

THE FREQUENCY OF THE SELF-EXAMINATION OF TESTICLES AMONG MEN IN SELECTED SOCIO-DEMOGRAPHIC CONDITIONS

CZĘSTOŚĆ SAMOBADANIA JĄDER WŚRÓD MĘŻCZYZN W WYBRANYCH UWARUNKOWANIACH SOCJODEMOGRAFICZNYCH

GRZEGORZ JÓZEF NOWICKI^{1 A-G}
BARBARA ŚLUSARSKA^{1 A, D-F}
AGNIESZKA BARTOSZEK^{1 D, E}
KATARZYNA KOCKA^{1 D, E}
MARTA ŁUCZYK^{2 D, E}
ZDZISŁAWA SZADOWSKA-SZLACHETKA^{2 D, E}
ALINA DELUGA^{1 D, E}

¹ Department of Family Medicine and Community Nursing, Faculty of Health Sciences, Medical University of Lublin, Poland

² Department of Oncology and Environmental Health Services, Faculty of Health Sciences, Medical University of Lublin, Poland

A – przygotowanie projektu badania | study design, **B** – zbieranie danych | data collection, **C** – analiza statystyczna | statistical analysis, **D** – interpretacja danych | interpretation of data, **E** – przygotowanie maszynopisu | manuscript preparation, **F** – opracowanie piśmiennictwa | literature review, **G** – pozyskanie funduszy | sourcing of funding

SUMMARY

Background: Testicle cancer constitutes 1.6% of malignant neoplasms in men. It is the most common tumor in men aging 20–44 years. It is worrying that the analysis of epidemiological data from the last three decades indicates a threefold increase in the incidence of this cancer. Regular testicular self-examination is an effective and cheap way to diagnose cancer.

Aim of the study: Evaluation of declared rate of testicular self-exam in adult working men in the context of selected socio-demographic factors.

Material and methods: The evaluation was conducted between June, 2014 and March 2015 on 224 working men. Diagnostic survey was used as a research method. The questionnaire used as the research tool was elaborated by the authors. The evaluated men were asked to estimate how often they examine their testicles. In the following questions included in the survey, they were asked about socio-demographic details and family history of cancer. The participation in the study was anonymous and voluntary.

Results: As declared, testicular self-exam is performed once a month only by 17.41% of surveyed men, 28.13% of men perform the exam once in a few months, and 54.46% do not do it at all. Socio-demographic factors that significantly influenced the frequency of testicular self-exam included: education of the father, and family history of cancer (father or siblings) ($p < 0.05$).

Conclusions: Regular testicular self-examination is performed by a small percentage of adult men. There is a need to inform young healthy men about the prevention of testicular cancer, within the field of health promotion.

KEYWORDS: testicular cancer, testicular self-exam, male sex

STRESZCZENIE

Wstęp: Nowotwór złośliwy jądra stanowi 1,6% zachorowań na nowotwory złośliwe u mężczyzn, a wśród osób w wieku 20–44 lata jest najczęściej występującym nowotworem. Niepokojącym jest fakt, że analiza danych epidemiologicznych z trzech ostatnich dekad wskazuje na trzykrotne zwiększenie zachorowalności na ten nowotwór. Skutecznym i tanim sposobem rozpoznania raka jądra jest regularne samobadanie jąder.

Cel pracy: Poznanie deklarowanej częstości samobadania jąder w grupie dorosłych mężczyzn pracujących, w zależności od wybranych cech socjodemograficznych.

Materiał i metody: Badania właściwe zostały przeprowadzane od czerwca 2014 do marca 2015 roku wśród 224 pracujących mężczyzn. Metodą badawczą był sondaż diagnostyczny, a narzędziem badawczym – kwestionariusz ankiety własnego autorstwa. Badanych poproszono o zaznaczenie, z jaką częstością wykonują samobadanie jąder. W kolejnych pytaniach kwestionariusza oceniano cechy socjodemograficzne oraz rodzinne występowanie nowotworów. Udział w badaniu był anonimowy i dobrowolny.

Wyniki: Samobadanie jąder raz w miesiącu deklaruje tylko 17,41% ankietowanych mężczyzn, 28,13% wykonuje je raz na kilka miesięcy, a 54,46% – wcale. Czynniki socjodemograficznymi istotnie wpływającymi na częstość wykonywania samobadania jąder były: wykształcenie ojca oraz występowanie choroby nowotworowej u ojca lub rodzeństwa ($p < 0,05$).

