

Table 3: Universities providing postgraduate training in Social Pediatrics (type of program)

Ankara University (MSc)
Erciyes University (PhD)
Gazi University (PhD)
Hacettepe University (PhD)
İstanbul University (PhD)
Marmara University (PhD)

application fee for the programs in Turkey. Scientific and Technical Research Council of Turkey (TUBİTAK) scholarships are available for PhD students.

The main topics of the programs are given in Table 4. The students prepare for and contribute to the seminars. Attendance is compulsory. The students need to conduct and participate in clinical studies. They are expected to complete assignments together with their peers and are trained to be team players. On a regular basis, the students observe the functioning of the outpatient clinic and take part in outpatient clinic rounds. In the outpatient clinic, students take part in examinations and vaccinations of children who are being followed up and take part in the planning of their follow-up and in the counseling of parents. At the end of each term, there are written examinations. Preparing a review article and studies about a given topic are also part of the examination and are evaluated with this perspective. The students are obliged to prepare a manuscript and it must be published or accepted for publication in a medical journal during their PhD training. Contributions to community-based programs, to breastfeeding counseling trainings, and training of trainees programs are required.

Table 4: The main subjects of Social Pediatrics postgraduate programs

Active/passive immunity
Antenatal and perinatal health
Approach to childhood acute respiratory diseases
Approach to childhood diarrheal diseases
Basics of pediatric epidemiology
Breastfeeding counseling
Child health advocacy
Child health services in the community
Child health surveillance
Child and adolescent mental health
Child rights, neglect and abuse
Child care and protection in the community
Childhood contagious disease
Communication skills
Critical reading (provided by seminars and presentations)
Environmental health
Growth and development
Health policy
Immunization
Children with special needs (disabilities and chronic diseases)
Nutrition
Primary, secondary, and tertiary prevention
Research design and evidence-based medicine
State of the children in society
Social pediatrics
Vaccines
Women's health

The program period is 4 years (8 semesters) for the PhD and 2 years (4 semesters) for the MSc program. The first two years of the PhD program consist of structured training. This training also takes up one year of the MSc program. At the end of two years, students are required to take a written and oral proficiency test, which is called a PhD Qualifying Exam. Then the second step of the program starts. There is no proficiency test in the MSc program. Thesis writing takes at least 4 semesters in the PhD program and 2 semesters in the MSc program. Each semester, students fill out a thesis follow-up form in order to present information on their academic work to their advisors. At least three thesis follow-up forms and summary of academic activity must be presented in the PhD program. When the thesis is completed, the students take the PhD Thesis Defense Examination. Upon successful completion of this exam, they are entitled to a PhD in the field of Social Pediatrics.

There is great demand for and great interest in the field of Social Pediatrics in Turkey and growing support for its expansion all across Turkey. A book called "Child Health Follow-up in the First 5 Years" was published in Turkish by the Social Pediatrics Association with the contributions of PhD students (10). Every year National Social Pediatrics meetings and every two years the International Eurasian Social Pediatrics Congress are held in Turkey. These meetings also provide a nurturing environment for medical students, residents and pediatricians.

CONCLUSION

The COVID-19 Pandemic showed the world the context and importance of Social Pediatrics. Child health follow-up rates in societies, breastfeeding success, continuation of belief in vaccines, protection of child health in difficult circumstances, provision of school health services, and parental counseling on authoritative parenting for increasing resilience in children are possible by empowering Social Pediatrics training in the country. Therefore, much effort is still required to train a higher number of special experts who provide services in the field of Social Pediatrics and to value their contribution to their community.

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REVIEW / *DERLEME*

Children of the Syndemic

Nick Spencer[1]

[1]University of Warwick, Coventry, United Kingdom

ORCID ID: N.S. 0000-0003-2748-6349

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ABSTRACT

The term syndemic was developed by medical anthropologists to "label the synergistic interaction of two or more coexistent diseases and resultant excess burden of disease." COVID-19 has exposed and exacerbated societal inequalities among children through differential indirect effects on family financial security, social adversity, mental health, and educational access, among other things.

Using a child rights-based approach, the review examines how the syndemic has impacted aspects of the life of children, such as healthcare access, educational access, and family economic circumstances.

The examples of the impact of the pandemic and existing inequities, the syndemic, given throughout the review are only a snapshot of the broad effects of the pandemic on the lives of children worldwide. Children have been spared by the worst direct clinical effects of COVID-19, but the indirect effects have been severe.

Pediatricians and their organizations can contribute by working with non-governmental organizations and advocating for policy decisions at local, national, and international levels, which protect children from the short- and long-term consequences of the syndemic.

Keywords: Syndemic, COVID 19, Children

INTRODUCTION

The term **syndemic** was developed by medical anthropologists to "*label the synergistic interaction of two or more coexistent diseases and resultant excess burden of disease*" (1). An example of a syndemic is the interaction of HIV with tuberculosis, resulting in the exacerbation of the clinical effects of both conditions. Singer and Clair also emphasize "*the determinant importance of social conditions in the health of individuals and populations*".

Using these concepts, Richard Horton, Editor of the Lancet, has written an opinion piece entitled "COVID 19 is not a pandemic," in which he argues that the COVID pandemic combines with existing health, social and environmental conditions to create a syndemic (2). The following quote from his piece explains his reasoning:

"Two categories of disease are interacting within specific populations—infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and an array of non-communicable diseases (NCDs). These conditions are clustering within social groups according to patterns of inequality deeply embedded in our societies. The aggregation of these diseases on a background of social and economic disparity exacerbates the adverse effects of each separate disease. COVID-19 is not a pandemic. It is a syndemic. The syndemic nature of the threat we face means that a more nuanced approach is needed if we are to protect the health of our communities"

Horton's main focus is NCDs in adults, but the same inequalities driving NCDs in adulthood affect children in multiple ways. COVID 19 has exposed and exacerbated these societal inequalities among children through differential indirect effects on family financial and social adversity, mental health, and access to education, among other things. Horton finishes his piece with the following statement, which is as relevant to children as to adults:

"Approaching COVID-19 as a syndemic will invite a larger vision, one encompassing education, employment, housing, food, and environment. Viewing COVID-19 only as a pandemic excludes such a broader but necessary prospectus".

This review aims to build on Horton's larger vision and the concept of the syndemic to promote an understanding of how pre-existing social conditions combined with the pandemic to increase child health inequalities and further marginalize

Corresponding Author/Sorumlu Yazar: Nick Spencer **E-mail:** n.j.spencer@warwick.ac.uk

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vulnerable groups of children. Using a child rights-based approach, the review examines how the syndemic has impacted aspects of the life of children, such as access to healthcare, education and family economic circumstances. The review seeks to learn from the experience of the syndemic to consider how societies could build a better future for children and concludes with the role of social pediatricians in ensuring that children's futures are protected and improved.

CLINICAL AND RESEARCH CONSEQUENCES

How the syndemic has impacted the lives of children

Before the COVID pandemic emerged in late 2019 in China and spread across the world in early 2020, children experienced huge challenges to their rights, health and well-being. In the majority world countries, which are both the poorest countries and home to the majority of the world's children, low birth weight (3), malnutrition (4), limited access to adequate healthcare and education (5), poverty (5), and high levels of under-5 mortality persisted despite improvements over the preceding 20 years (5). Even in high income minority world countries, many children experienced exclusion, marginalization and poor health due to poverty (6). The pandemic exacerbated these existing challenges and the challenges have made the effects of the pandemic worse for many children – a classic syndemic. The syndemic exerts its strongest impact among the poorest and most marginalized children but also undermines the rights, health and development of millions of children across the globe.

To illustrate how the syndemic has affected children, I review how pre-existing inequities and injustices combined with the pandemic in particular areas of children's lives to threaten their health, development and well-being.

Access to affordable healthcare

In 2017, half the world's population still did not have access to quality essential services to protect and promote health (7) and 100 million people annually are pushed into extreme poverty by healthcare costs. 25% of the global population is not covered by reproductive, maternal, neonatal and child health services (RMNCH), increasing to 45% in sub-Saharan Africa (8). Even in the world's richest country, the Children's Health Fund (CHF) estimated that in 2015 a minimum of 20.3 million children in the United States (28% of all children) faced barriers to accessing essential health care. This estimate covers children who are a) uninsured; b) children who don't receive routine primary care; and c) publicly insured children who are connected to primary care but have unmet needs for pediatric subspecialty care when needed, such as pediatric cardiology or pediatric endocrinology (9).

During the pandemic, curative and preventive health services have been disrupted because of the diversion of resources to the care of the acutely ill and restrictions on social contact imposed by governments to limit the spread of the virus. Relatively few children have been admitted to the hospital with COVID, but children's inpatient facilities have been taken over to cope with the overflow of adults suffering with the virus (10).

In low-income countries, loss of healthcare resources has been severe, as funds being diverted to coping with the pandemic and lockdowns in response to the pandemic have disrupted commerce and job opportunities, particularly for those already in precarious employment (11). The UN Development Program predicts the following:

"*Income losses are expected to exceed $220 billion in developing countries. With an estimated 55 per cent of the global population having no access to social protection, these losses will reverberate across societies, impacting education, human rights and, in the most severe cases, basic food security and nutrition. Under-resourced hospitals and fragile health systems are likely to be overwhelmed. This may be further exacerbated by a spike in cases, as up to 75 per cent of people in least developed countries lack access to soap and water.*" (12)

Preventive health fixed and outreach services, particularly those delivering routine childhood vaccination and community child health clinics, have been disrupted in many countries as a result of pandemic restrictions. A modeling study published in the Lancet estimated that across the world, from January to December 2020, 30.0 million (27.6–33.1) children missed DTP3 doses and 27.2 million (23.4–32.5) children missed MCV1 doses (13). Evidence is emerging that disadvantaged children in poorer countries are more likely than their more advantaged peers to miss essential routine childhood vaccinations, (14) (15) exacerbating inequities which pre-dated the pandemic – a clear example of the syndemic effect. An inevitable consequence of this disruption will be increasing mortality and morbidity due to childhood infectious diseases such as measles (16), malaria (17), and pneumonia (18). The impact of these diseases is further exacerbated by malnutrition, which weakens children's immune response to the infectious agents and, as considered below, limited access to adequate nutrition combined with the consequences of the pandemic create a further manifestation of the syndemic.

Access to adequate nutrition

Malnutrition of mothers and children is recognized as one of the most important factors underlying early childhood morbidity and mortality in majority world countries, leading to high rates of low birth weight, under-5 mortality (U-5MR), wasting, stunting and micro-nutrient deficiency (19). In high-income countries malnutrition takes a different form, manifesting mainly as an epidemic of obesity (4) although hunger and food insecurity co-exist with obesity in the USA (20) and the UK (21). Despite reductions in the prevalence of early childhood malnutrition in many low-income countries, a recent UNICEF report (22) based on extensive research across 135 low, middle and high-income countries depicts a crisis in young children's diets, with families struggling to provide their children with nutritious food to support their growth and development.

The report shows that the crisis in children's diets is not evenly distributed across the world or within countries. Children in the world's poorest countries are most at risk but, within all countries, the poorest and most marginalized groups

experience poorer diets and increased threats to growth and development. As a consequence, the adverse health-related consequence of poor diets, such as impaired growth, obesity and arrested development, are more prevalent among these disadvantaged children.

Over the past 18 months the COVID-19 pandemic has exacerbated this dietary crisis. As outlined in the UNICEF report, food, health and social protection services have been put under severe strain by the pandemic, causing disruption to essential services for young children. Service disruptions, combined with the impact of pandemic restrictions and lockdowns on household finances, especially in low-income countries (23), have further threatened the diets of many young children and increased existing inequalities in dietary intake. In some countries, breast feeding support services have been reduced due to pandemic restrictions, with the result that mothers have lost vital support during the neonatal and early infancy periods.

The extent of the estimated impact of the pandemic on maternal and child nutrition in low- and middle-income countries is dramatically illustrated by the following quote from a modeling study by Osendarp et al (24):

"By 2022, COVID-19-related disruptions could result in an additional 9.3 million wasted children and 2.6 million stunted children, 168,000 additional child deaths, 2.1 million maternal anaemia cases, 2.1 million children born to women with a low BMI and US$29.7 billion in future productivity losses due to excess stunting and child mortality".

Poor nutrition affects cognitive as well as physical development, and closures of preschools and schools during the pandemic limiting access to education is a further manifestation of the syndemic.

Access to education

Every child has the right to education as enshrined in Article 28 of the UN Convention on the Rights of the Child (25). Millions of the world's children, however, were denied this right and had little or no access to education prior to the pandemic despite improvements since 2000 (26). Poverty and marginalization combined with lack of financial resources in many low-income countries are the drivers of the exclusion of children from education. Exclusion from education is rare in high-income countries but, in some of these countries, inequality in standards and quality impedes educational attainment (27).

School closures and social distancing measures during the pandemic have exacerbated existing inequality of educational access and quality. Over 90% of countries instituted distance learning, particularly for older pupils; however, UNICEF estimates that 31% of children (463 million) worldwide were unable to access distance learning either because of lack of necessary technological assets at home, or because they were not targeted by the adopted programs (28). Rates of exclusion varied between and within regions and countries. Only 9% could not be reached in Latin America and the Caribbean region compared with 49% in Eastern and Southern Africa. Globally, 3 out of 4 students who cannot be reached by remote learning programs come from rural areas and/or belong to the poorest households.

Children in low-income households in some high-income countries were less likely than their more privileged peers to access distance learning due to lack of secure digital access. For example, in 2020, in the United Kingdom, 20% of children who were eligible for free school meals did not have access to a computer at home compared with 7% of other children and, in 2021, in the United States, 41% of working-class families do not own a laptop or desktop computer and 43% do not have broadband compared with 8% and 7%, respectively, of upper/middle-class Americans (29).

In addition to disrupting their daily school lives, the pandemic has exposed many vulnerable children to loss of caregivers – another manifestation of the syndemic.

Loss of caregivers

Loss of a parent or caregiver is recognized as a major life event in childhood (30) that can disrupt children's physical or psychological health and development (31).

Family illness and loss of family members and caregivers are events that have a profound effect on children. During the pandemic, millions of children will experience anxiety and worry about their parents and grandparents who have contracted COVID and many have been bereaved of a grandparent and, less frequently, a parent. A recently published major study estimated children's experience of loss of family members (32). Globally, the authors estimate over a million children experienced loss of a parent, most often the father, or a custodian grandparent, and a million and a half experienced the death of a primary or secondary caregiver. The authors describe this as a 'hidden pandemic'.

COVID has been increasingly identified as a disease of poverty, with those in poverty at increased risk of contracting the infection and dying from it (33). As a consequence, it is reasonable to assume that children in poor and low-income households are more likely to experience loss of caregivers. In the absence of direct empirical data on the social circumstances of children who have lost caregivers in the pandemic, we used the social patterning of COVID deaths in the UK and Sweden to indirectly demonstrate that children in poorer households in both countries were more likely to experience loss of a parent or grandparent than their more advantaged peers (34).

Violence against children

Loss of a parent or caregiver not only affects children's psychological and physical health but also potentially exposes them to increased risk of violence and exploitation as family protection is weakened (35). In addition to loss of a parent/caregiver, the COVID pandemic has increased the exposure of children to potential violent and exploitative situations. Confinement of households within the home during lockdown and exclusion from school and normal social contacts has increased the likelihood of intrafamilial violence. Measures to

mitigate the spread of the virus have disrupted child protection services in many countries, leaving children more vulnerable (36). Child labor and child marriage are expected to increase in low-income countries as a result of the impact of the pandemic on household finances, exposing children to further violence and exploitation (37, 38).

The pandemic is likely to exacerbate the already huge problem of violence against children. More than a billion children every year are affected by violence and the poorest and most vulnerable children are at greatest risk (39). This global threat to children urgently needs to be addressed and the syndemic adds to the urgency for a worldwide effort to protect children from violence.

CONCLUSIONS

The above examples of the impact of the combination of the pandemic and existing inequities, the syndemic, are only a snapshot of the broad effects of the pandemic on the lives of children worldwide. Children have been spared the worst direct clinical effects of COVID 19 but the indirect effects have been severe.

Returning to Richard Horton's concluding remarks, examining how the indirect effects of the pandemic have compounded existing inequities enhances our understanding of the current and future consequences of the pandemic for children and sheds light on the already existing challenges and threats to child health, rights and wellbeing. Pediatricians and their organizations can contribute by working with NGOs such as UNICEF and Save the Children and advocating for policy decisions at local, national and international levels which protect children from the short- and long-term consequences of the syndemic.

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REVIEW / *DERLEME*

Environmental Threats to Child Health

Çocuk Sağlığına Çevresel Tehditler

Melda Çelik[1], **Kadriye Yurdakök**[2]

[1]Hacettepe University, Department of Pediatrics, Department of Social Pediatrics, Ankara, Turkey
[2]Hacettepe University, Institute of Child Health, Department of Social Pediatrics, Ankara, Turkey

ORCID ID: M.Ç. 0000-0001-6093-2027; K.Y. 0000-0003-3672-3115

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ABSTRACT

Poor environmental conditions and pollution are known to contribute significantly to child deaths, diseases, and disability, particularly in the developing world. Environmental risks have major effects on child health and development from pre-conception to childhood and adolescence, sometimes persisting into adulthood. In the last 50 years, we have witnessed the spread of tens of thousands of newly discovered chemicals into the environment, leading to the detection of residual human-made chemicals in all animal and human tissues tested. Among these, the most common ones include phthalates, plastic products such as bisphenol A (BPA), polychlorinated biphenyls (PCBs), lead, cadmium, dioxins, polycyclic aromatic hydrocarbons (PAH), solvents, pesticides, toxic substances in inhaled air (tobacco smoke, ozone, particulate matter), and chlorinated disinfection byproducts. Chronic exposure to low doses of these endocrine disrupting chemicals during sensitive periods may lead to developmental functional disorders that may not be observed with higher doses. In this text, the effects of these environmental threats on child health are reviewed.

