

# Health consequences of work in childhood in opinions of respondents from agricultural families

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## Abstract

**Introduction:** The engagement of children in work on a family farm is a common phenomenon in many countries worldwide. An excessive loading of children with work creates many risks for their health or even life. Studies concerning the effect of work on health concern mainly the negative consequences for the health of working children.

**Objective:** The objective of the study was the recognition of opinions of adults from agricultural families concerning the effect of work in childhood on their state of health.

**Materials and method:** The study was conducted by the method of a diagnostic survey using a questionnaire technique, and covered a group of 482 adults from agricultural families. The selection of the study group was targeted according to the following criteria: 1) agricultural family origin, 2) respondents' age 20 – 65, 3) completed education.

**Results:** The majority of respondents expressed the opinion that work in childhood had no impact on their health. At the same time, 2/5 of respondents considered that work on their parents' farm exerted an effect on their health in childhood (current effects), whereas nearly 1/3 admitted that an engagement in work in childhood also affected their present state of health as adults (distant effects). Respondents who experienced the impact of work on health perceived both positive and negative consequences of performing agricultural work activities in their childhood. Opinions concerning the effect of work on health depended on loading with agricultural work in childhood. The higher the level of loading with work activities, the more frequently the respondents perceived the impact of work on their health.

**Conclusion:** The engagement of children in agricultural work in a small amount of working time, and adjustment of the endowed jobs to their capabilities brings about many benefits for health with low health risk. In turn, the engagement of children in work from their youngest years and overloading them with work exerts a negative effect on health, especially in later life.

## Key words

children's work, work and child's health, rural child, health hazards, occupational safety and health

## INTRODUCTION

The problem of health hazards associated with heavy physical labour in childhood started to be noticed in the beginning of the 19<sup>th</sup> century in England. Attention was paid to the extremely difficult work conditions of children in factories, and in concern for their health it was postulated to respect the then existing regulations not to employ children aged under 9 [1]. At that time in France, representatives of many circles, including lawyers, physicians, military services and religious organizations, made claims for the discontinuation of the engagement of children in heavy labour, stating that such work is hazardous for health and negatively affects the health condition of society [2]. The effect of these initiatives was the adoption of the first legal Acts which protected children against hard physical labour, e.g. the Factory Act of 1833 passed by the Parliament of the United Kingdom [3].

Despite the fact that until contemporary times many international and national legal Acts have been adopted aimed at the protection of children from the negative effects of work, the problem of the engagement of children in work

activities threatening their health, or even life, still remains to this day. According to the estimations by the International Labour Organization (ILO), approximately 170 million children under the age of 18 worldwide perform heavy work in conditions of high risk [4].

Heavy physical work in a hazardous environment (chemical, physical, biological, and microclimate factors) has negative effects, especially for the physical development and health of a child [5]. The most serious hazards caused by overloading with work are inhibition of physical development, cardiac defects, decreased immunity of the body to infections and pathological conditions typical of the individual developmental stages of a child, scoliosis and asymmetry of shoulders, changes in the structure of the spine and shoulder girdle [6, 7, 8].

Also, the engagement of children in agricultural work creates risk for their health and development. Some jobs in agriculture are dangerous for children and may cause disability, diseases related with, e.g. exposure to chemical agents, injuries, in contact with agricultural machinery or while carrying heavy loads [9, 10]. The performance of agricultural jobs by children may have negative consequences for their health and development, because these tasks are essentially dangerous and health threatening, not only for the children, but also for adults. In many countries, agricultural work is considered as one of the most risky occupations. The

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data by the ILO show that agriculture (apart from mining and construction) is among the three sectors of the economy with the highest accident rates [11]. Children engaged in work on farms are especially threatened by accidents. By April 2004 in Poland, the Agricultural Social Insurance Fund (KRUS) registered accidents in agriculture, the victims of which were children under 15. In 2003, nearly 1,000 events with the participation of children (963) were considered as occupational accidents [12]. A detailed analysis of the circumstances and consequences of accidents indicated that nearly 80% of them resulted in the child's permanent health loss [13]. In 1/3 of children, accident-related injuries were so serious that they required hospital treatment. In Canada, nearly 1/5 of the total number of children, the victims of accidents, were hospitalized [14]. The health consequences of accidents are also a serious problem associated with the engagement of children in work on farms in the USA [15, 16].