Wnioski: Regularne wykonywanie samobadania jąder zgłasza niewielki odsetek dorosłych mężczyzn. Istnieje potrzeba szerszego upowszechniania wiedzy na temat profilaktyki nowotworu jądra wśród zdrowych mężczyzn w obszarze działań promocji zdrowia.

SŁOWA KLUCZOWE: rak jądra, samobadanie jąder, płęć męska

BACKGROUND

Testicular cancer constitutes 1.6% of malignancies in men, and it is the most common neoplasm in men aged 20–44 years (25% in this age group). It is worrying that the analysis of epidemiological data from the last three decades indicates a threefold increase in the incidence of this cancer. In 1980, in Poland there were 380 recorded cases of testicular cancer, whereas in 2010 the number of cases rose to as high as 1094 [1]. Most of them are germ cell tumors, approximately 50% of them constitute seminomas, and the remaining 50% are seminomas with cell types of several different histological types. The most common symptoms of testicular cancer include painless enlargement of a part or the entire testicle (the testicle is hard, significantly heavier and painless) [2]. So patients experience pain in the scrotum or in the perineal region [3].

Early diagnosis of testicular cancer enables to cure almost 90% of patients. Testicular cancer gradually becomes a social issue that affects men in the productive age and at the time of the largest responsibility for the family. Diagnosis and treatment of this type of cancer results not only in somatic disorders, but also causes mental and social issues, as well as changes patient's approach towards work, marriage (especially sexual behavior) and interpersonal relationships.

AIM OF THE STUDY

Evaluation of the declared frequency of testicular self-exam in adult working men in the context of chosen socio-demographic factors.

MATERIAL AND METHODS

The evaluation was conducted between June, 2014 and March 2015 in 224 working men. The study was conducted on 224 adult working men. The mean age in the evaluated group amounted to 34.34 (SD = 5.87), whereas most of men aged 31–40 years (56.70%; $n = 127$). Most of the surveyed men lived in urban areas (59.37%; $n = 133$)

and had high-school education (43.75%; $n = 98$). Other sociodemographic characteristic was presented in Table 1.

Table 1. Sociodemographic characteristics of the study group

Variable	n (%)		
Age <i>mean 34.34 (SD = 5.87):</i>	20–30 years	68 (30.36)	
	31–40 years	127 (56.70)	
	41–50 years	26 (11.61)	
	≥ 51 years	3 (1.33)	
Place of residence:	Village	91 (40.63)	
	City	133 (59.37)	
Education:	Occupational	33 (14.73)	
	Average	98 (43.75)	
	Higher	93 (41.52)	
Father's education:	Occupational	95 (42.42)	
	Average	108 (48.21)	
	Higher	21 (9.37)	
Monthly net income per family member:	Up to 500 PLN	14 (6.25)	
	501–1000 PLN	39 (17.41)	
	1001–1500 PLN	31 (13.84)	
	≥ 1501 PLN	97 (43.30)	
	I refuse to answer	43 (19.20)	
Occurrence of cancers in the family:	Mother	Yes	41 (18.30)
		No	183 (81.70)
	Father	Yes	27 (12.05)
		No	197 (87.95)
	Siblings:	Yes	10 (4.46)
		No	214 (95.54)

Diagnostic survey was used as a research method. The questionnaire used as a research tool was elaborated by the authors.

In the first question the evaluated men were asked to estimate how often they examine their testicles. They could choose out of the following answers: once a month, once every few months and not at all. In the following questions included in the survey, there were asked about socio-demographic details and family history of cancer. Evaluated sociodemographic characteristic included: age, place of residence (city / village), education (vocational / secondary / higher), father's education (vocational / secondary / higher) and monthly net income per family member (up to 500 PLN / 501–1000 PLN / 1001–1500 / ≥ 1501 PLN). When the patient had a family his-

tory of cancer, he was asked for whether the mother, father or sibling had a cancer. Surveyed men were to choose yes or no for every family member.

The results were analyzed statistically. Non-measurable parameters were presented as the count and percentage. The χ^2 was used to detect a correlation in qualitative parameters. The values $p < 0.05$ were considered statistically significant for differences and correlations. Database and statistical analysis was conducted using the Statistica 9.1 software (StatSoft, Poland).

