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Demographics, practice patterns, job satisfaction, and career plans of endocrinologists in Poland

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Abstract

Introduction: In view of dynamic ageing of the Polish population, there will be increasing demand for health services, including endocrinology services. The demand for endocrinology services is already high, with long waiting times for consultations as one of its indicators. Human resources — in this case doctors specialised in endocrinology — are key in meeting those needs. In this regard, it is worth defining the professional situation of endocrinologists in Poland. The aim of the study was to gain knowledge about the professional status of endocrinologists in Poland, i.e. their social and demographic characteristics, general job characteristics and characteristics of their work with a patient, job satisfaction, income, and career plans.

Material and methods: The material consisted of data from 197 surveys from physicians specialising in endocrinology. Analysis of the material was quantitative and was performed using STATISTICA 13.1 software (STATSOFT, Tulsa, OK, United States).

Results: A doctor with a specialisation in endocrinology in Poland is usually a woman below the age of 50 years living in a large city. In addition to the specialisation in endocrinology, they usually have a specialisation in internal medicine and they combine work in public health care with work in private care, which ensures high financial status. In an average working week of 45 hours, they admit an average of 100 patients, spending about one-fifth of their time on administrative activities. Despite the heavy workload limiting their work-life balance and average employment conditions, they report relatively high job satisfaction. Although they aim to work until the age of 70 years, they plan to reduce the amount of time spent at work.

Conclusions: Further constant monitoring of job characteristics and job satisfaction of endocrinologists is needed to improve human resources planning and management.

Key words: endocrinology; health workforce; physicians; Poland

Introduction

One of the major factors affecting the anticipated demand for health care services is the ageing of the population. In Poland in 2018, the number of people aged 65 years and over was 6.7 million, which accounted for 17.5% of the country's total population [1]. In 2050, the group of people over 65 years old will amount to 11.1 million, corresponding to 32.7% of the population [2]. The ageing population will have significant impact on the demand for endocrinology services due to the higher prevalence of diseases such as diabetes, osteoporosis, obesity, and thyroid nodules in older age groups [3]. Other diseases that can be expected to increase in prevalence are metabolic conditions such as gout, lipid disorders, and fertility disorders.

The demand for endocrinology care in Poland is relatively high. Based on data from 2021 presented by the Ministry of Health, 560 providers delivered endocrinology services to 1,189,549 patients, which cost public healthcare approximately 258 million Polish zloty (PLN). The average waiting time for a service in

acute cases amounted to 56 days, while in stable cases it was 193 days [4].

The main reason for the long waiting time was the number of endocrinologists — in 2021, the number of practising endocrinologists in Poland was 1630. In addition, the register identified 86 practising doctors with a specialisation in gynaecological endocrinology and reproductive medicine and 142 with a specialisation in paediatric endocrinology and diabetology. In total, there were 1858 specialist doctors in these 3 groups, representing 1.3% of all professionally active specialist doctors and 1.1% of all doctors in the country [5].

The high demand for endocrinology consultations with a limited number of specialist doctors means that actions are needed to make better use of the capacity of existing staff. One of the prerequisites for such action is the identification of the professional situation of endocrinologists. Information about the job situation, including workload, career satisfaction, and income, as well as general information about the career plans of endocrinologists in Poland can help to improve human resources planning [6].



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The aim of the study was to investigate professional status of endocrinologists in Poland, i.e. their social and demographic characteristics, general job characteristics and characteristics of their work with a patient, job satisfaction, income, and career plans.

Material and methods

The study group comprised both endocrinologists and medical doctors during specialisation in endocrinology, participating in the endocrinological conference organized by the Centre of Postgraduate Medical Education in 2018. The conference brings together a large number of endocrinologists from all over Poland. As a result, the group of doctors attending this event can be considered representative of all endocrinologists in Poland.

The presented study is not considered a medical experiment, so according to the Polish law ethical approval is not required. The survey used in this study was in line with the ethical standards of the institutional bioethical commission and the Declaration of Helsinki (1964). Although participation in the study was anonymous and voluntary, each surveyed participant expressed verbal consent. The research tool was the authors' own questionnaire developed for the purpose of the study. The questionnaire was written in Polish language after having analysed previously published studies on endocrinologists' professional status. The tool was inspired by a survey of endocrinologists performed in the United States [3]. The questionnaire included 36 questions concerning basic demographic information, general job characteristics, characteristics of work with a patient, career plans, professional experience, job

satisfaction, and income. Additional questions addressed problems related to the profession of endocrinology and professional self-development. The questionnaire was piloted on a sample of 30 respondents working as medical doctors at the Department of Endocrinology, Centre of Postgraduate Medical Education in Warsaw, Poland. As a result of the pilot study, some questions have been modified. A total of 197 correctly filled out questionnaires were included in the study.

