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RELATIONS BETWEEN TIME SPENT WITH FAMILY AND SOME DEVELOPMENTAL RISKS IN PRESCHOOL CHILDREN: OBESITY AND EXTERNALIZED / INTERNALIZED RISK BEHAVIORS

***B. Trajkovski**, biljana.trajkovski@uniri.hr, ORCID: 0000-0002-0003-6746,*
***N. Vlah**, natasa.vlah@uniri.hr, ORCID: 0000-0003-3965-0927,*
***J. Mezak**, jasminka.mezak@uniri.hr, ORCID: 0000-0002-5759-209X*
University of Rijeka, Rijeka, Republic of Croatia

Aim. The objectives of this research are to analyse the ways how a child spends time with his/her family as well as the child's developmental risks of obesity and risk behaviours in the kindergarten and to determine whether the different ways of spending time with the family are connected to the two types of developmental risks in children (risk behaviours in the kindergarten and the risk of obesity in children). **Materials and methods.** With a sample of 122 participants aged 3–5 years from the city of Rijeka and its surroundings, a survey questionnaire was used to assess how children spend their time with their parents when they are not attending the kindergarten and how much time they spend walking, riding a bicycle, swimming, playing on the computer, or watching television and what their body mass index and risk of obesity index are. The second part of the questionnaire was filled out by the preschool teachers and it assessed children's externalized and internalized risk behaviours in accordance with the SCBE Scale. **Results.** The obtained results indicate that the older the child, the more time he/she spends on the computer. The analysis of sex differences found only that girls spend more time swimming than boys. There are some weak but significant links between the length of time a child spends watching media content while with the family and risk behaviours in the kindergarten and other developmental risks such as obesity. **Conclusion.** However, additional research is needed to determine the applicability of the results in preventing unfavourable child development.

Keywords: *externalized behavioural problems, internalized behavioural problems, preschool children, family, obesity.*

Introduction. Today, a child's development is observed in relation to the environmental conditions that provide him/her with incentives for optimal or risk development. Optimal development is considered to be the uniform development of the entirety of the child's anthropological characteristics (morphological, motor, functional, cognitive, and conative) [16], while risk development is described through risks in physical or psychosocial behaviours. One of the physical, developmental risks is childhood obesity, which is thought to be a reliable indicator of a number of health problems at a later stage in life. One of the psychosocial developmental risks is such risk behaviour that, at an early age, numerous studies underscore as being indicative of later social maladaptation and unfavourable life outcomes. Given that the child's family is his/her primary socializing environment that sets the foundations for individuality and wholesome personality development in the biopsychosocial sense, it is vital how the child spends time with the family. In this sense, it is interesting to observe the activities in which the child is physically engaged and moving and the activities which he/she spends sitting, i.e., the so-called sedentary activities. There is not much available research that deals with the analysis of these theoretical concepts. Therefore, this paper seeks to determine whether there is a connectedness between the ways in which a child spends time with the family and certain biopsychosocial developmental risks. The modern way of adults' life, which characterizes a lack of motor activities, leaves not only negative consequences on their health, but unfortunately also on the health of children and youth. Adults also pass on their lifestyle onto child, so that, in their family environment, they usually do not have the conditions (time and space) to meet the child's authentic needs for movement and play. Therefore, insufficient motor activity in preschool age will not only adversely affect the development of skills and acquisition of motor skills, but the consequences of insufficient movement will negatively affect the child's health status [20].

The family is the primary environment in which the child acquires his/her first life expe-

riences, knowledge, and skills. In it, the child creates and develops his/her own identity, creates an opinion about himself/herself, the world and his/her place in it. Emotional warmth and family cohesion need to be established within the family so that the child has a good foundation for positive growth and development, i.e., to develop a sense of belonging, security, trust, and understanding. This environment should facilitate the development of socially acceptable behaviour [12]. The way children spend time in the family environment has an impact on their behaviour. Time spent with the family is assessed as an area on which many risks for the development of behavioural problems in children rest, as well as the forces for their prevention [11]. That time must be quality organized and planned with the aim of fostering better relationships among family members and strengthening their cohesiveness for the purpose of children's positive development [2]. Time spent together can include meals, housework, games and hobbies, going out for walks, and the like. Furthermore, it is important to emphasize that shared meals with the TV turned off or without cell phones or computers provide an opportunity for mutual conversations that are the foundation of good family relationships [13].

