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Severity of work in opinions of rural women living in the Bieszczady region of south-eastern Poland

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Abstract

Objective. The objective of the study was recognition of the opinions of rural women living in the Bieszczady region of south-eastern Poland, concerning their perception of the degree of severity of work. The study was conducted among the inhabitants of the Cisna commune.

Materials and method. The basic research instrument was a questionnaire form containing 15 items. The study covered 101 women living in the Cisna commune in the Bieszczady. The self-reported degree of work load on a farm was analyzed among women who were occupationally active, and those who were not occupationally active. The effect of assistance from family members on the severity of work perceived by women was considered.

Results. The women in the study focused on agro-tourism, a few of them were engaged in agricultural work and the majority worked in household gardens. The study showed that occupationally active women work considerably longer, on average, and are the most loaded, compared to those not engaged in occupational activity. The mean daily time devoted to duties on a farm did not significantly differ between occupationally active and non-active women, and amounted to 380 and 320 minutes, respectively. The majority of women who were non-active occupationally evaluated their household chores as the highest work load. In turn, the women who undertook occupational activity assessed them as most burdensome, despite great help from their family. The body positions assumed while performing field work were: standing, standing-bent-over, and walking. The mean evaluations of work load while standing and standing-bent-over did not significantly differ, but affected the work load among women who, however, could not assess the severity of their work resulting from the body position assumed.

Key words

work load, position at work, rural women

INTRODUCTION

Women encounter much greater limitations in time management than men. Possibly, they devote less time to work on a farm; however, they generally work longer in production and household activities, paid and unpaid work, and this state of affairs is caused by the division of work according to gender (care of children, household chores) [1, 2].

In some parts of Africa, Asia, and the Near-East, women are worse educated. Illiteracy hinders their access and possibilities to understand technical information. Worldwide, women have worse access to education and trainings related with agriculture [3]. Nevertheless, rural women frequently undertake entrepreneurship initiative in the sectors which have been traditionally ascribed to female activity in the rural areas – rural tourism (provision of food and accommodation, general catering services), production of foodstuffs (sweets, biscuits, pastry, cheese, etc.), production of folk arts (embroidery, carpets, ceramics, etc), which often become "women's skills" [4, 5]. The incentives of women engaged in such activity is financial assistance for the family (68.9%), continuation of the activity of the family enterprise (40.5%), or use of their skills (37.8%) [6]. It is noteworthy that the better educated the males, the greater the role of females in making decisions in the family. Li [7] emphasized a positive correlation between the level of education of husbands and autonomy of their wives, and their attitude towards and access to the outside world.

For years in Poland and worldwide, women have been engaged in agricultural work. Due to changes in life style and the changing socio-economic situation in rural areas, loading women with work on a farm and in the household, as well as with occupational activity, is becoming increasingly more common [8, 9, 10]. Frequently, the direct cause of increasing the participation of women in agricultural production is the labour migration of males, and their engagement in non-agricultural work activities. This is associated with the taking over by women of additional duties on a farm which, to-date, have been performed by men. Such a situation results in many

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changes and negative social effects related with marital and family separation, and changes in social roles traditional in these cultures which have been performed to-date by 'women' and 'men' [11, 12, 13].

Deere [14, 15, 16] indicates that in Mexico and Central America, due to the migration of males and their long-term absence, married women have become the persons who manage and perform work on the farm. Studies of work load among women in India also indicated that women remain burdened with responsibilities in three spheres (farm, house, and animal breeding), and at a young age – before they reach the age of 16 [17]. Work performed in these areas is related with a considerable physical load and the effect of the factors of the material environment. Non-ergonomic work posts and the equipment used, inappropriate and non-hygienic organization of the work process, and working time of rural women, result in the development of complaints on the part of the musculoskeletal system [18, 19, 20, 21, 22, 23, 24]. In many countries, the work of women on a farm is more varied than that of males. The women must combine the managing of work at home, occupational activity, and care of family members. The work of women is considered as unseen and poorly appreciated, and yet it is a hard work. Frequently, escape to occupational activity does not help the home situation (health), because household chores have to be performed at night [25].