Children's work in agriculture creates a serious risk for their health, also in relation to exposure to plant protection products and other chemical agents applied in agriculture. Participation in these work activities may cause current as well as distant health consequences. This concerns primarily children engaged in work with these products, but also those performing other jobs, playing in a field or its vicinity or simply living in a farmstead. Nevertheless, the highest risk occurs while applying chemical agents. Most frequently, children who participate in these activities are not dressed in appropriate protective clothing and do not apply personal protection means (masks, semi-masks) despite exposure. The main cause of neglect in this respect is the lack of protective clothing and personal protection means adjusted to the size of children [17].

The engagement of children in work in agricultural families has its source in the traditions of a rural family from the end of the 19<sup>th</sup> and beginning of 20<sup>th</sup> century, where an important element of functioning was the participation of all family members in agricultural production. The work of children from their youngest age was not only an economic necessity, but also a moral and religious imperative [18]. In the last decades in Poland, a change has been observed in the situation of rural children in the context of engaging them in work. The economic importance of child labour in agricultural families has clearly decreased. Studies conducted in 2009 show that although a decrease has been noted in the duration of the performance of agricultural activities by children, simultaneously, a considerably greater number of them participate in dangerous and health threatening work tasks [19]. Parents who engage their children in this type of work on a farm expose them to negative health consequences, and in some cases, children actually experience these consequences, being victims to accidents or suffering from disorders related with work overload.

A basis for analyses concerning the relationship between work and health are studies carried out among children engaged in agricultural work. These studies focus on the negative aspects of the impact of work on their health [12, 13, 20, 21]. There is a paucity of reports which would consider both the negative and positive consequences of children performing work activities on a family farm. Also, there are no studies concerning distant health effects in individuals who were engaged in farm work in childhood.

The objective of the presented study was determination of the current and distant health effects in individuals engaged in agricultural activities in their childhood. The

consequences of work in childhood are presented based on opinions of adults from agricultural families, and the compilation of the selected indicators of their state of health and degree of loading with work in childhood.

## METHODS

The study was conducted by the method of a diagnostic survey, using a questionnaire technique. The research material was collected by means of a questionnaire form: 'Work in childhood and state of health in opinions of adults from agricultural families'. The questionnaire contained items related to the following problems: 1) assessment of the degree of loading with agricultural work activities at the age of 12 – 14; 2) characteristics of parents' farm; 3) evaluation of the effect of work in childhood on physical and intellectual development and state of health in childhood (current consequences); 4) evaluation of the effect of work in childhood on the present state of health (distant consequences); 5) self-reported state of health; 6) respondents' socio-demographic characteristics.

The study was conducted in a group of 482 individuals. Selection of the study group was targeted according to the following criteria: 1) agricultural family origin (parents possessed or possess own farm); 2) respondents' age from 20 – 65; 3) approximately 1/3 of respondents worked on own farm at the time of the study.

All the respondents came from agricultural families and had a stable occupational situation (school or university education completed and occupational activity undertaken). The majority of respondents were women (62.6%). The respondents were aged 21–65. People aged under 35 constituted nearly 1/3 of the study group, 2/5 of respondents were aged 36 – 50, and the remainder (32.4%) were aged over 50. On average, females were younger than males. A half of the respondents (53.9%) lived in rural areas, while the remainder were urban inhabitants. According to the adopted assumptions, nearly 1/3 of respondents performed agricultural occupations, 12% of them were employed exclusively in agriculture, whereas 18% performed two occupations, ran their own farms and were also employed outside agriculture.

