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SELECTED SOCIO-ECONOMIC FEATURES AND THE PREVALENCE OF PEPTIC ULCER AMONG POLISH RURAL POPULATION

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Abstract: The aim of the study was to determine the relationship between the prevalence of peptic ulcer and the occurrence of selected socio-economic features among Polish rural population. The study was conducted based on the all-Polish representative study of the state of health of rural population, and covered a group of 6,512 rural inhabitants aged 20–64 - 3,107 males and 3,405 females selected by two-stage stratified sampling. Peptic ulcer was diagnosed in 348 people in the study (5.3%): 250 males (8.0%) and 98 females (2.9%). Duodenal ulcer occurred in 3.2% of people examined, followed by gastric ulcer - 1.2%, duodenal and gastric ulcer - 0.2%, and 0.9% of patients underwent surgical procedures due to peptic ulcer. Peptic ulcer occurred more frequently among people with a lower education level (lack of education - 7.8%, elementary school education - 5.8%), compared to those with higher education categories (elementary vocational - 4.9%, secondary school and college - 3.7%). The disease was more often diagnosed among respondents who described their material standard as poor (7.7%), compared to those who described this standard as good (4.0%). Among people who considered their material standard as poor, gastric ulcer was noted more frequently than duodenal ulcer. A correlation was observed between the prevalence of peptic ulcer and such socio-economic features of Polish rural population as the level of education and material standard.

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Key words: Polish rural population, gastric ulcer, duodenal ulcer, peptic ulcer, surgical treatment, epidemiology, socio-economic features, education level, material standard.

INTRODUCTION

Epidemiological studies show that peptic ulcer affects people primarily during the period of active occupational activity, and the frequency of its occurrence increases with age. The highest incidence of duodenal ulcer was observed among population aged 40–50, while that of gastric ulcer - among people by 10 years older [13, 16, 20]. In countries with a low level of economic development (India, Bangladesh) the peak morbidity rates are noted among people 10 years younger, the disease more often affecting males than females, and mainly concerns the duodenum [22]. Changes observed in the prevalence of peptic ulcer suggest that environmental factors contribute to the mechanisms leading to the occurrence of this disease [3, 11, 15, 19, 21].

Clinical observations of peptic ulcer patients indicate that an excessive work load, as well as unfavourable changes in the style and mode of life and working conditions (psycho-social stress), may hinder treatment of patients, result in aggravation and complications of peptic ulcer, and also contribute to the pathogenesis of the ulcer [3, 8, 15, 17]. Some reports confirm that male managers, doctors, lawyers, managers and employees of transport, construction workers, policemen and prison management are predisposed to peptic ulcer, especially duodenal ulcer [3, 5, 11, 15].

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Caygill *et al*. [2] noted that duodenal ulcer occurred more often among office workers who had a higher material standard , while gastric ulcer was more frequent among manual workers. Katschinski *et al.* [5], Sonnenberg *et al*. [21], and Schabowski [15] reported that peptic ulcer occurs more frequently among manual workers and people whose material standard is lower.

With respect to the pathogenesis of peptic ulcer it is commonly assumed that *Helicobacter pylori (H. pylori)* infection is the cause of over 90% of cases of duodenal ulcer and approximately 70% of those of gastric ulcer. The remaining percentage of ulcer cases is associated primarily with taking non-steroid anti-inflammatory drugs, and rare cases of Zollinger-Elison syndrome and Leśniowski-Crohn disease [6]. An undoubtedly very high effectiveness of anti-bacterial treatment and minimum number of relapses of peptic ulcer after efficient eradication of *H. pylori* infection are arguments in favour of this infection being an etiologic factor of the disease [6, 9]. However, the data which show that *H. pylori* infection is very widely spread and affects over a half of the world population - males and females equally - is a problem difficult to explain in the bacterial theory of peptic ulcer. Peptic ulcer occurs only in 10-15% of the people infected, considerably more often among males [6, 9, 18]. Also, the information concerning a significantly greater prevalence of *H. pylori* in underdeveloped countries (Africa, South America) is not consistent with an increased prevalence of peptic ulcer in these countries [4, 6, 9].