Polish women, apart from their Slovak and Czech counterparts, are the most numerous group of women at productivity age who live in rural areas in Europe. According to unemployment among women in rural areas, Poland occupies the 8th position among 15 European countries [26], and the number of women engaged in agricultural work, according to the state on 31 December 2012, was 1,125,400. Per 1,468,178 of people insured by the Agricultural Social Insurance Fund (KRUS) – 694,624 are women for whom agricultural activity is the basic source of maintenance [26].

The contribution of women to running a farm has remained unchanged for years – approximately 20% of farms in Poland are managed by women. Women at productivity age who live in rural areas are a great resource which is not properly utilised. Polish resource is remarkable on the background of other European countries; with the indicator value of 68.7% it occupies the 2nd position in Europe [26, 27]. Although a considerable part of women actively participate in the running of a farm, a man (usually the husband) still features as the owner and the manager. More than a half of respondents reported that the occupational activity of women brings about more profit than loss to the family. More than 90% of respondents mentioned that every woman should have the possibility to undertake occupational activity if they wish to do so. The majority of rural women were satisfied with life in the country. The women cared about the contact with nature, sense of safety, or the possibility of outdoor recreation. Living in a rural area provides such an opportunity. The problems faced by female rural inhabitants (irrespective of the region of Poland – the study did not show any significant territorial differences in this respect), are primarily the worse access to the gas network, compared to the urban areas; also, worse possibilities for the improvement of qualifications and education for adults, access to cultural events and entertainment, possibilities to undertake studies, using sports and recreational facilities, or worse access to the sewage system [1, 9, 26].

Unequal share of rights and duties with respect to household chores functioning in society imposes limitations on the use of time by women and their availability. An excessive amount of duties contributes to decreased effectiveness of women, and causes the arising of conflicts associated with investment in a long-lasting personal development through own education. In developing countries, the level of education of females is lower than that of males, which is an important factor while adopting new technologies and undertaking risks. Frequently, women also have less influence on the making of independent (own) decisions in the household.

OBJECTIVE

The objective of the study was recognition of the opinions of rural women concerning the severity of work activities performed by them.

MATERIALS AND METHOD

The basic research instrument was a questionnaire form developed within the performance of medical prophylactic examinations of rural women, carried out during a medical camp organized by the Medical University of Lublin in eastern Poland.

The study included 101 women living in the Cisna commune in the Bieszczady region of south-eastern Poland. This commune lies within Lesko County of the Sub-Carpathian Region, and is a commune with a tourism profile, where access of the inhabitants to medical care is difficult.

The questionnaire consisted of 15 open and Yes/No questions. The questionnaire was completed anonymously; however, the women provided their age, education level, and type of occupational activity performed. The questionnaire also contained items concerning data on the number of family members, age of children, and the type of crops. Subsequent questions concerned the type of work performed by women, body positions assumed at work, and the duration of individual work activities. The next group of questions pertained to the participation of family members in work on a farm.

The results of study were statistically analyzed using the software Statistica 8.0. Especially used were were: student t-test comparing the means of two independent populations, Chi-squared test for categorical data and contingency tables.

RESULTS

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

Twenty-two women lived with a person or persons who did not fall into the composition of the basic social unit (parents, children). Thus, in the case of a larger number of people, these could be parents, or perhaps siblings of the respondent or her husband. Here, a change was observed from a multi-generation family into a one-generation family model. The three largest groups of women were those who lived with one family member – 32, two members – 22, and three members – 18. A relatively large number of women

Table 1. Number of family members living together with the women examined, and education level according to the age

Women's age	No. of family members						
	1	2	3	4	5	6	More
20–30	1	5	3	2	0	0	1
31–40	1	4	9	5	2	2	1
41–50	0	1	2	4	3	0	1
51–60	3	11	4	3	2	1	0
61–70	2	9	3	3	1	2	1
>70	3	1	1	1	1	1	0
Total	10	32	22	18	9	6	4

Woman's age	Education level				Total
	primary	primary vocational	secondary school	university	
20–30	2	1	4	5	12
31–40	2	3	10	9	24
41–50	0	2	4	6	12
51–60	7	3	12	2	24
61–70	7	3	6	5	21
>70	2	1	5		8
Total	20	13	41	27	101

possessed university education – 27; nevertheless, the most numerous group were respondents who had a secondary school or secondary technical school education – 41.