Keywords: Effect, environment, chemicals, child health, pollution

ÖZ

Olumsuz çevre koşulları ve kirlilik, özellikle gelişmekte olan ülkelerde çocuk ölümlerine, hastalıklara ve sakatlıklara önemli bir katkıda bulunmaktadır. Çevresel risklerin, çocukların sağlığı ve gelişimi üzerinde prekonsepsiyonel, çocukluk ve ergenlikte ve bazen yetişkinliğe kadar devam eden önemli etkileri vardır. Son elli yıl içinde insanların geliştirdiği on binlerce yeni kimyasalın çevreye yayılması sonucu bütün hayvan ve insan dokularında doğal ve insan yapımı kimyasalların kalıntılarına rastlanmaktadır. Bunlardan en çok karşılaşılanlar fitalatlar, bisfenol A (BPA) gibi plastik ürünleri, poliklorine bifeniller (PKB), kurşun, civa, kadmiyum, dioksinler, polisiklik aromatik hidrokarbonlar (PAH), çözücüler, pestisitler, solunan havadaki toksik maddeler (tütün dumanı, ozon, partikülat maddeler) ve klorlanmış dezenfeksiyon yan ürünleridir. Bu kimyasalların çoğu doğal hormonların vücutta yapımı, salgılanması, taşınması, bağlanması veya yok edilmesini bozan "endokrin bozucu" etkiye sahiptir. Bu kimyasallara düşük dozlarda sürekli maruziyet yüksek dozlarda rastlanmayan gelişimsel fonksiyon bozukluklarına yol açmaktadır. Bu derlemede, bu çevresel tehditlerin çocuk sağlığına etkilerine değinilmiştir.

Anahtar Kelimeler: Etki, çevre, çocuk sağlığı, kimyasallar, kirlilik

Poor environmental conditions and pollution are known to contribute significantly to child deaths, diseases, and disability, particularly in the developing world, where approximately 14 million children die annually due to lack of healthy drinking water, poor hygiene, environmental pollution, prevalent diseases, and nutritional deficiencies, in addition to 3 million others who are afflicted with permanent disability. Multiple environmental factors may result in significant health problems and mostly irreversible effects in this age group.

Environmental risks have major effects on child health and development from pre-conception to childhood and adolescence, sometimes persisting into adulthood. Environment is the primary determinant of a child's future. Since fetal programming and early development in life may be influenced by environmental risk factors, early exposure may also affect health during adulthood.

Reduction of environmental risks may prevent up to 1 out of 4 deaths among children. In 2012 alone, 1.7 million children under 5 years of age were reported to die due to environment-related causes, including 570,000 deaths due to respiratory infections, 361,000 due to diarrhea, 270,000 due to diseases of the newborn, 200,000 due to malaria, and 200,000 due to inadvertent accidents (1).

Corresponding Author/Sorumlu Yazar: Melda Çelik **E-mail:** meldaozkan@gmail.com

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In the last 50 years, we have witnessed the spread of tens of thousands of newly discovered chemicals into the environment, leading to detection of residual human-made chemicals in all animal and human tissues tested. Among these, the most common ones include phthalates, plastic products such as bisphenol A (BPA), polychlorinated biphenyls (PCBs), lead, cadmium, dioxins, polycyclic aromatic hydrocarbons (PAH), solvents, pesticides, toxic substances in the inhaled air (tobacco smoke, ozone, particulate matter), and chlorinated disinfection byproducts (2). Most of these chemicals have "endocrine disruptive" effects that impair the production, release, transportation, binding and/or degradation of natural hormones, which have very important roles in development and maturation. Chronic exposure to low doses of these endocrine disrupting chemicals during sensitive periods may lead to developmental functional disorders that may not be observed with higher doses (3).

In contrast with the recent decrease in child deaths due to infectious diseases in the United States, a rise in chronic conditions is evident due to the contribution of environmental pollution, where a two-fold increase in asthma-related deaths, and increases in the incidences of leukemia, brain tumors, congenital developmental disorders, learning disorders, and developmental disorders of the genitalia and nervous system have been observed (4).

Why are children more susceptible to environmental pollution?

Accelerated industrialization is associated with an ever-increasing risk of exposure to chemical pollutants among children, who represent the most susceptible age group to the effects of environmental pollutants. Children should not be conceived as small-sized adults, as childhood is a maturation step. Therefore, the effects on children can be carried over to other developmental stages and even to next generations. Since children experience a continuous state of growth and development starting from intra-uterine life, many environmental pollutants that do not cause significant harm in adults may be extremely hazardous for children. Pollutants spread all over the globe through air, water, soil, and food without barriers. A clear link has been found between lower socioeconomic status and residing in dangerously polluted areas, with a consequent increase in the risk of exposure to environmental hazards. Environment has different implications between children and adults. During the intra-uterine life, the initial environment in which the child strives, many toxic substances, particularly low molecular weight or fat-soluble compounds may readily be transferred through the placenta and lead to permanent damage. Lead, methyl mercury, ethyl alcohol, polychlorinated biphenyls, carbon monoxide, and nicotine in tobacco smoke are among these toxic substances (5).

During the dynamic developmental phase of children, cells grow, and organs and systems mature rapidly. Thus, the genetic material of the cell may be more susceptible to environmental pollutants during this rapid stage of growth. The nervous, respiratory, endocrine, reproductive, and immune systems are not fully maturated at birth, and their development continues after that stage. Due to immaturity of the blood-brain barrier, the central nervous system is exposed to an increased risk of adverse consequences. Furthermore, the skin of the newborn is extremely permeable, and time is required for complete maturity of the upper protective skin layer. The proportion of body surface area to body weight is 3-fold and 2-fold higher in newborns and older children compared to adults, respectively. Because of their proportionately higher body surface area than adults, children may absorb 2-3 times more through the skin than adults. Again, as compared to adults, children consume higher amounts and more various types of solid and liquid food per unit of bodyweight. For instance, milk and dairy product consumption is higher in children, who also have increased energy demands and exhibit differences in terms of the content of the nutrients consumed. Therefore, it follows that contamination of these nutrients may lead to an increased risk of exposure (4).

Since alveoli formation continues from birth to adolescence, the absorption surface also steadily expands. Many factors, including bacterial and viral infections, fungal spores, chemical air pollution (cigarette smoke, fuel combustion products, dry dung fuel or coal fume etc.) may adversely affect lung development and the structure of the respiratory airways. The growth of alveoli and pulmonary capillaries begin in the intra-uterine life and persist into 5-8 years of age. Oxygen consumption and requirement are also higher in children than in adults. Due to higher volumes of inhaled air in proportion to their bodyweight, children are more exposed to airborne pollutants such as ozone, particulate matter, and tobacco smoke. Since infants and children generally tend to inhale more through the mouth than the nose, the filtering effect of the nasal structures is attenuated. Narrower airways also mean that the duration of exposure to airborne pollutants is prolonged. A child playing in the street is more likely to be affected by exhaust gas as compared to an adult. Children spend the majority of their time outdoors and playing, which may increase the rate of respiration up to 10-fold, and children may continue to play even if they experience shortness of breath. Children tend to spend even more time outdoors during the summer season, when ozone pollution is higher (1).

Infancy, on the other hand, is a period of more indoor activity. Household chemicals (cleaning materials, perfumes, dyes, pesticides etc.), eroded materials, smoke in the house (tobacco, etc.) and gases (spray deodorants, room deodorants etc.) may have a more pronounced and prolonged effect on these youngsters. As stated earlier, childhood is a period of more outdoor activity (street, school, daycare etc.) which may be associated with more marked exposure to pollutants found in these environments (4, 5).

Early behavioral characteristics during childhood may also have an impact on exposure to toxic substances. Prior to walking, children cannot distance themselves from hazardous environments even if they feel discomfort. Many evaporable

chemicals heavier than air tend to accumulate close to the floor. Particularly during the period of crawling, children are more likely to be exposed to noxious chemicals and nitrates used against insects and pests, allowing the entry of many agents into the body via skin, respiratory system, or gastrointestinal tract (3).

Certain nutrients such as calcium are absorbed more rapidly than adults within the gastrointestinal tract of children, who continue to grow and develop after birth. As a consequence, certain toxic substances such as lead transported via the same mechanisms may compete with and replace calcium, leading to high rates of absorption. In addition, children tend to bring many items to their mouth to improve their familiarity with their surroundings, again increasing the risk of oral toxic substance intake (4).

In proportion to the rate of cell division, children also have a higher metabolic rate than adults. This increased metabolic demand is also associated with increased food intake, which may be contaminated with environmental pollutants. On the other hand, not only the levels of proteins that may bind to and neutralize noxious chemicals are lower in children, but also the metabolic and enzymatic processes are underdeveloped. Although the difference between early (fetal life and childhood) and adult life in terms of the ability to neutralize and dispose of toxic substances can sometimes have favorable effects, the reduced capacity for detoxification results in higher rates of exposure in most instances. During rapid embryogenic development, chromosomal changes due to chemical substances occur more frequently, resulting in congenital developmental disorders (6).

Tissue distribution of chemical substances differ according to the developmental stage in children. In newborns, most drugs exhibit distribution in many organs at high concentrations. For example, lead may accumulate at a higher rate in the bones of children (4, 6).

Since children have a long-life ahead with a consequently increased duration of exposure, tissue accumulation of many substances such as those in tobacco smoke or household chemicals may be associated with an increased risk of chronic diseases such as cancer and Parkinson's disease in the longer term (4).

Fetal Effects

Environmental effects begin much early than conception with the effects of chemicals on the parents. Pollutants may have an impact on the fetus via their adverse effects on the reproductive cells of the parents, or via placental transfer after accumulation in the maternal body. Studies have shown that environmental pollution may influence sperm quality and developing ova. Many environmental pollutants such as dichlorodiphenyltrichloroethane (DDT), banned in many countries after common use as a pesticide, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins, diethylstilbestrol, tobacco smoke, pesticides, solvents, dyes, heavy metals (lead, cadmium, etc.), and phthalates may affect the reproductive system or cells of parents, potentially leading to dysfunction and several conditions in the fetus (2).

Dioxins and polychlorobiphenyls have embryotoxic effects. Maternal smoking is known to significantly increase the exposure of the fetus to carbon monoxide, hydrogen cyanide, cadmium, nicotine, and polycyclic aromatic hydrocarbons such as benzo-a-pyrene, all of which may be transferred readily from placenta to fetus (2, 5). Carbon monoxide impairs the oxygen and carbon dioxide carrying capacity of hemoglobin, with fetal concentrations being 10% to 15% higher than that of the mother (2, 5).

Intrauterine toxic effects can be detected via the examination of cord blood, meconium, and breastmilk. In one of the most comprehensive studies of cordon blood, the Environmental Working Group (EWG) detected a total of 287 different toxins in cordon blood obtained from 10 babies born in hospitals across the US, including heavy metals such as mercury, polyaromatic hydrocarbons (PAHs), persistent organic pollutants such as polybrominated dioxins and furane (PBDD/F), per- and polyfluoroalkylated substances (PFAS), chlorinated pesticides, polybrominated diphenyl ethers (PBDEs), polychlorinated naphthalenes, and polychlorinated biphenyls (PCBs) (7). The source of mercury is generally coal fuel plants, mercury-containing products, and certain industrial procedures; this heavy metal tends to accumulate particularly in seafood, such as deep-sea fish. It has negative effects on brain development and function.

Other toxins that may affect intrauterine growth include the chlorinated pesticide metabolite dichlorodiphenyldichloroethylene (DDE), organochloride pesticides (e.g., chlorpyriphos), polycyclic aromatic hydrocarbons (PAHs) which are a cause of outdoor air pollution, particulate matter (PM) 10 or PM 2.5, carbon monoxide (CO), sulfur dioxide (SO_2), nitric oxide (NO), and ozone (O_3) (3). Maternal smoking is known to be associated with the birth of small for gestational age (SGA) babies (1, 2). Exposure to polluted ambient air in the first trimester of pregnancy, particularly PM 2.5 and ozone, has been found to increase the risk of pre-eclampsia, gestational hypertension, premature delivery, and low birth weight in newborns (3).

The immediate surroundings in which the baby lives together with the mother following birth are generally indoors. Poor sanitation and ventilation as well as living in excessively crowded areas may worsen such conditions. Parental smoking has been associated with a two-fold increase in the incidence of pneumonia, bronchitis, and asthma among babies (5).

Soil Pollution: Along with water pollution, soil pollution contaminates the food sources and playgrounds of children. Many environmental pollutants may pass into breast milk, the primary source of nutrition for the newborn, and from breast milk to the body of the newborn. Many soil pollutants such as DDT and its derivatives, lead, cadmium, and mercury may readily pass onto breast milk. In this regard, fat-soluble pollutants tend to exhibit even more pronounced persistence

in the body. Environmental pollutants may also pass to cow milk via plants, and may accumulate in the milk. Some antibiotics are administered at high doses to cows and therefore may be found in high concentrations in cow milk. Heavy pollutants such as strontium 90 that land onto soil via radioactive fall-outs may be transferred to milk producing animals via plants, and from these to children consuming milk and its products. The strontium pollution in Scandinavian countries is monitored via concentration change in deciduous teeth of children (5).

Water Pollution: Nitrates from well water or other sources of water may cause methemoglobinemia in the first months of life, due to conversion of nitrates to nitrites under bacterial and metabolic effects in low gastric acidity. Water in superficial wells polluted by chemical fertilizers, and also by leakage from toilets, cattle-sheds, or stockrooms is rich in nitrates and bacteria that convert it to nitrite. In addition, nitrosamines formed by nitrates are carcinogenic substances. During the processing of the raw material of the rubber used in pacifiers, conversion to nitrosamines and nitrosatable substances is possible. Water pollution is also particularly important for babies fed with formulas. Both tap water and drinking water may result in the transmission of important biological infection agents to the baby (4, 5).

Food Pollution: There may be direct pollution of food, or indirect pollution from water and soil pollution. One of the chemical pollutants that may have access to the body of babies or children is cadmium from cigarettes. At the end of the 1940s, a disease named "itai-itai" was described that was associated with bone disease and renal dysfunction in individuals consuming rice polluted with cadmium in the river water used to water rice (2). Despite the protective effect of the placenta, small amounts of cadmium may be transferred to the fetus. Arsenic is a heavy metal that can be identified in water, and may lead to skin, lung, kidney, and urinary bladder cancers as well as discoloration of the skin with long term exposure. High concentrations of organic mercury, particularly in large sea fish has been found to adversely affect brain development in children in the case of regular consumption, while intrauterine exposure has been found to impair intelligence, speech, attention, and memory. Researchers have observed mental retardation in Iraqi children exposed to high levels of mercury (2, 3, 8, 9).

Air Pollution: Globally, 93% of all children live in environments with air pollution levels above the limits defined by the WHO. Based on European Environment Agency data, 97.2% of the urban populations in Turkey are exposed to hazardous levels of particulate matter (PM) in the air (1).

Indoor Air Pollution: Cigarette smoke, which contains approximately 3,800 different chemicals, is an important indoor air pollutant. Burning materials with high organic content such as wood or dung fuel may release a variety of gases and volatile organic compounds including CO, NO_2, SO_2, particulate matter, benzene, benzo-a-pyrene, and formaldehyde that can pass through placenta with negative effects on the fetus (10, 11). These chemicals also have a pronounced effect on babies since they have a higher respiratory rate as compared to adults. Formaldehyde, benzene, and pesticides/insecticides commonly utilized in indoor settings are potential carcinogens (particularly with respect to hematological cancers). Volatile organic compounds, dyes, polishes, kerosene, thinners, newspapers, cleaning materials, photocopying chemicals, carpets, vinyl furnishing, deodorants, cigarettes, exhaust gases, and furniture produced from particle board may release these substances. Chronic exposure may lead to cancer as well as liver, kidney, and CNS injury (2, 3).

Outdoor Air Pollution: Pollution of the outdoor as well as indoor air is associated with an increased likelihood of invasion of the upper airways by causative infectious agents, due to the impairment of protective mechanisms. In developing countries, air pollution has a significant contributory role in approximately 4.2 million annual deaths caused by respiratory infections (1). Main pollutants in the outdoor air include particulate matter, ozone, NO_2, SO_2, and CO. Ozone is formed by the reaction of hydrocarbons and nitric oxides released from motor vehicles, where sunlight plays a facilitatory role. Ozone increases the risk of asthma in children, impairs lung functions, and causes exercise induced dyspnea. These substances are known to cause adverse effects on the developing respiratory system, CVS, CNS, and urinary system in fetuses and children. Furthermore, childhood exposure has been associated with future occurrence of obesity and DM, and intrauterine exposure has been found to be linked with congenital cardiac disorders, low birth weight, prematurity, and SGA (2, 5, 12).

Chemical Pollution: Heavy metals and persistent organic pollutants causing chemical pollution are more hazardous for children than for adults. Effects that occur during childhood may have life-long consequences. Sometimes, even chemicals used for therapeutic or other specific purposes (e.g., talc) may lead to important problems. Premature infants, newborns, and children of all age groups should be considered a special risk group in this regard.

The ban placed on the use of lead in gasoline and wall paints in the 1970s and 1980s resulted in significant reductions in blood lead levels in children. Today, since 2012, the reference value for blood lead levels in the US is 5 mcg/dL (13). The termination half-life of lead in tissues and bones is 10 years or longer. The absorption of lead per kg of bodyweight is higher in children, and nutrition poor in calcium and iron increases the absorption. Lead is hazardous for the CNS, blood cells, and kidneys, and high levels may lead to significant mental retardation, seizures, loss of consciousness, and coma. Also, exposure during intrauterine life or early childhood has been associated with attention deficit, hyperactivity, deficits in IQ, and learning difficulties (3, 4).