Several years of own observations, as well as the literature, indicate that other factors such as: genetic conditioning, cigarette smoking, stress or socio-economic status, may possibly contribute to the pathogenesis of peptic ulcer [17, 19, 21]. It has been confirmed that a clear relationship exists between living conditions and life style, and the state of health. Living conditions and life style are to a great extent connected with the socio-economic status of an individual, which, in turn, depends on the level of education, the occupation performed and material standard. The possibility of the existence of a relationship between socio-economic conditions and the prevalence of peptic ulcer are the basis for undertaking studies of the effect of education level and material standard on the occurrence of peptic ulcer among Polish rural population.

MATERIAL AND METHODS

The study was based on the results of an all-Polish comprehensive survey (considering somatic, mental and social aspects of health) of adult rural inhabitants was conducted by the Institute of Agricultural Medicine in Lublin [3, 11].

The study covered a representative group of rural population selected by two-stage sampling. Records from all rural health centres in Poland (3,286), which are kept and annually up-dated by the Institute of Agricultural Medicine in Lublin and containing 34 parameters, were used for first-stage sampling. At the first stage of the study, all health centres in Poland were divided into 150 groups according to their location, type of centre, distance to health unit (hospital), number of population in the region, percentage of farming population and deviation from the recommended model of employment. In each group two prevention-treatment regions were selected by means of stratified sampling and a sample of a required number of 300 first-stage units was obtained. The second-stage samples were selected based on communes in which the selected health centres were located, and covered the population aged 18–64. According to the region and sampling probability the size of the sample ranged from 10–120 people from one centre. A total number of 8,091 rural inhabitants were selected for the study, and 7,006 respondents, i.e. 86.6%, were classified for the study (the remainder did not report for examinations). The two youngest age groups (18–19) were not subjected to further analysis due to their not being sufficiently representative ($p < 0.001$). These deviations most probably resulted from the inadequacy of the 1988 lists of voters (people who reached the age of 18 were not always enrolled on the lists). As many as 6,846 people were classified for statistical calculations, including 6,512 rural inhabitants

Table 1. Occurrence of peptic ulcer and educational level of patients in the study.

Site of ulcer	Education level									
	None, incomplete elementary		Elementary		Vocational		Secondary school, college		University	
	n	%	n	%	n	%	n	%	n	%
Gastric ulcer	11	2.0	30	1.1	14	0.8	19	1.7	3	1.9
Duodenal ulcer	18	3.2	103	3.7	61	3.3	19	1.7	5	3.2
Gastric and duodenal ulcer	4	0.7	3	0.1	9	0.5	—	—	—	—
Patients who underwent surgical treatment due to peptic ulcer	11	2.0	25	0.9	8	0.4	2	0.2	—	—
Total	44	7.8	161	5.8	92	4.9	40	3.7	8	5.1
General number of respondents	563	100	2 758	100	1 856	100	1 094	100	158	100

Table 2. Site of ulcer and education level of patients in the study.

Education level	Site of ulcer								Results of Chi^2 test (DF = 1)		
	Gastric ulcer (A)		Duodenal ulcer (B)		Gastric and duodenal ulcer (C)		Patients who underwent surgical treatment due to peptic ulcer (D)		A–B	A–C	A–D
	n	%	n	%	n	%	n	%			
None, incomplete elementary	11	14.3	18	8.7	4	25.0	11	23.9	1.88	0.47	1.82
Elementary	30	39.0	103	50.0	3	18.8	25	54.3	2.74	2.36	2.76
Vocational	14	18.2	61	29.7	9	56.3	8	17.4	4.65*	8.37**	0.01
Secondary school, college	19	24.7	19	9.2	—	—	2	4.4	11.51**	3.56	8.40**
University	3	3.8	5	2.4	—	—	—	—	0.12	0.09	0.13
Total	77	100	206	100	16	100	46	100	—	—	—

* $p < 0.05$; ** $p < 0.01$

Table 3. Patients with peptic ulcer, those with other diseases, and healthy population by level of education.