## RESULTS

Evaluation of the degree of loading with work in childhood is an important element of the evaluation of the effect of work on the state of health. All the respondents came from agricultural families and in childhood were engaged in work on behalf of a family farm; however, the scope of their participation in agricultural work relatively varied. The adjustment of work to the developmental capabilities of a child, i.e. endowing specified jobs at the proper age of a child, is of great importance for the safe engagement of children in work. The data obtained showed that in general farmers' children start relatively early to assist their parents on a farm, and some respondents have been engaged in work on behalf of the family from a very young age (Tab. 1). Every tenth respondent began to perform such work activities already at nursery school age (6 years or younger), a half of the respondents (52.1%) began work at a younger school age (7 – 11), and more than 1/3 at the age of 12 or older.

**Table 1.** Various aspects of loading with agricultural work activities in childhood according to age.

Aspects of loading with work	age						Total	
	up to 35		36–50		51 and over		N	%
	N	%	N	%	N	%		
Working time								
up to 2 hours	36	26.3	50	26.5	29	18.6	115	23.9
2 - 4 hours	68	49.6	102	54.0	81	51.9	251	52.0
more than 4 hours	33	24.1	37	19.6	46	29.5	116	24.1
Evaluation of working time ( $\chi^2=6.98$ ; $p<0.05$ )								
too long	29	21.2	64	33.9	51	32.7	144	29.9
adequate or short	108	78.8	125	66.1	105	67.3	338	70.1
Performance of work activities beyond capabilities ( $\chi^2=14.0$ ; $p<0.01$ )								
frequently	31	22.6	40	21.2	56	35.9	127	26.3
rarely	33	24.1	52	27.5	43	27.6	128	26.6
never	73	53.3	97	51.3	57	36.5	227	47.1
Evaluation of work load ( $\chi^2=10.76$ ; $p<0.05$ )								
high	58	42.3	80	42.3	84	53.8	222	46.1
mediocre	51	37.2	86	45.5	53	34.0	190	39.4
low	28	20.5	23	12.2	19	12.2	70	14.5
Age at beginning work ( $\chi^2=20.640$ ; $p<0.01$ )								
under 7	9	6.6	15	7.9	23	14.7	47	9.7
7 - 9	29	21.1	41	21.7	38	24.4	108	22.4
10 – 11	43	31.4	47	24.9	53	34.0	143	29.7
12 and older	56	40.9	86	45.5	42	26.9	184	38.2
Liczba lat pracy ( $\chi^2=10.779$ ; $p<0.05$ )								
6 or under	52	38.0	76	40.2	39	25.0	167	34.6
7 - 9	47	34.3	57	30.2	56	35.9	160	33.2
10 or more	38	27.7	56	29.6	61	39.1	155	32.2
<b>Total</b>	<b>137</b>	<b>100.0</b>	<b>189</b>	<b>100.0</b>	<b>156</b>	<b>100.0</b>	<b>482</b>	<b>100.0</b>

While evaluating the exposure to hazardous factors associated with work it is important to consider the duration of exposure [22]. It was assumed that this aspect of the evaluation would allow the duration of performance of agricultural jobs in childhood, per one day and number of years of work in childhood. Every third respondent as a child helped their parents in agricultural activities for a relatively short time – for 6 years or shorter. Nearly the same percentage of them performed agricultural occupations for 7 – 9 years, while the remainder (32.2%) assisted with farming jobs for a period of 10 years or longer. The respondents, when aged 12–14, devoted approximately 3 hours daily to agricultural work activities. Among 1/4 of the respondents the duration of these activities did not exceed 2 hours daily, a half of them worked for 2 – 4 hours, and the remainder (24.1%) longer than 4 hours daily. The great majority of respondents from agricultural families (70.1%) reported that the duration of performance of agricultural work activities in childhood was adjusted to their capabilities, and nearly 1/3 admitted that the time devoted to work was too long with respect to the capabilities of a child.