Persistent Organic Pollutants: These chemicals resistant to environmental degradation can remain unaltered for centuries in nature and may accumulate in the food chain. Most of these have already been detected in cord blood. Aldrin, dieldrin,

chlordane, DDT, mirex, toxaphene, hexachlorobenzene, dioxins, PCBs, octachlorostyrene, heptachlor, benzopyrene, endrin, lead, and mercury are among the main persistent organic pollutants. **Dioxins** are byproducts in the production of certain organochlorides, burning of chloride-containing substances such as polyvinyl chloride (PVC), and bleaching of paper by chlorine, and are also released during volcanic eruptions or wildfire. **Polybrominated dibenzodioxins and furans (PBBD/F)** are present in brominated fire retardants, in addition to being final and byproducts of plastic production and combustion. They accumulate in the food chain with toxic effects on the developing endocrine system. **Polychlorinated dibenzodioxins and furans (PCDD/F)** are byproducts of PVC, industrial bleaching, and combustion. They are very toxic for the developing endocrine system and are known to be associated with cancer development. **Organochlorine pesticides** include DDT, chlordane, hexachlorobenzene, aldrin, and others. They persist in the environment for decades and accumulate in the food chain and adipose tissue. They are released from the adipose tissue in breastfeeding women, passing into breast milk. They may cause pollution in water resources, food, residential areas close to pest control applications, and playgrounds. They are associated with cancer, developmental disorders, and impairments in the reproductive and immune systems. **Polybrominated diphenyl ethers (PBDEs)** are used as flame retardants in computers and televisions, plastics, paper bleaching, the textile industry, and polyurethane furniture foam. They may accumulate in human tissues, negatively affecting brain development, sexual development, and thyroid functions, as well as causing liver and kidney injury. **Polychlorinated biphenyls (PCBs)** are a group of 209 chemicals utilized in industrial isolators, lubricants, thermal paper production, and as plasticizers. Their use was banned in 1976 in the US. They are endocrine disrupters, as well as being associated with liver and bile duct cancers and cognitive developmental disorders. In babies of mothers consuming fish polluted with PCBs, congenital anomalies and LBW may occur. **Polychlorinated naphthalenes (PCNs)** are found in wood preservation products, polishes, industrial lubricants, and can also be released by combustion of waste products. **Per- and polyfluoroalkylated substances (PFAS)** are present in teflon, fabric and carpet preservatives, as active ingredients of food packaging, and as degradation byproducts, representing a ubiquitous global pollutant. They accumulate in the environment and food chain and are associated with cancer and several birth anomalies (3, 7, 14).

There are also various other chemical pollutants with endocrine disrupting effects in children. For instance, **phthalates** can be released from plastic containers to food, particularly when food is warmed in these containers or is wrapped with plastic films. They are present in intravenous fluid sets, body lotions, toys, cosmetic products, floor coverings, medical and consumer care products, and as elasticizing agents in hard polyvinyl chloride plastics (15). Intrauterine exposure to phthalates has been particularly linked with attention deficit hyperactivity disorder, as well as mental and sexual developmental disorders. **Bisphenol A** is also another endocrine disrupter used in plastics, and epoxy resins used in the inner lining of food cans, cash receipts, etc. (16). It is also found in plastic feeding bottles, pacifiers, toys, computers, mobile phones, and reusable food and drink containers. Exposure occurs through inhalation, ingestion, or skin absorption. Animal studies suggest that exposure to low dose BPA before and early after delivery can be associated with increased body weight and fat gain, alterations in male and female reproductive system development (e.g., cryptorchidism), changes in the structure of the mammary gland, breast and prostate cancer, type 2 DM, and precocious puberty (2, 3).

Although skin represents a natural barrier to the absorption of environmental pollutants, the skin characteristics of children and infants may be associated with increased absorption rates. Certain topical agents such as hexachlorophene represent a good example of this. Although initially, the use of soap and other cleaning products containing hexachlorophene was not associated with any apparent toxic effects, sudden deaths have been reported in France among babies using hexachlorophene-containing talc (17). Immature epidermal barrier functions among premature babies resulting in facilitated absorption of this chemical through the humid diaper region is the most important factor. Lindane (γ-benzene hydrochloride) resulted in a 17-fold increase in levels in premature babies after topical application (3, 4), indicating the significance of the barrier function of the skin (18).

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REVIEW / *DERLEME*

Understanding the Links Between the Climate Crisis and Child Health

İklim Krizi ve Çocuk Sağlığı Arasındaki İlişkiyi Anlamak

Yakup Gözderesi[1*], Enis Hikmet Özmert[2*]

[1]Marmara University, Faculty of Medicine, Istanbul, Turkey
[2]Baskent University, Faculty of Medicine, Ankara, Turkey
[*]Co-author

ORCID ID: Y.G. 0000-0003-4229-6391; E.H.Ö. 0000-0001-6510-305X

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ABSTRACT

Climate change has severe adverse effects on both child and adult health. It affects multiple body systems including the respiratory, immunologic, and neurologic systems. Increased temperatures, water and food insecurity, extreme climate events such as heatwaves and a loss of biodiversity all increase the prevalence of infectious and non-communicable disease.

ISSOP is an international organization that works with social pediatrics and child health professionals in areas of health promotion, disease prevention, curative pediatrics and rehabilitation through participation in system development, policy-making processes and the publishing of international documents for guidance.

The "Responding to the Impact of Climate Change on Children" webinar series is a global initiative that aims to highlight the importance of climate change and its adverse effects on child health. Eight structured two-hour webinars were held between February and September 2021.

In this review, we aim to summarize the topics of the webinar series and provide recommendations to child health professionals which they can use in their academic and clinical practices. The consequences of climate change on health and, more specifically, child health, deepening inequalities and inequities, the essential role of youth, and the integration of climate change into health education will be discussed.

Climate change is a public health emergency and requires everyone to take action. Healthcare professionals, as members of a respected and trusted occupation, must be made aware of the negative health consequences of climate change and play an informative role in society. The impact of such consequences that affect children's health can be mitigated by increasing societal awareness of the effects of climate change, taking the relevant precautions and implementation of mitigation and adaptation strategies by parents and pediatricians.

Keywords: Social pediatrics, child health, climate change, ISSOP

ÖZ

İklim değişikliğinin hem çocuk hem de yetişkin sağlığı üzerinde ciddi etkileri bulunmaktadır. İklim değişikliğinin vücuttaki etkileri, solunum sistemi, sinir sistemi ve bağışıklık sistemi dâhil olmak üzere birçok vücut sisteminde ortaya çıkmaktadır. Sıcaklık artışı, temiz su ve gıdaya erişimdeki yetersizliklerle birlikte biyoçeşitliliğin azalması ve sıcak hava dalgaları gibi olağandışı iklim olayları, bulaşıcı hastalıklarla birlikte, bulaşıcı olmayan hastalıkların görülme sıklığını artırmaktadır. ISSOP(Uluslararası Sosyal Pediatri Derneği), sosyal pediatristlerle ve çocuk sağlığı profesyonelleriyle birlikte, sağlığın korunması ve geliştirilmesi, hastalıkların önlenmesi, tedavi ve rehabilitasyon alanlarında çalışan, bunu yönetim sistemlerine ve politika yapım süreçlerine katılım sağlama ve rehber dokumanlar yayınlama yoluyla yapan uluslararası bir dernektir. "İklim Değişikliğinin Çocuklar Üzerindeki Etkisine Karşılık Verebilmek" seminer serisi, ISSOP'un iklim değişikliğinin önemini ve çocuk sağlığı üzerindeki olumsuz etkilerini öne çıkarmayı amaçlayan küresel bir girişimidir. Bu kapsamda 2021 yılının Şubat ve Eylül ayları arasında ikişer saatlik sekiz yapılandırılmış seminer düzenlendi. Bu derlemede, seminer serisinin konuları özetlenerek çocuk sağlığı profesyonellerine akademik ve klinik uygulamalarında kullanabilecekleri öneriler sunulmaktadır. İklim değişikliğinin özellikle çocuk sağlığı üzerindeki etkileri, iklim değişikliği kaynaklı artan eşitsizlik ve adaletsizlikler, gençlerin iklim değişikliğine verilen yanıttaki temel rolü ve iklim değişikliğinin sağlık eğitimine entegrasyonu tartışılacaktır. İklim değişikliği bir halk sağlığı acilidir ve herkesin harekete geçmesini gerektirmektedir. Sağlık profesyonelleri, toplum tarafından saygı ve güven duyulan bir mesleğin üyeleri olarak, iklim değişikliğinin olumsuz sağlık sonuçlarından haberdar olmalı ve toplumda bilgilendirici bir rol oynamalıdır. Bu sonuçların çocuk sağlığına olumsuz etkileri, iklim değişikliğine ilişkin toplumsal farkındalığın artırılması, ilgili önlemlerin alınması, ebeveynlerin ve çocuk sağlığı profesyonellerinin iklim değişikliği uyum ve azaltım stratejilerini uygulaması yoluyla hafifletilebilir.

Anahtar Kelimeler: Sosyal pediatri, çocuk sağlığı, iklim değişikliği, ISSOP

Corresponding Author/Sorumlu Yazar: Yakup Gözderesi **E-mail:** yakupgozderesi@gmail.com

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INTRODUCTION

The recently published Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) of the United Nations paints a dire image as to the state of climate change. It strongly asserts that anthropogenic greenhouse gas emissions, primarily caused by the burning of fossil fuels, have contributed enormously to an increase in annual average temperatures around the globe (1). The IPCC report estimates that by the 2030s, there will be an increase in global surface temperature of approximately 1.5°C, as compared to the pre-industrial era (1).

The effects of these projected changes are already visible from the increase in numbers and severity of communicable and non-communicable diseases. These NCDs include cancer, cardiovascular diseases, autoimmune disorders, diabetes, neurologic diseases and many more (2). Climate change also has many adverse effects on the social determinants of health. Social Determinants of Health (SODHs), as defined by the World Health Organization (WHO), are "the social circumstances in which people are born, grow, live, work, and play, profoundly affect children's health and drive health disparities" (3). Climate change exacerbates the effects of SODHs, such as, but not limited to, food insecurity, air and water pollution and access to healthcare (4). SODHs contribute to NCD prevalence worldwide, including socioeconomic status, health systems, gender, ethnicity, and disability status. For instance, adverse environmental events, social conditions, and exposures to pollutants affect people's psychological status. People living under these conditions, turn to unhealthy coping mechanisms like smoking and drinking alcohol, which contribute to inequalities in NCDs (5).

NCDs are a major cause of death worldwide and account for more than 70% of all deaths globally per year. Climate change directly contributes to increases in NCDs such as obesity, heat strokes, and mental health issues. Negative effects on the living environment, a social determinant of health, also contribute to poorer health outcomes in children. As an example, air pollution, caused by excess burning of fossil fuels, adversely affects fetal development, neurodevelopment and respiratory health in childhood (6). Therefore, child health professionals play an essential role in the prevention of NCDs (7).

Furthermore, certain parts of the globe have seen the emergence of infectious diseases in previously unaffected areas and an increased risk of disease in areas where the disease is already present (8). In this regard, health professionals have an active role to play in mitigating the effects of climate change and advocating for the implementation of policies and measures that address these effects (9). Healthcare professionals have fundamental roles in public health and health promotion as they are authorities for valid, scientific, evidence-based information (10).

The Paris Agreement on Climate Change that was signed by 195 countries came into effect in 2016. The overarching goal of the agreement is to keep the increase in global average temperature below 2°C and potentially, under 1.5°C (11). One drawback of the agreement is that although it establishes a clear goal, it doesn't provide a roadmap to achieve this goal, and instead expects each country to create their own guidelines—termed Nationally Determined Contributions (NDC). When these NDCs were examined, it was found that although 73% of countries had mentioned health in their national plan, only 22% had specific health adaptation plans (12). Furthermore, according to UNICEF, "Only 42% of all Nationally Determined Contributions (NDCs) contain direct reference to children or youth while only 20% mention children specifically" (13). In this regard, the global community has a great amount of work to do to address the impact of climate change on health, and especially child health.

Social pediatrics is a holistic and inclusive approach to child health and well-being, including relations of children with the environment, society, school and family (14). ISSOP (International Society for Social Pediatrics and Child Health), established in 2012, as a continuation of ESSOP (European Society for Social Pediatrics and Child Health, 1977-2011), is a non-profit organization, registered in Geneva. The organization convenes health professionals and organizations to share their experience and knowledge in social pediatrics and the child health field (15). ISSOP's main scopes are health promotion, disease prevention, curative pediatrics, and rehabilitation (16).

ISSOP's declaration "Responding to the Impact of the Climate Crisis on Children and Youth" explains and emphasizes the importance of the roles of child health professionals in the mitigation of climate change's negative effects (17). ISSOP invites every child's health provider and advocate to take action in the mitigation of the direct and indirect consequences of climate change on child health.

"Responding to the Impact of Climate Change on Children" a global ISSOP webinar series, convened international experts on sustainability, eco-anxiety, green politics and economics, social and health aspects of climate change. There have been eight structured two-hour meetings held from February to September 2021. The series aimed to create a platform for participants to discuss the impact of climate change on child health and generate discussions on actions they can take now and in the future. Based on the information gathered from the regional break-out sessions, a climate change strategy for child health professionals will be developed.

Climate change has severe consequences for our environment and the ecosystem, impacting health

Reports state that the increase in greenhouse gas emissions since the late 19th century is due to human activity. It further reaffirms that the globe has warmed by 1.2°C since the 19th century and is likely that it will warm by 2°C in the coming 20 years. Moreover, humans are most likely the cause of glacier melting and warming of oceans. Warmer temperatures also change the life cycle of aquatic animals (18). Also, human intervention due to excessive burning of fossil fuels throughout the last two centuries further adds to climate change by

introducing greenhouse gasses to the atmosphere and exacerbating air pollution.

Climate change also increases the severity and incidence of extreme weather events such as floods, droughts, hurricanes, and heat waves. Not only do these events have the ability to restrict access to healthcare services and facilities, they also negatively impact many of the social determinants of health, increasing morbidity and mortality.

Along with a changing climate, rising surface temperature, habitat loss and changing weather patterns, pressure on food systems increases. Work towards ending undernutrition and hunger has yielded great results in the past few decades. The amount of undernourished people decreased from 980 million worldwide in the 1990s to 850 million in the 2010s (19). However, this progress may be hindered by climate change. Climate change places a great burden on the agriculture, fisheries and livestock industries. Crop yields and the nutrients in crops may fluctuate, creating a volatile environment of basic nutrient insecurity. Due to acidification of oceans, along with other factors, yields in fisheries may decrease. Livestock productivity may also decrease (20). Furthermore, these effects may not be felt equally, affecting primarily disadvantaged populations.

Water systems are already affected due to climate change. Stress put on water resources from overuse in industry, agriculture, and power generation; coupled with increasingly inconsistent weather patterns and higher evaporation rates will lead to water scarcity in some regions of the globe. According to UNICEF, "nearly 160 million children are currently living in areas under high or extremely high drought severity" (21).

Climate change affects many different aspects of human health and wellbeing

Climate change affects different systems of the human body such as the respiratory, allergic, immunologic and neurologic systems (22).

The altered profile of antigens and gut microbiota change because of dysbiosis, and the biodiversity loss causes an increased rate of allergic diseases (22). People are also at risk of Zinc-deficiency because higher elevated levels of CO_2 reduce the nutritional content of plant-based foods (23).

Vector-borne communicable diseases are of particular importance in the climate change discourse, as the prevalence of the diseases spread by vectors are affected by the environment and the climate. These diseases also worsen the overall health outcomes of a community and exacerbate health inequalities (24). The incidence of malaria in higher altitudes is increasing in the tropical regions. Zika, West Nile, chikungunya and yellow fever are all affected by the impacts of climate change (25). Tick-borne diseases such as Crimean Congo hemorrhagic fever and Lyme disease are also affected by the changes in climate.

Considering these effects of climate change, children are a vulnerable group. They are at risk from the adverse health effects of climate change and face more negative consequences that affect different body systems such as cardiovascular, respiratory, and immune systems. Heat-waves caused by climate change increase direct morbidity from heatstroke, electrolyte imbalance, pediatric kidney stones, Kawasaki disease, respiratory and infectious diseases in children (26). In addition to heat waves, cold temperatures and rapid temperature change induce respiratory and infectious diseases in children (26).

As a consequence of climate change, the duration and intensity of the pollen season has changed. Because pollen allergens trigger inflammatory mediators, it causes Ig-E mediated sensitization and increasing rates of asthma (27).

Climate change affects people's mental health negatively. Increases in cases of mood disorders and anxiety, post-traumatic stress disorders, sleep disruption, and suicidal ideation rates are the results of climate change and related events (28). Children living in developing countries are especially vulnerable to these effects (29).

Climate change amplifies present and inherent inequalities

The environmental impact of climate change, such as elevated temperatures, excess unnatural precipitation or, conversely, droughts, extraordinary weather events, and increased sea levels, affect each social group differently. Social groups such as women, children, indigenous people, and workers are more exposed to the negative consequences of climate change (30, 31).

For example, the Saami people, the indigenous people of Northern Scandinavia, have experienced shortened snow cover days, loss of pasture land and ecosystem changes as negative consequences of climate change. Negative consequences of climate change also include alterations in the ecological base of the Saami people, chronic disease mortality, asthma, and allergies. Additionally, the cultural well-being status of the community is being affected (32).

Women are more affected by adverse effects of climate change, such as extreme weather events and natural disasters, especially in low-income countries (30). It induces negative reproductive effects, nutritional deficiency, and health problems during pregnancy. Additionally, there is a higher rate of sexual violence against women as a result of climate change (33).

Children are also affected by climate change in different ways, such as a decreased psychological well-being, higher respiratory and infectious disease rates and an increased risk of malnutrition (34, 35).

In addition to mental health diseases like depression, anxiety and PTSD, emotional problems and behavioral changes may be observed (26). As children show a higher interest and concern about climate change, they will increasingly demonstrate increases in mental health issues such as guilt, sadness, and difficulty concentrating (36).

What can child health professionals do to reduce the impact of climate change?

a) Inclusion of the voices of diverse youth groups is essential in creating policies and dialogues against climate change

The ideas of diverse groups of youth is an essential resource for child health professionals. Starting in the 1990s and gaining momentum, youth activism against climate change has established itself as a driving force against climate change (37). Through organizations such as *Fridays For Future* (started by Greta Thunberg from Sweden in 2018), the UN, and through legal means (38), the youth of today have an increased ability to voice their concerns and provide their perspectives in the climate change debate.

