

Analysis of situation of rural women in the Lublin Region from the aspect of loading with work

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Abstract

Objective: The objective of the study was recognition of rural women's opinions concerning the degree of heaviness of work activities performed and obtaining the answer to the question: What is the actual level of loading rural women with work?

Methods: The basic research instrument was a questionnaire form. A representative group of women aged 40–50 were selected for the study because this group had the most complete family structure. The study was conducted among rural women living in the commune of Zwierzyniec. Family size and multi-generationality were analyzed, as well as family members' assistance in household and field activities. The type of work performed was analyzed with consideration of the duration of work and body position while performing this work. Self-reported degree of loading with work on a farm was analyzed, and effective energy expenditure calculated for individual work activities performed by women, based on which the actual degree of loading with work was determined.

Results: The respondents generally perceived their loading with work as low. They considered household jobs as not loading with or not exerting any effect on their fatigue and state of health. A very weak statistical relationship was observed between the duration of loading with household jobs and the perceived degree of loading with this work. The Kolmogorov-Smirnov test showed that the evaluations expressed by women concerning the degree of loading with household chores did not depend on time devoted to these work activities. The majority of women similarly evaluated work load, irrespective of the actual degree of loading. Work activities performed in a household were classified according to work load as heavy, medium-heavy and mediocre. Subjective evaluations of work load by rural women considerably differed from the assessment performed using the work time schedule method.

Key words

work load, rural women, degree of heaviness of work activities

INTRODUCTION

In Poland, rural areas cover 93.2% of the territory of the country. According to data by the Main Statistical Office, in 2009 there were 2501,300 farms functioning, every fifth of which was run by a woman. Poland, with a feminization rate of 51.1% in low-urbanized areas, occupies the 11th position in Europe, between the United Kingdom and Italy [1].

In the context of the traditional development of the rural areas, female farmers have been and are still burdened with work both at food production and care-giving. The specificity of work in rural areas consists in the repetition of individual work activities, which cannot be postponed in time or totally discarded. The characteristic feature of rural families has been and remains multi-generationality. Such a structure determines in advance the hierarchy, share of duties and roles of individual household members. Older children involved in education cannot be engaged in farming activities; therefore, the largest scope of duties is performed by the parents or

possibly the remaining offspring. In practice, this actually means placing more duties on the shoulders of the women [2].

The situation and duties of women in the rural areas depend on the type of rural family in which they live: landless family, agricultural family running a farm, or those who only use an agricultural plot. Despite the fact that traditionally in a farmer's family a man runs the farm, in recent decades these divisions of social roles have become less important. At present, increasingly more often a farm is approached as an alternative source of income with respect to gainful employment, and all individuals who have the possibility to undertake such work take advantage of it. As a result of these changes, the duty to undertake a larger scope of duties on a farm fell to some rural women, rather than fulfilling their traditional role, while occupationally-active men perform only the heaviest seasonal farm work. Thus, a husband performs the function of a supplementary workforce on a farm, which is actually run by the wife. Nevertheless, on some farms, apart from farming and housekeeping duties, women undertake paid employment [3].

While performing the occupation of a farmer, a woman is usually the partner of a man working on the farm or carrying out non-agricultural economic activity (family business). Despite this, in the majority of cases, the traditional share of work and duties performed by family members is still being

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respected. Household work generally remains the domain of women. In some family situations (widowhood, husband's illness, loneliness) a woman is sometimes the manager of a farm. Based on studies and statistical data it may be presumed that the situation in Polish rural areas and in agriculture, including the economic situation of rural women, has improved considerably after the accession of Poland to the European Union. Nevertheless, these changes, although definitely positive, should be considered as insufficient [4]. A considerable number of work activities on farm and household chores still belong to women.

Despite a considerable technicalization of life, work on a farm is still heavy, determined by the seasons of the year, with non-limited hours, and therefore causes considerable overloads of the motor organ [5]. The participation of women in work activities related with plant and/or animal production is primarily of the character of physical labour, to a high degree loading the motor organ.

The objective of the study was recognition of the opinions of rural women concerning the heaviness of the work activities they perform, and obtaining an answer to the question: What is the actual degree of loading rural women with work?

METHODS

The basic research instrument was a questionnaire form: 'Work load among rural women'. The questionnaires were distributed in association with medical prophylactic examinations conducted among rural women during a medical camp organized in 2010 by the Medical University in Lublin.

The study covered 150 rural women living in the Zwierzyniec commune which commune is poorly industrialized, basically agricultural in character, and with an increasingly greater effect of tourism associated with the surrounding Roztocze National Park. The commune is characterised by difficult access to medical care.