Statistical methods

The statistical analyses were performed using STATISTICA 13.1 software (STATSOFT, Tulsa, OK, United States). The mean (M) and standard deviation (SD) were estimated for numerical variables, as well as absolute number (n) and percentage (%) of the occurrence of items for categorical variables.

Pearson's correlation coefficient was used to correlate age with overall working time and total number of patients admitted per week, as well as job satisfaction in general and in certain individual aspects. The same variables were correlated with gender using Student's t-test.

The significance level was assumed to be $p < 0.05$.

Results

Characteristics of the study group

The characteristics of the study group are presented in Table 1. The data were obtained from 197 physicians (79% of whom were female). The average age

Table 1. Demographic and professional characteristics of the study group

Variable, parameter	Category or unit	Total (n = 197)
Gender, n (%)	Female	156 (79.19)
	Male	41 (20.81)
Age, min-max, M \pm SD	Year	26–78, 48.7 \pm 12.0
	26–29	8 (4.06)
	30–39	44 (22.34)
	40–49	52 (26.40)
	50–59	44 (22.34)
Age groups, n (%)	60–69	43 (21.83)
	70–79	3 (1.52)
	No data	3 (1.52)
	Year	1–56, 23.4 \pm 12.0
Job seniority as medical doctor, min-max, M \pm SD	Completed	175 (88.83)
	Ongoing	22 (11.17)
Specialisation status, n (%)	Internal medicine	145 (73.60)
	Endocrinology	142 (72.08)
	Gynaecology	14 (7.11)
	Paediatrics	18 (9.14)
	Other	28 (14.21)
Job seniority as endocrinologist, min-max, M \pm SD	Year	1–35, 13.2 \pm 8.3
Academic teacher, n (%)	Yes	17 (8.63)
Ph.D., n (%)	Yes	26 (13.20)

M — mean; SD — standard deviation; Ph.D. — Doctor of Philosophy

of the respondents was 48.7 ± 12.0 years, with an average professional experience as a medical doctor of 23.4 ± 12.0 years. A total of 89% of participants completed at least one specialty (among them 74% were specialists in internal medicine, 9% in paediatrics, and 7% in gynaecology). The vast majority of participants were physicians with a specialty in endocrinology (72%), and 11% were undergoing postgraduate training in endocrinology. Job seniority as an endocrinologist ranged from 1 to 35 years, 13.2 ± 8.3 years on average. Approximately 13% of the respondents had a Doctor of Philosophy (Ph.D.) degree.

General characteristics of respondents' jobs

Table 2 presents the general characteristics of the respondents' jobs. 17% of them had only one workplace, while 47% had 2 workplaces, 25% had 3 workplaces, and 10% had 4 workplaces. When asked to indicate the main type of workplace, most respondents indicated a private practice (65%), followed by a non-public outpatient clinic (59%) and a public outpatient clinic (40%). Clinical or public hospitals were indicated by 29% and 27% of the respondents, respectively.

The respondents worked in localisations of various sizes. Most of them (44%) worked in some of the largest Polish cities (with more than 500,000 residents),