Education level	Patients with peptic ulcer (A)		Patients with other diseases (B)		Healthy population (C)		Results of Chi^2 test (DF=1)	
	n	%	n	%	n	%	A–B	A–C
None, incomplete elementary	44	12.8	480	13.0	39	1.6	0.01	122.39**
Elementary	161	46.7	1 809	48.8	789	33.1	0.60	24.29**
Vocational	92	26.7	812	21.9	952	40.0	4.10*	22.61**
Secondary school, college	40	11.6	513	13.8	541	22.7	1.36	22.25**
University	8	2.3	90	2.4	60	2.5	0.01	0.05
Total	345	100	3 704	100	2 381	100	—	—

* $p < 0.05$; ** $p < 0.001$

aged 20–64 with a correctly completed Medical Examinations Chart. The latter sample is analysed in the present paper.

The study was conducted by trained rural health centre physicians and covered: a specially designed questionnaire, a detailed physical examination, and necessary specialist tests. The results obtained were registered in a questionnaire, which also contained questions concerning detailed demographic and social data, hazardous factors present at the workplace, as well as data pertaining to housing conditions, and nutritional habits. In order to evaluate the level of education the respondents were classified into the following categories of education: lack of education and incomplete elementary school education, elementary school, elementary vocational, secondary school and college, and university education. The material standard as perceived by the respondents was evaluated according to the following categories: very good and good, mediocre, poor and very poor.

Chi^2 test was applied for statistical analysis. Values expressed as percentages were compared by the test of significance of the differences between fractions. The level of significance of $p < 0.05$ was adopted as a basic level.

RESULTS

The study covered a group of 6,512 rural inhabitants aged 20–64 - 3,107 males (47.7%) and 3,405 females (53.3%). Peptic ulcer was diagnosed in 8.0% of males and 2.9% of females - 5.3% of the total number of rural population examined. Duodenal ulcer occurred in 3.2% of people in the study, followed by gastric ulcer - 1.2%, duodenal and gastric ulcer - 0.2%, and patients who underwent surgical procedures due to peptic ulcer - 0.7%.

Table 1 presents the relationship between the occurrence of peptic ulcer among the respondents and their education level.

Peptic ulcer was most frequently diagnosed among respondents with no or incomplete elementary education - 7.8% of respondents, followed by those with elementary school education - 5.8%, university education - 5.1%, elementary vocational - 4.9%, secondary school and college - 3.7%. It was observed that peptic ulcer occurred more frequently among people with lower education categories (lack of education, incomplete and complete elementary education), compared to respondents in the higher education categories.

Table 2 presents a compilation of data concerning the site of ulcer according to education level of people in the study.

Among respondents who had secondary school and college education the percentage of patients with peptic ulcer was significantly higher than that of people with duodenal ulcer ($p < 0.01$) and those who underwent surgical procedures due to peptic ulcer ($p < 0.01$). Respondents with elementary vocational education considerably more often suffered from gastric and duodenal ulcer, or duodenal ulcer, compared to gastric ulcer ($p < 0.01$ and $p < 0.05$ respectively). It was also noted that people in the lower education categories constituted 78.2% of patients who underwent surgical treatment. Gastric ulcer was diagnosed in 3.8% of respondents with university education level, and duodenal ulcer - in 2.4%. The difference was not statistically significant.

Table 3 presents the compilation of peptic ulcer patients, those with other diseases, and healthy population by the level of education.

The percentage of respondents with low education levels (none, incomplete elementary, elementary) was significantly higher among patients with peptic ulcer, compared to healthy population ($p < 0.001$). However, among people with a higher education level (elementary vocational, secondary school and college) the percentage of peptic ulcer patients was significantly lower, compared to the healthy population ($p < 0.001$). Among people with elementary vocational education level the percentage of peptic ulcer patients was significantly higher, compared to respondents with other diseases ($p < 0.05$). No differences were observed in the group of respondents who had university education. People with this category of education constituted slightly over 2% among people with peptic ulcer, as well as among those with other diseases and the healthy population.

Table 4 presents the occurrence of peptic ulcer and material standard as perceived by the respondents.

The highest percentage of peptic ulcer patients was observed among rural inhabitants who evaluated their material standard as poor or very poor (7.7%). Among respondents who perceived their material standard as very good or good the percentage of patients with peptic ulcer was 4.0%, while among those who reported that their material standard was mediocre this percentage was 5.7%.