The degree of loading with work is affected not only by its duration, but also by the type of work. More than a half of the respondents (52.9%) admitted that in childhood, at the age of 12 – 14, they performed jobs exceeding their physical capabilities (too heavy), while 1/4 of the total number of

respondents had performed these jobs often (Tab. 1). At the same time, nearly a half of the respondents mentioned that in childhood they were loaded with agricultural work to a high degree, whereas 2/5 of the respondents evaluated their work load as mediocre, and only 14.5% as low.

Referring to the model of a traditional farmer's family (division of duties according to gender) and the transformation of this model within the last decades (work of children being of less importance), it was assumed that the level of loading with work in childhood depended on the respondents' gender and age. The presumption that in childhood males were more loaded with work than females was not confirmed. Only the duration of performing agricultural work was longer in the group of males than females, the remaining indicators of loading with work being similar in both groups.

The degree of loading with work in childhood significantly varied according to the respondents' age. Older respondents started their work on a farm at a younger age, more often performed jobs exceeding their capabilities, and more often experienced a higher work load than those who were younger. In addition, older respondents helped their parents for a longer period of time and more frequently mentioned that their working time during the day was excessively long.

In literature, it is most often assumed that health is wellbeing from the physical, mental and social aspects [23]. Considering all aspects of health, the majority of respondents (59.5%) reported that the performance of agricultural work had no effect on the current state of health of a child (Tab. 2). Only positive consequences of work were perceived by 14.3% of respondents, while a considerable percentage (8.6%) perceived exclusively negative consequences. Nearly 1/5 of the respondents indicated both positive and negative consequences of work. In general, nearly 1/3 of respondents (31.9%) experienced positive consequences of work in their childhood, and a slightly lower percentage (23.2%) negative consequences. The opinions of males and females concerning the effect of work on their health in childhood were similar.

**Table 2.** Evaluation of the effect of work in childhood on health according to gender.

Effect of work on health in childhood	Gender				Total	
	Female		Male		N	%
	N	%	N	%		
Effect of work on state of health in childhood						
positive and negative	58	19.5	26	14.5	84	17.6
positive	43	14.4	25	14.0	68	14.3
negative	16	5.4	25	14.0	41	8.6
no effect	181	60.7	103	57.5	284	59.5
<b>Total</b>	<b>298</b>	<b>100.0</b>	<b>179</b>	<b>100.0</b>	<b>477</b>	<b>100.0</b>
Effect of work in childhood on present state of health						
positive and negative	39	12.9	27	15.0	66	13.7
exclusively positive	12	4.0	14	7.8	26	5.4
exclusively negative	31	10.3	19	10.6	50	10.4
no effect	220	72.8	120	66.7	340	70.5
<b>Total</b>	<b>302</b>	<b>100.0</b>	<b>180</b>	<b>100.0</b>	<b>482</b>	<b>100.0</b>

Lack of data not considered

The respondents who experienced a positive effect of work on their health in childhood paid attention primarily to an improvement in the general state of health (44.1%) and

physical development (higher efficiency – 37.0%; greater strength and fitness – 27.6%; greater endurance – 19.7%). A considerably lower percentage of the respondents indicated that work resulted in the shaping of positive personality traits (8.7%) and a greater psychological resistance (3.9%). Among the negative effects of work on a child's health the respondents most often mentioned back pain due to work overload (45.4% of those who indicated negative consequences), excessive fatigue because of work and lack of time for rest (23.7%). A considerably lower percentage of respondents experienced colds due to work in agriculture (12.4%), joint pain (8.2%), allergies, and other complaints (pain concerning extremities, head, and teeth).