Table 2. General characteristics of the respondents' jobs

Variable, parameter	Category	Total (n = 197)
Number of workplaces, n (%)	1	33 (16.75)
	2	93 (47.21)
	3	50 (25.38)
	4	20 (10.15)
	5	1 (0.51)
Type of workplace, n (%)	Clinical hospital	57 (28.93)
	Public hospital	54 (27.41)
	Non-public hospital	7 (3.55)
	Private practice	128 (64.97)
	Public outpatient clinic	79 (40.10)
	Non-public outpatient clinic	116 (58.88)
	Emergency medical services	2 (1.02)
	Other	11 (5.58)
Primary workplace location, n (%)	Countryside	4 (2.03)
	Town under 50,000.	24 (12.18)
	City between 51,000 and 200,000 residents.	48 (24.37)
	City between 201,000 and 500,000 residents	34 (17.26)
	City over 500,000 residents	87 (44.16)
Type of employment contract, n (%)	Job contract only	81 (41.12)
	Self-employed only	86 (43.65)
	Both job contract and self-employed	8 (4.06)
	Other	22 (11.17)
Night shifts, n (%)	Yes	60 (30.46)
Number of night shifts a month, min-max, M \pm SD	Number	1–8, 3.6 \pm 1.6
Considering usual duties as a doctor, number of hours per week on average spent on the following, min-max, M \pm SD	Overall working time	4–100, 45 \pm 14
	Face-to-face patient contact	0–75, 33 \pm 13
	Administrative work	0–50, 9 \pm 12
	Scientific research	0–20, 2 \pm 3
	Didactic work	0–15, 1 \pm 3
	Other	0–42, 1 \pm 4



Table 2. General characteristics of the respondents' jobs

Variable, parameter	Category	Total (n = 197)
During the usual working week, amount of time (in %) spent on the following, min–max, M ± SD	Face-to face patient contact in a consultation room	0–100, 53 ± 32
	Face-to face patient contact in the hospital	0–90, 18 ± 22
	Administrative work directly connected to face-to face patient contact	0–74, 13 ± 16
	Administrative work not connected to face-to face patient contact	0–50, 5 ± 9
	Professional development	0–30, 8 ± 7
	Didactics	0–30, 2 ± 5
	Scientific research	0–30, 2 ± 4
	Other	0–10, 0.1 ± 1
Participation in clinical research within the last year, n (%)	Yes	32 (16.24)
Participation in scientific-didactic conferences within the last year, n (%)	Yes	176 (89.34)
Number of scientific conferences participated within the last year, min–max, M ± SD	Number	1–10, 3.4 ± 1.8
Paid leave, min–max, M ± SD	Week	1–20, 4.7 ± 2.4
Sick leave, n (%)	Yes	43 (21.83)
Sick leave, min–max, M ± SD	Week	0.5–12, 2.7 ± 2.8

M — mean; SD — standard deviation

Table 3. Characteristics of respondents' work with patients

Variable, parameter	Category or unit	Total (n = 197)
Average total number of patients admitted per week, min–max, M ± SD	Number	4–320, 98 ± 65
Number of first-time patients and non-first-time patients admitted per week, min–max, M ± SD	First-time outpatients n=164 (83.25)	1–100, 20 ± 17
	Non-first-time outpatients n=152 (77.16)	1–300, 53 ± 47
	First-time hospital patients n=94 (47.72)	1–130, 11 ± 17
	Non-first-time hospital patients n=77 (39.09)	1–80, 9 ± 11
How would you define your group of patients (in %), min–max, M ± SD	Adult patients treated by endocrinologists	0–100, 61 ± 35
	Paediatric patients treated by endocrinologists	0–100, 6 ± 19
	Patients treated by gynaecological endocrinologists	0–100, 7 ± 14
	Patients treated by internists	0–100, 19 ± 31
	Patients treated by gynaecologists	0–70, 3 ± 11
	Patients treated by paediatricians	0–100, 1 ± 7
	Other patients	0–70, 2 ± 10
Patients age groups (in %), min–max, M ± SD	Less than 18 years old	0–100, 8 ± 22
	18–45 years old	0–100, 32 ± 21
	46–64 years old	0–84, 33 ± 17
Average waiting time for a visit of a scheduled first-time patient (weeks), min–max, M ± SD	Over 64 years old	0–90, 26 ± 21
	Paid by a patient	1–24, 5 ± 5
	National Health Fund	4–40, 19 ± 17
Source of payment for services (in %), min–max, M ± SD	National Health Fund	0–100, 59 ± 34
	Private health insurance	0–100, 19 ± 28
	Paid by a patient	0–100, 21 ± 26
	Free of charge	0–50, 1 ± 5

M — mean; SD — standard deviation

followed by 24% of the respondents who worked in cities with 51,000–200,000 residents and 17% in cities with 201,000–500,00 residents. Only 12% of the respondents worked in towns (under 50,00 residents), and 2% worked in the countryside.

Almost the same percentages of respondents worked on a job contract only (41%) or were only self-employed (44%), while 4% had both a job contract and were self-employed.

Having night shifts was declared by 30% of the respondents – from 1 to 8 night shifts a month, 3.6 ± 1.6 on average.