Table 5 presents data concerning the site of ulcer according to material standard as perceived by the respondents.

The highest percentage of respondents who perceived their material standard as poor or very poor was noted among patients with gastric ulcer - 16.9%, followed by those who underwent surgical treatment - 14.9%, and duodenal ulcer - 7.7%. The difference between patients with gastric and duodenal ulcer who perceived their material standard as poor or very poor was statistically significant ($p < 0.05$).

Mediocre material standard was most often mentioned by patients with gastric and duodenal ulcer - 93.7%, followed by people who underwent surgical procedures due to peptic ulcer - 76.6%, and those with duodenal ulcer - 65.7%, while it was most rarely reported by patients with gastric ulcer - 63.6%. The difference between patients with gastric ulcer and those with gastric and duodenal ulcer was statistically significant ($p < 0.05$).

The highest percentage of respondents who evaluated their material standard as very good or good was observed among patients with duodenal ulcer - 26.6%, followed by those with gastric ulcer - 19.5%, whereas among patients with gastric and duodenal ulcer this percentage was the lowest - 6.3%.

Table 6 presents data concerning patients with peptic ulcer, those with other diseases and healthy population according to material standard as perceived by the respondents.

The analysis of the subjective evaluation of material standard showed that these parameters varied among the groups of respondents examined. Among peptic ulcer patients a higher percentage of respondents evaluated their material standard as poor (10.4%), compared to the healthy population (4.8%) and patients with other diseases (8.6%). The difference between patients with peptic ulcer and the healthy population was highly significant statistically ($p < 0.001$).

Table 4. Occurrence of peptic ulcer and material standard as perceived by the respondents.

Site of ulcer	Material standard					
	Very good, good		Mediocre		Poor, very poor	
	n	%	n	%	n	%
Gastric ulcer	15	0.8	49	1.2	13	2.8
Duodenal ulcer	55	2.9	136	3.3	16	3.4
Gastric and duodenal ulcer	1	0.1	15	0.4	—	—
Patients who underwent surgical treatment due to peptic ulcer	4	0.2	36	0.9	7	1.5
Total	75	4.0	236	5.7	36	7.7
General number of respondents	1,865	100	4 132	100	470	100

Table 5. Site of ulcer and material standard as perceived by the respondents.

Material standard	Site of ulcer								Results of Chi^2 test (DF = 1)		
	Gastric ulcer (A)		Gastric ulcer (B)		Gastric and duodenal ulcer (C)		Patients who underwent surgical treatment due to peptic ulcer (D)				
	n	%	n	%	n	%	n	%	A–B	A–C	A–D
Very good, good	15	19.5	55	26.6	1	6.3	4	8.5	1.52	0.83	2.71
Mediocre	49	63.6	136	65.7	15	93.7	36	76.6	0.11	4.28*	2.27
Poor, very poor	13	16.9	16	7.7	—	—	7	14.9	5.13*	1.89	0.09
Total	77	100	207	100	16	100	47	100	—	—	—

* $p<0.05$

Table 6. Patients with peptic ulcer, those with other diseases, and healthy population according to material standard as perceived by respondents.

Material standard	Patients with peptic ulcer (A)		Patients with other diseases (B)		Healthy population (C)		Results of Chi^2 test (DF = 1)	
	n	%	n	%	n	%	A–B	A– C
Very good, good	75	21.6	1 007	27.1	783	32.6	4.83*	17.11**
Mediocre	236	68.0	2 394	64.3	1 503	62.6	1.87	3.79
Poor, very poor	36	10.4	320	8.6	114	4.8	1.25	18.58**
Total	347	100	3 721	100	2 400	100	—	—

* $p < 0.05$; ** $p < 0.001$

The percentage of people who evaluated their material standard as very good or good among patients with peptic ulcer was lower (21.6%), compared to patients with other diseases (27.1%) and the healthy population (32.6%). The differences were statistically significant ($p < 0.05$ and $p < 0.001$ respectively).

In all groups analysed, the greatest number of respondents perceived their material standard as mediocre: among patients with peptic ulcer - 68.0%, among those with other diseases - 64.3%, and in the group of the healthy rural population - 62.6%, These differences were not statistically significant.

