



Health care access of thyroid disease patients in Serbia during the COVID-19 pandemic

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Abstract

Purpose The aim of this study was to assess the impact of repurposing health care facilities in response to COVID-19 on the access of patients with thyroid disease to health care.

Methods This study consisted of a web-based survey. The survey was anonymous and consisted of forty questions.

Results This survey included 206 respondents. 91.3% of the respondents had health insurance through the Republic Fund of Health Insurance, 9.7% had private or both health insurances, and 3.4% did not have any health insurance. A significant proportion of respondents (60.4%) had to switch from public to private health care to reach a physician and 73.8% had to switch from public to private laboratories. For the 91.9%, this was perceived as a financial burden. Before the pandemic, 83.1% of respondents reported regular follow-up by physicians, which decreased to 44.9% during the pandemic ($p < 0.01$). 76.3% of the respondents regarded that their thyroid disease was managed optimally before the pandemic, while this figure declined to only 48% during the pandemic ($p < 0.01$).

Conclusions The COVID-19 pandemic disrupted the medical care of thyroid patients in Serbia. For the patients treated in the public health care system, access to general practice was hindered, while access to specialist care was disrupted. It led to a switch from public to private health care, which was perceived as a financial burden for almost all the respondents. However, private health care proved to be an important safety net when the public system was overwhelmed.

Keywords Pandemic · Thyroid · COVID-19 · Health care · Serbia

Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic proved to be a serious challenge to health care delivery globally. Both the number of patients needing medical care and the constraints of lockdown posed significant difficulties in accessing health care [1]. A Canadian survey of dermatology patients showed that only one-third was able to obtain in-person appointments [2]. In Poland, access to cancer diagnostic and treatment services declined during the pandemic

[3]. A retrospective study showed that the implementation of measures aimed at creating capacity for COVID-19 admissions was associated with a 60% decrease in cancer-related surgery [4]. In contrast, patients with diabetes in Singapore had unrestricted access to healthcare, medicines, and supplies [5]. Therefore, access to healthcare during the pandemic varied depending on both diagnosis and geographic location.

Data on the impact of the pandemic on services and health care of patients with thyroid diseases are scarce. Thyroid cytology reports declined drastically in 23 countries (not including Serbia) [6]. The prospective data on thyroid surgery and thyroid diagnostics in China showed a significant influence of COVID 19. The number of fine-needle aspiration biopsies (FNAB) and thyroid surgeries was significantly reduced. This was especially pronounced in the period from 25 January till 25 February when COVID 19 alert level was raised to the highest level. During this period, no FNAB or thyroid surgeries were performed [7]. An Italian study found that adaptation of the services for

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patients with thyroid cancer using telemedicine resulted in only a minor reduction (15%) of consultations compared to the previous year [8]. Another study from Italy showed that the telemedicine approach was applied to 63% of geriatric patients and that it was useful for follow-up of the outpatients [9]. A UK-based patient survey showed that during the first COVID-19 lockdown, cancellations of appointments with thyroid specialists occurred in 43.8%, although cancellations of thyroid investigations and treatments were relatively infrequent (12.9–14.1%) [10].

Data on the impact of COVID-19 on the care of patients with thyroid disease in middle-to-low-income European countries are unavailable. In Serbia, one of the government responses to the COVID-19 pandemic was the conversion of general to the COVID-19 hospitals and transfer of staff to the COVID-19 facilities.

The aim of this study was to assess the impact of repurposing health care facilities in response to COVID-19 on the access of patients with thyroid disease to health care.

Materials and methods

This survey was carried out according to the checklist for reporting results of Internet e-surveys (CHERRIES) [11]. This study consisted of a web-based survey. The target population was patients diagnosed or treated for thyroid disease. This was a convenience sample.

The survey was anonymous and fully compliant with personal data protection legislation and was approved by the Ethics Committee of the University of Belgrade, Faculty of Medicine (1322/XII-6 year 2020). Participants agreed to fill out the survey voluntarily and understood that they could abandon it at any stage if they so wished. There were no financial or other incentives for taking part in the survey.