The total working time per week ranged from 4 to 100 hours, 45 ± 14 hours on average. It did not significantly differ between the male and the female doctors ($p = 0.124$); however, it was negatively correlated with the respondents' age ($r = -0.359$, $p < 0.001$), i.e. the older the respondent, the fewer hours per week he or she worked, on average. The respondents spent most of their time working with patients (33 hours on average) and doing administrative work (9 hours on average). Moreover, the working time was used for scientific work (2 hours on average), teaching (one hour on average), and other activities (one hour on average).

During a usual working week, the surveyed medical doctors spent the most time with patients face-to-face in a consultation room (53% of the time on average) and in a hospital (18% of the time). Administrative work, both directly related to patient care (13% of the time) and not directly related to this care (5% of the time), was a significant burden for medical doctors. The surveyed doctors devoted their time also to professional development (8% of the time), didactic work (2% of the time), and scientific research (2% of the time).

Participation in clinical research within the year preceding the survey was confirmed by 16% of the physicians. At the same time, 89% of the respondents declared their participation in scientific-didactic conferences, from one to 10 conferences (3.4 on average).

The respondents spent from one to 20 weeks on paid leave from work (4.7 weeks on average), while 22% of them were on a sick leave (2.7 weeks on average).

Characteristics of respondents' work with a patient

The surveyed medical doctors admitted from 4 to 320 patients, 98 patients on average, per week. The total number of patients admitted per week did not significantly differ between male and female doctors ($p = 0.679$); however, it was positively correlated with the respondents' age ($r = 0.357$, $p < 0.001$), i.e. the older the respondent, the more patients a week he or she admitted on average. On average, during a week, 20 admitted patients were first-time outpatients,

and 53 were outpatients previously treated, 11 were first-time hospital patients, and 9 were hospital patients previously under their care. Most of the patients were adult endocrine patients (61% on average) with equal age distribution throughout all groups.

The average waiting time for a first-time visit was 5 weeks if paid for by a patient or 19 weeks if financed from public funds. The services provided to patients by the surveyed doctors were most commonly financed from public funds under the National Health Fund (59% of services on average), 19% of the services were paid by private health insurance, and 21% were paid by the patients.

In their primary workplace, the surveyed doctors had direct access to the following medical technologies: ultrasonography (99% of respondents), specialised hormonal laboratory tests (85%), thyroid biopsy (81%), computed tomography (CT) scan (74%), magnetic resonance imaging (68%), basic hormonal laboratory tests (66%), densitometry (53%), and thyroid scintigraphy (47%) (Fig. 1).

The most common diagnosed endocrine diseases in the patients treated by the surveyed medical doctors during the last half a year were hypothyroidism (indicated by 97% of the respondents), nodular goitre (91%), hyperthyroidism (80%), and obesity (60%) (Fig. 2).

Respondents' job satisfaction and income

Overall job satisfaction on a scale from 1 (insufficient) to 6 (excellent) was rated by the respondents as 4.5 on average, i.e. between good and very good. The respondents were asked about their satisfaction with various aspects of their work (Fig. 3). Their relationships with co-workers were rated the highest (mean 4.7), followed by relationships with patients (mean 4.6) and relationships with superiors (mean 4.4). The lowest ratings were given to work-life balance (mean 3.6) and conditions of employment (mean 3.7).

Overall job satisfaction and job satisfaction in the analysed aspects of the respondents' work did not significantly differ between male and female doctors ($p > 0.05$). The respondents' age correlated positively with overall job satisfaction ($r = 0.217$, $p = 0.020$), satisfaction with income ($r = 0.225$, $p = 0.016$), satisfaction with conditions of employment ($r = 0.188$, $p = 0.044$), and work-life balance ($r = 0.240$, $p = 0.010$), i.e. the older the respondent, the more satisfied he or she was in general and in all of the above-mentioned aspects separately. Satisfaction with other aspects of the respondents' work did not correlate with their age ($p > 0.05$).