Based on the analysis of occupational activity of the women in the study, it was found that 47 of them were occupationally active, 27 had university education, and all women who were aged under 60, except for 1, were occupationally active. Figure 1 presents working time devoted to occupational activity and work on a farm. It may be noticed that occupationally active women are the most loaded with work, because an increase in the working time devoted to occupational activity is not accompanied by a considerable decrease in time devoted to household chores.

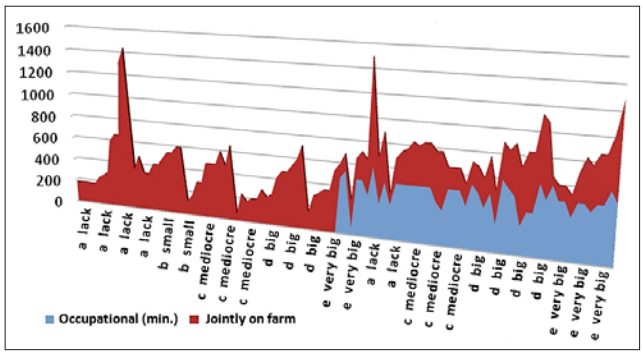

Figure 1. Work load related to occupational activity and work on a farm on the background of degree of family assistance

The t-Student statistical test was used to verify the hypothesis which assumes that the mean time related with duties on a farm does not significantly differ among women who are occupationally active and those inactive. In the examined group of women, 54 were occupationally non-active, and 47 active. Table 2 presents in minutes the mean values and standard deviations concerning the working time on a farm. Based on the performed t-student test (t_0=0.36)

Table 2. Mean values and standard deviations concerning working time on a farm

Statistical measure	Daily working time on farm (in minutes)		Daily time of occupational activity (in minutes)
	Occupationally active	Occupationally non-active	
Mean	380.77	320.43	447.45
Standard deviation	167.81	166.53	105.90

and the mean value of the number of hours devoted to occupational activity, it may be presumed that the women who are occupationally active work considerably longer, on average, than those who are non-active occupationally.

A small number of women in the study performed field work (13); a small number of them were also engaged in animal breeding (12). In these 2 groups, 5 women performed field work and bred animals. Per 47 occupationally active women, 37 cultivated a household garden, and 6 performed field work. Among women who cultivated a household garden the largest group were those aged 51–70 (45%), followed by women aged 31–40 (24%). A small number of persons aged 20–30 and 70–80 is a quite natural situation, while it is surprising that the number of those aged 41–50 was also small. The time of gaining maturity by this group of women fell within the period 1982–1991, i.e. the initial period of transformations in the Polish economy providing an opportunity to make good for those who were enterprising and resourceful. Thus, it may be presumed that among these women there are those who are rich and do not want to cultivate a garden and, for material reasons, do not have to do so.

Work load among rural women was analyzed based on studies of body position at work, time devoted to work activities, and assistance provided by family members (Tab. 3; Fig. 2, 3, 4).

Table 3. Contingency table for examined body positions at field work activities

Degree of work load	Position at work				
	standing	standing bent over	sitting	kneeling	walking
	Numbers of answers concerning appropriate position				
Low	16	7	2	1	14
Mediocre	16	12	3	1	2
High	14	14	4	2	3
Very high	7	10	0	1	5
Number of answers	53	43	9	5	24
Degree of work load	**Percentage of** answers				
Low	30%	16%	22%	20%	58%
Mediocre	30%	28%	33%	20%	8%
High	26%	33%	44%	40%	13%
very high	13%	23%	0%	20%	21%

All the women in the study, to a greater or lesser degree, performed field work activities. The body position most frequently assumed during these activities was a standing position (53), followed by bending over (43), and walking (24). A small number of women reported a sitting (9) and kneeling position (5). For comparative analysis, percentages