The farms on which the women worked were of the size from several to more than 10 hectares, and were engaged in plant and animal production. The main crops were cereals and root plants. In addition, some farms were engaged in the breeding of animals: poultry, cattle, pigs and horses.

The questionnaire consisted of 30 questions, with the option of selection of replies and Yes/No questions. The questionnaire was anonymous and the women reported their age, education level and type of occupational activity performed. The questionnaire also contained information concerning the number of family members, age of children, technical farm equipment, and type of crops. Subsequent questions concerned the type of work activities performed by the women, their body position at work, and duration of performing individual activities. The next group of questions concerned the participation of family members in work on the farm. In addition, in order to determine the heaviness of women's work, the following elements were distinguished: energy expenditure for individual activities, physical load of a static character, and monotony of movements performed. A basis for the evaluation of work load was work timing, and a simplified Lehmann's method for the assessment of energy expenditure [6].

Final evaluation of physical effort is the sum of the assessment of energy expenditure, static load and monotony of movements performed [6].

The results of studies were statistically analyzed using software Statistica 8.0

RESULTS

Based on the study, it was found that the women lived in good conditions. Their houses were equipped with running water, the majority with gas, had a bathroom and central heating, and possessed the basic equipment facilitating household jobs.

Table 1 presents the structure of families of the women examined according to their age, number of family members and education level.

Table 1. Structure of families according to the women's age, number of family members and education level.

Women's age	No. of family members						
	1	2	3	4	5	6	7
20-30	0	3	3	2	0	1	0
31-40	0	0	1	4	2	0	0
41-50	0	1	5	7	12	0	4
51-60	3	7	7	6	4	2	1
61-70	8	11	8	6	1	1	0
>70	11	9	2	4	2	2	0
Total	22	31	26	29	21	6	5

Woman's age	Education level				Total
	elementary	elementary vocational	secondary school	university	
20-30	1	1	2	5	9
31-40	0	1	3	3	7
41-50	2	6	16	5	29
51-60	3	8	18	2	31
61-70	15	6	10	5	36
>70	18	2	11	0	31
Total	39	24	60	20	143

From among the women in the study, a representative group aged 40–50 were selected for further studies, because the data obtained showed that this group had the most complete family structure. Among 143 women examined the number of women at this age was 29. Within this group, 18 women were occupationally active full-time, 24 grew vegetables, flowers and shrubs, while 9 women were also engaged in animal breeding.

The majority of women in the group analyzed had secondary school education (16), three times fewer of them possessed elementary vocational (6) or university education (5), while only two had elementary education. The number of their family members ranged from 2 – 7, with the largest group of families had 5 family members (12), followed by 4 family members (7), 7 and 3 family members (4 and 5), and only 1 woman had a 2-member family. The average number of family members was 4.6, with standard deviation 1.3, which constituted as much as 28% of the mean value.

Table 3 presents the number and age of children in the families of women aged 40–50. Children aged from 7 – 16 were in the families of 12 women, in which 10 women possessed 1 child, and 2 women had 2 children. Eight women

had children aged 16–18, including 6 with 1 child each, and 2 with 2 children. The largest group – as many as 22 women – had children aged over 18, where the numbers of women who had 1, 2 or 3 children were very similar (6, 7, 8 respectively).

Among the respondents, two equal groups of women were distinguished who had 2 – 3 children (10 women each). The remaining families were childless or had 3 or 5 children (3 women in each case), only 1 woman had 4 children. In this group, the structure of children by age was not significant with relation to the age of the women, whereas the number of children of women at this age was significant which, compared to other age groups, may evidence some tendencies in the number of children.

In order to recognize the degree of work load perceived by the women it was important to obtain information not only concerning the type of work performed, but also the equipping of the households with appliances facilitating their running, and in what situations and on whose assistance the women could count on.

Almost all the women possessed refrigerators or freezers, gas stoves, washing machines, food processors, vacuum cleaners, electric kettles, among other things. Only 6 women had a dishwashing machines (3 or 4 member families), and 12 – a coffee maker. Despite these facilities, work on a farm is still heavy. The participation of women in household and agricultural work is of the character of physical labour, to a high degree loading the motor organ.

Work load among rural women was analyzed based on studies of the position at work (kneeling, sitting, standing, standing bent over, walking, walking and carrying loads), time devoted to work, and assistance from family members. From among the 6 above-mentioned positions at work the greatest load accompanied work in the standing and kneeling positions, due to loading of the musculoskeletal system. Tables 2–4 and Figure 1 present the results of studies.