ETHICAL REQUIREMENTS

The study was conducted with approval of the Bioethics Committee of Medical University in Lublin (KE-0254/281/2013) and according to the requirements of the Helsinki Declaration. The participation in the study was anonymous and voluntary. Every participating man was informed about the purpose of the study and how to fill out the questionnaire, then he signed the consent form.

RESULTS

Declared frequency of testicular self-exam

Obtained results indicate that 17.41% (n = 39) evaluated men declare to perform testicular self-examination once a month, 28.13% (n = 63) once every few months, and the vast majority, constituting 54.6% (n = 122) of all evaluated men, admits that they do not perform self-exam. Family history of cancer in mother was declared by 18.30% (n = 40), 12.05% (n = 27) in father, and 4.46% (n = 10) in siblings.

Sociodemographic determinants of declared frequency of testicular self-examination

The statistical analysis revealed a statistically significant correlation between declared frequency of testicular self-exam and father's level of education ($p = 0.049$).

Men, whose fathers had higher level of education, more often reported that they perform testicular self-examination once a month (33.33% n = 7) whereas, men whose fathers have secondary level of education more often reported that they perform the self-exam once every few months (35.19%, n = 38). The surveyed men, whose fathers have vocational education, declared more often that the others declared that they do not perform the testicular self-exam (60%; n = 57).

No statistically significant differences were observed in correlation with other sociodemographic parameters such as: age, place of residence, education, and netto income per family member ($p > 0.05$). Detailed data was presented in Table 2.

Family history of cancer and the declared frequency of testicular self-exam

The statistical analysis performed indicate men, whose father (37.04%; n = 10) or siblings (60%; n = 6) have or had cancer, more often declared to perform testicular self-exam once a month than respondents without family history of cancer (father – 14.72%; n = 29, siblings = 15.42%; n = 33 ($p < 0.05$)). No statistically significant relationship was detected between cancer in mother and declared frequency of testicular self-examination ($p > 0.05$). Detailed data is presented in Table 3.

DISCUSSION

Self-examination plays a crucial role in diagnostics of testicular cancer. It is available for everyone, cheap and is effective in detection of neoplastic changes [5]. Detection of testicular cancer at an early stage results in almost a 100% chance of survival. Every man should examine his testicles by himself under warm shower, when the scrotum is soft and stretched making it easier to detect abnormalities. Enlargement and change in the texture of testicles, palpable uneven surface or

Table 2. Sociodemographic determinants of declared frequency of testicular self-examination

Variable		Once a month [n (%)]	Once in a few months [n (%)]	Not at all [n (%)]	Statistical analysis
Age	20–30 years	13 (19.12)	16 (23.53)	39 (57.35)	$\chi^2 = 3.588$; $p = 0.732$
	31–40 years	20 (15.75)	41 (32.28)	66 (51.97)	
	41–50 years	5 (19.23)	5 (19.23)	16 (61.54)	
	≤ 51 years	1 (33.33)	1 (33.33)	1 (33.33)	
Place of residence	Village	20 (21.98)	24 (26.37)	47 (51.65)	$\chi^2 = 2.227$; $p = 0.328$
	City	19 (14.29)	39 (29.32)	75 (56.39)	
Education	Occupational	3 (9.09)	8 (24.24)	22 (66.67)	$\chi^2 = 3.133$; $p = 0.536$
	Average	18 (18.37)	30 (30.61)	50 (51.02)	
	Higher	18 (19.35)	25 (26.88)	50 (53.76)	
Father's education	Occupational	15 (15.79)	23 (24.21)	57 (60.00)	$\chi^2 = 9.528$; $p = 0.049$
	Average	17 (15.74)	38 (35.19)	53 (49.07)	
	Higher	7 (33.33)	2 (9.52)	12 (57.14)	
Monthly income	Up to 500 PLN	6 (42.86)	3 (21.43)	5 (35.71)	$\chi^2 = 8.940$; $p = 0.348$
	501–1000 PLN	4 (10.26)	14 (35.90)	21 (53.85)	
	1001–1500 PLN	5 (16.13)	9 (29.03)	17 (54.84)	
	≤ 15001 PLN	16 (16.49)	27 (27.84)	54 (55.67)	

Table 3. Family history of cancer and the declared frequency of testicular self-exam