As today's preschool children are increasingly underperforming in the authentic need to move, the question arises on the decline of their kinathropological characteristics and abilities and whether the decline of these abilities affects their health. It follows that the consequence of immobility in such young children has disrupted their harmonious growth and development. Therefore, it is necessary to allow children to move daily (spontaneously and in an organized manner) in kindergartens and families and to monitor their kinathropological conditions, especially their functional abilities that are directly related to the occurrence of obesity.

A study of the impact of a 9-month-long sports program on the changes in morphological and motor characteristics in four-year-old children found that children in the experimental group significantly improved their motor skills under the influence of the sports program. In the area of morphological characteristics, there were no significant changes between the children in the experimental and control group except for the measure of subcutaneous adipose tissue in girls. However, girls who participated in the kinesiology program for three years significantly reduced their subcutaneous adipose tissue [21–23].

Since research suggests that children who are more physically active have lower blood fat levels, higher levels of the protective lipoprotein HDL, higher cardiorespiratory activity, better motor skills as well as better motor and functional abilities [15], there is a need to encourage physical activity of early and preschool-aged children on a daily basis both in an organized environment (kindergartens) and during their free time (with the family). In addition, the involvement of children in various forms of physical activity, in addition to these direct effects, has a significant impact on the overall development of one's self-image and self-esteem. Engaging in sports activities enables children to develop a self-regulation of behaviour, adopt work habits, improve concentration on the cognitive level, develop emotional control, and enable the development of teamwork and cooperation skills in group sports situations. From the aspect of the development of a value system, sports activities are today considered one of the few activities in which children very clearly recognize the path from investing efforts to concrete results, i.e., that greater effort leads to better results, which is clear to them immediately during physical activity.

Today's children are satisfying their natural need to move to an increasingly lower degree, with that same need being replaced by sedentary activities (TV, video, play station...). Research shows that a large number of children spend too many hours in front of the TV and that it is necessary to replace those hours with movement [7]. It is precisely the media and inactivity along with an improper diet that are the most common causes of obesity in children [9]. Many studies have found a link between the time children spend inactively with the media and their body weight [10]. It is also a fact that most kindergarten-aged children use the media without adult supervision. Parents should play a more active role in monitoring their children in the use of digital entertainment and organize more socialization activities for their children. A sedentary lifestyle from an early age poses a great danger for the development of obesity, and obese children have a higher chance of metabolic disorders and diseases of the cardiovascular system later in life [4]. A study conducted in the United States [19] found that watching TV and movies has a greater effect on lowering a child's metabolic rate than sleeping.

Because inactivity is significantly and positively associated with total body fat in boys and

girls [6], children who become more active and reduce their calorie intake will also reduce body weight. In addition, there is a link between the time children spend watching TV and their body weight. Therefore, engagement in activities that involve a significant reduction of the time children spend with the media results in weight loss [19]. According to authors [10], the chances of being overweight are 4.6 times higher for a child who watches more than 5 hours of TV per day than for a child who watches it up to 1 hour per day. Consequently, 29% of the incidence of obesity in children can be prevented by limiting the use of TV exposure to up to 1 hour per week. With obese children being at a higher risk of developing type II diabetes, hypertension, asthma, and heart disease, it is crucial to find ways to reduce the time children spend inactively, watching the media. It is certainly useful to apply body mass index standards for a particular age and gender to determine the risk of becoming overweight or obese in children and youth [5].