Table 2. Work load perceived by rural women according to positions assumed at work.

Degree of work load	Position at work					
	kneeling	sitting	standing	standing bent over	walking	walking and carrying loads
very low	17	26	11	11	24	28
low	9	2	7	11	3	1
mediocre	2	1	7	6	2	0
high	1	0	4	1	0	0

Only 1 woman while indicating work load related with walking and carrying loads considered this load as low, 9 women considered the kneeling position as a low work load. In 14 cases, the standing position was reported as a low or mediocre load, whereas the standing bent over position as a low load – by 11 respondents, and mediocre load – by 6. A high load associated with position at work was reported in only 6 cases, 4 of which referred to the standing position.

While performing individual household jobs related with the preparation of meals and cleaning the house, the women did not consider these activities as work loads or not affecting fatigue and state of health, using an expression ‘this is not work’. In the awareness of many rural women performing household work was defined as ‘I do not work’. It is noteworthy

Table 3. Relationships between time devoted to household jobs and degree of work load, based on the number of replies to the question concerning degree of loading with work in 6 various positions.

Time devoted to preparation of meals and cleaning the house [min]	No. of replies to the question concerning degree of loading with work in 6 various positions				No. of women who provided more than one reply
	very low	low	mediocre	high	
90-120	20	6	2	2	5
130-160	22	8	4	2	6
170-200	21	7	1	1	5
210-240	29	6	7	0	7
250-280	11	4	3	0	3
290-320	14	2	1	1	3

that during summer-autumn season nearly all the respondents prepared fruits or vegetables in jars, and this work was an additional load at this time; however, they did not consider it as work load.

Table 4. Relationships between time devoted to household work and degree of loading with work, based on the average number of replies to the question concerning work load in 6 various positions.

Time devoted to preparation of meals and cleaning the house [min.]	Average No. of replies to the question concerning work load in 6 various positions			
	very low	low	mediocre	high
90-120	4.0	1.2	0.4	0.4
130-160	3.7	1.3	0.7	0.3
170-200	4.2	1.4	0.2	0.2
210-240	4.1	0.9	1.0	0.0
250-280	3.7	1.3	1.0	0.0
290-320	4.7	0.7	0.3	0.3

A null hypothesis was formulated concerning the lack of relationship between the conviction about the degree of work load with position at performing household jobs, and the duration of performing household work.

Null hypothesis H_0 : Conviction about the degree of work load related with household jobs does not depend on duration of performing this work.

Alternative hypothesis H_1 : Conviction about load related with position assumed while performing household jobs depends on duration of performing this work.

The test for independence $\chi^2 = 10.56$ ($\chi^2_{0.01;15} = 4.66$) indicated the presence of a relationship between the duration of loading with household jobs and the perceived degree of loading with this work. This test does not provide information concerning the strength of the above-mentioned relationship; therefore, Czaprow's coefficient was calculated in order to determine the strength of such a relationship. The coefficient was $t_{xy} = 0.13$, therefore a very weak relationship was found between these characteristics.

The test for independence is based on data, the values of which in many sub-classes are lower than 5, therefore it is probably burdened with error, and is unreliable. Due to doubts concerning the results of the χ^2 test, the replies were divided into 2 groups, according to the duration of performing household jobs; subsequently, the presented hypotheses were verified by means of the Kolmogorov-Smirnov test.

The first group of women – Group A, devoted from 90–190 minutes to household chores; the second group – Group B, from 210–300 minutes (Tab. 5).

Table 5. Self-reported evaluation of the degree of loading rural women with work.

Degree of load	No. of replies	
	Group A	Group B
very low	63	54
low	21	12
mediocre	7	11
high	5	1

The following null hypothesis H_0 was verified: Distribution of evaluations of the degree of loading with household jobs in the examined groups of women does not differ significantly.

Alternative hypothesis H_1 : Distribution of evaluations of the degree of loading with household jobs in the examined groups of women differs significantly.

The value of Kolmogorov-Smirnov test was $\sqrt{n}\delta_n = 0.26$, calculated value $n=43$, critical value $\lambda_{n;0.02} = \lambda_{43;0.02} = 1.52$. The value of test statistics was less than critical value, therefore, there was no basis, at the significance level $\alpha = 0.02$, for rejecting the hypothesis which assumes that the evaluations of women concerning the degree of loading with household chores do not depend on time devoted to this work activities. The distribution of evaluations in the group where the time devoted to these duties was from 90–190 minutes was similar to the group of women who devoted from 210–320 minutes to these duties.