A declaration of choosing endocrinology as a speciality was adopted as an additional measure of professional satisfaction. When asked whether the respondents would choose a specialisation in endocrinology again, the vast majority of respondents answered positively

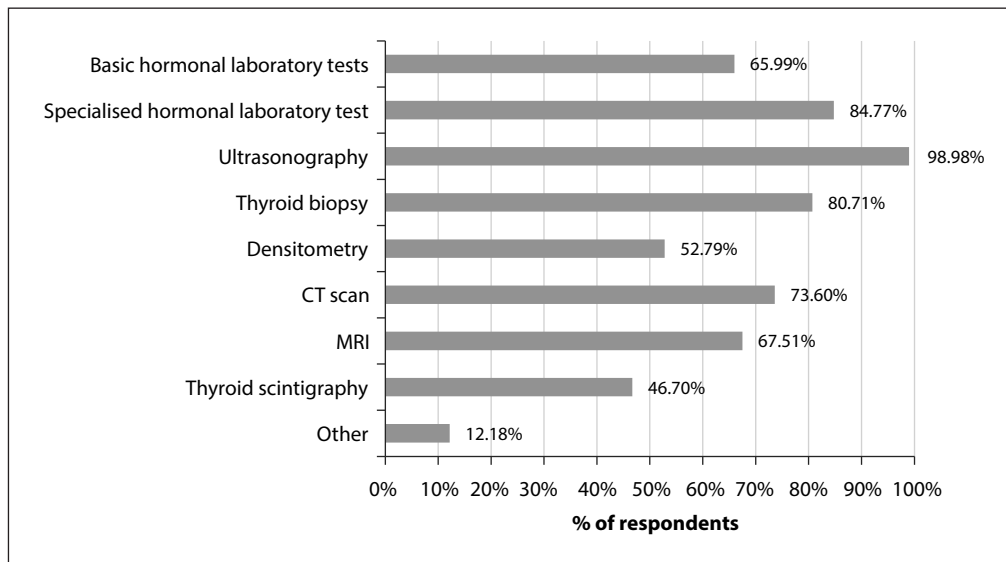


Figure 1. Medical technologies to which respondents had direct access in their primary workplace ($n = 197$). CT — computed tomography; MRI — magnetic resonance