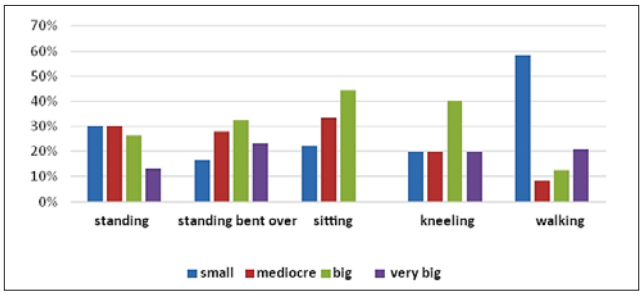

Figure 2. Percentages of the number of individual evaluations considering body positions

of these evaluations were used because the number of answers differed.

The standing and standing bent-over positions were evaluated differently, irrespective of the women's age; none of these 2 positions was described by the respondents as related with a very high load. The subsequent 3 evaluations of the work load related with the standing position were relatively similar, i.e. low (30%), mediocre (30%), or high (28%). Similar evaluations were expressed concerning the standing bent-over position; however, the relations between these 2 evaluations were reversed: low (16%), mediocre (28%), or high work load (33%). In turn, 58% of the women evaluated walking as related with a low load (Fig. 2).

Household chores while preparing meals and cleaning were primarily related with standing, standing bent-over, and walking. The women rarely reported all these positions, which may lead to the conclusion that they mentioned only the positions which were associated with fatigue caused by such a position.

The women very differently specified their body positions, the majority of them reported the following types or combinations of work activities: standing (31)) standing and standing bent-over (11), standing bent-over (20), standing and walking (10), and walking (10). Standing position was dominant while performing household chores, hence, a large number of respondents indicated this position.

It should be mentioned that a small number of women perform a part of household chores while sitting (8) or kneeling (6). The kneeling position is the most traditional way of cleaning or waxing the floor. This type of position at housework was reported by older women, aged 60 and over, which may evidence the lack of using modern tools designed for these jobs. While working in the kitchen, women may perform a part of the chores while sitting; however, only approximately 8% of them used this body position, a half of them aged over 50. One might venture an opinion that only 4% of the women intentionally assumed a sitting position while performing some household chores.

The reply 'walking' should also be considered – a conclusion may be made about the organization of work or non-ergonomic fittings in the kitchen, or rather, to a smaller extent, the space of the house, due to which work is associated primarily with walking.

The largest group of women devoted from 2–3 hours to household chores (35), a relatively large number of women devoted to this purpose from 4–5 hours (27), and 6–7 hours (19). The positions most frequently assumed while performing household work were: standing (31) and standing bent-over position (20).

Considering the fact that the women reported several body positions at work, both in the field and at home, the frequency of reporting individual positions was determined. The positions most often assumed by women while performing work activities at home and in the field are: standing (54 and 53), less frequently the standing bent-over position (39 and 43), followed by walking (25 and 24). With respect to each of these 2 types of work activities, the number of indications of adequate body positions differed only slightly.

Figure 3 presents 2 types of work mentioned by the women as being related with the highest load, according to the degree of assistance from the family. Three from among 6 persons who were occupationally active evaluated this activity as the most severe, and had no assistance from the family, and were single; therefore, they were excluded from the analysis.

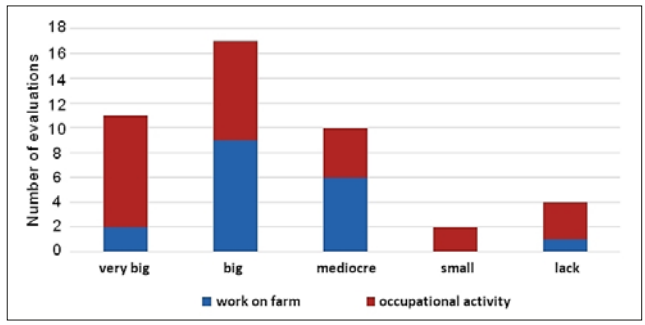

Figure 3. Evaluation of the type of work related with the highest load with consideration of family assistance

With a very big help from the family, in the majority of cases occupational duties were evaluated as related with the highest work load. This situation changed with big and mediocre assistance, where the evaluations of these 2 types of work become equal, or even with a prevalence of household chores being related with the highest load. Little or no assistance was associated with the indication of occupational activity as the highest load.