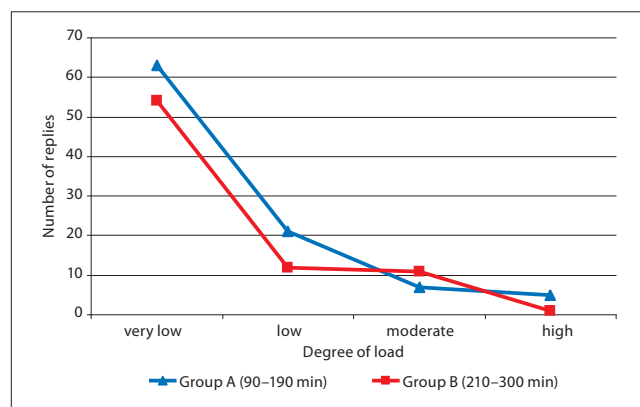


Figure 1. Evaluation of the degree of loading rural women aged 40–50 with household chores.

The majority of women expressed similar evaluations of work load, irrespective of the actual degree of this load (Fig.1). Slight differences in evaluations were only observed with respect to the degrees ‘mediocre’ and ‘high’, which indicates the lack of any relationship between time devoted to household chores and evaluation of the degree of loading with these duties.

In household and field work, the women could count on the support from family members or others. The results of the study show that women obtain the greatest assistance from their husbands (52%) and children (47%) (Fig. 2).

The degree of work load among women was determined based on a survey and own observations. Energy expenditure

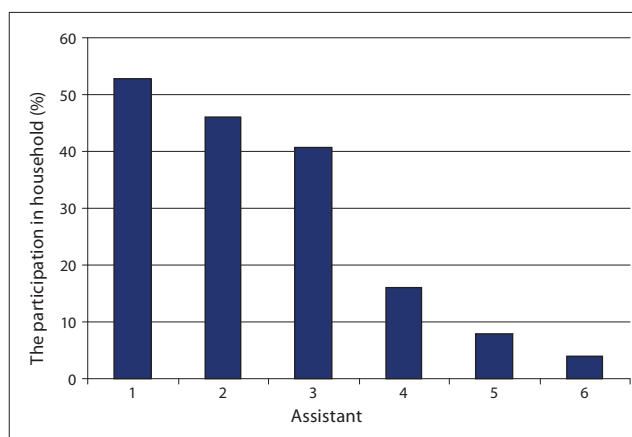


Figure 2. Assistance provided women by: 1 – husband, 2 – children, 3 – more than one person, 4 – lack of assistance, 5 – others, 6 – grandparents

was evaluated for individual work activities at tending animals, horticultural and household work activities. Considering physical work load of a static character, body positions assumed while performing individual activities were considered. In addition, while determining the degree of heaviness of work the monotony of movements and activities performed was considered (Tab. 6).

According to the above-mentioned analysis, work activities performed within the household were qualified as heavy, medium-heavy and mediocre, with respect to the degree of work load.

Table 6. Results of evaluation of physical work load among women.

Type of work activity	Work load components			Final evaluation
	Average energy expenditure [kJ]	Static load	Monotony of movements	
Tending animals	6,704	mediocre	mediocre	heavy work
Horticultural work activities	5,866	mediocre, high	high	medium-heavy work
Household chores	2,765	low, mediocre	mediocre	mediocre work

DISCUSSION

In Poland, the work of rural women is the object of interdisciplinary studies. The Ministry of Labour and Social Policy prepared in the years 2006–2007 a pioneer project ‘Diagnosis of occupational situation of rural women in Poland’, and subsequently, in 2007–2010, implemented the programme ‘Post-accession Support for rural areas’ [7].

The roles of women who perform agricultural work worldwide differ according to individual countries and regions. Nevertheless, women constitute from 43% of the working force in the developing countries to 50% in Eastern Europe and countries of Asia and Africa, where they are ascribed a major role in agricultural production and development of rural areas [8].

The role of a woman in Polish rural areas, compared to the countries of the European Union, is especially important due to both a high contribution of the female work force in agricultural production, and the key position of rural mothers in the reproduction of the population of the country [9].

The work of women in the rural areas is not a single-post work, but rather the participation in the work cycle lasting the entire year, with a high variety of the activities performed and their non-typical rhythm – they change both with respect to time and place of performing individual activities.