Climate change is a complex issue which establishes different priorities, impacts and approaches depending on the region. A diverse group of youth is needed to engage in climate change discourse. Some countries provide better opportunities for youth to be involved in decision making and organizing in terms of climate change. As such, there might be an imbalance in representing many different countries and factions inside the country. Ethnic minorities, lower income households and refugees are disproportionately affected by climate change (39). However, those same groups, especially ethnic minorities, also have a lower response rate for national surveys assessing the impact and mitigation strategies for climate change (40). Even though the disadvantaged groups are the groups most impacted by the effects of climate change, they are not equally represented in policy decisions. Programs aimed at studying the impact of climate change and establishing policies should aim to empower youth.

b) There is an active need for inclusion of climate change in health education and healthcare

Medical professionals need to be equipped with the knowledge and expertise to address the broad scope of health issues impacted by climate change, including making their practices greener.

Although there are programs, seminars and classes focusing on climate change, the degree to which it is discussed varies widely between health profession institutions (41). There is also a need to develop curricula focused on climate change (41). In a survey carried out with medical students, 90% of respondents identified their role in tackling climate change, but 80% of them also admitted to lacking information regarding climate change and health (42).

Healthcare activities are a major contributor to climate change, with the US healthcare system accounting for 9-10% of greenhouse emissions each year (43). So, it is vital for medical professionals to rethink how healthcare is thought of, structured, and delivered. In the US, 25% of healthcare spending is wasted (44). Initiatives like "My Green Doctor", started by a healthcare professional for healthcare professionals establishes the groundwork for a paradigm shift as to how healthcare professionals approach climate change. Assessing how a healthcare practice impacts the environment and what steps can be taken to minimize the impact is an excellent place to start. Larger healthcare hubs should rethink how supplies are utilized to create more sustainable working environments. Medical professionals need to start thinking about how their actions impact the environment and what they can do to minimize the impact.

c) ISSOP invites all child health specialists to act against the unfavorable effects of the climate crisis on child health

ISSOP's declaration titled "Responding to the Impact of the Climate Crisis on Children and Youth" aims to explain and underline the vital roles of child health professionals and organizations in achieving climate justice. ISSOP advocates that the climate crisis is a child rights crisis in this declaration (17).

The declaration recommends:

- Promoting the education of child health professionals, elected officials, communities, children and parents in several topics related to climate change and mitigation strategies.
- Advocacy as an occupation the society trusts. Through the framework of anticipatory guidance, child health professionals should discuss climate change with parents during medical visits.
- To act on developing local, national, and international policies and strategies for reducing greenhouse gas emissions and to be prepared for the negative consequences of the climate crisis.

Additionally, child health professionals should reject the sponsorship of fossil fuel and baby food industries in meetings, stop the commercial exploitation of children and mitigate its impact on consumerism throughout the life course.

ISSOP calls for every child health specialist and everyone to act in the prevention and mitigation of the direct and indirect impacts of the climate crisis on the health and well-being of children and youth.

CONCLUSION & RECOMMENDATIONS

Climate change has severe adverse health consequences throughout the life course. It is a planetary health emergency, because it affects not only human beings' lives but also damages the environment and habitus. Climate change affects human health and wellbeing in a variety of aspects and amplifies present inequalities. As such, child health professionals have a role in mitigating the effects of climate change and creating a forum for discussion. This can be achieved through discussing the issue with diverse groups of youth, embedding climate change into health education, and considering how healthcare can be revolutionized to combat climate change. These values culminated in the ISSOP's declaration regarding the matter, wherein it invites all child health specialists to act against the untoward effects of the climate crisis on child health.

After the eight sessions of the ISSOP webinar series titled "Responding to the Impact of Climate Change on Children",

the science of climate change, health systems integration in greening practices, pediatrics and one health, COP 26 and child health policies, adverse health and mental health effects of climate change, the political and economic impact of climate change have been discussed.

Through the aforementioned discussion and investigation of the available literature, we recommend the following as guiding principles in addressing climate change at home and in healthcare settings:

- Explore the science behind climate change and make deductions based on the latest scientific research to guide your practice and shape your understanding of the issue.
- Investigate how your daily lifestyle choices related to the use of fossil fuels may be impacting the planet, from the modes of transport you choose to the sources of heating and electricity you utilize.
- Explore how you and your healthcare practice may be impacting the environment and try to mitigate the effects as much as you can.
- Use your position as a healthcare provider to advocate for local and national governments to act on different aspects of climate change and enact law/regulations to that effect.
- Encourage and lobby your healthcare center to rethink how they approach management of medical supplies, waste and energy in order to create a more sustainable healthcare service.
- Engage a socioeconomically, ethnically and culturally diverse group of youth to extract key ideas and concepts on how policies can be shaped and communicated in order to better address climate change and the problems it creates for youth.
- Produce materials that include the essential information about the climate crisis and how parents can act, and distribute them after medical visits as a part of the anticipatory guidance framework.
- Use plastic-free materials in your examination rooms and decrease your carbon footprint.
- Advocate for the inclusion of climate change and related topics in the medical curricula and ensure medical students are made aware and informed about climate change and its effects on health.
- Create a space for discussion in your professional network on how to organize more sustainable meetups, conferences and seminars by reducing the travel needed, and innovating to minimize waste and carbon footprint of the event.
- Act with civil society and other stakeholders in the community for a broader reach and understanding among people.

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REVIEW / *DERLEME*

Early Childhood Development – The Role of The Paediatrician

Erken Çocukluk Gelişimi - Çocuk Hekiminin Rolü

Elif Nursel Özmert[1]

[1]Hacettepe University Faculty of Medicine, Divisions of Social Pediatrics and Developmental Pediatrics, Department of Pediatrics, Ankara, Turkey

ORCID ID: E.N.Ö. 0000-0002-4911-9200

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ABSTRACT

Early childhood development is the physical, cognitive, linguistic, and socioemotional development of young children until primary school. Although a child right, unfortunately many children cannot reach their developmental potential. A pediatrician is a physician who is concerned primarily with the health, welfare, and development of children. Pediatricians have the responsibility to promote early childhood development as well as developmental surveillance and screening for early diagnosis. The WHO/UNICEF Nurturing Care framework has specified 5 main strategies/domains: health, nutrition, responsive care giving, secure-safe environment and early education opportunities for early childhood development. The pediatrician plays the role of service provider, advocate, researcher or educator in all these domains. All these domains can only be successfully fulfilled through multidisciplinary collaboration, a way of working that pediatricians are accustomed to using.

Keywords: Early childhood development, nurturing care, primary pediatric care, pediatrician

ÖZ

Erken çocukluk gelişimi çocukların ilkokul dönemine kadar olan fiziksel, bilişsel, dil ve sosyoduygusal gelişimini içerir. Temel bir çocuk hakkı olmasına karşın ne yazık ki pekçok çocuk doğuştan getirdiği potansiyeline erişememektedir. Çocuk hekimi, temel olarak çocuğun sağlığı, refahı ve gelişimi ile ilgilenen hekimdir. Çocuk hekiminin erken çocukluk gelişimini desteklemenin yanı sıra, gelişimsel izlem ve tarama ile erken tanı koyma sorumluluğu da vardır. DSÖ/UNICEF'in "geliştiren bakım" çerçeve programı erken çocukluk gelişimi için 5 temel alan belirlemiştir; sağlık, beslenme, duyarlı bakım, güvenli-güvenilir çevre ve erken eğitim olanaklarına erişim. Çocuk hekiminin hizmet sunucu, savunucu, araştırmacı ve eğitimci olarak tüm bu alanlarda görev ve sorumlulukları vardır. Tüm bu alanlardaki çalışmalar çocuk hekimlerinin çok yatkın olduğu mulidisipliner işbirliği ile başarılabilir.

Anahtar Kelimeler: Erken çocukluk gelişimi, geliştiren bakım, çocuk hekimi

INTRODUCTION

Early childhood development is a child rights issue which is important for the future of the planet and which requires multidisciplinary intervention. This review will focus on the role of the pediatrician, but will keep in mind the multidisciplinary characteristics of all the interventions.

Pediatrics was defined as a separate specialization in the late 19th century and the focus was nutrition, infectious diseases and prevention of mortality. Later, in the middle of the 20th century, several developmental and behavioral issues as well as chronic diseases were recognized as "new morbidities". By the end of the century "newer morbidities" such as mood disorders, substance abuse, and exposure to violence were also recognized. Most recently, increasingly complex mental health concerns; the adverse effects of television viewing; the influence of new technologies; epidemic increases in obesity; and persistent economic, racial, and ethnic disparities in health status have been labelled the "millennial morbidities" (1). However it should be kept in mind that, especially in low- and middle-income countries (LMIC), pediatricians continue to encounter the "older morbidities" alongside the millennial morbidities.

Pediatrics and a pediatrician are currently defined by the American Academy of Pediatrics as follows: (2)

"Pediatrics is the specialty of medical science concerned with the physical, mental, and social health of children from birth

Corresponding Author/Sorumlu Yazar: Elif Nursel Özmert **E-mail:** elifnurselozmert@gmail.com

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to young adulthood. Pediatric care encompasses a broad spectrum of health services ranging from preventive health care to the diagnosis and treatment of acute and chronic diseases. Pediatrics is a discipline that deals with biological, social, and environmental influences on the developing child and with the impact of disease and dysfunction on development. A pediatrician is a physician who is concerned primarily with the health, welfare, and development of children and is uniquely qualified for these endeavors by virtue of interest and initial training". In this definition, not only treatment but also preventive pediatric primary care services, welfare of the child, mental and social health and development are areas defined as responsibilities for pediatricians. However, in different countries, the preventive pediatric primary health care services can be delivered by other health care personnel (3). Even when other health care personnel deliver primary preventive care, the role of the pediatrician for preventive health care services continues through collaboration, research, and advocacy.

Then comes the definition of childhood development:

"Childhood development is a maturational and interactive process, resulting in an ordered progression of perceptual, motor, cognitive, language, socio-emotional, and self-regulation skills. The acquisition of skills and learning in middle childhood, throughout adolescence, and into adulthood builds on foundational capacities established between preconception and early childhood, with multigenerational effects" (4). Here it is important to emphasize brain development, interactions, and education as primary factors, as well as the other factors affecting brain development, interactions, and education.

However, we will limit our discussion with early childhood development (ECD), which is defined as:

"The physical, cognitive, linguistic, and socioemotional development of young children until they transition to primary school (typically around age 6 or 7). The first phase of human development (starting during pregnancy), ECD is an integrated concept that cuts across multiple sectors, including health and nutrition, education, and social protection" (5). The field of early childhood development is framed by the United Nations Convention on the Rights of the Child in several articles (6).

When discussing ECD, two questions arise - how early and why early? Developmental physiology starting from the developmental origins of health and disease hypothesis provides an answer. The Barker hypothesis first defined the developmental origins of adulthood diseases. Now it has been broadened to encompass the developmental origins of health and disease including the interaction of several nutritional and environmental factors and the genetic make-up of the offspring (7). So the health and disease of the parents will determine the health and disease of the baby. The pediatrician has an intergenerational role to play, as do family centered practices.

While development is a continuous process throughout childhood and life, timing is still crucial. The interaction between genes, environment, and age will again determine the developmental outcome postconceptionally (8). Neurodevelopment proceeds by a scaffolding process in which the development of increasingly complex neural circuits relies on successful completion of previous stages of development. Thus, optimal, healthy neurobehavioral development requires that all necessary factors be present at their biologically defined time points and that no inhibitory factors be present. The most active period of neurologic development occurs in the first 1000 days of life, the period beginning at conception and the first 2 years of life (9).

Environment in this context could be classified as nutrition, social interactions with the parents, family, friends, and teacher, as well as opportunities to learn and play and any kind of environmental hazards.

Intervention known to effectively improve early childhood development from the Lancet series (10) on advancing early childhood development has been given in the Table 1. Among the listed 17 interventions shown to be effective, 10 are directly related to pediatric practices and 7 are subjects the pediatrician should collaborate on, search for, and advocate. As for a supportive policy environment, all items are related to pediatric practices, and 3 are directly related to patient care (Table 1).

So for early childhood development, multiple factors are effective. It has been estimated that 250 million children younger than 5 years of age in low- and middle-income countries are at risk of not reaching their developmental potential (4). The main reasons are poverty and stunting. WHO and UNICEF covered these factors under the "nurturing care" framework in 2018 (11). The five main factors are health, nutrition, security and safety, responsive care giving, and early learning. These multiple factors are also related to multiple sectors. However physicians and especially pediatricians are among the key personnel. Pediatricians have a role in all these sectors as service provider, researcher, educator, and advocate. This should include children, families, students, other health care providers, communities, and policy makers. They should act individually as well as through professional societies.

Recently, the Indian Academy of Pediatrics released two consensus papers defining the role of pediatrician in ECD and as well as nurturing care (12, 13).

As service providers. pediatricians can get in contact with the family and child before birth. So starting from antenatal care. pediatricians have the opportunity to promote early childhood development. The following table gives some examples of the role of the pediatrician as a service provider (Table 2).

Nutrition is a vital component of health and disease, morbidity and mortality, as well as brain development. Protein, specific fats (e.g., long chain polyunsaturated fatty acids), glucose, micronutrients (zinc, copper, iodine, iron, selenium), vitamins and cofactors (vitamin B, vitamin A, vitamin K, folate, and choline) are essential. Among these, protein, LC-PUFAs, iodine, iron, zinc, copper, folate, and choline, although always needed,

Table 1: Examples of interventions known to effectively improve early childhood development (10)

Interventions
• Iodine supplementation before or during pregnancy
• Antenatal corticosteroids for women at risk of preterm birth
• Magnesium sulphate for women at risk of preterm birth
• Antiplatelet agents for women at risk of pre-eclampsia
• Delayed cord clamping
• Therapeutic hypothermia for hypoxic ischemic encephalopathy
• Kangaroo Mother Care for small infants (e.g., birthweight <2000 g)
• Breastfeeding and complementary feeding promotion, education, and support
• Responsive caregiving with simulation and early learning opportunities
• Iron and multiple micronutrient supplementation for infants and children
• Deworming
• Treatment of moderate and severe acute malnutrition
• Interventions for common (parental) mental disorders including in the perinatal period
• Smoking cessation interventions
• Elimination of environmental toxins (e.g., lead, mercury, pesticides)
• Parent support programs
• Early childhood care and education
Examples of supportive policy environment
• Paid parental leave and paid sick leave to enable parents to provide care
• Breastfeeding breaks at work
• Paid sick leave to enable parents to provide nurturing care
• Minimum wage sufficient to lift families out of poverty
• Tuition-free pre-primary education
• Poverty alleviation strategies

Adapted from reference 10

Table 2: The role of the pediatrician for early childhood development as a service provider (14)

Antenatal care	promotion of healthy lifestyles; attention to maternal mental health and potential exposure to interpersonal violence; father's engagement; counselling on breast feeding and nurturing care, including responsive caregiving.
Postnatal care	Essential interventions for the newborn including skin-to-skin contact; support for early initiation and exclusive breastfeeding; kangaroo care for low-birth-weight infants; attention to maternal mental health, particularly postpartum depression, and potential exposure to interpersonal violence; counselling on nurturing care, including neonatal screening, responsive caregiving, as well as danger signs for illness or malnutrition; rooming-in.
Well child visit	additional age appropriate screening micronutrient supplementation; growth and development monitoring; identification of children at risk of sub-optimal development; immunization; counseling on infant and young child feeding, responsive feeding, prevention of illness and care-seeking; age appropriate and safe play materials and books; attention to the prevention of unintentional injuries and child maltreatment; health promotion classes; referral to other sectors such as social protection.
Sick child visit	Counseling on infant and young child feeding during and after illness; follow-up visits for growth and development monitoring; identification and referral of families and children at risk of sub-optimal development, or poor mental health and/or maltreatment

Adapted from reference 14

are also especially important during the critical and sensitive early development period (15).

Toxic stress is another important environmental threat to development. Physical, sexual, or emotional abuse and neglect can lead to toxic stress, which will end up in a change in the brain architecture with fewer neurons, less synapsis, and an altered neurotransmitter system. As a result, learning, memory, educational achievement, job opportunities, and socioeconomic status will be adversely affected, in addition to other disadvantages (16). So both preventing toxic stress and supporting responsive care giving are needed for optimal development.

It has been estimated that in the USA, the total amount of IQ loss due to environmental toxins is much more in preterm births (17). Pediatricians should be aware of the silent environmental toxin pandemic.

However, not only prevention of adverse factors but also promotion of early childhood development should be in the context of pediatrics. Starting with responsive care giving, play and reading should be promoted.

ECD will bring the child to school readiness, but it should be kept in mind that childhood development continues, as does the role of the pediatrician, in middle childhood and adolescence.

Developmental Surveillance and Screening

In addition to promotion of early childhood development for all children, pediatricians have a role in early identification and intervention for developmental disorders, which is possible through developmental surveillance and screening. As mentioned above, screening for diseases and disorders, such as inborn errors of metabolism and hypothyroidism, as well as hearing and vision, that may affect development is vital. However, development should also be screened. All child health supervision or well baby follow-up visits should incorporate developmental surveillance. If there is a developmental concern at any age and for all children at 9, 18, and 24-30 months of age, surveillance should be supported by developmental screening, which is the use of standardized tools to identify and refine any developmental risk (18).

However, despite recommendations, developmental screening has not become universal in the USA. American Academy of Pediatrics surveys of pediatricians report screening rates of 23% in 2002, 45% in 2009, and 63% in 2016. Pediatricians have reported difficulties in incorporating multiple new guidelines for related conditions into their practices and continue to report time limitations and inadequate payment as barriers to implementation (18).

Unfortunately, a study in Turkey has revealed that developmental concerns are not addressed satisfactorily. 87.1%, 48.7%, and 34.5% of parents in primary health care centers where family physicians are in charge, in university hospital outpatient clinics, and in state hospital outpatient clinics where pediatricians are in charge, respectively, reported that developmental issues had been discussed during their appointments (p=0.000). Nearly one third of families reported at least one developmental concern. Less than half of the concerned parents had visited a health center for these concerns (19).

Pediatricians in the USA report time limitations and inadequate payment as barriers to implementation of universal screening (18). In addition to developmental screening, specific screening is also now recommended (18). However in a study it was reported that nearly 20% of pediatricians agreed that screening for social-emotional risk factors is beyond the scope of the pediatric medical home. At least half of pediatricians endorsed the three perceived barriers as being moderate or significant: a lack of practice-friendly tools to promote healthy parent-child relationships (50%), a lack of practice-friendly tools to assess the family environment for social-emotional risk factors (60%), and a lack of community resources available to address family social-emotional issues (67%) (20).