The survey consisted of 40 questions. Demographic information consisted of seven questions, four questions were about the respondent's disease, 26 questions were about access to health care, and three questions concerned respondent's assessment of the influence of COVID-19 on healthcare access (Serbian and English translations are available as supplemental files).

The survey was conducted using standard web-based survey software (Lime survey) and was hosted on servers of the University of Belgrade, Faculty of Medicine (URL <https://upitnik.med.bg.ac.rs/index.php/834189>). During filling in the survey, responders were continuously updated on what percentage of the questionnaire was remaining. Identifiable data were not collected (e.g., name, IP address). To preserve the anonymity of the participants, cookies, IP checks, or registrations were not used. Due to data protection regulations, we were not able to prevent or detect multiple entries from the same individual.

The authors had oversight and responsibility for the collection and safeguarding of the data.

Participants were contacted through the national Serbian thyroid patient's organization (Krila u nama, English Inner Wings, www.krilaunama.org). The survey was not advertised in any other way. This was an open-type survey. Data were collected from 4th December 2020 to 18th June 2021 and concerned patients' general response to health care access.

For statistical analysis, R was used [12]. Statistical analysis was performed using the analysis of contingency tables [13, 14].

Results

This survey included 206 respondents. Serbian thyroid patients' organization has about 300 members. Invitations were by the link of the society website and by the social networks. Characteristics of the respondents are given in Table 1.

Most of the respondents had health insurance through the Republic Fund of Health Insurance (state health insurance fund) 91.3% (188/206), 9.7% (20/206) had private or both health insurances, and 3.4% (7/206) did not have any health insurance.

The majority of respondents have been treated for more than a year, and the most frequent diagnosis was Hashimoto thyroiditis and/or hypothyroidism (Table 2). Access of patients to general practitioners and specialists during COVID-19 is presented in Table 3. Access to general practitioners was easier than access to a specialist. A significant proportion of respondents (60.4%, 113/187) had to switch from public to private health care to reach a physician. Although a majority of respondents indicated that they had thyroid function tests at 3 monthly intervals or more (78%, 142/183) during the pandemic, 73.8% (135/183) respondents had to switch from public to private laboratories. For the majority (91.9%, 124/135), this was perceived as a financial burden (Fig. 1).

Before the pandemic, 83.1% (148/178) of respondents reported regular follow-up by physicians for their disease, which decreased to 44.9% (80/178) during pandemic ($p < 0.01$ for proportions). Most of the respondents (76.3%, 135/177) regarded that their thyroid disease was managed optimally before the pandemic, while this figure declined to only 48% (86/179) during the pandemic ($p < 0.01$ for proportions, Fig. 2).

Thyroid medications were available during the pandemic and most patients did not have to stop or change to alternative treatments (82%, 137/167). Three patients (1.8%, 3/167) changed the drug on their initiative, 13/167 (7.8%) on the advice of a pharmacist, and 14/167 (8.4%) on advice by a

Table 1 Characteristics of the respondents

	All (N=206)
Answered survey—count (%)	
For her/himself	191 (92.7)
For child	15 (7.3)
Sex—count (%)	
Male	13 (6.3)
Female	193 (93.7)
Age	
Mean (95%CI)	47.1 (45.4, 48.9)
Education level	
Elementary school	11 (5.4)
High school	91 (44.6)
Vocational degree	37 (18.1)
University degree	65 (31.9)
Diagnosis—count (%)	
Hypothyroidism	97 (47.7)
Hyperthyroidism	28 (14.0)
Hashimoto thyroiditis	101 (52.3)
Goitre	36 (18.1)
Thyroid cancer	11 (5.2)
Graves' orbitopathy	5 (2.4)
How long have you known about your diagnosis (years)	
Mean (95%CI)	8.0 (6.9, 9.1)
N	190
For how many years have you been treated (so far)	
Mean (95%CI)	6.6 (5.6, 7.6)
N	178
Therapy—count (%)	
Drugs	166 (81.0)
Surgery	32 (15.5)
Radioactive iodine	10 (4.9)
Supplements	8 (3.9)
Follow-up only	6 (2.9)
Glucocorticoids	2(1.0)

physician. In Serbia, the Republic Fund for Health Insurance covers the cost of thyroid drugs. However, most of the

respondents indicated that they are paying for their drugs out of their own pockets (84.7%, 150/177) before the pandemic, which did not change during the pandemic.