The majority of occupationally non-active women evaluated their household chores as the highest load (Fig. 4). Only 6 occupationally active women reported that they obtained little help; whereas a considerably larger number of women who were occupationally non-active reported little or no assiostance (18). This evidences that family members were aware of the size of household duties of an occupationally active woman, and admitted the necessity for providing her with assistance.

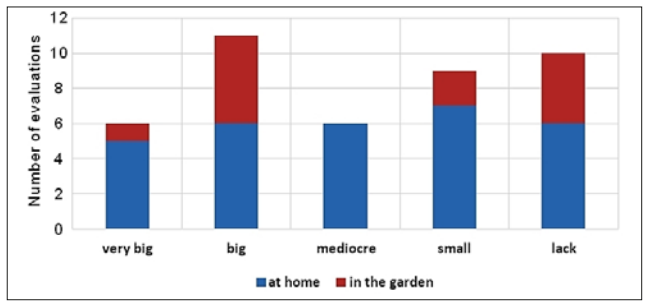

Figure 4. Evaluation of the type of work related with the highest load with consideration of family assistance

The chi-square test was applied to verify the hypothesis which assumes that the evaluation of the degree of load does

Table 4. Number of replies while evaluating body positions while performing field work activities

Body position while performing field work activities	Load related with position				Total
	Low	Mediocre	High	Very high	
Standing	16	16	14	7	53
Standing bent-over	12	7	14	10	43
Walking	14	2	3	5	24
Total	42	25	31	22	120

not depend on body position assumed at field work; its value χ^2=5 speaks for the rejection of the assumption concerning the lack of relationships between the 2 factors considered. The evaluations of the examined body positions at work differed. Also, mean evaluation of work load in a standing position was compared to the mean evaluation of work load in a standing bent-over position (Tab. 4). The analysis (Z test with a normal distribution $N(\mu, \sigma)$ which is close to Mann-Whitney U statistics) showed that the differences between the examined mean evaluations of 2 body positions were statistically insignificant; thus, the mean evaluations of work load in these 2 positions did not differ significantly ($Z=-1.22 > -Z_{0.01}=-2.576$), but they exerted an effect on work load among women who, however, were not able to evaluate the severity of their work resulting from the body position assumed.

DISCUSSION

The small size of farms managed by women in Poland and their low production scale allows the presumption, that the farms fulfil primarily social roles, and their primary function is self-supply. In the difficult situation on the labour market (lack of possibilities to find a stable source of income) the supply function of these farms becomes extremely important, and allows rural families to exist without support and social welfare [26].

Women working on farms Poland and in Canada define their day as a triad. They start with work in the household (care, cooking); subsequently, they proceed to paid work, and return at night to continue household chores, as well as work in agriculture (animal breeding-feeding, harvest). Many of these women mention work overload [8, 24, 28].

The results showed that a high indicator of the occurrence of MSD and perception of discomfort with ergonomic work factors still remain relatively frequent among farmers and agricultural workers employed on farms [22, 29]. Women working on Swedish farms experience more work load than males. As the cause of the discomfort perceived they consider monotony and repetition of movements [29].

In relation with the work performed, rural women in India suffer from many musculoskeletal disorders (MSD), caused by an excessive load on muscles, bones, and nerves during the day. Due to bad habits concerning the lack of reporting complaints in due time (learning life/work with pain), women are especially exposed to high risk (disability, loss of job, loss of health) [30]. In India, where women most frequently work as workwomen and cultivators, one of the most frequently performed work activities related with the highest load is weeding [30]. A study by Kishtwaria and Rana [31] showed that musculoskeletal load and pain complaints decreased after introduction of improved tools and technologies.