In a study conducted in a single center in Ankara, Turkey, pediatric residents mostly stated that they didn't have enough knowledge about child development and they didn't use a tool for developmental screening or evaluation. Time strain was listed as the most significant barrier (21).

So although by definition developmental screening and early diagnosis of developmental disorders are among the primary responsibilities of pediatricians, further empowerment is needed.

Pediatricians can incorporate recent advances in developmental science into effective interventions for the child, home, clinic, and community. They have a developmental approach to health, and understand the importance of prevention as well as effective advocacy. However there is a need to emphasize early childhood development, nurturing care, and the role of the pediatrician during training. Also, further research is needed to demonstrate evidence-based intervention strategies for different socioeconomic and cultural groups. The skills of pediatricians for advocacy should also be promoted (22).

CONCLUSION

The role of the pediatrician in early childhood development is essential. Not only are the pediatric holistic approach to the child (biopsychosocial) and to the family (genetic, socioeconomic, cultural) crucial in guiding families, but so is the intergenerational perspective. Pediatric visits are opportunities for developmental enhancement, screening, and surveillance, family engagement (including the father), anticipatory guidance, and the creation of therapeutic alliances with families. Pediatricians have a role in the identification of those children at high risk for poor development, providing positive parenting support for all families to assist them with development, and providing referrals for additional support when necessary. Pediatricians are not only service providers. They are also advocates of children, child rights, and child health and welfare, as well as development. They are in multidisciplinary collaboration as service providers, as advocates, as researchers, and as policy makers, which is needed to achieve the goals (23, 24).

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REVIEW / *DERLEME*

Increasing Sleep Health Awareness in Pediatric Settings: Creating Opportunities for Generating a More Sleep-literate Health Care Workforce

Sarah Blunden[1], **Perran Boran**[2]

[1]Central Queensland University, Appleton Institute of Behavioural Science, Adelaide, Australia
[2]Marmara University, School of Medicine, Istanbul, Turkey

ORCID ID: S.B. 0000-0002-5026-1992; P.B. 0000-0002-9885-7656

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ABSTRACT

Sleep health is one of the major contributors to mental and physical health and as such should be an essential component of informed community and policy conversations around health. Non-physiological sleep problems are commonly referred to as Behavioral Sleep Problems (BSP) and include difficulties initiating sleep alone, bedtime resistance, difficulties re-initiating sleep after normally occurring overnight waking (requiring parental assistance to re-settle) and/or early morning wakening. BSP affects up to 40% of children under two years of age.

Despite the high prevalence and impact of sleep disturbance, training and education curricula for pediatric medical and allied health professions include little information or awareness building about sleep, particularly in strategies to ameliorate sleep for children and their families. An evident need to train health professionals working with children in evidence-based pediatric behavioral sleep care is emerging.

A recent partnership between Turkey and Australia has tackled this problem. By developing a scientific collaborative network between the two countries and using existing evidence-based methods, clinical information was shared between health professional workforces in these two countries as effective ways of translating knowledge in pediatric sleep interventions. Systematic training of primary and tertiary medical and allied health professionals must be considered as standard practice in tertiary education settings.

Keywords: Sleep, pediatric, insomnia

INTRODUCTION

The need for sleep education in the tertiary pediatric settings

Sleep is important for wellbeing. Sleep health is one of the major contributors to mental and physical health and as such should be an essential component of informed community and policy conversations around health. Increased conversations increase the potential for intervention. This is particularly the case in the first months and years of life in young families where sleep disturbance is common. In fact, it has been reported that sleep is the issue for which new parents seek the most help during the first years (1). Sleep problems, from either reduced sleep quantity or quality in young children, can be both significant and extensive and are not restricted to age, socioeconomic demographic or country (2). Non physiological sleep problems are commonly referred to as Behavioral Sleep Problems (BSP) and include difficulties initiating sleep alone, bedtime resistance, difficulties re-initiating sleep after normally occurring overnight waking (requiring parental assistance to re-settle) and/or early morning wakening (3). BSP affects up to 40% of children under two years of age and approximately 25% of children 2-10 years old (3, 4).

Clinical Research and Consequences

What happens when parents do not get the assistance they need with sleep issues?

If healthy sleep habits are not well established in the early years, problems can persist in such a way that children can experience reduced sleep duration, concurrent or future behavioral problems, and academic difficulties (5). Furthermore, sleep disturbances in these age groups significantly impact sleep in the entire family and subsequently family function and mental and physical wellbeing of parents, particularly mothers (6). Many studies report causal relationships between sleep disturbed children and parental depression, anxiety and stress.

Corresponding Author/Sorumlu Yazar: Perran Boran **E-mail:** drperran@yahoo.com
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Moreover, and importantly, when poor sleep is improved, related issues also improve (7).

So, early sleep education could be at the heart of improving firstly the sleep habits and then the general health of the community. It has been reported that the issue about which most help is sought by new parents concerns the sleeping habits of their child (1).

However, despite the high prevalence and impact of sleep disturbance, training and education curricula for pediatric medical and allied health professions include little information or awareness building about sleep, particularly in strategies to ameliorate sleep for children and their families. In Turkey, a quasi-experimental study found that 80% of pediatricians lacked basic skills and knowledge in behavioral pediatric sleep problems (8). The study also found that while a brief one-time training session improved their knowledge, there was still a need for more detailed training for skill acquisition. Indeed, a similar picture emerges in other countries and jurisdictions, where sleep training at all levels of training, (undergraduate, graduate or clinical training), is lacking (9, 10).

An evident need to train health professionals working with children in evidence-based pediatric behavioral sleep care is emerging.

Types of sleep interventions available

As these sleep disorders are considered behavioral in nature, the treatments utilized are also behavioral in nature (11). The most common behavioral sleep interventions are known as *extinction methods* as they "extinguish" the unwanted behavior of waking up overnight. All extinction methods involve the child's calling or crying being ignored once the child has been put to bed.

What happens when parents cannot access the sleep interventions they want?

Extinction methods can be considered to lie on a spectrum ranging from completely ignoring a child's nighttime protests or cries (an extinction method often called the "cry- it- out-method"), to staying with the child until they fall asleep (often called the "camping out method") (3, 12). Between these is the graduated extinction method often called controlled crying or controlled comforting where parents periodically leave their child to cry in protest, checking less and less frequently (3). All of these treatments have been shown to achieve their aims of reducing nighttime crying and parental interaction by teaching parents to set limits on how much they will attend to their child and what they will do when they do attend their child (3, 12).

Given the lack of training in sleep for medical health professionals, the research literature is the first point of call for front line medical professionals to understand how to assist young children in improving their sleep. The research literature is overwhelmingly skewed towards extinction methods (12). Popular literature follows this trend with 61% (24 of 39) of parent sleep advice books endorsing extinction intervention (12). Hence when scanning the literature for behavioral sleep treatments, it is likely that the information presented and accessed by pediatric medical professionals is extinction based as these interventions are dominating the published literature. Therefore, it is likely that most medical health care professionals would be more likely to recommend extinction based interventions (12).

However, most standard extinction or graduated extinction treatments are often tolerated with difficulty by parents as the significant amount of crying (as the child communicates their desire for parental attention), can be difficult for a parent to withstand - particularly if they are instructed to ignore the cry (13, 14). Even in more gentle methods such as 'camping out' there are expectations that parents cannot comfort their child if distressed (5). It would appear then that if behavioral sleep treatments are to be successful, parents need to withstand and, in some cases, ignore their child's crying and this may not be tolerable for some parents. *For these parents the treatment may be worse than the problem. On the other hand, there is emerging evidence to support the use of more responsive methods for those who find extinction approaches behaviorally or ideologically challenging (16).* Behavioral sleep treatments that do not necessitate unattended crying are emerging and are often termed "responsive" methods because they do not ignore an infant's cries and may offer a less stressful option to parents attempting to improve their infant's sleep (16, 17).

So, the treatment of sleep in young children requires not only a significant understanding of the physiology of sleep health in these age groups, but also:

1. *The expertise to be able to offer parents sleep inventions that combine efficacy with feasibility*
2. *Considers mother/infant attachment and stress levels of parents and child in the process*
3. *Reflects the different needs of parental preferences for intervention strategies.*

A recent partnership between Turkey and Australia has tackled this problem.

By d*eveloping* a scientific collaborative network between the two countries and using existing evidence-based methods, clinical information was shared between health professional workforces in these two countries as effective ways of translating knowledge in pediatric sleep interventions. The Turkish Social Pediatrics Association collaborated with an expert psychologist from Australia (Professor Sarah Blunden) specialized in pediatric behavioral sleep, to develop a course that combined didactic learning and practical implementation. A two-day course was run jointly by the Social Pediatrics Association and Blunden which provided 10-hour long sessions for 35 health professionals. The training was available to pediatricians, nurses, and psychologists. The first part of the course was based on core competencies for

health professional's training in pediatric behavioral sleep care (18). The second part covered responsive sleep interventions, and the implementation of a newly manualized responsive method of sleep intervention, The **Ge**ntle **M**ethod of **S**elf **S**oothing (GeMSS) in particular (https://sensiblesleep.com/course/blunden-responsive-gemss-method/). Pre and post questionnaire completion tested for knowledge acquisition while skill acquisition was assessed by post session case studies and clinical interactive discussions. Following the initial interactive face to face training, modules for GeMSS were provided online. A survey of 33 participants one year after completing the course found that 100% thought it was useful and 70% said that they had applied the techniques in their daily practice. Some suggested that learning together with colleagues, mentorship, and feedback cycles may be useful. Ten pediatricians were academics from universities who were able to offer training sessions to pediatricians, and residents in their own institutions, in this way, the training the trainer approach was implemented during the course as well. These educational efforts helped to raise awareness in pediatric behavioral sleep care. Conferences held by the Pediatric Societies still offer continuing professional development opportunities on pediatric behavioral sleep.

In pediatric settings therefore, opportunities arise to create the optimal environment for addressing sleep health issues due to the frequent and regular visits by families during the early years.

How the dissemination of sleep education can be incorporated into training opportunities for tertiary health care professionals, such as pediatricians and psychologists, in health sectors.

Training of health professionals in evidence-based pediatric behavioral sleep care employing similar methods as described above, will assist those working with children in a more systematic way. Furthermore, pediatric settings have the opportunity to deliver to parents and families specialist services that offer choices and options for parents to be able to improve the sleep of their children. Comprehensive training in pediatric behavioral sleep interventions *could provide practitioners with an integrated well-targeted suite of clinical interventions (e.g. from extinction to responsive methods if required), that could cater for all parenting styles. Offering choice would potentially improve compliance, reduce attrition and ultimately benefit the sleep and wellbeing of all infants and their parents, especially those who struggle with traditional extinction methodologies (16).*

The stepped care model (see below) of sleep information dissemination and intervention must reflect the differing levels of care and expertise needed and which should be available for families seeking assistance for sleep disturbance in their child.

Community organizations must be informed about sleep and sleep health offering basic sleep health knowledge and resources at a population level. This low-level information dissemination will act as a form of triage for those needing one on one assistance at a primary health level, potentially offering information through community organizations. The next level caters for those with some training in behavioral sleep medicine offering assistance to a more streamlined target population level and whose training has been overseen and is evidence based. Health professionals who need training in sleep include primary health care such as community doctors and nurses and general practitioners. The final level of sleep assistance reflects those specialized in sleep health and with mastery in sleep and specific organizations with expertise in how to improve sleep in children where sleep may be significantly disturbed and/or the child has complex needs. These tertiary level health professionals would include sleep psychologists, sleep physicians and pediatricians.

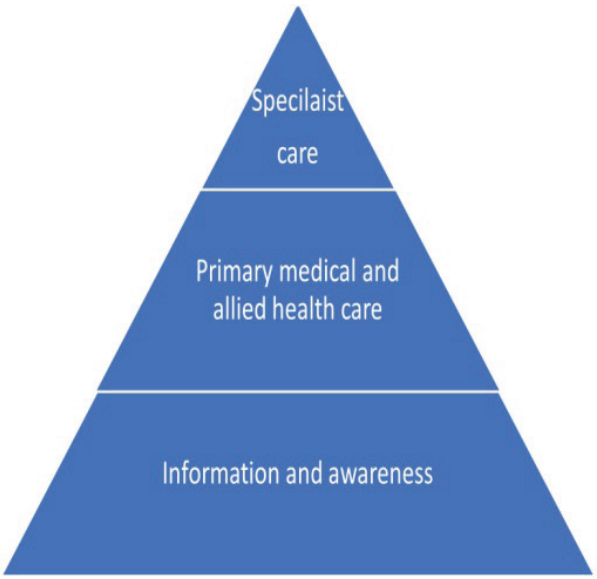

Figure 1. Stepped care model of sleep health needs

RECOMMENDATIONS

1. Increase sleep education in undergraduate and post graduate medical and allied health training. This requires some substantial changes to curricula and policy.

2. In the absence of increased sleep content curricula, in the short term, there should be training of medical and allied health professionals to address sleep health issues. Training of the pediatric workforce should be through:

    a. Developing relevant resources

    b. Extra curricula and post graduate training in sleep to professionals already in the field through private organizations or public institutions Training must be evidence based and include mastery testing and include competency-based assessment.

    c. Implementation of ongoing professional development in sleep education

    d. Establishment of sleep communities of practice for professionals across jurisdictions

    e. Attendance at and organization of cross-discipline conferences. Sleep content should be included in

pediatric congresses and conference meetings of medical and allied health professionals as part of a holistic approach to pediatric health

f. Ensuring families are offered sleep interventions that correspond to the intervention of their choice at primary and tertiary level interventions.

CONCLUSION

Sleep health is one of the major contributors to mental and physical health and as such should be an essential component of informed community and policy conversations around health.

Systematic training of primary and tertiary medical and allied health professionals must be considered as standard practice in tertiary education settings.

Hakem Değerlendirmesi: Dış bağımsız.

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TANIM

Çocuk Dergisi, İstanbul Üniversitesi, İstanbul Tıp Fakültesi Çocuk Sağlığı ve Hastalıkları Anabilim Dalı'nın ve İstanbul Üniversitesi Çocuk Sağlığı Enstitüsü'nün; çocuk sağlığı ve hastalıkları alanındaki uluslararası, hakemli, açık erişimli, bilimsel yayın organıdır. Dergi yılda üç sayı olarak Nisan, Ağustos ve Aralık aylarında yayınlanmaktadır. Derginin yayın dili Türkçe ve İngilizce'dir.

AMAÇ VE KAPSAM

Çocuk Dergisi, çocuk sağlığı ve hastalıkları alanında nitelikli özgün araştırma, temel konular ile ilgili güncel değişimleri ele alan derleme ve olgu sunumları yayınlayarak literatüre katkıda bulunmayı hedefler.

Temel alınan çocuk sağlığı ve hastalıkları alanının yanında; bu alanla ilgili olmak kaydı ile diğer dahili ve cerrahi bilimlerin hazırlamış olduğu yazılar da kabul edilmektedir. Derginin hedef kitlesini akademisyenler, araştırmacılar, profesyoneller, öğrenciler ve ilgili mesleki, akademik kurum ve kuruluşlar oluşturur.

POLİTİKALAR

Yayın Politikası

Dergi yayın etiğinde en yüksek standartlara bağlıdır ve Committee on Publication Ethics (COPE), Directory of Open Access Journals (DOAJ), Open Access Scholarly Publishers Association (OASPA) ve World Association of Medical Editors (WAME) tarafından yayınlanan etik yayıncılık ilkelerini benimser; Principles of Transparency and Best Practice in Scholarly Publishing başlığı altında ifade edilen ilkeler için: https://publicationethics.org/resources/guidelines-new/principles-transparency-and-best-practice-scholarly-publishing

Gönderilen makaleler derginin amaç ve kapsamına uygun olmalıdır. Orijinal, yayınlanmamış ve başka bir dergide değerlendirme sürecinde olmayan, her bir yazar tarafından içeriği ve gönderimi onaylanmış yazılar değerlendirmeye kabul edilir.

Makale yayınlanmak üzere Dergiye gönderildikten sonra yazarlardan hiçbirinin ismi, tüm yazarların yazılı izni olmadan yazar listesinden silinemez ve yeni bir isim yazar olarak eklenemez ve yazar sırası değiştirilemez.

İntihal, duplikasyon, sahte yazarlık/inkar edilen yazarlık, araştırma/veri fabrikasyonu, makale dilimleme, dilimleyerek yayın, telif hakları ihlali ve çıkar çatışmasının gizlenmesi, etik dışı davranışlar olarak kabul edilir. Kabul edilen etik standartlara uygun olmayan tüm makaleler yayından çıkarılır. Buna yayından sonra tespit edilen olası kuraldışı, uygunsuzluklar içeren makaleler de dahildir.

İntihal

Ön kontrolden geçirilen makaleler, iThenticate yazılımı kullanılarak intihal için taranır. İntihal/kendi kendine intihal tespit edilirse yazarlar bilgilendirilir. Editörler, gerekli olması halinde makaleyi değerlendirme ya da üretim sürecinin çeşitli aşamalarında intihal kontrolüne tabi tutabilirler. Yüksek benzerlik oranları, bir makalenin kabul edilmeden önce ve hatta kabul edildikten sonra reddedilmesine neden olabilir. Makalenin türüne bağlı olarak, bunun oranın %15 veya %20'den az olması beklenir.

Çift Kör Hakemlik

İntihal kontrolünden sonra, uygun olan makaleler baş editör tarafından orijinallik, metodoloji, işlenen konunun önemi ve dergi kapsamı ile uyumluluğu açısından değerlendirilir. Editör, makalelerin adil bir şekilde çift taraflı kör hakemlikten geçmesini sağlar ve makale biçimsel esaslara uygun ise, gelen yazıyı yurtiçinden ve /veya yurtdışından en az iki hakemin değerlendirmesine sunar, hakemler gerek gördüğü takdirde yazıda istenen değişiklikler yazarlar tarafından yapıldıktan sonra yayınlanmasına onay verir.