Along with the already shown developmental risks of obesity, a child's inactivity due to a sedentary lifestyle and sitting in front of a monitor for too long, it should be said that risk behaviours in the kindergarten are another indicator of a possible adverse developmental outcome. Early detection and intervention when dealing with risk behaviours in the kindergarten may be relevant for the prevention of future adverse psychosocial, developmental outcomes such as delinquency or substance abuse in adolescence and adulthood [17, 26]. The basic distinction between externalized risk problems such as early antisocial and aggressive behaviours and internalized developmental risks such as early anxiety and/or depression in children is known in the international and Croatian scientific literature [7, 14, 18, 25]. Understanding risk behaviours and a timely response to their manifestation advocated in modern prevention sciences should contribute, together with the understanding of other risky circumstances of the child's life such as obesity or poor quality of time spent with the family, to the positive development of the child. In other words, it should provide the preschool teachers and other professionals with information on how to fully cover the broad issues of educational practice [24], bearing in mind the necessary partnership between the preschool and the parents in planning the positive development of the child.

Aim. The first goal of the paper is to analyse the ways in which a child spends time while with the family as well as the child's developmental risks in the domain of obesity risk and risk behaviours in the kindergarten. The second goal of the paper is to determine whether different ways how a child spends time with the family are associated with the two types of developmental risks in children (risk behaviours in the kindergarten and the risk of obesity in children). It is assumed that more times spent with media content (watching TV, playing computer games) and less time spent with the family (different types of movement: walking, swimming, riding a bicycle) will be positively correlated with a range of risk behaviours in children (aggression and antisocial behaviours as well as anxiety and withdrawal behaviours) and a lower index for assessing the risk of childhood obesity.

Materials and Methods. The research comprised 122 children (50 % boys) aged 40 to 59 months (M = 48; SD = 4.4 months), who attended a ten-day regular kindergarten program in the Primorje-Gorski Kotar County, with 23 preschool teachers from the same number of groups in six kindergartens. After obtaining administrative permits and informed consent from the parents to participate in the research, the students of the Faculty of Teacher Education in Rijeka distributed questionnaires to preschool teachers to assess children's behaviour during their stay in the kindergarten. They also distributed questionnaires to the parents to assess how their children spend time at home with the family. The students had previously received training on data collection as part of a larger project headed by Assoc. Prof. Biljana Trajkovski, Ph.D. After that, the preschool teachers and parents' assessments of the children were paired and analysed for achieving the research objective. In addition, trained students took the children's kinathropological measures, which included the child's index of the risk of childhood obesity and body mass index.

The sample of variables consisted of six morphological measures (height and body mass from which the measure of the body mass index (BMI index) was derived, whereby it was looked at whether the child was of normal body weight or at risk of being overweight or obese) [5], then the circumference of the abdomen and hips from which the WHR index (waist-to-hip ratio) or index for determining the risk of obesity was derived, where a lower index represents a lower risk [8]. The first measuring instrument was the SCBE Scale (Social Competence and Behaviour Evaluation Scale). It is a questionnaire intended for pre-

school teachers to evaluate preschool children's behaviour. The frequency of certain behaviours is assessed on a range from 1 to 6 given the child's emotional adjustment and social interactions with peers and adults. Items are divided into three dimensions: social competence, active behavioural problems, and passive behavioural problems [3]. Preschool teachers assessed the children on the Social Competence and Behaviour Evaluation Scale for Preschoolers [3, 7] by assessing children's 30 behaviours during their stay in the kindergarten on a Likert-type scale ranging from 1 = almost never to 6 = almost always. The first dimension that determines social competence is represented by statements: *Finds satisfaction in his/her own achievements, Negotiates ways to resolve conflicts with other children, Takes into account other children and their point of view, Collaborates with other children in group activities, Consoles or helps another child in need, Takes care of toys, Attentive to younger children, Helps with daily tasks (e.g., distributing food), Accepts compromises when explained the reasons to do so.* Second dimension contains statements related to aggressiveness and antisocial behaviour (AAB): *Gets easily frustrated, Gets angry when interrupted, Is irritable, Gets angry easily, Lightly screams and shouts, Makes other children do things they don't want to, Hits, bites or pushes other children, Gets into conflicts with other children, Hits the preschool teacher or destroys things when he/she is angry at the preschool teacher, Objects to preschool teachers' suggestions, Defiant when reprimanded.* Finally, statements used for assessment the anxiety and withdrawal behaviour (AWB) were: *Is expressionless (does not smile or laugh), Feels tired, Is worried, Is fearful, scared (e.g., avoids new situations), Is sad, unhappy, or depressed, Feels reserved and insecure in a group, Is passive, observes other children as they play, Keeps to himself, isolated from the group, Does not communicate and does not participate in group activities, Remains unnoticed in the group.*