Compared to women performing agricultural work in the Lublin Region, who worked mainly on a farm [27], women from Cisna contended with agro-tourism, and a small number of them worked in agriculture. The majority of these women worked in household gardens. while comparing the education of the examined women, those from Zwierzyniec (Lublin Region) mainly had a secondary school education. The family structure also differs – in the studies in Zwierzyniec, the largest group were 5-member families. The study conducted in Cisna revealed a 1-generation family model. Subjective feelings concerning work load among women from Zwierzyniec were generally considered as low. Women considered household chores as not related with any load, or exerting no effect on fatigue and the state of health. In household chores and field work, the women could frequently count on support from family members or others [27]. In turn, in Cisna, the majority of occupationally active women evaluated household chores as related with the highest load. With big or mediocre assistance, the evaluations of these 2 types of work become equal, there even occurs the prevalence of household duties as the highest load. Little or no was related with the indication of occupational activity as related with the highest load.

With respect to positions assumed by women while performing work activities, in a few cases, women in Zwierzyniec indicated a high load due to a standing position. Most often, the women considered load with various body positions at work as low or very low [27]. In Cisna, the positions most frequently assumed at field work as standing, standing bent-over and walking. Standing and standing bent-over positions were the most differently specified, irrespective of the women's age, none of these 2 positions was described by the majority of women as related with a very high load. In the studies conducted in Zwierzyniec, a very weak statistical relationship was found between the time of loading with household chores, and the perceived degree of loading with this work. The majority of women similarly evaluated work load, irrespective of the actual degree of the work load. Work activities performed in a household were qualified according to the degree of load, as hard, mediocre-hard, and mediocre. Self-reported work load among rural women considerably differed from the evaluation performed using the timetable method [27].

CONCLUSIONS

Women's satisfaction is related to their education and employment outside agriculture. Satisfaction of women with running the household and loading them with work, compared to the remaining family members, are 2 of the most important factors affecting women's satisfaction with utilising their time [8]. A study conducted by Halstrom [32] indicates 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.