In Poland and worldwide, many female farmers are burdened with both work on a farm (plant and animal production), and household chores. Many of them supplement their income with paid work in nearby settlements. Therefore, one could speak about a triple work load among rural women [10, 11]. The assistance to a woman with household and field work is generally provided by household members (Fig. 2). Work conditions, in which the women live determine the degree of their work load, of which the women are frequently not aware and accept physical and psychological work load as an inseparable element of life [2].

Based on studies conducted by the Institute of Rural Health in Lublin, it was found [2, 12, 13] that the working time of women who undertake two or three types of occupational activity was 11.7 hours daily, on average, and was unevenly distributed throughout the whole year. The women worked for the longest time in September and June, and for the shortest time in January. The costs of time were proportionally distributed into work activities in agriculture (35%), household (34%) and non-agricultural activities (33%). The domain of women who undertook two types of occupational activity was animal production which accounted for 31.5% of the total energy expenditure. Total energy expenditure was very high (146.65 of the standard value); however, they considerably varied in individual seasons of the year. The highest values were noted in October, August, September, July and June, whereas the lowest in January and February.

The activities performed by women who undertook two types of occupational activity belong to the very heavy, heavy, and light-mediocre work categories. These are frequently noxious work activities performed in forced body position, often in unfavourable atmospheric conditions, with exposure to noise, vibration and micro-organisms.

The consequences of work in agriculture are many disorders involving the musculoskeletal system [10]. The risk factors are: assuming static positions at work, work standing bent-over and in kneeling position, as well as lifting loads and performing repeated work activities [14].

The participation of women in work activities related with plant and/or animal production is mostly of the character of physical labour, to a high degree burdening the motor system; hence, motor system diseases are an important health problem among rural women [10, 15] which is often enhanced by stress [10, 16, 17].

In agriculture, women perform many activities in a forced position, standing bent-over, kneeling, squatting, sometimes with hands raised, which additionally increases the noxiousness of muscular work, and results in complaints in the regions of the neck, back, and upper extremities [10, 18, 19, 20].

Based on the studies, it may be presumed that work load among women performing two occupations is very high [2, 12, 13, 21], while the women evaluate their work as, at most, mediocre. This conclusion is confirmed by the verification of the hypotheses displayed in Tables 2–5. In addition, often the lack of women's awareness concerns adequate body positions at work, and the necessity for having breaks and rest [10].

The presented study shows that the largest number of women described their degree of work load as very low (Tab. 4). The women considered household chores (cleaning, preparation of meals and preserving food) as not loading with work, using even the expression 'this is not work'. This was also confirmed by statistical calculations which showed, e.g. a very weak relationship between the duration of performing household chores and the perceived degree of this work load (Czuchrow's coefficient $t_{xy} = 0.13$).

Studies conducted by Halstrom [22] indicate that although wives on family farms experience work-role overload relative to their husbands, they are satisfied with their time contributions to the home/farm situation. Wives are fairly realistic in their assessment of the workload situation and tend to accept a duality or triad of roles as their responsibility, regardless of actual or relative workload.

The scope of problems concerning rural women is also undertaken by researchers from the Ukraine, who emphasize the effect of a number of negative factors such as: physical and psychological load, hazardous factors of the environment and unfavourable socio-economic changes [1, 4, 23].

In the situations in which women are exposed to various types of hazards, ergonomic prevention should be applied at workplaces, and the differences between genders taken into consideration [10, 24].

SUMMARY

The presented study shows the analysis of the situation of rural women from the Zwierzyniec commune, considering occupational activity, household jobs, field work and family situation. The women varied with respect to age, education level, types of occupational activities undertaken (two or three), both married and single women, living in a single or multi-generational families. A representative group of women aged 40–50 were selected for the study, because this group had the most complete family structure. The respondents lived in good conditions; women who had secondary school education were dominant.

Work load was usually perceived by the women as low, only in 6 cases as high. The women considered household chores as not loading with work, or not even exerting any effect on fatigue and state of health.

A very weak statistical relationship was observed between the duration of loading with household jobs and the perceived degree of this work load. the Kołmogorov-Smirnov test indicated that the evaluations expressed by the women concerning the degree of loading with household chores did not depend on the duration of time devoted to these activities.

The majority of women evaluated work load in similar terms, irrespective of the actual work load. The results of the study indicate that women obtain the greatest help from their husbands and children, i.e. 52 % and 47%, respectively. According the presented study, work activities performed within the household are qualified with respect to work load as heavy, medium-heavy and medium. Self-reported work load among rural women differed considerably from the evaluations carried out using the time study method.

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