Most respondents (59.2%, 100/169) thought that the pandemic influenced their thyroid health care negatively and caused them a significant concern (Fig. 3).

The main source of information on the effect of the pandemic on thyroid disease for the respondents was the internet, followed by social networks and information provided by physicians (Fig. 4).

Discussion

Our data show a considerable influence of the pandemic on the treatment of patients with thyroid disease. The main problem was the lack of access to specialist care. About 50% of the respondents could not reach specialist care, and a further 30% had difficulties in accessing specialist care. The pattern of reduced access to specialist care during pandemics is also observed in other countries and specialities [10, 15–17].

Another characteristic of health care in Serbia during pandemics is the transition from public to private health providers (60.4%), both for physician access and laboratory analyses (73.8%), which posed a significant financial burden for most patients (91.9%). During the pandemic, the proportion of respondents who reported having previously regular follow-up for their thyroid disease was reduced from 83.1% to 44.9%, due to lack of access to physicians. In the opinion of the respondents, was perceived as suboptimal medical care. On the other hand, our respondents had no obstacles in obtaining thyroid drugs.

During the pandemic lockdown, increased anxiety and reduced quality of life were reported by patients with thyroid disease in the UK [10]. In our sample, we confirmed a significant degree of concern regarding medical care caused by the pandemic.

Although the main source of information for our respondents was through web searches, social networks

Table 2 Respondents' diagnosis and length of treatment

	Hashimoto thyroiditis	Hyperthyroidism	Hypothyroidism	Thyroid cancer	Goitre	Total
Diagnosis known (years)						
N (%)	99 (38.1)	26 (10)	91 (35.0)	10 (3.8)	34 (13.1)	260
Median (Q1, Q3)	5.0 (2.0, 10.5)	2.5 (1.0, 5.0)	6.0 (3.0, 13.8)	7.0 (4.2, 10.8)	5.0 (1.6, 14.2)	5.0 (2.0, 12.0)
Range	0.1–43.0	0.3–26.0	0.2–35.0	1.0–35.0	0.0–30.0	0.0–43.0
Treated for (years)						
N (%)	94 (38.1)	26 (10.5)	88 (35.6)	10 (4.0)	29 (11.7)	247
Median (Q1, Q3)	4.0 (1.6, 10.0)	2.0 (1.0, 4.0)	5.0 (2.0, 12.0)	6.5 (3.2, 8.0)	4.0 (1.0, 10.0)	4.0 (1.5, 10.0)
Range	0.0–27.0	0.1–11.0	0.1–28.0	1.0–21.0	0.5–25.0	0.0–28.0

Table 3 Ease of access to physicians by speciality

Speciality	Easy	With difficulty	Could not access	Did not need
General practice	58 (30.9) [36.9]	74 (39.4) [47.1]	25 (13.3) [15.9]	31 (16.5)
Endocrinology	35 (18.6) [21.7]	43 (22.9) [28.0]	83 (44.1) [51.6]	27 (14.4)
Nuclear medicine	10 (5.3) [28.6]	8 (4.3) [22.9]	17 (9.0) [48.6]	153 (81.4)
Thyroid surgery	4 (2.1) [13.3]	12 (6.4) [40]	14 (7.4) [46.7]	158 (84.0)

Data are presented as count (% all patients) [% of patients who needed access]. The total number of responses was 188