REFERENCES

1. Sawicka J. Sytuacja kobiet wiejskich na rynku pracy i w rolnictwie. In: RAPORT Kobiety dla Polski. Polska dla kobiet. 20 lat transformacji 1989–2009. Warszawa 2009; p. 24–34 (in Polish).
2. Knapik W., Aktywizacja społeczno-zawodowa kobiet wiejskich a problem czasu wolnego. Humanizacja Pracy 2005; 1–2 (in Polish).
3. Rekha Mehra and Mary Hill Rojas. Women, Food Security and Agriculture in a Global by Marketplace. International Center for Research on Women; 2008. pp.1–17.
4. Bock B. Fitting in the multi-tasking: Dutch farm women strategies in rural entrepreneurship. Sociologia Ruralis 2004; 44(3): 245–260.
5. McGehee N, Kim K, Jennings G. Gender and motivation for agritourism entrepreneurship. Tourism Management 2007; 28: 280–289.
6. Theodosia Anthopoulou. Rural women in local agrofood production: Between entrepreneurial initiatives and family strategies. A case study in Greece. Journal of Rural Studies 2010; 26: 394–403.
7. Li J. Women's status in a rural Chinese setting, rural sociological society. Rural Sociology 2005; 70(2): 229–252.
8. Krzyżanowska K. Situation of women in rural areas and their share in the labor market. Problemy Drobnych Gospodarstw Rolnych 2014; 1: 55–67 (in Polish).
9. Durka W, Klimek P, Kołodziejczak S, Maruszewska M, Pośpiech J, Terelak A. Situation of women in agriculture and rural areas. Specifics, standards, parity and expectations. Study report. Research Consortium FOCUS GROUP Albert Terelak, Centrum Rozwoju Społeczno-Gospodarczego Sp. z o.o., 2012 (in Polish).
10. Sikora J. Społeczno-zawodowa sytuacja kobiet w procesie przemian obszarów wiejskich w Polsce. J Agribus Rural Dev. 2014; 4(34): 137–145 (in Polish).
11. Radel C, Schmook B, Mcevoy J, Méndez C, Petrzelka P. Labour Migration and Gendered Agricultural Relations: The Feminization of Agriculture in the Ejidal Sector of Calakmul, Mexico. J Agrarian Change 2012; 12(1): 98–119.
12. McEvoy, Jamie P. Male Out-Migration and the Women Left Be hind: A Case Study of a Small Farming Community in Southeastern Mexico. All Graduate Theses and Dissertations. 2008; Paper 179.
13. Michalska S. Traditional and new roles for rural women. Wieś i Rolnictwo 2013; 2: 124–139 (in Polish).
14. Deere CD. The Feminization of Agriculture? Economic Restructuring in Rural Latin American. Occasional Paper 1. United Nations Research Institute for Social Development, 2005.
15. Katz E. The Changing Role of Women in the Rural Economies of Latin America. In: Davis B (ed.). Food, Agriculture, and Rural Development. Volume I: Latin America and the Caribbean. Rome: FAO; 2003: 31–65.
16. Lastarria-Cornhiel S. Feminization of Agriculture: Trends and Driving Forces. Background paper for the World Development Report; 2008.
17. Nidhi Suthar, Vandana Kaushik. Musculoskeletal Problems among Agricultural Female Workers. Stud Home Com Sci. 2013; 7(3): 145–149.
18. Fadi A. Fathallah. Musculoskeletal disorders in labor-intensive agriculture. App Ergon. 2010; 41: 738–743.
19. Singh S, Arora R. Ergonomic Intervention for Preventing Musculoskeletal Disorders among Farm Women. J Agri Sci. 2010; 1(2): 61–71.
20. Miszczak M, Grzegorczyk K. Physical load among women farmers in the light of ergonomics. In: Solecki L. Current state of ergonomics in agriculture – future needs. Lublin: Institute of Rural Health; 2002. p.128–135 (in Polish).
21. Miszczak M, Grzegorczyk K. Work load among rural women. In: Bujak F, Zagórski J. Physical and psychological load related with work in agriculture. Lublin: Institute of Rural Health; 2001: 41–48 (in Polish).
22. Choina P. Physical load among women engaged in work on private farms. In: Saran T, Solecki L. Diagnosis and methods for reduction on the risk of musculoskeletal diseases related with work in agriculture. Institute of Rural Health, Lublin 2009. p. 124–129 (in Polish).
23. Groborz A, Juliszewski T. Wstępna ocena obciążenia pracą kobiet podczas typowych prac w gospodarstwie domowym na wsi. Inżynieria Rolnicza 2003; 11(53): 91–96.
24. Gutkowska K. Kobiety wiejskie w procesie transformacji polskiej gospodarki. Wieś i Rolnictwo 2004; 1 (in Polish).
25. Mackenzie F. The worse it got, the more we laughed: a discourse of resistance among farmers of Eastern Ontario. Environment and Planning D: Society and Space 1992; 10: 691–713.
26. http://www.bip.minrol.gov.pl/Opracowania.-ekspertyzy.-publikacje/Sytuacja-kobiet-w-rolnictwie-i-na-obszarach-wiejskich (access: 2016.30.07) (in Polish).
27. Pawlak H, Maniak B, Petkowicz B, Kuna-Broniowska I, Petkowicz J, Buczaj A. Analysis of situation of rural women in the Lublin Region from the aspect of loading with work. Ann Agric Environ Med. 2013; 20(4): 826–831.
28. Heather B, Skillen L, Young J, Vladicka T. Women's Gendered Identities and the Restructuring of Rural Alberta. Sociologia Ruralis 2005; 45(1/2): 86–97.
29. Lunner Kolstrup Ch. Work-related musculoskeletal discomfort of dairy farmers and employed workers. Journal of Occupational Medicine and Toxicology 2012; 7: 23.
30. Suthar N, Kaushik V. Musculoskeletal Problems among Agricultural Female Workers. Stud Home Com Sci. 2013; 7(3): 145–149.
31. Kishtwaria J, Rana A. Ergonomic interventions in weeding operations for drudgery reduction of hill farm women of India. Work 2012; 41: 4349–4355. DOI: 10.3233/WOR-2012–0730–4349 (IOS Press).
32. Hajstrom Jl, Paynter M. Time Use Satisfaction of Wives: Home, Farm, and Labor Force Workload. Lifestyles: Family Economic Issues 1991; 12(2): 131–143.