Prevalence of cancer in the family		Once a month [n (%)]	Once in a few months [n (%)]	Not at all [n (%)]	Statistical analysis
Mother	Yes	10 (24.39)	11 (26.83)	20 (48.78)	$\chi^2= 1.732$; $p = 0.420$
	No	29 (15.85)	52 (28.42)	102 (55.74)	
Father	Yes	10 (37.04)	6 (22.22)	11 (40.74)	$\chi^2= 8.234$; $p = 0.016$
	No	29 (14.72)	57 (28.93)	111 (56.35)	
Siblings	Yes	6 (60.00)	2 (20.00)	2 (20.00)	$\chi^2= 13.433$; $p = 0.001$
	No	33 (15.42)	61 (28.50)	120 (56.07)	

a nodule, as well as a “heavy testicle” are easy to notice by the patient. The entire exam is short and easy to perform by oneself [6].

According to the study of Moore and Topping [7] conducted on 203 students in the University of Huddersfield, only approximately 32% of the participants knew that men should examine their testicles, while 22% performed testicular self-examination, and 68% said that testicular self-examination should be performed regularly. In the study performed by Khadr and Oakeshott on 250 men aged 18 to 50 years, 91% were aware of the risk of testicular cancer, and 49% of them examined their testicles in the past year, while only 22% claimed to examine their testicles once a month. In the cited studies, the factors that determined whether men were examining their testicles or not, included age below 35 years, level of knowledge, family history of testicular cancer and active participation in one of the social campaigns. Studies performed by Kędra et al. [9] on 150 men, adults and school-boys as well, showed that only 8% of respondents perform testicular self-examination on a regular basis, 34% examined their testicles irregularly, and 32% of them did not do it at all. Whereas, study conducted by Pietraszek et al. [10] on the group of 198 young men, aging 17–29, as many as 79.8% have never performed testicular self-examination, 17.7% declare that they perform the examination irregularly, and 2.5% of them examine their testicles every month. In our study, 17.41% of men declare that they perform examination once a month. 54.46% of respondents do not examine their testicles at all. The factors that significantly influenced the frequency of testicular self-exam included: education of the father, and family history of cancer (father or siblings) ($p < 0.05$).

It seems that an important factor determining the frequency of self-examination is the knowledge about this tumor and the technique of testicular examination. As indicated in the study performed by Baran et al. [11] on 300 men, the level of knowledge regarding testicular cancer and its prevention is low. The questionnaire assessing the knowledge on testicle anatomy, worrying symptoms and factors that predispose to testicular cancer included 12 questions. The evaluated men usually answered correctly the first 5 questions. In addition, it was found that men, who knew about the self-examination technique gave correct answers to more questions – 7. However, in studies conducted

by Piróg et al. [12] on 131 medical students and non-medical students in order to evaluate their knowledge using the Likert scale (0–5), medical students assessed their knowledge at 3.1 whereas non-medical students on 1.6. Students most often indicated the internet, press or television as a source of knowledge about testicular cancer. Medical professionals were indicated the least frequently. On the other hand, a general practitioner was indicated as the most desirable source of knowledge. The factors that significantly influenced the frequency of testicular self-exam included: education of the father, and family history of cancer (father or siblings). In case of father’s level of education, it may be related to instructions fathers give to their sons about testicular self-examination. Whereas, the correlation with family history of cancer may result with more knowledge the family members obtained from the medical professionals, patient’s leaflets and general interest of cancer prophylaxis as well as the fear of cancer.

In summary, based on available studies, and the studies performed by the authors of this work, it can be concluded that the knowledge of men on testicular cancer and its prevention is low, and testicular self-examination is performed by a small percentage of men. Education in this field should become a part of the curriculum at school from the very beginning, because as epidemiological studies show, testicular cancer concerns young men aging 20–44 years [1]. In addition to the standard forms of health education for cancer prevention, modern forms of social campaigns should be addressed to young people that can be implemented by social media, which in an easy-going and friendly way promote prevention of testicular cancer overcoming the barrier of fear and shame among men [13]. Many years of experience in organizing social campaigns regarding education and prevention breast and cervix cancer show that such programs increase the awareness level in women, which also reflects in concrete actions undertaken for early detection of cancer. Information and educational campaigns regarding testicular cancer are often performed only once and information about them and the very problem of testicular cancer is rarely addressed in media that reach a large audience. In our study, we wanted to focus on prevention of testicular cancer and justify the need to implement a complexed health promotion in local societies using multi-directional and interdisciplinary approaches of health education.