The confirmatory factor analysis of the Scale confirmed a reliable three-dimensional model that explains 50% of the total variance of the model in which the dimension of social competence in children's behaviour differs (k = 9; "Attentive to younger children"; $\alpha = 0.819$), aggressiveness and antisocial behaviour (k = 10; item marker "Defiant when reprimanded"; $\alpha = 0.894$), and anxiety and withdrawal behaviour AWB (k = 10; item marker "Is passive, observes other children as they play"; $\alpha = 0.834$) For the purposes of this paper, AAB and AWB risk behaviours will be analysed.

The second measuring instrument was a constructed survey questionnaire intended for parents in which they provided information on how their child spends time when with the family. It included questions such as how much time the child spends walking, swimming, or riding a bicycle, as well as questions how many hours (minutes) per day the child watches TV, how many hours (minutes) per day the child reads, and how many hours (minutes) per the child plays on the computer.

Results. For the purposes of this research, basic descriptive statistics and Spearman's non-parametric intercorrelation and correlation were used to determine the deviations in distribution normality according to the Kolmogorov-Smirnov test. For the purposes of this research, basic descriptive statistics and Spearman's non-parametric intercorrelation and correlation were used to determine the deviations in distribution normality according to the Kolmogorov-Smirnov test.

Table 1 shows that almost all children spend time walking while with their family, and more than half of them do so for about half an hour. Parents also report that more than half of the children spend time swimming while with the family, mostly for about 15 minutes. Almost all children ride a bicycle for more than half an hour per day, according to their parents. Children watch/use the TV and the cell phone for an average of 65 minutes per day with large deviations of 38 minutes from that average, and they play on the computer for an average of 15 minutes, also with large deviations of as many as 25 minutes.

Taking into account the entire sample of children, age relations were determined only in the case of playing on the computer and the older the child, the longer he/she plays on the computer. The analysis of sex differences in relation to the observed forms of how a child spends their time when with the family found only that girls spend more time swimming than boys (t-test = 2.03*; $M_{Girls} = 3.03$; $M_{Boys} = 2.40$).

Table 2 shows that the BMI index averages at 15.5 and it is considered that children are of satisfactory index and do not tend to be overweight or obese, except for a few [5]. Their average obesity index (WHR index) is 0.93 and we can conclude that children are obese.

Children's aggressive and antisocial risk behaviours in the kindergarten were assessed in the full phenomenological range and in the meaning

Table 1

Descriptive data on how a child spends time with the family

Forms of spending time with a child when with family	YES(N)	NO(N)	< 5	5–15	15–30	30–45	> 45	Age (r)
How many minutes per day does your child spend walking in their free time?	3.3 % (N = 4)	96.7 % (N = 118)	0.8 % (N = 1)	5.7 % (N = 7)	22.1 % (N = 27)	28.7 % (N = 35)	39.3 % (N = 48)	0.09
How many minutes per day does your child spend swimming in their free time?	38.52 % (N = 47)	61.47 % (N = 75)	18 % (N = 22)	8.2 % (N = 10)	17.2 % (N = 21)	10.7 (N = 13)	7.4 % (N = 9)	–0.16
How many minutes per day does your child spend riding a bicycle in their free time?	3.3 % (N = 4)	96.7 % (N = 118)	9 % (N = 11)	18 % (N = 22)	22.1 % (N = 27)	23.8 % (N = 29)	23.8 % (N = 29)	–0.06
How many minutes per day does your child spend watching TV? (mobile, IPad)	Min = 0; Max = 280, M = 65; SD = 38							–0.07
How many minutes per day does your child spend playing on the computer?	Min = 0; Max = 150, M = 15; SD = 25							0.20*

Note: r = correlations of child's age with other variables.