It happens that an excessive loading of children with agricultural work activities and their engagement in jobs creating risk for their health and life result in distant effects in the form of developmental defects or chronic diseases. The greatest majority of respondents coming from agricultural families (70.5%) reported that work in childhood had no effect on their present state of health (Tab. 2). Less than 1/3 of respondents perceived the relationship between work in childhood and their state of health as adults. The majority considered that work exerted a negative effect on their present state of health. Nearly every fourth respondents (24.1% of the total number of respondents) indicated negative consequences, while every tenth one mentioned that work caused exclusive harm to their health. An opposite opinion was expressed by every fifth respondent (19.1%); only every twentieth reported that work had an exclusively positive effect on the present state of health.

Respondents who perceived a positive effect of work in childhood on their present state of health most often mentioned that due to work in childhood they were more physically efficient (50.7%), were more fit (37.3%), more enduring and resistant to work in difficult conditions (29.9%). A lower percentage of respondents declared that work resulted in a greater psychological and somatic resistance of the body and the shaping of positive personality traits.

Respondents who experienced a negative effect of work in childhood on their present state of health reported that work caused degenerative changes concerning the spine. This health problem concerned nearly 3/4 of the respondents in this group, and every fourth suffered from joint diseases. Other disorders which in respondents' opinions were caused by work in childhood occurred considerably more rarely, and these were: allergies, hypertension, and vascular disorders.

**Table 3.** Accidents in childhood while performing agricultural work according to gender.

Accidents at work in childhood	Gender				Total	
	Female		Male		N	%
	N	%	N	%		
no accident	286	94.7	160	88.9	446	92.6
one accident	14	4.6	12	6.7	26	5.4
two accidents	0	0.0	4	2.2	4	0.8
three or more accidents	2	0.7	4	2.2	6	1.2
Total	302	100.0	180	100.0	482	100.0

An accident is a direct and evidently negative effect of work. Studies conducted during the period 2008–2009 among children aged 11–14 showed that 6.0% of them were victims

of accidents while performing work on behalf of a household or farm [19]. In the group of adults examined, a similar percentage of respondents (6.4%) experienced an accident while performing agricultural work in childhood (Tab. 3).

The majority of respondents who were victims to accidents in childhood (60.0%) experienced injuries of the extremities (fractures, bruising, twisting). Cuts were a relatively frequent accident-related injury (31.4%). In addition, 5 respondents were afflicted with spine injury as a result of an accident, 3 – head injury, 2 – fractures of extremities. One respondent had a finger amputated, and one underwent an amputation of the hand as a result of an accident. Accident-related injuries in childhood caused current damage to the child's health, and also distant consequences in the form of permanent health loss, and in some cases in the form of disability. Therefore, it should be presumed that in some individual situations occupational accidents affected both the state of health in childhood and the present state of health of the respondents as adults.

The effect of work on the present state of health and health in childhood was determined based on the respondents' opinions, i.e. subjective perceptions. In order to increase the reliability of the relationships observed, opinions were compiled concerning the effect of work in agriculture on health and the selected indicators of loading with work in childhood. Analyses confirmed a significant relationship between the degree of loading with agricultural jobs on a family farm, especially the duration of performing agricultural work activities, overloading with work, gender, and time when the respondents started to help their parents with agricultural work, and the respondents' opinions concerning the effect of work in childhood on their health.

**Table 4.** Opinions concerning the effect of work in childhood on health according to age at undertaking work.

Type of effect	Age at undertaking work					
	9 or younger		10–11		12 or older	
	N	%	N	%	N	%
Effect on health in childhood ( $\chi^2=74.594$ ; $p<0.001$ )						
positive and negative	54	34.8	20	14.1	10	5.6
exclusively positive	28	18.1	19	13.4	21	11.7
exclusively negative	14	9.0	19	13.4	8	4.4
no effect	59	38.1	84	59.2	141	78.3
Total	155	100.0	142	100.0	180	100.0
Effect on present state of health ( $\chi^2=45.693$ ; $p<0.001$ )						
positive and negative	32	20.6	26	18.2	8	4.3
exclusively positive	13	8.4	5	3.5	8	4.3
exclusively negative	20	12.9	22	15.4	8	4.3
no effect	90	58.1	90	62.9	160	87.1
Total	155	100.0	143	100.0	184	100.0

Lack of data not considered.