DISCUSSION

The educational level and occupational and social status associated with it, as well as life style, may exert an effect on the occurrence of peptic ulcer. McIntosh *et al.* [10] drew attention to the possibility of such a relationship. This is also suggested by the results of studies conducted in 1995 among workers of machine and chemical industries [15].

The studies showed that peptic ulcer occurred more frequently among people with lower education categories (none, elementary incomplete and complete), whereas it was less often diagnosed in those who had higher categories of education. The percentage of people with a lower category of education was significantly higher among peptic ulcer patients, compared to the healthy population ($p < 0.001$), whereas this percentage was significantly lower among people with a higher education category ($p < 0.001$). These data are consistent with reports concerning lower morbidity rates among the better educated population who have a higher social and material standard [10, 13, 21].

A relationship was also noted between the level of education and site of ulcer. Among people with secondary school and college education gastric ulcer occurred significantly more often, compared to duodenal ulcer ($p < 0.01$). This result is not consistent with the opinion presented by some authors that gastric ulcer is more frequently diagnosed in people who have a lower education level and live in poorer social conditions [2, 20].

It was also observed that among patients who underwent surgical procedures due to peptic ulcer the number of people with a low level of education (lack of education, elementary school) was greater than those with secondary school or college education ($p < 0.01$). People with a lower education category constituted 78.2% of patients who underwent surgical treatment. These results are consistent with observations made by McIntosh *et al.* [10] concerning a greater number of complications among peptic ulcer patients with a lower level of education whose material standard was poor. Among people with vocational elementary education, duodenal ulcer, as well as gastric and duodenal ulcer, was significantly more often observed than gastric ulcer ($p < 0.05$ and $p < 0.01$ respectively).

A greater prevalence of peptic ulcer among the population with a lower education level may result, among others, from worse hygienic conditions in which most of these people live. Poor sanitary conditions are conducive to the spread of *Helicobacter pylori* infection, which in turn increases the probability of peptic ulcer disease [4, 6, 9].

Not many reports suggest that low material standard and the life style associated with it are conducive for the occurrence of peptic ulcer [11, 13, 15]. There are other reports, however, which suggest a relationship between peptic ulcer and higher material standard [2].

In the present study, peptic ulcer was most frequently diagnosed in rural inhabitants who perceived their material standard as very poor or poor, and less often among those who evaluated this standard as good or very good. Comparing the group of peptic ulcer patients with the healthy rural population it was noted that the percentage of people who perceived their material standard as poor was significantly higher ($p < 0.001$), while the percentage of those who evaluated their material standard as good was significantly lower ($p < 0.001$).

Reports by Medaline *et al*. [11] and Polyard *et al*. [13] confirm the results of own studies that low material and social standard is conducive to the occurrence of peptic ulcer.

Among respondents who perceived their material standard as poor or very poor, gastric ulcer was significantly more often diagnosed than duodenal ulcer ($p < 0.05$).

Caygill *et al*. [2] and Polynard *et al*. [13] - similarly to the present study - observed a poorer material standard among patients with gastric ulcer, compared to those with duodenal ulcer.

The greater incidence of peptic ulcer observed among respondents who had low material standard may result from their poorer living conditions. The results of epidemiological studies concerning *Helicobacter pylori* provided an explanation for this problem. These studies confirmed that a poorer material standard favoured the spread of infection with this bacterium, which is considered as the primary etiologic factor of peptic ulcer [4, 6, 9].

CONCLUSIONS

The studies conducted based on a representative group of 6,512 rural inhabitants aged 20–64 allowed us to draw the following conclusions:

- Peptic ulcer occurs more frequently among people with a lower category of education (lack of education - 7.8%, elementary school - 5.8%), compared to those with a higher education category (elementary vocational - 4.9%, secondary school and college - 3.7%).
- Peptic ulcer is more often diagnosed among respondents who perceive their material standard as poor (7.7%), while it is less frequently observed among those who evaluate this standard as good or very good (4.0%).
- Gastric ulcer occurs more often among respondents who perceive their material standard as poor, compared to duodenal ulcer.
- Low socio-economic status is one of peptic ulcer risk factors.