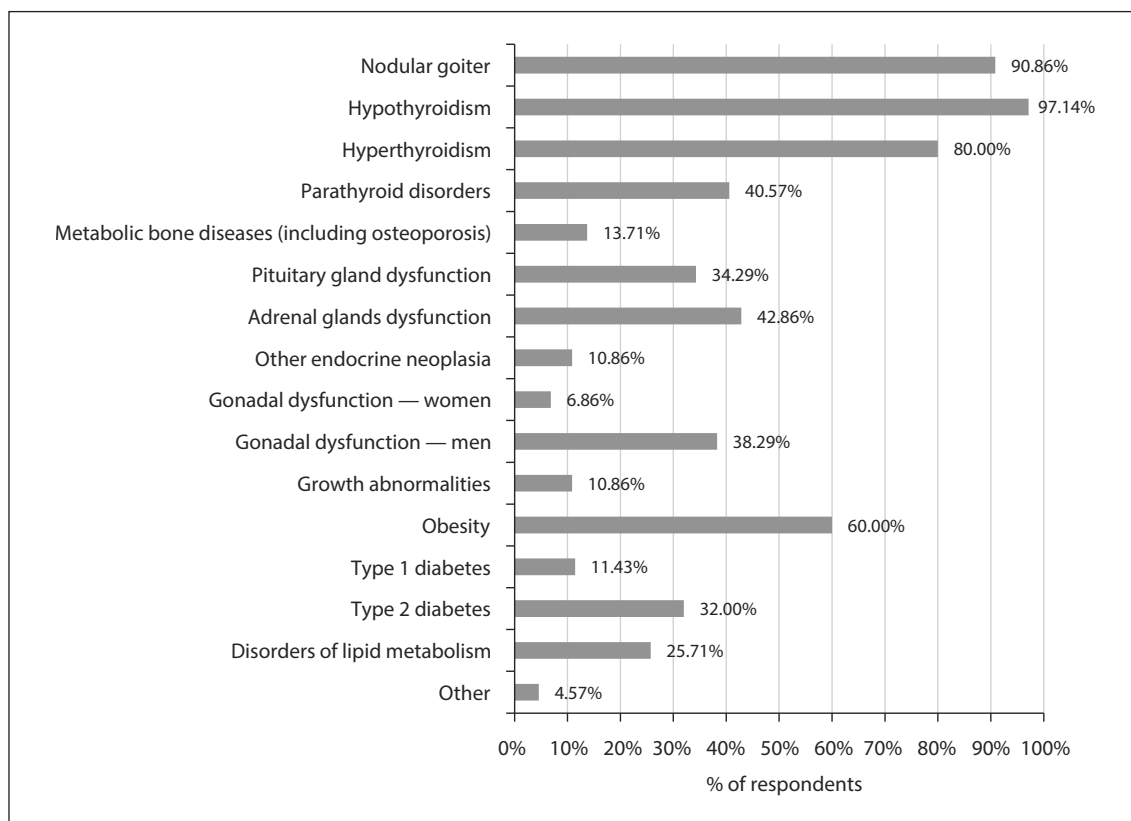


Figure 2. Endocrine conditions treated by respondents within the last 6 months ($n = 175$ respondents answered this question correctly)

(70% — definitely yes and 25% — rather yes). It was “difficult to say” for 2.5% of the respondents, while 2% and 0.5% of respondents answered “rather no” or “definitely no”, respectively.

The financial conditions of the respondents’ household was good. 22% of them assessed the financial situation of their household as average, 52% — as good, 25% — as very good, and 1% — as poor (Fig. 4).

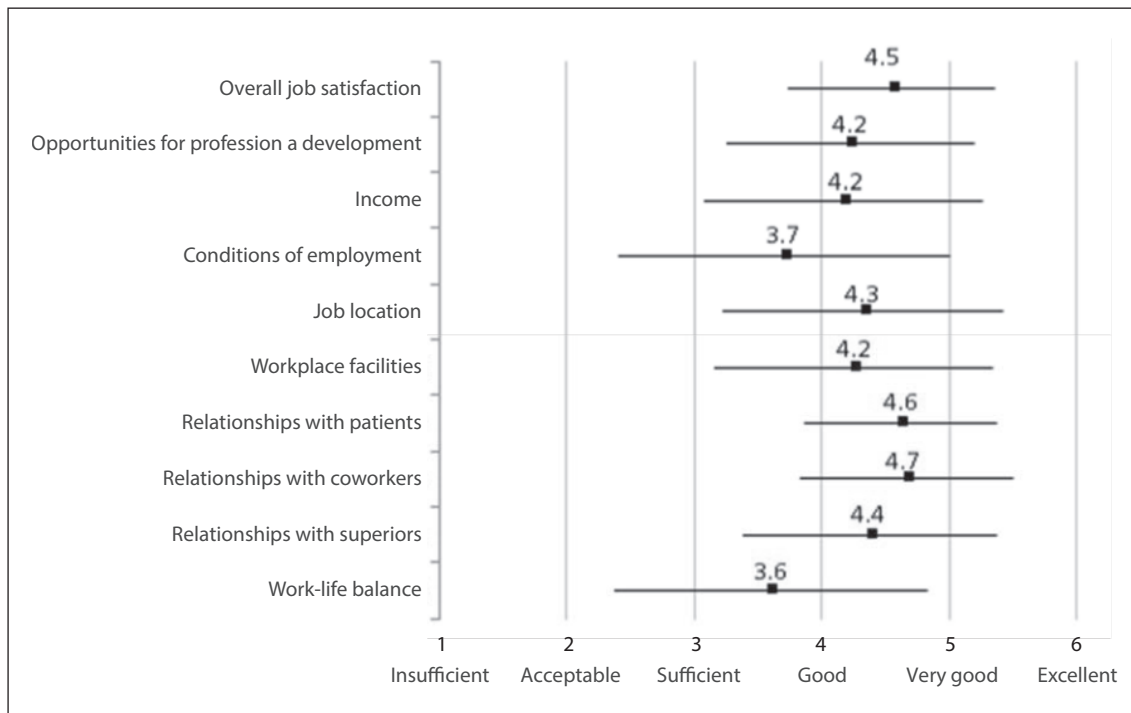


Figure 3. Assessment of different aspects of work as an endocrinologist. Results presented as mean (M) \pm standard deviation (SD)