Opinions concerning the effect of work on health significantly varied according to the duration of performing agricultural work in childhood, both from the aspect of the age at undertaking agricultural activities and duration of performing these activities. The younger the age at which the respondents were engaged in agricultural work, the more often they perceived positive or negative effects of the work on their health in childhood and at the present time. More than

3/5 of respondents (61.9%) who began work early on a farm (under the age of 10) reported that the work had not affected their state of health in childhood (Tab. 4). This opinion was shared by a three times smaller number of respondents who started to help with agricultural activities relatively late, at the age of 12 or older. The majority of respondents who helped their parents on a farm from their youngest age (52.9%) admitted that the work activities performed exerted a positive effect on their health in childhood, and every fifth respondent was convinced that work had an exclusively positive effect. A considerably lower percentage of respondents in this group (27.1%) indicated the negative consequences of work, whereas every tenth admitted that work caused only negative health effects.

The respondents' replies showed that the engagement of children in agricultural work from the youngest age (under 10) to a smaller extent causes distant rather than current health effects (Tab. 4). The majority of respondents in this group (58.1%) did not perceive the effect of work on health; however, among others, opinions prevailed that work in childhood negatively affected the present state of health. The percentage of respondents who did not perceive any relationship between work in childhood and their present health status significantly increased among respondents who started to help with agricultural activities late (at the age of 12 or older). In this group, only every eighth respondent (13.0%) perceived any effect of work on health.

The age at which parents start to accustom their child to agricultural jobs most often determines the duration of the period of engagement in these jobs in childhood. This regularity does not concern all the respondents because, for various reasons (undertaking education outside the place of residence, early undertaking occupational activity outside agriculture), some children stop undertaking agricultural activities considerably earlier than the remainder. At the same time, it must be agreed that a larger number of years of work in childhood may result in a greater effect of work on health. Assuming that work in childhood affects the state of health it should be anticipated that this effect will increase with the duration of the period of performing agricultural work on parents' farm. The data obtained confirm this relationship. Among the respondents who in their childhood worked for the shortest period of time (6 years or less) only every fifth noticed the effect of work on health in childhood, and every eighth confirmed the effect of work on the present state of health (Table 5). Those who worked for the longest time in childhood several times more frequently indicated that work exerted an effect on their present state of health.

One of the indicators of loading children with work is the amount of time devoted by children to agricultural work during the day. Respondents who in their childhood worked for the shortest time (2 hours daily, on average) experienced current consequences of work to the smallest degree (22.6% of this subgroup) (Table 6). The percentage of respondents who indicated the effect of work on their state of health increased with working time. Among respondents who worked in childhood for the longest time (4 hours or more) the percentage of those who experienced current consequences of work increased nearly three times (61.1%). Those who were most loaded with work with an equal frequency indicated negative and positive consequences of work.

The mean time of performing agricultural work activities in childhood was also significantly related with distant

**Table 5.** Opinions concerning the effect of work in childhood on health according to the number of years of work as a child.

Type of effect	Number of years of work in childhood					
	6 or younger		7 - 9		10 and older	
	N	%	N	%	N	%
Effect on health in childhood ( $\chi^2=77.516$ ; $p<0.001$ )						
positive and negative	7	4.3	23	14.5	54	34.8
exclusively positive	20	12.2	20	12.6	28	18.1
exclusively negative	6	3.7	21	13.2	14	9.0
no effect	130	79.8	95	59.7	59	38.1
Total	163	100.0	159	100.0	155	100.0
Effect on present state of health ( $\chi^2=44.264$ ; $p<0.001$ )						
positive and negative	6	3.6	28	17.5	32	20.6
exclusively positive	8	4.8	5	3.1	13	8.4
exclusively negative	7	4.2	23	14.4	20	12.9
no effect	146	87.4	104	65.0	90	58.1
Total	167	100.0	160	100.0	155	100.0
Lack of data not considered						