CONCLUSIONS

1. Only a small percentage of men declares regular testicular self-exam.
2. Socio-demographic factors that influenced the frequency of testicular self-exam included: father's

higher level of education, and family history of cancer (father or siblings).

3. It is necessary to intensify comprehensive informative and educational activities regarding prophylaxis of testicular cancer in men.

REFERENCES

1. Krajowy Rejestr Nowotworów [online] [cit. 17.09.2016]. Available from URL: <http://onkologia.org.pl/nawotwory-zlosliwe-jadra-c62>.
2. Qazi HA, Manikandan R, Foster CS, Fordham MV. Testicular metastasis from gastric carcinoma. *Urology* 2006; 68(4): 890.
3. Oszukowska E, Słowikowska-Hilczner J, Wolski JK, Kula P, Sosmowski M, Kula K. Chirurgia w andrologii. *Chir Pol* 2006; 8(3): 207–222.
4. Osmańska M, Kawiecka-Dziembowska B, Tujakowski J, Makarewicz R. Ocena funkcjonowania pacjentów po leczeniu złośliwego zarodkowego nowotworu jądra – doniesienia własne. *Współcz Onkol* 2008; 12(4): 196–200.
5. Jaszczynski J, Fijuth J, Podemski P. Nowotwory złośliwe jądra. W: Krzakowski M, red. Zalecenia postępowania diagnostyczno-terapeutycznego w nowotworach złośliwych 2011. Praca zbiorowa. Tom I. Gdańsk: Via Medica; 2011; 296–309.
6. Pypno W. Rak jądra. *Post Nauk Med* 2014; 1: 64–65.
7. Moore RA, Topping A. Young men's knowledge of testicular cancer and testicular self-examination: a lot opportunity? *Eu J Cancer Care* 1999; 8(3): 137–142.
8. Khadra A, Oakeshott P. Pilot study of testicular cancer awareness and testicular self-examination in men attending two South London general practices. *Fam Pract* 2002; 19(3): 294–296.
9. Kędra E, Pysk A, Zielonka W. Znajomość podstaw profilaktyki raka jądra wśród wybranej grupy mężczyzn. *Puls Uczelni* 2015; 4(9): 9–12.
10. Pietraszek A, Brzozowska A, Charzyńska-Gula M, Łuczyk M, Stanisławek A, Łuczyk R. Zapotrzebowanie na edukację z zakresu profilaktyki nowotworu jądra w grupie młodych mężczyzn – badania wstępne. *J Educ Health Sport* 2015; 5(7): 521–532.
11. Baran M, Walewska E, Binko K, Ścisło L, Szczepanik AM, Czupryna A. Wiedza młodych mężczyzn o raku jądra. *Probl Pielęg* 2014; 22(1): 1–5.
12. Piróg M, Padała O, Podgórnjak M, Putowski M, Sadowska M, Wdowiak A. Świadomość nowotworu jąder wśród młodych mężczyzn na Lubelszczyźnie. *Pielęg XXI w* 2016; 55(2): 18–26.
13. 10 powodów, dlaczego kampania łapjaja odniosła sukces [online] [cit. 15.09.2016]. Available from URL: <http://socialpress.pl/2016/04/10-powodow-dlaczego-kampania-lapjaja-odniosla-sukces>.

Word count: 3106

• Tables: 3

• Figures: –

• References: 13

Sources of funding:

The research was funded by the authors.

Conflicts of interests:

The authors report that there were no conflicts of interests.

Cite this article as:

Nowicki GJ, Ślusarska B, Bartoszek A, Kocka K, Łuczyk M, Szadowska-Szlachetka Z, Deluga A. The frequency of the self-examination of testicles among men in selected socio-demographic conditions. *MSP* 2017; 11, 3: 10–14.

Correspondence address:

Grzegorz Józef Nowicki, DHSc,
Zakład Medycyny Rodzinnej i Pielęgniarstwa Środowiskowego
Katedra Onkologii i Środowiskowej Opieki Zdrowotnej
Uniwersytet Medyczny w Lublinie
ul. Staszica 6; 20-081 Lublin
Phone: (+48) 81 44 86 810
E-mail: gnowicki84@gmail.com

Received: 24.01.2017

Reviewed: 9.06.2017

Accepted: 7.07.2017