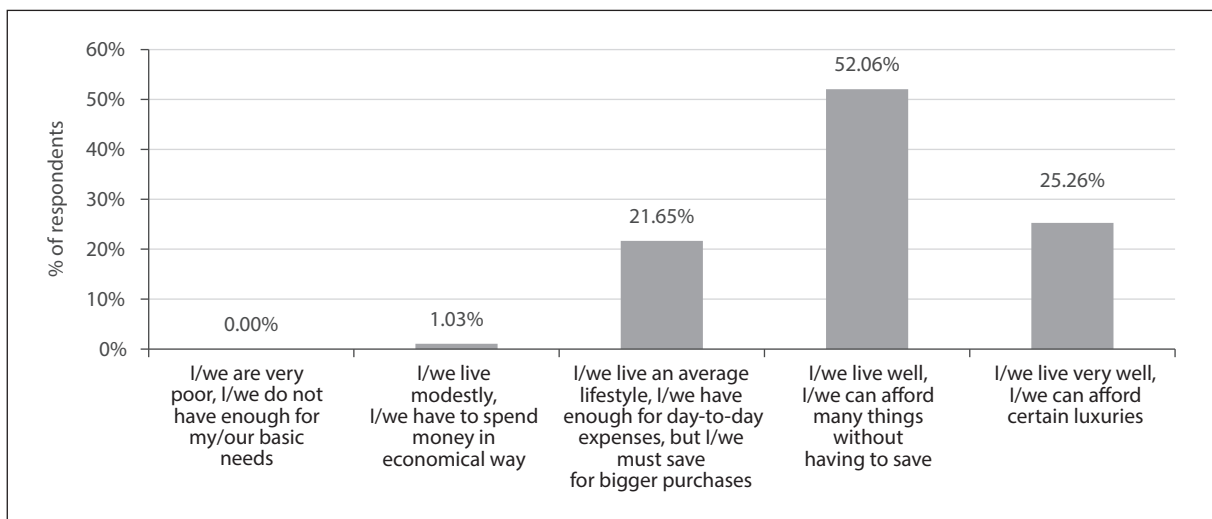


Figure 4. Assessment of the respondents' household financial situation ($n = 194$ respondents answered this question)

Most respondents declared their monthly average net income related to their work as a doctor to exceed 12 thousand PLN (Fig. 5).

Career plans

When asked about their career plans for the coming year, the respondents most commonly (49%) declared that they were not planning to change anything, 28% of the respondents planned to limit the number of hours spent at work without changing their workplace. Only

4% of the respondents planned to increase the number of working hours without changing their workplace, 2% wanted to change the workplace, 9% wanted to find an extra job, and 7% wanted to retire.

The respondents predicted fully retiring from work as a medical doctor at the age of 50–85 years, 69.3 ± 5.7 years on average. 71% of the respondents planned to limit the time devoted to work before retiring. The age at which they planned to limit their working hours ranged from 35 to 80 years old, 60.2 ± 8.3 years old on average.

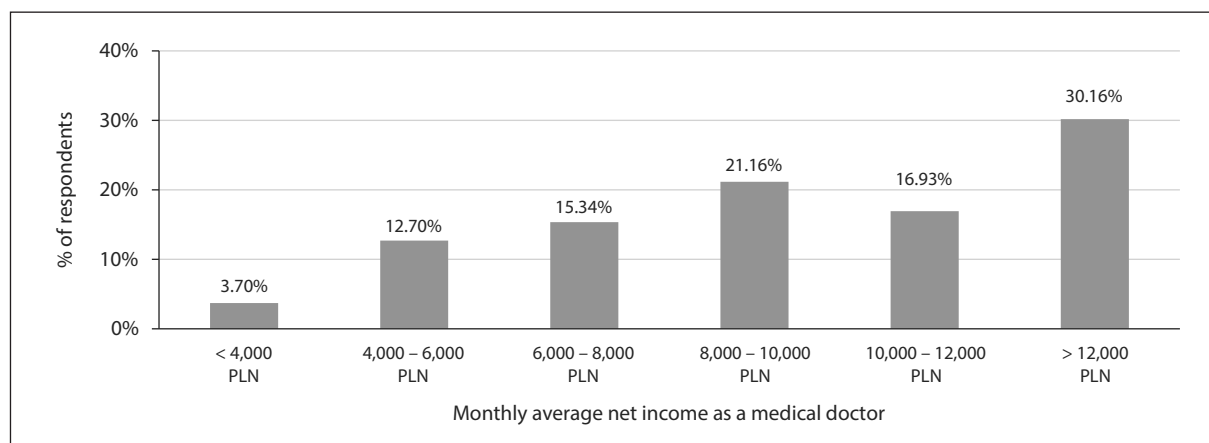


Figure 5. Respondents' monthly average net income as a medical doctor ($n = 189$ respondents answered this question). PLN — Polish zloty - exchange rate as of 31.12.2018, 1 euro (EUR) = 4.30 PLN