**Table 6.** Opinions concerning the effect of work in childhood on health according to working time.

Type of effect	Mean time of performing agricultural work activities during the day					
	up to 2h		2.1 to 4h		more than 4h	
	n	%	N	%	N	%
Effect on health in childhood ( $\chi^2=43.149$ ; $p<0.001$ )						
positive and negative	12	10.4	41	16.7	31	26.7
exclusively positive	13	11.3	35	14.2	20	17.2
exclusively negative	1	.9	20	8.1	20	17.2
no effect	89	77.4	150	61.0	45	38.9
Total	115	100.0	246	100.0	116	100.0
Effect on present state of health ( $\chi^2=43.149$ ; $p<0.001$ )						
positive and negative	8	7.0	34	13.5	24	20.7
exclusively positive	8	7.0	14	5.6	4	3.4
exclusively negative	0	0.0	24	9.6	26	22.4
no effect	99	86.0	179	71.3	62	53.4
Total	115	100.0	251	100.0	116	100.0
Lack of data not considered						

health consequences, i.e. with the current state of health of respondents coming from agricultural families (Tab. 6). In the group of respondents the least loaded with work in childhood only 14% of them perceived any effect of work on their present state of health, whereas in the group of those most loaded with work the percentage of such opinions increased more than three times (46.6%). The respondents who in their childhood devoted a great amount of time, more often reported negative than positive consequences of work (43.1% and 24.7%, respectively). Nearly 1/4 of respondents in this group ascribed exclusively negative consequences to work in childhood, while a 6 times smaller percentage of respondents declared exclusively positive consequences (3.4%).

Opinions concerning the effect of work on health greatly varied, not only according to the duration of performing work, but also by its heaviness. The direction of the relationship – the greater physical work load the more frequent the opinions concerning the relation between work

**Table 7.** Opinions on the effect of work in childhood on health according to the performance of work activities exceeding capabilities of a child.

Type of effect	Performance of work activities beyond capabilities					
	frequently		rarely		never	
	N	%	N	%	N	%
Effect on health in childhood ( $\chi^2=77.253$ ; $p<0.001$ )						
positive and negative	37	29.8	23	18.0	24	10.7
exclusively positive	20	16.1	25	19.5	23	10.2
exclusively negative	24	19.4	13	10.2	4	1.8
no effect	43	34.7	67	52.3	174	77.3
Total	124	100.0	128	100.0	225	100.0
Effect on present state of health ( $\chi^2=98.320$ ; $p<0.001$ )						
positive and negative	31	24.4	25	19.5	10	4.4
exclusively positive	5	3.9	2	1.6	19	8.4
exclusively negative	33	26.0	12	9.4	5	2.2
no effect	58	45.7	89	69.5	193	85.0
Total	127	100.0	128	100.0	227	100.0

Lack of data not considered

in childhood and health – was also similar. The majority of respondents who frequently performed work beyond their own physical capabilities (65.3%) reported that work exerted an effect on the state of health in childhood, and more than a half of respondents (54.3%) additionally perceived the effect of work in childhood on their current state of health (Tab. 7). The percentage of respondents who mentioned that the performance of agricultural work activities had an impact on their health was several times lower among those who in childhood did not perform work exceeding their capabilities (current consequences – 22.7%; distant consequences – 15.0%). Simultaneously, the opinions by respondents who were most loaded with work are noteworthy. A half of them expressed the opinion that work in childhood negatively affected their present state of health (50.4%), and every fourth of them (26.0% of this group) admitted that this effect was exclusively negative. A considerably lower percentage of respondents most loaded with work indicated as positive its consequences for their present health status.