Açık Erişim İlkesi

Dergi açık erişimlidir ve derginin tüm içeriği okura ya da okurun dahil olduğu kuruma ücretsiz olarak sunulur. Okurlar, ticari amaç haricinde, yayıncı ya da yazardan izin almadan dergi makalelerinin tam metnini okuyabilir, indirebilir, kopyalayabilir, arayabilir ve link sağlayabilir. Bu BOAI açık erişim tanımıyla uyumludur.

İşlemleme Ücreti

Derginin tüm giderleri İstanbul Üniversitesi tarafından karşılanmaktadır. Dergide makale yayını ve makale süreçlerinin yürütülmesi ücrete tabi değildir. Dergiye gönderilen ya da yayın için kabul edilen makaleler için işlemleme ücreti ya da gönderim ücreti alınmaz.

Telif Hakkında

ETİK

Yayın Etiği Beyanı

Çocuk Dergisi, yayın etiğinde en yüksek standartlara bağlıdır ve Committee on Publication Ethics (COPE), Directory of Open Access Journals (DOAJ), Open Access Scholarly Publishers Association (OASPA) ve World Association of Medical Editors (WAME) tarafından yayınlanan etik yayıncılık ilkelerini benimser; Principles of Transparency and Best Practice in Scholarly Publishing başlığı altında ifade edilen ilkeler için adres: https://publicationethics.org/resources/guidelines-new/principles-transparency-and-best-practice-scholarly-publishing

Yayın sürecindeki tüm tarafların (Editör, Hakem, Yazar ve Yayıncı) belirtilen etik ilkelere uymaları beklenir.

Gönderilen tüm makaleler orijinal, yayınlanmamış ve başka bir dergide değerlendirme sürecinde olmamalıdır. Yazar makalenin orijinal olduğu, daha önce başka bir yerde yayınlanmadığı ve başka bir yerde, başka bir dilde yayınlanmak üzere değerlendirmede olmadığını beyan etmelidir. Uygulamadaki telif kanunları ve anlaşmaları gözetilmelidir. Telife bağlı materyaller (örneğin tablolar, şekiller veya büyük alıntılar) gerekli izin ve teşekkürle kullanılmalıdır. Başka yazarların, katkıda bulunanların çalışmaları ya da yararlanılan kaynaklar uygun biçimde kullanılmalı ve referanslarda belirtilmelidir. Her bir makale en az iki hakem tarafından çift kör değerlendirmeden geçirilir. İntihal, duplikasyon, sahte yazarlık/inkar edilen yazarlık, araştırma/veri fabrikasyonu, makale dilimleme, dilimleyerek yayın, telif hakları ihlali ve çıkar çatışmasının gizlenmesi, etik dışı davranışlar olarak kabul edilir.

Kabul edilen etik standartlara uygun olmayan tüm makaleler yayından çıkarılır. Buna yayından sonra tespit edilen olası kuraldışı, uygunsuzluklar içeren makaleler de dahildir.

Araştırma Etiği

Çocuk Dergisi araştırma etiğinde en yüksek standartları gözetir ve aşağıda tanımlanan uluslararası araştırma etiği ilkelerini benimser. Makalelerin etik kurallara uygunluğu yazarların sorumluluğundadır.

- Araştırmanın tasarlanması, tasarımın gözden geçirilmesi ve araştırmanın yürütülmesinde, bütünlük, kalite ve şeffaflık ilkeleri sağlanmalıdır.
- Araştırma ekibi ve katılımcılar, araştırmanın amacı, yöntemleri ve öngörülen olası kullanımları; araştırmaya katılımın gerektirdikleri ve varsa riskleri hakkında tam olarak bilgilendirilmelidir.
- Araştırma katılımcılarının sağladığı bilgilerin gizliliği ve yanıt verenlerin gizliliği sağlanmalıdır. Araştırma katılımcıların özerkliğini ve saygınlığını koruyacak şekilde tasarlanmalıdır.
- Araştırma katılımcıları gönüllü olarak araştırmada yer almalı, herhangi bir zorlama altında olmamalıdırlar.
- Katılımcıların zarar görmesinden kaçınılmalıdır. Araştırma, katılımcıları riske sokmayacak şekilde planlanmalıdır.
- Araştırma bağımsızlığıyla ilgili açık ve net olunmalı; çıkar çatışması varsa belirtilmelidir.
- İnsan denekler ile yapılan deneysel çalışmalarda, araştırmaya katılmaya karar veren katılımcıların yazılı bilgilendirilmiş onayı alınmalıdır. Çocukların ve vesayet altındakilerin veya tasdiklenmiş akıl hastalığı bulunanların yasal vasisinin onayı alınmalıdır.
- Çalışma herhangi bir kurum ya da kuruluşta gerçekleştirilecekse bu kurum ya da kuruluştan çalışma yapılacağına dair onay alınmalıdır.
- İnsan öğesi bulunan çalışmalarda, "yöntem" bölümünde katılımcılardan "bilgilendirilmiş onam" alındığının ve çalışmanın yapıldığı kurumdan etik kurul onayı alındığı belirtilmesi gerekir.

Etik Kurul Onayı ve Bilgilendirilmiş Onam

Çocuk Dergisi, World Medical Association (WMA) Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects (2013) ve WMA Statement on Animal Use in Biomedical Research (2016) standartlarını kabul eder ve etik standartları ilke olarak benimser.

Klinik ve deneysel çalışmalar, ilaç araştırmaları ve bazı olgu sunumları için yukarıda belirtilen uluslararası standartlara uygun Etik Komisyon raporu gerekmektedir. Gerekli görülmesi halinde Etik Komisyon raporu veya eşdeğeri olan resmi bir yazı yazarlardan talep edilebilir. İnsanlar üzerinde yapılmış deneysel çalışmaların sonuçlarını bildiren yazılarda, çalışmanın yapıldığı kişilere uygulanan

prosedürlerin niteliği tümüyle açıklandıktan sonra, onaylarının alındığına ilişkin bir açıklamaya metin içinde yer verilmelidir. Hayvanlar üzerinde yapılan çalışmalarda ise ağrı, acı ve rahatsızlık verilmemesi için yapılmış olanlar açık olarak makalede belirtilmelidir. Hasta onamları, Etik Kurul raporunun alındığı kurumun adı, onay belgesinin numarası ve tarihi ana metin dosyasında yer alan Gereç ve Yöntem başlığı altında yazılmalıdır. Hastaların kimliklerinin gizliliğini korumak yazarların sorumluluğundadır. Hastaların kimliğini açığa çıkarabilecek fotoğraflar için hastadan ya da yasal temsilcilerinden alınan imzalı izinlerin de gönderilmesi gereklidir.

Yazarların Sorumluluğu

Makalelerin bilimsel ve etik kurallara uygunluğu yazarların sorumluluğundadır. Yazar makalenin orijinal olduğu, daha önce başka bir yerde yayınlanmadığı ve başka bir yerde, başka bir dilde yayınlanmak üzere değerlendirmede olmadığı konusunda teminat sağlamalıdır. Uygulamadaki telif kanunları ve anlaşmaları gözetilmelidir. Telife bağlı materyaller (örneğin tablolar, şekiller veya büyük alıntılar) gerekli izin ve teşekkürle kullanılmalıdır. Başka yazarların, katkıda bulunanların çalışmaları ya da yararlanılan kaynaklar uygun biçimde kullanılmalı ve referanslarda belirtilmelidir.

Gönderilen makalede tüm yazarların akademik ve bilimsel olarak doğrudan katkısı olmalıdır, bu bağlamda "yazar" yayınlanan bir araştırmanın kavramsallaştırılmasına ve dizaynına, verilerin elde edilmesine, analizine ya da yorumlanmasına belirgin katkı yapan, yazının yazılması ya da bunun içerik açısından eleştirel biçimde gözden geçirilmesinde görev yapan birisi olarak görülür. Yazar olabilmenin diğer koşulları ise, makaledeki çalışmayı planlamak veya icra etmek ve / veya revize etmektir. Fon sağlanması, veri toplanması ya da araştırma grubunun genel süpervizyonu tek başına yazarlık hakkı kazandırmaz. Yazar olarak gösterilen tüm bireyler sayılan tüm ölçütleri karşılamalıdır ve yukarıdaki ölçütleri karşılayan her birey yazar olarak gösterilebilir. Yazarların isim sıralaması ortak verilen bir karar olmalıdır. Tüm yazarlar yazar sıralamasını Telif Hakkı Anlaşması Formunda imzalı olarak belirtmek zorundadırlar.

Yazarlık için yeterli ölçütleri karşılamayan ancak çalışmaya katkısı olan tüm bireyler "teşekkür / bilgiler" kısmında sıralanmalıdır. Bunlara örnek olarak ise sadece teknik destek sağlayan, yazıma yardımcı olan ya da sadece genel bir destek sağlayan, finansal ve materyal desteği sunan kişiler verilebilir.

Bütün yazarlar, araştırmanın sonuçlarını ya da bilimsel değerlendirmeyi etkileyebilme potansiyeli olan finansal ilişkiler, çıkar çatışması ve çıkar rekabetini beyan etmelidirler. Bir yazar kendi yayınlanmış yazısında belirgin bir hata ya da yanlışlık tespit ederse, bu yanlışlıklara ilişkin düzeltme ya da geri çekme için editör ile hemen temasa geçme ve işbirliği yapma sorumluluğunu taşır.

Editör ve Hakem Sorumlulukları

Baş editör, makaleleri, yazarların etnik kökeninden, cinsiyetinden, uyruğundan, dini inancından ve siyasi felsefesinden bağımsız olarak değerlendirirler. Yayına gönderilen makalelerin adil bir şekilde çift taraflı kör hakem değerlendirmesinden geçmelerini sağlar. Gönderilen makalelere ilişkin tüm bilginin, makale yayınlanana kadar gizli kalacağını garanti eder.

Baş editör içerik ve yayının toplam kalitesinden sorumludur. Gereğinde hata sayfası yayınlamalı ya da düzeltme yapmalıdır.

Baş editör; yazarlar, editörler ve hakemler arasında çıkar çatışmasına izin vermez. Hakem atama konusunda tam yetkiye sahiptir ve dergide yayınlanacak makalelerle ilgili nihai kararı vermekle yükümlüdür.

Hakemler, araştırma, yazarlar ve/veya araştırmaya fon sağlayanlarla çıkar çatışması içinde olmamalıdır. Hakemler değerlendirmelerinin sonucunda tarafsız bir yargıya varmalıdırlar. Gönderilmiş yazılara ilişkin tüm bilginin gizli tutulmasını sağlamalı ve yazar tarafında herhangi bir telif hakkı ihlali ve intihal fark ederlerse editöre raporlamalıdırlar.

Hakem, makale konusu hakkında kendini vasıflı hissetmiyor ya da zamanında geri dönüş sağlaması mümkün görünmüyorsa, editöre bu durumu bildirmeli ve hakem sürecine kendisini dahil etmemesini istemelidir.

Değerlendirme sürecinde editör hakemlere gözden geçirme için gönderilen makalelerin, yazarların özel mülkü olduğunu ve bunun imtiyazlı bir iletişim olduğunu açıkça belirtir. Hakemler ve yayın kurulu üyeleri başka kişilerle makaleleri tartışamazlar. Hakemlerin kimliğinin gizli kalmasına özen gösterilmelidir. Bazı durumlarda editörün kararıyla, ilgili hakemlerin makaleye ait yorumları aynı makaleyi yorumlayan diğer hakemlere gönderilerek hakemlerin bu süreçte aydınlatılması sağlanabilir.

HAKEM DEĞERLENDİRME POLİTİKALARI

Daha önce yayınlanmamış ya da yayınlanmak üzere başka bir dergide halen değerlendirmede olmayan ve her bir yazar tarafından onaylanan makaleler değerlendirilmek üzere kabul edilir. Gönderilen ve ön kontrolü geçen makaleler iThenticate yazılımı kullanılarak intihal için taranır. İntihal kontrolünden sonra, uygun olan makaleler baş editör tarafından orijinallik, metodoloji, işlenen konunun önemi ve dergi kapsamı ile uyumluluğu açısından değerlendirilir.

Seçilen makaleler en az iki ulusal/uluslararası hakeme çift taraflı kör hakemlik ile değerlendirmeye gönderilir; yayın kararı, hakemlerin talepleri doğrultusunda yazarların gerçekleştirdiği düzenlemelerin ve hakem sürecinin sonrasında baş editör tarafından verilir.

Editör ve Hakem Sorumlulukları

Baş editör, makaleleri, yazarların etnik kökeninden, cinsiyetinden, uyruğundan, dini inancından ve siyasi felsefesinden bağımsız olarak değerlendirirler. Yayına gönderilen makalelerin adil bir şekilde çift taraflı kör hakem değerlendirmesinden geçmelerini sağlar. Gönderilen makalelere ilişkin tüm bilginin, makale yayınlanana kadar gizli kalacağını garanti eder.

Baş editör içerik ve yayının toplam kalitesinden sorumludur. Gereğinde hata sayfası yayınlamalı ya da düzeltme yapmalıdır.

Baş editör; yazarlar, editörler ve hakemler arasında çıkar çatışmasına izin vermez. Hakem atama konusunda tam yetkiye sahiptir ve dergide yayınlanacak makalelerle ilgili nihai kararı vermekle yükümlüdür.

Hakemler, araştırma, yazarlar ve/veya araştırmaya fon sağlayanlarla çıkar çatışması içinde olmamalıdır. Hakemler değerlendirmelerinin sonucunda tarafsız bir yargıya varmalıdırlar. Gönderilmiş yazılara ilişkin tüm bilginin gizli tutulmasını sağlamalı ve yazar tarafında herhangi bir telif hakkı ihlali ve intihal fark ederlerse editöre raporlamalıdırlar.

Hakem, makale konusu hakkında kendini vasıflı hissetmiyor ya da zamanında geri dönüş sağlaması mümkün görünmüyorsa, editöre bu durumu bildirmeli ve hakem sürecine kendisini dahil etmemesini istemelidir.

Değerlendirme sürecinde editör hakemlere gözden geçirme için gönderilen makalelerin, yazarların özel mülkü olduğunu ve bunun imtiyazlı bir iletişim olduğunu açıkça belirtir. Hakemler ve yayın kurulu üyeleri başka kişilerle makaleleri tartışamazlar. Hakemlerin kimliğinin gizli kalmasına özen gösterilmelidir. Bazı durumlarda editörün kararıyla, ilgili hakemlerin makaleye ait yorumları aynı makaleyi yorumlayan diğer hakemlere gönderilerek hakemlerin bu süreçte aydınlatılması sağlanabilir.

Hakem Süreci

Daha önce yayınlanmamış ya da yayınlanmak üzere başka bir dergide halen değerlendirmede olmayan ve her bir yazar tarafından onaylanan makaleler değerlendirilmek üzere kabul edilir. Gönderilen ve ön kontrolü geçen makaleler iThenticate yazılımı kullanılarak intihal için taranır. İntihal kontrolünden sonra, uygun olan makaleler baş editör tarafından orijinallik, metodoloji, işlenen konunun önemi ve dergi kapsamı ile uyumluluğu açısından değerlendirilir.

Baş Editör, makaleleri, yazarların etnik kökeninden, cinsiyetinden, uyruğundan, dini inancından ve siyasi felsefesinden bağımsız olarak değerlendirir. Yayına gönderilen makalelerin adil bir şekilde çift taraflı kör hakem değerlendirmesinden geçmelerini sağlar.

Seçilen makaleler en az iki ulusal/uluslararası hakeme değerlendirmeye gönderilir; yayın kararı, hakemlerin talepleri doğrultusunda yazarların gerçekleştirdiği düzenlemelerin ve hakem sürecinin sonrasında baş editör tarafından verilir.

Baş editör; yazarlar, editörler ve hakemler arasında çıkar çatışmasına izin vermez. Hakem atama konusunda tam yetkiye sahiptir ve dergide yayınlanacak makalelerle ilgili nihai kararı vermekle yükümlüdür.

Hakemlerin değerlendirmeleri objektif olmalıdır. Hakem süreci sırasında hakemlerin aşağıdaki hususları dikkate alarak değerlendirmelerini yapmaları beklenir.

- Makale yeni ve önemli bir bilgi içeriyor mu?
- Öz, makalenin içeriğini net ve düzgün bir şekilde tanımlıyor mu?
- Yöntem bütünlüklü ve anlaşılır şekilde tanımlanmış mı?
- Yapılan yorum ve varılan sonuçlar bulgularla kanıtlanıyor mu?
- Alandaki diğer çalışmalara yeterli referans verilmiş mi?
- Dil kalitesi yeterli mi?

Hakemler, gönderilen makalelere ilişkin tüm bilginin, makale yayınlanana kadar gizli kalmasını sağlamalı ve yazar tarafında herhangi bir telif hakkı ihlali ve intihal fark ederlerse editöre raporlamalıdırlar.

Hakem, makale konusu hakkında kendini vasıflı hissetmiyor ya da zamanında geri dönüş sağlaması mümkün görünmüyorsa, editöre bu durumu bildirmeli ve hakem sürecine kendisini dahil etmemesini istemelidir.

Değerlendirme sürecinde editör hakemlere gözden geçirme için gönderilen makalelerin, yazarların özel mülkü olduğunu ve bunun imtiyazlı bir iletişim olduğunu açıkça belirtir. Hakemler ve yayın kurulu üyeleri başka kişilerle makaleleri tartışamazlar. Hakemlerin kimliğinin gizli kalmasına özen gösterilmelidir.

YAZIM KURALLARI

Makale Hazırlama ve Gönderim

Makaleler, ICMJE-Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals (updated in December 2015 - http://www.icmje.org/icmje-recommendations.pdf) ile uyumlu olarak hazırlanmalıdır. Randomize çalışmalar CONSORT, gözlemsel çalışmalar STROBE, tanısal değerli çalışmalar STARD, sistematik derleme ve meta-analizler PRISMA, hayvan deneyli çalışmalar ARRIVE ve randomize olmayan davranış ve halk sağlığıyla ilgili çalışmalar TREND kılavuzlarına uyumlu olmalıdır.