Discussion

The predominance of women among the surveyed physicians specialising in endocrinology may be due not only to the overall predominance of women among physicians in Poland (in 2021, the proportion of women among all physicians was 58.5%, and this was another year of increase in this percentage) [5], but also to better results on average obtained in examinations than men, as well as the generally observed preference of women towards nonsurgical specialisations. The results obtained are consistent with those presented in a study from Taiwan [7] and, to some extent, with those from the US — although men currently make up the majority of endocrinologists in the US, these proportions are projected to reverse within a few years, with a gradual increase in the predominance of women. In view of the feminisation of endocrinology, it seems important to understand the strengths and challenges specific to female physicians [8], as well as possible limitations on the path of professional development [9].

The age of the surveyed endocrinologists did not differ from the average age of medical doctors in Poland, which was 49.5 years [10], and it was similar to that of endocrinology specialists in the United States [3] and Taiwan [7].

In the vast majority of cases, the surveyed endocrinologists in Poland worked in more than one place, most often combining work in public and private health care. This converges with the results of studies conducted among other doctors in Poland [11] and is mainly due to the relatively low number of doctors in Poland, which is 3.3 practising doctors per 1000 population [12].

The average weekly working time for respondents was 45 hours, which was slightly below the maximum weekly working time of a doctor in Poland, which, including overtime or medical on-call time, cannot

exceed 48 hours [13]. Such a high workload is an important risk factor for professional burnout, which is a significant problem among endocrinologists, e.g. in the United States [14]. The time devoted to work by endocrinologists in Poland was similar to that of American endocrinologists. Unlike in the US, no differences in working time were observed between female doctors and male doctors in Poland [15]. However, significant differences were identified in the composition of time spent at work — endocrinologists in the US spend less time on administrative activities and have much more time to study and do research [15]. This may result in a lack of time among Polish endocrinologists to improve their professional qualifications. A reduction of the administrative workload placed upon endocrinologists in Poland would probably be helpful.

Those who practise endocrinology have relatively high job satisfaction, which is higher compared to other doctors in Poland [16]. Endocrinologists in our study allocated high value to professional relationships with co-workers, patients, and superiors, which may indicate that relations with others are crucial for the work environment. Relatively low ratings of satisfaction with work-life balance and conditions of employment show potential areas to change. Vast majority of respondents would choose the same medical specialty again, which shows that the advantages outweigh the disadvantages. In comparable studies performed in the United States the answers obtained in the above categories were similar [17].

The respondent's perception of the household's financial situation were generally good, with monthly average net income well above the average salary in Poland [18]. However, with frequent work in several locations, the high wages are not surprising. The salaries of endocrinologists in Poland are generally lower

compared to other developed countries, which is in line with lower average wage levels [19].

When asked about their career plans, most of the endocrinologists surveyed replied that they did not plan to change anything in the professional aspect. Most of them plan to work until the age of 70 years, i.e. after reaching retirement age, which in Poland is 60 years for women and 65 years for men. These results mirror data on the duration of doctors' professional activity in Poland, indicating a high level of professional activity not only up to the age of 70 years but also beyond [5]. The continuation of work by doctors after reaching retirement age is not specific to Poland [20]. However, declarations to limit working hours with advancing age is a clear signal to decision-makers to take action to increase the number of endocrinology specialists. This need is particularly urgent given the gradual entry into retirement age of the post-World War 2 baby boom generation.

To conclude, a doctor with a specialisation in endocrinology in Poland is usually a woman under the age of 50 years living in a large city. In addition to a specialisation in endocrinology, they usually have a specialisation in internal medicine and combine work in public health care with work in private care, which ensures their high financial status. In an average working week of 45 hours, they admit an average of 100 patients, spending about one-fifth of their time on administrative activities. They attend scientific conferences several times a year. Despite a heavy workload limiting their work-life balance and average employment conditions, they report relatively high job satisfaction. Although they plan to work until the age of 70 years, they intend to reduce the amount of time spent at work in their 60s at the latest.

Conclusion

Further constant monitoring of job characteristics and job satisfaction of endocrinologists in Poland is needed to improve human resources planning and management.

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Conflicts of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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