Table 2

Descriptive indicators for developmental risks

Developmental risks	Min	Max	M	SD	Kurtosis	Skewness
WHR	0.84	1.01	0.93	0,04	0.08	–0.69
BMI	10.80	27.20	15.46	1,83	2.44	13.76
AAB	1	5	1.97	0,85	1.23	1.12
AWB	1	5	2.19	0,78	1.20	2.09

Note: WHR = risk of obesity index, BMI = body mass index, AAB = aggressiveness and antisocial behaviour as risky behaviour, AWB = anxiety and withdrawal behaviour as risky behaviour.

of occurring “almost sometimes” and the average deviation is low, so that the results are uniform. Risk behaviours such as anxiety and withdrawal are somewhat more often observed; preschool teachers notice them “sometimes” and equally in everyone. The age of the child did not prove to be a significant variable in correlation with specific behaviours in the kindergarten, which indicates that preschool teachers assessed children's behaviours in proportion to their developmental age. Sex analyses did not observe differences between the sexes in the two groups of risk behaviours.

Insight into Table 3 reveals a negative significant correlation between WHR and BMI, which indicates that children with a lower BMI have lower values of the WHR index and vice versa. Furthermore, WHR shows a significant negative association with anxiety and withdrawal in the kindergarten, which signifies that the lower the risk coefficient of the child’s obesity type, the more they are detected in anxiety and withdrawal behaviours. Given that a lower index represents a lower risk, it could be stated that children who are more at risk for obesity are at the same time more likely to manifest anxiety and withdrawal behaviours and vice versa; the more they show increasingly anxious and withdrawal behaviours in the kindergarten, the more the risk of obesity index is detected. Regarding the remaining intercorrelations of risk development indicators, it can only be noted that a low to medium positive correlation was found between AAB and AWB, which means that preschool teachers in certain children generally observe both types of risk behaviours at the same time.

Some significant relationships become visible when observing the correlation matrix between the child's risky developmental characteristics and the way that child spends time with his/her family. WHR is positively related to the time a child spends riding a bicycle while with the family. Given that a lower index represents a lower risk, it can be stated that the longer a child rides a bicycle while with the family,

Table 3

Spearman's intercorrelations of developmental risks and correlations of developmental risks with how a family spends their weekends and holidays

Developmental risks	BMI	AAB	AWB	Walks	Swims	Rides	Watches TV	Computer
WHR	–0.24**	0.08	–0.20*	0.08	0.07	0.22*	–0.02	0.05
BMI		0.00	0.08	0.09	0.03	.04	0.34**	0.02
AAB			0.30**	–0.07	–0.19	–0.02	0.21*	0.08
AWB				0.09	0.01	–0.05	0.15	0.36**
How many minutes per day does your child spend playing on the computer?	Min = 0; Max = 150, M = 15; SD = 25							0.20*

Note: WHR = risk of obesity index, BMI = body mass index, AAB = aggressiveness and antisocial behaviour as risky behaviour, AWB = anxiety and withdrawal as risky behaviour, *p < ,05, **p < ,01.

the lower the likelihood of him/her developing obesity and vice versa, the lower the likelihood of obesity, the longer the child will be riding the bicycle while with the family. Furthermore, watching TV is in a moderately high, positive relationship with BMI, which means that the longer a child watches TV and spends time using a cell phone, the higher his/her BMI and, conversely, the higher his/her BMI, the longer he/she spends in front of the TV and the computer monitor. Thus, we can conclude that we are trapped in a vicious circle, because once we enter the domain of obesity, we spend more time sitting, i.e., the child withdraws into himself/herself. Therefore, the parents are expected to react in a timely manner. Also, a low positive correlation was found between the length of time spent in front of the TV and cell phone use with AAB in the kindergarten. It was found that a child who is more aggressive and antisocial in the kindergarten spends more time in front of the TV at home and vice versa; a child who spends more time at home in front of the TV shows more of these externalized developmental problems in the kindergarten. Finally, it is evident that the length of time spent playing computer games is positively related to the child's AWB in the kindergarten, which means that the child who spends more time at home playing computer games shows more manifested anxiety and other withdrawal behaviours, but also that the child who shows more of these internalized risk behaviours in the kindergarten spends more time playing computer games. Considering the result from Table 1, indicating positive age relations with the length of playing computer games, a repeated analysis of relations was made with age effect control and it was found that this relationship is still present even after age partialization (r = 0.38**).