Makaleler sadece https://dergipark.org.tr/en/pub/jchild adresinde yer alan derginin online makale yükleme ve değerlendirme sistemi üzerinden gönderilebilir. Diğer mecralardan gönderilen makaleler değerlendirilmeye alınmayacaktır.

Gönderilen makalelerin dergi yazım kurallarına uygunluğu ilk olarak editöryal ofis tarafından kontrol edilecek, dergi yazım kurallarına uygun hazırlanmamış makaleler teknik düzeltme talepleri ile birlikte yazarlarına geri gönderilecektir.

Yazarların makale ile birlikte aşağıdaki form ve belgeleri göndermeleri ve özet ve anahtar kelime konusundaki standartlara uymaları gerekmektedir.

- **Telif Hakkı Anlaşması Formu**
- **Yazar Formu ve ICJME Potansiyel Çıkar Çatışması Beyan Formu**
- **Etik Komite Onayı**
- **Editöre Ön Yazı**
- **Kapak Sayfası:** Gönderilen tüm makalelerle birlikte ayrı bir kapak sayfası da gönderilmelidir. Bu sayfa;

Makalenin Türkçe ve İngilizce başlığını ve 50 karakteri geçmeyen Türkçe ve İngilizce kısa başlığını,

- Yazarların isimlerini, kurumlarını, akademik derecelerini ve ORCID numaralarını
- Finansal destek bilgisi ve diğer destek kaynakları hakkında detaylı bilgiyi,
- Sorumlu yazarın ismi, adresi, telefonu (cep telefonu dahil), faks numarası ve e-posta adresini,
- Makale hazırlama sürecine katkıda bulunan ama yazarlık kriterlerini karşılamayan bireylerle ilgili bilgileri içermelidir.

Özet: Editöre Mektup türündeki yazılar dışında kalan tüm makalelerin Türkçe ve İngilizce özetleri olmalıdır. Özgün Araştırma makalelerinin özetleri "Amaç", "Gereç ve Yöntem", "Bulgular" ve "Sonuç" alt başlıklarını içerecek biçimde hazırlanmalıdır. Olgu sunumu ve derleme türündeki yazıların Özet bölümleri alt başlık içermemelidir. Türkçe ve İngilizce özetlerin her biri 250 kelime olmalıdır. Türkçe makaleler için ayrıca 650-800 kelimelik genişletilmiş İngilizce özet istenmektedir.

Anahtar Kelime: Tüm makaleler en az 3 en fazla 6 anahtar kelimeyle birlikte gönderilmeli, anahtar kelimeler Türkçe ve İngilizce özetlerin hemen altına Türkçe ve İngilizce olarak yazılmalıdır. Kısaltmalar anahtar sözcük olarak kullanılmamalıdır. Anahtar sözcükler National Library of Medicine (NLM) tarafından hazırlanan Medical Subject Headings (MeSH) veritabanından seçilmelidir http://www.nlm.nih.gov/mesh/MBrowser.html

Makale Türleri

Özgün Araştırma: Ana metin "Giriş", "Gereç ve Yöntem", "Bulgular" ve "Tartışma" alt başlıklarını içermelidir. Sonucu desteklemek için istatistiksel analiz genellikle gereklidir. İstatistiksel analiz, tıbbi dergilerdeki istatistik verilerini bildirme kurallarına göre yapılmalıdır (Altman DG, Gore SM, Gardner MJ, Pocock SJ. Statistical guidelines for contributors to medical journals. Br Med J 1983: 7; 1489-93). İstatiksel analiz ile ilgili bilgi, Yöntemler bölümü içinde ayrı bir alt başlık olarak yazılmalı ve kullanılan yazılım kesinlikle tanımlanmalıdır.

Birimler, uluslararası birim sistemi olan International System of Units (SI)'a uygun olarak hazırlanmadır.

Derleme: Yazının konusunda birikimi olan ve bu birikimleri uluslararası literatüre yayın ve atıf sayısı olarak yansımış uzmanlar tarafından hazırlanmış yazılar değerlendirmeye alınır. Yazarları dergi tarafından da davet edilebilir. Bir bilgi ya da konunun klinikte kullanılması için vardığı son düzeyi anlatan, tartışan, değerlendiren ve gelecekte yapılacak olan çalışmalara yön veren bir formatta hazırlanmalıdır. Ana metin "Giriş", "Klinik ve Araştırma Etkileri" ve "Sonuç" bölümlerini içermelidir.

Olgu Sunumu: Olgu sunumları için sınırlı sayıda yer ayrılmakta ve sadece ender görülen, tanı ve tedavisi güç olan hastalıklarla ilgili, yeni bir yöntem öneren, kitaplarda yer verilmeyen bilgileri yansıtan, ilgi çekici ve öğretici özelliği olan olgular yayına kabul edilmektedir. Ana metin; "Giriş", "Olgu Sunumu", "Tartışma" ve Sonuç" alt başlıklarını içermelidir.

Editöre Mektup: Dergide daha önce yayınlanan bir yazının önemini, gözden kaçan bir ayrıntısını ya da eksik kısımlarını tartışabilir. Ayrıca derginin kapsamına giren alanlarda okurların ilgisini çekebilecek konular ve özellikle eğitici olgular hakkında da Editöre Mektup formatında yazılar yayınlanabilir. Okuyucular da yayınlanan yazılar hakkında yorum içeren Editöre Mektup formatında yazılarını sunabilirler. Özet, anahtar sözcük, tablo, şekil, resim ve diğer görseller kullanılmaz. Ana metin alt başlıksız olmalıdır. Hakkında mektup yazılan yayına ait cilt, yıl, sayı, sayfa numaraları, yazı başlığı ve yazarların adları açık bir şekilde belirtilmeli, kaynak listesinde yazılmalı ve metin içinde atıfta bulunulmalıdır.

Tablolar

Tablolar ana dosyaya eklenmeli, kaynak listesi sonrasında sunulmalı, ana metin içerisindeki geçiş sıralarına uygun olarak numaralandırılmadır. Tabloların üzerinde tanımlayıcı bir başlık yer almalı ve tablo içerisinde geçen kısaltmaların açılımları tablo altına tanımlanmalıdır. Tablolar Microsoft Office Word dosyası içinde "Tablo Ekle" komutu kullanılarak hazırlanmalı ve kolay okunabilir şekilde düzenlenmelidir. Tablolarda sunulan veriler ana metinde sunulan verilerin tekrarı olmamalı; ana metindeki verileri destekleyici nitelikte olmalıdır.

Resim ve Resim Altyazıları

Resimler, grafikler ve fotoğraflar (TIFF ya da JPEG formatında) ayrı dosyalar halinde sisteme yüklenmelidir. Görseller bir Word dosyası dokümanı ya da ana doküman içerisinde sunulmamalıdır. Alt birimlere ayrılan görseller olduğunda, alt birimler tek bir görsel içerisinde verilmemelidir. Her bir alt birim sisteme ayrı bir dosya olarak yüklenmelidir. Resimler alt birimleri belli etme amacıyla etiketlenmemelidir (a, b, c vb.). Resimlerde altyazıları desteklemek için kalın ve ince oklar, ok başları, yıldızlar, asteriksler ve benzer işaretler kullanılabilir. Makalenin geri kalanında olduğu gibi resimler de kör olmalıdır. Bu sebeple, resimlerde yer alan kişi ve kurum bilgileri de körleştirilmelidir. Görsellerin minimum çözünürlüğü 300 DPI olmalıdır. Değerlendirme sürecindeki aksaklıkları önlemek için gönderilen bütün görsellerin çözünürlüğü net ve boyutu büyük (minimum boyutlar 100x100 mm) olmalıdır. Resim altyazıları ana metnin sonunda yer almalıdır.

Makale içerisinde geçen tüm kısaltmalar, ana metin ve özette ayrı ayrı olmak üzere ilk kez kullanıldıkları yerde tanımlanarak kısaltma tanımın ardından parantez içerisinde verilmelidir.

Ana metin içerisinde cihaz, yazılım, ilaç vb. ürünlerden bahsedildiğinde ürünün ismi, üreticisi, üretildiği şehir ve ülke bilgisini içeren ürün bilgisi parantez içinde verilmelidir; "Discovery St PET/CT scanner (General Electric, Milwaukee, WI, USA)".

Tüm kaynaklar, tablolar ve resimlere ana metin içinde uygun olan yerlerde sırayla numara verilerek atıf yapılmalıdır.

Özgün araştırmaların kısıtlamaları, engelleri ve yetersizliklerinden Sonuç paragrafı öncesi "Tartışma" bölümünde bahsedilmelidir.

Revizyonlar

Yazarlar makalelerinin revizyon dosyalarını gönderirken, ana metin üzerinde yaptıkları değişiklikleri işaretlemeli, ek olarak, hakemler tarafından öne sürülen önerilerle ilgili notlarını "Hakemlere Cevap" dosyasında göndermelidir. Hakemlere Cevap dosyasında her hakemin yorumunun ardından yazarın cevabı gelmelidir. Revize makaleler karar mektubunu takip eden 20 gün içerisinde dergiye gönderilmelidir. Yazarların revizyon için ek süreye ihtiyaç duymaları durumunda uzatma taleplerini ilk 20 gün sona ermeden dergiye iletmeleri gerekmektedir.

Yayına kabul edilen makaleler dil bilgisi, noktalama ve biçim açısından kontrol edilir. Yayın süreci tamamlanan makaleler, yayın planına dahil edildikleri sayıyla birlikte yayınlanmadan önce erken çevrimiçi formatında dergi web sitesinde yayına alınır. Kabul edilen makalelerin baskıya hazır PDF dosyaları sorumlu yazarlara iletilir ve yayın onaylarının 2 gün içerisinde dergiye iletilmesi istenir.

Kaynaklar

Atıf yapılırken en son ve en güncel yayınlar tercih edilmelidir. Atıf yapılan erken çevrimiçi makalelerin DOI numaraları mutlaka sağlanmalıdır. Kaynakların doğruluğundan yazarlar sorumludur. Dergi isimleri Index Medicus/Medline/PubMed'de yer alan dergi kısaltmaları ile uyumlu olarak kısaltılmalıdır. Altı ya da daha az yazar olduğunda tüm yazar isimleri listelenmelidir. Eğer 7 ya da daha fazla yazar varsa ilk 6 yazar yazıldıktan sonra "et al." konulmalıdır. Ana metinde kaynaklara atıf yapılırken parantez içinde Arap rakamları kullanılmalıdır. Farklı yayın türleri için kaynak stilleri aşağıdaki örneklerde sunulmuştur:

Dergi makalesi: Blasco V, Colavolpe JC, Antonini F, Zieleskiewicz L, Nafati C, Albanèse J, et al. Long-term outcome in kidney recipients from donors treated with hydroxyethylstarch 130/0.4 and hydroxyethylstarch 200/0.6. Br J Anaesth 2015;115(5):797-8.

Kitap bölümü: Sherry S. Detection of thrombi. In: Strauss HE, Pitt B, James AE, editors. Cardiovascular Medicine. St Louis: Mosby; 1974.p.273-85.

Tek yazarlı kitap: Cohn PF. Silent myocardial ischemia and infarction. 3rd ed. New York: Marcel Dekker; 1993.

Yazar olarak editör(ler): Norman IJ, Redfern SJ, editors. Mental health care for elderly people. New York: Churchill Livingstone; 1996.

Toplantıda sunulan yazı: Bengisson S. Sothemin BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sept 6-10; Geneva, Switzerland. Amsterdam: North-Holland; 1992.p.1561-5.

Bilimsel veya teknik rapor: Smith P. Golladay K. Payment for durable medical equipment billed during skilled nursing facility stays. Final report. Dallas (TX) Dept. of Health and Human Services (US). Office of Evaluation and Inspections: 1994 Oct. Report No: HHSIGOE 169200860.

Tez: Kaplan SI. Post-hospital home health care: the elderly access and utilization (dissertation). St. Louis (MO): Washington Univ. 1995.

Yayına kabul edilmiş ancak henüz basılmamış yazılar: Leshner AI. Molecular mechanisms of cocaine addiction. N Engl J Med In press 1997.

Erken Çevrimiçi Yayın: Aksu HU, Ertürk M, Gül M, Uslu N. Successful treatment of a patient with pulmonary embolism and biatrial thrombus. Anadolu Kardiyol Derg 2012 Dec 26. doi: 10.5152/akd.2013.062. [Epub ahead of print]

Elektronik formatta yayınlanan yazı: Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis (serial online) 1995 Jan-Mar (cited 1996 June 5): 1(1): (24 screens). Available from: URL: http:/ www.cdc.gov/ncidodlElD/cid.htm.

SON KONTROL LİSTESİ

- **Editöre Ön Yazı**
  - Makalenin türü
  - Başka bir dergiye gönderilmemiş olduğu bilgisi
  - Sponsor veya ticari bir firma ile ilişkisi (varsa belirtiniz)
  - İstatistik kontrolünün yapıldığı (araştırma makaleleri için)
  - İngilizce yönünden kontrolünün yapıldığı
  - Yazarlara Bilgide detaylı olarak anlatılan dergi politikalarının gözden geçirildiği
  - Kaynakların NLM referans sistemine göre belirtildiği
- Telif Hakkı Anlaşması Formu
- Yazar Formu
- Daha önce basılmış materyal (yazı-resim-tablo) kullanılmış ise izin belgesi
- İnsan öğesi bulunan çalışmalarda "gereç ve yöntem" bölümünde Helsinki Deklarasyonu prensiplerine uygunluk, kendi kurumlarından alınan etik kurul onayının ve hastalardan "bilgilendirilmiş olur (rıza)" alındığının belirtilmesi
- Hayvan öğesi kullanılmış ise "gereç ve yöntem" bölümünde "Guide for the Care and Use of Laboratory Animals" prensiplerine uygunluğunun belirtilmesi
- Kapak Sayfası
  - Makalenin kategorisi
  - Makalenin Türkçe ve İngilizce başlığı
  - Makalenin Türkçe ve İngilizce kısa başlığı
  - Yazarların ismi soyadı, unvanları ve bağlı oldukları kurumlar (üniversite ve fakülte bilgisinden sonra şehir ve ülke bilgisi de yer almalıdır), e-posta adresleri
  - Sorumlu yazarın e-posta adresi, açık yazışma adresi, iş telefonu, GSM, faks nosu
  - Tüm yazarların ORCID'leri
  - Varsa teşekkür bilgisi
- Makale ana metni dosyasında olması gerekenler
  - Makalenin Türkçe ve İngilizce başlığı
  - Özetler 250 kelime Türkçe ve 250 kelime İngilizce
  - Anahtar Kelimeler: 3 -6 Türkçe ve 3 -6 İngilizce
  - Makale ana metin bölümleri
  - Kaynaklar
  - Teşekkür (varsa belirtiniz)
  - Tablolar-Resimler, Şekiller (başlık, tanım ve alt yazılarıyla)

DESCRIPTION

Journal of Child is an international, scientific, open acces, peer-reviewed official publication of Istanbul University, Faculty of Medicine, Department of Child Health and Diseases and Istanbul University, Institute of Child Health. It is a triannual journal published in April, August and December. The publication languages of the journal are Turkish and English.

AIMS AND SCOPE

Journal of Child aims to contribute to the literature by publishing high quality original articles, reviews focusing on key subjects and contemporary developments, and case reports in the field of child health and diseases.

The journal welcomes articles about internal and surgical medicine as well, provided that these are related to child health and diseases. The target group of the journal consists of academicians, researchers, professionals, students, related professional and academic bodies and institutions.

POLICIES

Publication Policy

The journal is committed to upholding the highest standards of publication ethics and pays regard to Principles of Transparency and Best Practice in Scholarly Publishing published by the Committee on Publication Ethics (COPE), the Directory of Open Access Journals (DOAJ), the Open Access Scholarly Publishers Association (OASPA), and the World Association of Medical Editors (WAME) on https://publicationethics.org/resources/guidelines-new/principles-transparency-and-best-practice-scholarly-publishing

The subjects covered in the manuscripts submitted to the Journal for publication must be in accordance with the aim and scope of the Journal. Only those manuscripts approved by every individual author and that were not published before in or sent to another journal, are accepted for evaluation.

Changing the name of an author (omission, addition or order) in papers submitted to the Journal requires written permission of all declared authors.

Plagiarism, duplication, fraud authorship/denied authorship, research/data fabrication, salami slicing/salami publication, breaching of copyrights, prevailing conflict of interest are unethical behaviors. All manuscripts not in accordance with the accepted ethical standards will be removed from the publication. This also contains any possible malpractice discovered after the publication.

Plagiarism

Submitted manuscripts that pass preliminary control are scanned for plagiarism using iThenticate software. If plagiarism/self-plagiarism will be found authors will be informed. Editors may resubmit manuscript for similarity check at any peer-review or production stage if required. High similarity scores may lead to rejection of a manuscript before and even after acceptance. Depending on the type of article and the percentage of similarity score taken from each article, the overall similarity score is generally expected to be less than 15 or 20%.

Double Blind Peer-Review

After plagiarism check, the eligible ones are evaluated by the editors-in-chief for their originality, methodology, the importance of the subject covered and compliance with the journal scope. The editor provides a fair double-blind peer review of the submitted articles and hands over the papers matching the formal rules to at least two national/international referees for evaluation and gives green light for publication upon modification by the authors in accordance with the referees' claims.

Open Access Statement

The journal is an open access journal and all content is freely available without charge to the user or his/her institution. Except for commercial purposes, users are allowed to read, download, copy, print, search, or link to the full texts of the articles in this journal without asking prior permission from the publisher or the author. This is in accordance with the BOAI definition of open access.

Article Procesing Charge

All expenses of the journal are covered by the Istanbul University. Processing and publication are free of charge with the journal. There is no article processing charges or submission fees for any submitted or accepted articles.

ETHICS

Statement of Publication Ethics
Journal of Child is committed to upholding the highest standards of publication ethics and pays regard to Principles of Transparency and Best Practice in Scholarly Publishing published by the Committee on Publication Ethics (COPE), the Directory of Open Access Journals (DOAJ), the Open Access Scholarly Publishers Association (OASPA), and the World Association of Medical Editors (WAME) on https://publicationethics.org/resources/guidelines-new/principles-transparency-and-best-practice-scholarly-publishing

All parties involved in the publishing process (Editors, Reviewers, Authors and Publishers) are expected to agree on the following ethical principles.