REFERENCES

1. Bylina J: Selection of sample for studies of the state of health of rural population. *Wiad Stat* 1988, **33**, 21-23 (in Polish).
2. Caygill CPJ, Hill MJ, Knowles RL, Kirkham JS, Northfield TC: Occupational and socioeconomic factors associated with peptic ulcer and with cancers following consequent gastric surgery. *Ann Occup Hyg* 1990, **34**, 19–27.
3. Drożdzikowski W, Schabowski J: Gastric and duodenal ulcer among workers of the Ministry for Internal Affairs employed in Radom. *Probl Lek* 1991, **30**, 52–57 (in Polish).
4. Graham DX, Malatyh M, Evans DG, Klein PD, Adam E: Epidemiology of Helicobacter pylori in an asymptomatic population in the United States. Effect of age, race, and socioeconomic status. *Gastroenterol* 1991, **100**, 1495-1501.
5. Katschinski BD, Logan RF, Edmond M, Longman MJ: Physical activity at work and duodenal ulcer risk. *Gut* 1991, **32**, 983–986.
6. Konturek S: Peptic ulcer. **In**: Konturek S (Ed): *Gastroenterologia i Hepatologia Kliniczna*, 152–207. PZWL, Warszawa 2001 (in Polish).
7. Lam SK: Epidemiology and genetics of peptic ulcer. *Gastroenterol Jpn* 1993, **28 (Suppl. 5)**, 145–157.
8. Levenstein S: Stress and peptic ulcer: life beyond helicobacter. *Br Med J* 1998, **316**, 538-541.
9. Megraud F, Matysiak T: *Prise en charge de l'infection a Helicobacter pylori en practique de vill*. Phase 5 Editions Medicales, Paris 1997.
10. McIntosh JH, Byth K, Tsang N, Berman K, Holliday FM, Piper DW: Trends in peptic ulcer mortality in Sydney from 1971 to 1987. *J Clin Gastroenterol* 1993, **16**, 346–353.
11. Medaline JH, Stange KC, Zyzanski SJ, Goldbourt U: The importance of biopsychosocial factors in the development of duodenal ulcer in a cohort of middle-aged men. *Am J Epidemiol* 1992, **136**, 1280–1287.
12. Meucci G, Di Battista R, Abbiati C, Benassi R, Bierti L, Bortoli A, Colombo E, Ferrara A, Prada A, Spinzi G, Venturelli R, De Franchis R: Prevalence and risk factors of Helicobacter pylori-negative peptic ulcer: a multicenter study. *J Clin Gastroenterol* 2000, **31**, 42-47.
13. Polynard T, Tournade JM, Alberola B, Pappo M: Semiology of gastroduodenal ulcer proved by endoscopy: epidemiological analysis of 1800 cases. *Gastroenterol Clin Biol* 1988, **12**, 596–603.
14. Schabowski J: Gastrointestinal diseases among adult Polish rural population. *Med Ogólna* 1994, **4**, 363-373 (in Polish).
15. Schabowski J: Peptic ulcer among workers of the engineering and chemical industries. *Med Pracy* 1995, **46**, 25–31 (in Polish).
16. Schabowski J: Peptic ulcer among Polish rural population. *Ann Agric Environ Med* 1995, **2**, 1–5.
17. Schabowski J: Peptic ulcer and selected personality features among Polish adult rural population. *Acta Endosc Pol* 1995, **5**, 89-92 (in Polish).
18. Schabowski J, Frydrych W, Kruppa-Hippner A: Helicobacter pylori principles and cost of treatment. *Med Ogólna* 2000, **6** 129-137 (in Polish).
19. Schabowski J: Peptic ulcer among Polish rural population and the nicotinic index. *Ann Agric Environ Med* 2000, **7**, 119–123.
20. Sonnenberg A: Factors with influence the incidence in course of peptic ulcer. *Scand J Gastroenterol* 1988, **155**, 119–140.
21. Suadicani P, Hein HO, Gyntelberg F: Genetic and life-style determinants of peptic ulcer. A study of 3387 men aged 54 to 74 years: The Copenhagen Male Study. *Scand J Gastroenterol* 1999, **34**, 12-17.
22. Tovey FJ: Peptic ulcer in India and Bangladesh. *Gut* 1979, **20**, 329–347.