Conclusions. Many studies show that the media has an impact on children. For example, in a review article [1], authors concluded that media violence has less direct effect on more severe forms of violent behaviour but a greater impact on aggression. According to the results of this paper, a two-way correlation was found between spending time with media content and a child's risk behaviours in the kindergarten, which is very indicative for making interventions. However, the authors of this paper also suggest that future research should further examine the predictive relationship of these variables as well as the types of media content (e. g., whether this refers to violent content that is inappropriate for children) to analyse other possible moderating influences (e. g., other psychosocial risk factors in the family or local community) for the child's adverse development. For many children, the negative effects of exposure to media violence extend into adulthood. Whether or not one believes that the media negatively influences children's behaviour, most scholars and parents believe that excessive media exposure is not in children's best interests. To solve this problem, parents, preschool and school teachers need to be more involved in solving it. Reducing the inactive use of media in children who are overweight or at risk of being overweight is achieved by encouraging children to become more active and less sedentary. We believe that if parents become more involved in monitoring the use of electronic media, consistently enforce rules for the use of children's media, and encourage other non-media behaviours, they can direct their children to become interested in physical activity, greater socialization, and, of course, more appropriate body weight.

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ВЗАИМОСВЯЗЬ ВРЕМЕНИ, ПРОВЕДЕННОГО С СЕМЬЕЙ, И НЕКОТОРЫМИ РИСКАМИ РАЗВИТИЯ ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА: ОЖИРЕНИЕ И ПОВЕДЕНЧЕСКИЕ РИСКИ

Б. Трайковски, Н. Влаг, Я. Мезак

Университет Риеки, г. Риека, Республика Хорватия

Цель исследования – проанализировать, как ребенок проводит время со своей семьей и связаны ли различные способы времяпровождения с семьей с двумя типам рисков развития у детей (рискованное поведение и риск ожирения). **Материалы и методы.** В выборке из 122 участников в возрасте 3–5 лет из города Риека и его окрестностей было проведено специальное анкетирование, чтобы оценить, как дети проводят время с семьей, когда они не ходят в детский сад, и сколько времени они посвящают увлечениям, связанным со спортом (плавание, велосипед и т. д.), компьютером или телевизором. Для каждого ребенка были рассчитаны индекс массы тела и индекс риска ожирения. Вторая часть анкеты была заполнена дошкольными педагогами и оценивала рискованное поведение детей в соответствии со шкалой SCBE (социальная компетенция и оценка поведения). **Результаты.** Полученные результаты демонстрируют, что чем старше ребенок, тем больше времени он проводит за увлечениями, не связанными со спортом. Анализ с учетом половых различий показал, что девочки уделяют больше времени плаванию, чем мальчики. Существуют слабые, но значимые связи между продолжительностью времени, которое ребенок проводит за просмотром медиаконтента в семье, и рискованным поведением и другими рисками развития, например, ожирением. **Заключение.** Необходимы дополнительные исследования, чтобы установить возможность применения полученных результатов для предотвращения рисков развития у ребенка.

Ключевые слова: *внешние риски, внутренние риски, поведенческие риски, дошкольники, семья, ожирение.*

Трайковски Биляна, PhD в области кинезиологии, доцент, факультет педагогического образования, Университет Риеки. Ул. Свеучилишна, 6, г. Риека, Хорватия. E-mail: biljana.trajkovski@uniri.hr, ORCID: 0000-0002-0003-6746.

Влаг Наташа, PhD в области специального образования, кафедра эмоциональных и поведенческих расстройств, доцент, факультет педагогического образования, Университет Риеки. Ул. Свеучилишна, 6. E-mail: natasa.vlah@uniri.hr, ORCID: 0000-0003-3965-0927.

Мезак Ясминка, PhD в области информационных наук, преподаватель, факультет педагогического образования, Университет Риеки. Ул. Свеучилишна, 6. E-mail: jasminka.mezak@uniri.hr, ORCID: 0000-0002-5759-209X.

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