## DISCUSSION

The study showed that adults from agricultural families perceived both current and distant consequences of performing agricultural activities in childhood. Considering the general state of health, the majority of respondents expressed the opinion that work in childhood had no effect on their health. At the same time, 2/5 of respondents reported that work on their parents' farm exerted an effect on their health in childhood, and nearly 1/3 of them admitted that work in childhood had an effect also on their present health status as adults. While evaluating the effect of work in childhood on health the respondents slightly more often indicated the positive than negative consequences, whereas with respect to the distant effects – more frequently mentioned negative consequences. Therefore, it should be presumed that the consequences of excessive loading with work in childhood may manifest themselves later in life.

Based on the respondents' opinions, a positive effect of work in childhood was an improvement in the general state

of health, better physical development, greater endurance, resistance and fitness, as well as shaping positive personality traits. Negative consequences of work concerned mainly degenerative changes concerning the spine, joint disorders, muscular pain, allergy, hypertension, vascular disorders, cardiac diseases and accident-related injuries.

The engagement of children in work on a family farm brings about some benefits for the family, e.g. higher income or more efficient performance of urgent work activities. Skilful engagement of children in work may be beneficial also for the children, and positively affect their physical development and immunity of the organism [6], and support the process of their socialization and education. Due to education through work a child strengthens valuable personality traits, learns respect for work, and acquires new manual skills [24, 25]. Unfortunately, the work of children on a family farm is associated with many hazards for their health and development. An excessive and unskilful engagement of children in these work activities causes evident harm to health in the form of injuries, physical complaints or illnesses [12, 26].

The results of the study allow the presumption that the opinions expressed by respondents concerning the effect of work in childhood on their health are in accordance with reality. The significant relationship between these opinions and the degree of loading with agricultural work in childhood confirms this presumption. The respondents who in childhood were to a very small degree loaded with work, considerably more rarely perceived the effect of work on their health, compared to those who were very much loaded with agricultural work. Thus, it may be assumed that only a considerable scope of participation in agricultural work activities has positive or negative health effects, while a low degree of loading with work is insignificant for health. In the context of these results, the observation seems true that the isolation of children from work on behalf of the family deprives them of the possibility for a comprehensive development, because the lack of activity in this area delays the physical and psychological development of a child, limits independence, and exerts an effect on the shaping of lowered self-esteem and the attitude of uncertainty and dependence on others [27]. Unfortunately, a large scope of work activities performed by children is simultaneously associated with the accumulation of negative health effects.

Analysis of opinions concerning the effect of work in childhood on the respondents' state of health showed that the negative distant health consequences most frequently occur in individuals who started to help their parents with agricultural work at a very early age (9 or younger), and among those who devoted a very large amount of time to agricultural work – a large number of years of work in childhood, and a large amount of working time during the day. Respondents who devoted a small amount of time to agricultural work or did not perform work activities beyond their capabilities more often perceived a positive rather than a negative effect of work. Thus, an engagement in agricultural work within a small amount of time, and adjustment of the work activities endowed to the capabilities of a child, certainly brings about more benefits than harm for the child's health. In turn, an engagement from the youngest age and overloading with work exerts a negative effect, especially in later life.

## CONCLUSION

The analyses showed that an engagement of children in agricultural work activities results in not only positive, but also negative consequences for their health. The results obtained are based primarily on the subjective evaluations of adults coming from agricultural families. There is a need to undertake more objective studies, which would determine the effect of work on health at various stages of the development of a child, until reaching adulthood (longitudinal research).

The results of the presented study also incline us to formulate practical postulates addressed to parents who engage their children in work on a family farm: 1) children should not be endowed with agricultural work at too young an age; 2) the work activities endowed should be adjusted to the capabilities of the child. However, compliance with these principles does not provide total safety, therefore parents should be especially cautious and cover children who help them with constant care, to be able to adequately support them in unexpected circumstances. Thus, an optimum solution is the engagement of children in such work activities and within such working time that the performance of these activities would bring maximum benefits with minimum risk for health.

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