All submissions must be original, unpublished (including as full text in conference proceedings), and not under the review of any other publication synchronously. Authors must ensure that submitted work is original. They must certify that the manuscript has not previously been published elsewhere or is not currently being considered for publication elsewhere, in any language. Applicable copyright laws and conventions must be followed. Copyright material (e.g. tables, figures or extensive quotations) must be reproduced only with appropriate permission and acknowledgement. Any work or words of other authors, contributors, or sources must be appropriately credited and referenced.

Each manuscript is reviewed by at least two referees under double-blind peer review process. Plagiarism, duplication, fraud authorship/denied authorship, research/data fabrication, salami slicing/salami publication, breaching of copyrights, prevailing conflict of interest are unethical behaviors.

All manuscripts not in accordance with the accepted ethical standards will be removed from the publication. This also contains any possible malpractice discovered after the publication.

Research Ethics
Journal of Child adheres to the highest standards in research ethics and follows the principles of international research ethics as defined below. The authors are responsible for the compliance of the manuscripts with the ethical rules.

- Principles of integrity, quality and transparency should be sustained in designing the research, reviewing the design and conducting the research.
- The research team and participants should be fully informed about the aim, methods, possible uses and requirements of the research and risks of participation in research.
- The confidentiality of the information provided by the research participants and the confidentiality of the respondents should be ensured. The research should be designed to protect the autonomy and dignity of the participants.
- Research participants should participate in the research voluntarily, not under any coercion.
- Any possible harm to participants must be avoided. The research should be planned in such a way that the participants are not at risk.
- The independence of research must be clear; and any conflict of interest or must be disclosed.
- In experimental studies with human subjects, written informed consent of the participants who decide to participate in the research must be obtained. In the case of children and those under wardship or with confirmed insanity, legal custodian's assent must be obtained.
- If the study is to be carried out in any institution or organization, approval must be obtained from this institution or organization.
- In studies with human subject, it must be noted in the method's section of the manuscript that the informed consent of the participants and ethics committee approval from the institution where the study has been conducted have been obtained.

Ethics Committee Approval and Informed Consent
Journal of Child takes as principle to comply with the ethical standards of World Medical Association (WMA) Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects revised in 2003 and WMA Statement on Animal Use in Biomedical Research revised in 2016.

An approval of research protocols by the Ethics Committee in accordance with international standards mentioned above is required for experimental, clinical, and drug studies and for some case reports. If required, ethics committee reports or an equivalent official document will be requested from the authors. For manuscripts concerning experimental research on humans, a statement should be included that shows that written informed consent of patients and volunteers was obtained following a detailed explanation of the procedures that they may undergo. For studies carried out on animals, the measures taken to prevent pain and suffering of the animals should be stated clearly. Information on patient consent, the name of the ethics committee, and the ethics committee approval number should also be stated in the Materials and Methods section of the manuscript. It is the authors' responsibility to carefully protect the patients' anonymity. For photographs that may reveal the identity of the patients, signed releases of the patient or of their legal representative should be enclosed.

Author's Responsibilities

It is authors' responsibility to ensure that the article is in accordance with scientific and ethical standards and rules. And authors must ensure that submitted work is original. They must certify that the manuscript has not previously been published elsewhere or is not currently being considered for publication elsewhere, in any language. Applicable copyright laws and conventions must be followed. Copyright material (e.g. tables, figures or extensive quotations) must be reproduced only with appropriate permission and acknowledgement. Any work or words of other authors, contributors, or sources must be appropriately credited and referenced.

All the authors of a submitted manuscript must have direct scientific and academic contribution to the manuscript. The author(s) of the original research articles is defined as a person who is significantly involved in "conceptualization and design of the study", "collecting the data", "analyzing the data", "writing the manuscript", "reviewing the manuscript with a critical perspective" and "planning/conducting the study of the manuscript and/or revising it". Fund raising, data collection or supervision of the research group are not sufficient roles to be accepted as an author. The author(s) must meet all these criteria described above. The order of names in the author list of an article must be a co-decision and it must be indicated in the Copyright Agreement Form. The individuals who do not meet the authorship criteria but contributed to the study must take place in the acknowledgement section. Individuals providing technical support, assisting writing, providing a general support, providing material or financial support are examples to be indicated in acknowledgement section.

All authors must disclose all issues concerning financial relationship, conflict of interest, and competing interest that may potentially influence the results of the research or scientific judgment.

When an author discovers a significant error or inaccuracy in his/her own published paper, it is the author's obligation to promptly cooperate with the Editor to provide retractions or corrections of mistakes.

Responsibility for the Editor and Reviewers

Editor-in-Chief evaluates manuscripts for their scientific content without regard to ethnic origin, gender, citizenship, religious belief or political philosophy of the authors. Editor-in-Chief provides a fair double-blind peer review of the submitted articles for publication and ensures that all the information related to submitted manuscripts is kept as confidential before publishing.

Editor-in-Chief is responsible for the contents and overall quality of the publication and must publish errata pages or make corrections when needed.

Editor-in-Chief does not allow any conflicts of interest between the authors, editors and reviewers. Only he has the full authority to assign a reviewer and is responsible for final decision for publication of the manuscripts in the Journal.

Reviewers must have no conflict of interest with respect to the research, the authors and/or the research funders. Their judgments must be objective.

Reviewers must ensure that all the information related to submitted manuscripts is kept as confidential and must report to the editor if they are aware of copyright infringement and plagiarism on the author's side.

A reviewer who feels unqualified to review the topic of a manuscript or knows that its prompt review will be impossible should notify the editor and excuse himself from the review process.

The editor informs the reviewers that the manuscripts are confidential information and that this is a privileged interaction. The reviewers and editorial board cannot discuss the manuscripts with other persons. The anonymity of the referees must be ensured. In particular situations, the editor may share the review of one reviewer with other reviewers to clarify a particular point.

PEER REVIEW POLICIES

Only those manuscripts approved by its every individual author and that were not published before in or sent to another journal, are accepted for evaluation.

Submitted manuscripts that pass preliminary control are scanned for plagiarism using iThenticate software. After plagiarism check, the eligible ones are evaluated by editor-in-chief for their originality, methodology, the importance of the subject covered and compliance with the journal scope.

The editor hands over the papers matching the formal rules to at least two national/international referees for double-blind peer review evaluation and gives green light for publication upon modification by the authors in accordance with the referees' claims.

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Editor-in-Chief evaluates manuscripts for their scientific content without regard to ethnic origin, gender, citizenship, religious belief or political philosophy of the authors and ensures a fair double-blind peer review of the selected manuscripts.

The selected manuscripts are sent to at least two national/international referees for evaluation and publication decision is given by Editor-in-Chief upon modification by the authors in accordance with the referees' claims.

Editor-in-Chief does not allow any conflicts of interest between the authors, editors and reviewers and is responsible for final decision for publication of the manuscripts in the Journal.

Reviewers' judgments must be objective. Reviewers' comments on the following aspects are expected while conducting the review.

- Does the manuscript contain new and significant information?
- Does the abstract clearly and accurately describe the content of the manuscript?
- Is the problem significant and concisely stated?
- Are the methods described comprehensively?

- Are the interpretations and consclusions justified by the results?
- Is adequate references made to other Works in the field?
- Is the language acceptable?

Reviewers must ensure that all the information related to submitted manuscripts is kept as confidential and must report to the editor if they are aware of copyright infringement and plagiarism on the author's side.

A reviewer who feels unqualified to review the topic of a manuscript or knows that its prompt review will be impossible should notify the editor and excuse himself from the review process.

The editor informs the reviewers that the manuscripts are confidential information and that this is a privileged interaction. The reviewers and editorial board cannot discuss the manuscripts with other persons. The anonymity of the referees is important.

AUTHOR GUIDELINES

Manuscript Organization and Submission

The manuscripts should be prepared in accordance with ICMJE-Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (updated in December 2015 - http://www.icmje.org/icmje-recommendations.pdf). Author(s) are required to prepare manuscripts in accordance with the CONSORT guidelines for randomized research studies, STROBE guidelines for observational original research studies, STARD guidelines for studies on diagnostic accuracy, PRISMA guidelines for systematic reviews and meta-analysis, ARRIVE guidelines for experimental animal studies, and TREND guidelines for non-randomized public behavior.

Manuscripts can only be submitted through the journal's online manuscript submission and evaluation system, available at https://dergipark.org.tr/en/pub/jchild Manuscripts submitted via any other medium will not be evaluated.

Manuscripts submitted to the journal will first go through a technical evaluation process where the editorial office staff will ensure that the manuscript has been prepared and submitted in accordance with the journal's guidelines. Submissions that do not conform to the journal's guidelines will be returned to the submitting author with technical correction requests.

Author(s) are required to submit the following documents together with the manuscript and must ensure that the abstract and keywords are in line with the standards explained in below.

- **Copyright Agreement Form**
- **Author Form and ICMJE Potential Conflict of Interest Disclosure Form**
- **Ethics Committee Approval**
- **Cover Letter to the Editor**
- **Title Page:** A separate title page should be submitted with all submissions and this page should include:

- The full title of the manuscript as well as a short title (running head) of no more than 50 characters,
- Name(s), affiliations, academic degree(s) and ORCID ID(s) of the author(s),
- Grant information and detailed information on the other sources of support,
- Name, address, telephone (including the mobile phone number) and fax numbers, and email address of the corresponding author,
- Acknowledgment of the individuals who contributed to the preparation of the manuscript but who do not fulfil the authorship criteria.

Abstract: A Turkish and an English abstract should be submitted with all submissions except for Letters to the Editor. Submitting a Turkish abstract is not compulsory for international authors. The abstract of Original Articles should be structured with subheadings (Objective, Materials and Methods, Results, and Conclusion). Abstracts of Case Reports and Reviews should be unstructured. Abstracts should be 250 words. Extended abstract of 650-800 words is required for articles in Turkish.

Keywords: Each submission must be accompanied by a minimum of 3 to a maximum of 6 keywords for subject indexing at the end of the abstract. The keywords should be listed in full without abbreviations. The keywords should be selected from the National Library of Medicine, Medical Subject Headings database (http://www.nlm.nih.gov/mesh/MBrowser.html) .

Manuscript Types

Original Articles: The main text of original articles should be structured with Introduction, Material and Method, Results, Discussion, and Conclusion subheadings. Statistical analysis to support conclusions is usually necessary. Statistical analyses must be conducted in

accordance with international statistical reporting standards (Altman DG, Gore SM, Gardner MJ, Pocock SJ. Statistical guidelines for contributors to medical journals. Br Med J 1983: 7; 1489-93). Information on statistical analyses should be provided with a separate subheading under the Materials and Methods section and the statistical software that was used during the process must be specified.

Units should be prepared in accordance with the International System of Units (SI).

Review Articles: Reviews prepared by authors who have extensive knowledge on a particular field and whose scientific background has been translated into a high volume of publications with a high citation potential are welcomed. These authors may even be invited by the journal. Reviews should describe, discuss, and evaluate the current level of knowledge of a topic in clinical practice and should guide future studies. The main text should contain Introduction, Clinical and Research Consequences, and Conclusion sections.

Case Reports: There is limited space for case reports in the journal and reports on rare cases or conditions that constitute challenges in diagnosis and treatment, those offering new therapies or revealing knowledge not included in the literature, and interesting and educative case reports are accepted for publication. The text should include Introduction, Case Presentation, Discussion, and Conclusion subheadings.

Letters to the Editor: This type of manuscript discusses important parts, overlooked aspects, or lacking parts of a previously published article. Articles on subjects within the scope of the journal that might attract the readers' attention, particularly educative cases, may also be submitted in the form of a "Letter to the Editor." Readers can also present their comments on the published manuscripts in the form of a "Letter to the Editor." Abstract, Keywords, and Tables, Figures, Images, and other media should not be included. The text should be unstructured. The manuscript that is being commented on must be properly cited within this manuscript.

Tables

Tables should be included in the main document, presented after the reference list, and they should be numbered consecutively in the order they are referred to within the main text. A descriptive title must be placed above the tables. Abbreviations used in the tables should be defined below the tables by footnotes (even if they are defined within the main text). Tables should be created using the "insert table" command of the word processing software and they should be arranged clearly to provide easy reading. Data presented in the tables should not be a repetition of the data presented within the main text but should be supporting the main text.

Figures and Figure Legends

Figures, graphics, and photographs should be submitted as separate files (in TIFF or JPEG format) through the submission system. The files should not be embedded in a Word document or the main document. When there are figure subunits, the subunits should not be merged to form a single image. Each subunit should be submitted separately through the submission system. Images should not be labeled (a, b, c, etc.) to indicate figure subunits. Thick and thin arrows, arrowheads, stars, asterisks, and similar marks can be used on the images to support figure legends. Like the rest of the submission, the figures too should be blind. Any information within the images that may indicate an individual or institution should be blinded. The minimum resolution of each submitted figure should be 300 DPI. To prevent delays in the evaluation process, all submitted figures should be clear in resolution and large in size (minimum dimensions: 100 × 100 mm). Figure legends should be listed at the end of the main document.

All acronyms and abbreviations used in the manuscript should be defined at first use, both in the abstract and in the main text. The abbreviation should be provided in parentheses following the definition.

When a drug, product, hardware, or software program is mentioned within the main text, product information, including the name of the product, the producer of the product, and city and the country of the company (including the state if in USA), should be provided in parentheses in the following format: "Discovery St PET/CT scanner (General Electric, Milwaukee, WI, USA)"

All references, tables, and figures should be referred to within the main text, and they should be numbered consecutively in the order they are referred to within the main text.

Limitations, drawbacks, and the shortcomings of original articles should be mentioned in the Discussion section before the conclusion paragraph.

Revisions

When submitting a revised version of a paper, the author(s) must submit a detailed "Response to the reviewers" that states point by point how each issue raised by the reviewers has been covered and where it can be found (each reviewer's comment, followed

by the author's reply) as well as an annotated copy of the main document. Revised manuscripts must be submitted within 20 days from the date of the decision letter. If the revised version of the manuscript is not submitted within the allocated time, the revision option may be canceled. If the submitting author(s) believe that additional time is required, they should request this extension before the initial 20-day period is over.

Accepted manuscripts are copy-edited for grammar, punctuation, and format. Once the publication process of a manuscript is completed, it is published online on the journal's webpage as an ahead-of-print publication before it is included in its scheduled issue. A PDF proof of the accepted manuscript is sent to the corresponding author(s) and their publication approval is requested within 2 days of their receipt of the proof.

Reference Style and Examples

While citing publications, preference should be given to the latest, most up-to-date publications. If an ahead-of-print publication is cited, the DOI number should be provided. Authors are responsible for the accuracy of references. Journal titles should be abbreviated in accordance with the journal abbreviations in Index Medicus/ MEDLINE/PubMed. When there are six or fewer authors, all authors should be listed. If there are seven or more authors, the first six authors should be listed followed by "et al." In the main text of the manuscript, references should be cited using Arabic numbers in parentheses. The reference styles for different types of publications are presented in the following examples.

Journal Article: Blasco V, Colavolpe JC, Antonini F, Zieleskiewicz L, Nafati C, Albanèse J, et al. Long-term out come in kidneyrecipients from do norstreated with hydroxyethylstarch 130/0.4 and hydroxyethylstarch 200/0.6. Br J Anaesth 2015;115(5):797-8.

Book Section: Suh KN, Keystone JS. Malaria and babesiosis. Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious Diseases. Philadelphia: Lippincott Williams; 2004.p.2290-308.

Books with a Single Author: Sweetman SC. Martindale the Complete Drug Reference. 34th ed. London: Pharmaceutical Press; 2005.

Editor(s) as Author: Huizing EH, de Groot JAM, editors. Functional reconstructive nasal surgery. Stuttgart-New York: Thieme; 2003.

Conference Proceedings: Bengisson S. Sothemin BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sept 6-10; Geneva, Switzerland. Amsterdam: North-Holland; 1992. pp.1561-5.

Scientific or Technical Report: Cusick M, Chew EY, Hoogwerf B, Agrón E, Wu L, Lindley A, et al. Early Treatment Diabetic Retinopathy Study Research Group. Risk factors for renal replacement therapy in the Early Treatment Diabetic Retinopathy Study (ETDRS), Early Treatment Diabetic Retinopathy Study KidneyInt: 2004. Report No: 26.

Thesis: Yılmaz B. Ankara Üniversitesindeki Öğrencilerin Beslenme Durumları, Fiziksel Aktivitelerive Beden Kitle İndeksleri Kan Lipidleri Arasındaki Ilişkiler. H.Ü. SağlıkBilimleriEnstitüsü, DoktoraTezi. 2007.

Manuscripts Published in Electronic Format: Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis (serial online) 1995 Jan-Mar (cited 1996 June 5): 1(1): (24 screens). Available from: URL: http:/ www.cdc.gov/ncidodlElD/cid.htm.

CHECKLIST

- **Cover letter to the editor**
  - The category of the manuscript
  - Confirming that "the paper is not under consideration for publication in another journal".
  - Including disclosure of any commercial or financial involvement.
  - Confirming that the statistical design of the research article is reviewed.
  - Confirming that last control for fluent English was done.
  - Confirming that journal policies detailed in Information for Authors have been reviewed.
  - Confirming that the references cited in the text and listed in the references section are in line with NLM.
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- Permission of previous published material if used in the present manuscript
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- Statement that informed consent was obtained after the procedure(s) had been fully explained. Indicating whether the institutional and national guide for the care and use of laboratory animals was followed as in "Guide for the Care and Use of Laboratory Animals".
- **Title page**
  - The category of the manuscript
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  - Short title (running head) both in Turkish and in English
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  - Corresponding author's email address, full postal address, telephone and fax number
  - ORCIDs of all authors.
  - Acknowledgement (if exists)
- **Main Manuscript Document**
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  - Abstracts both in Turkish and in English (250 words)
  - Key words: 3 - 6 words both in Turkish and in English
  - Main article sections
  - References
  - All tables, illustrations (figures) (including title, description, footnotes)