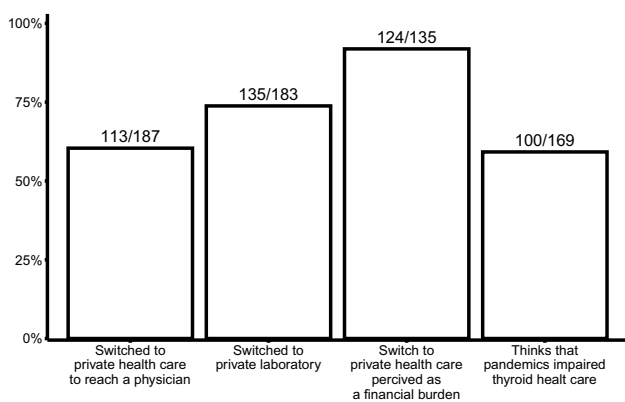


Fig. 1 Influence of pandemics in the public health care access

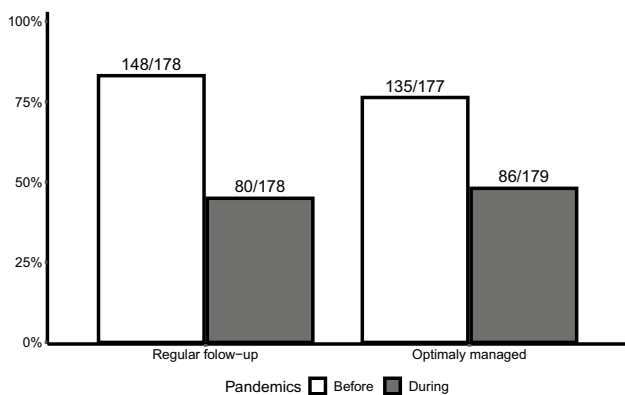


Fig. 2 Influence of pandemic on thyroid disease management

and physicians were utilized by a considerable number of patients. This shows that physicians can have a substantial influence on the information that patients receive.

Thyroid disease is the second most common component of the workload of European endocrinologists [18, 19].

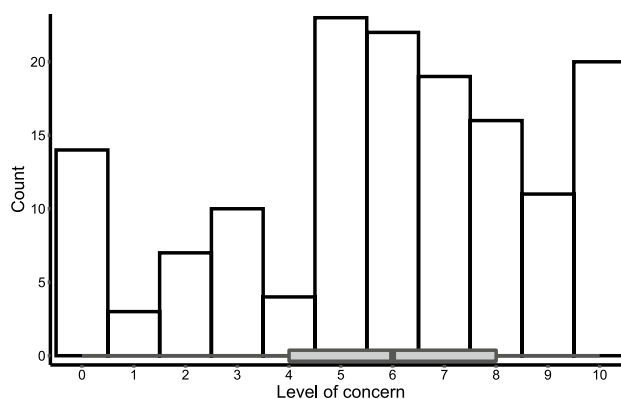


Fig. 3 Level of concern for health due to pandemics. The level of concern for the responders’ thyroid health caused by pandemics is expressed from 0—not concerned at all, to 10—panicked. The data are presented by a histogram. The shaded horizontal bar represents interquartile range and the short bold vertical line on this bar represents the median

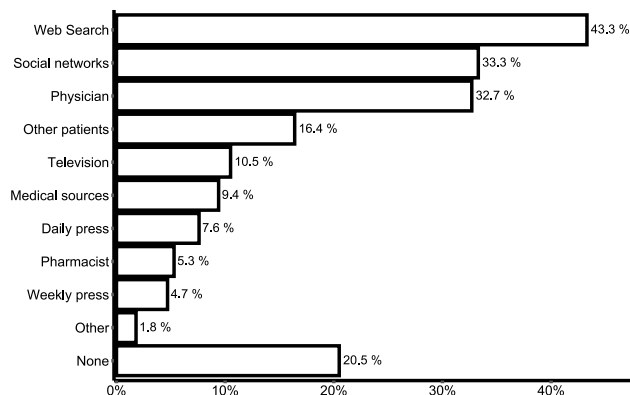


Fig. 4 Sources of information on the effect of the pandemic on thyroid disease

Therefore, it can be argued that the impact of the pandemic on health care access of patients with thyroid diseases also indirectly reflects the experience of patients with other endocrine diseases.

One of the drawbacks of this survey is that it is unclear how representative our sample was. In our sample, the proportion of responders with a level of education not higher than elementary was 5.4% compared to 34.4% reported by the Serbian Statistics Office [20]. Another notable characteristic of our sample was that majority of patients (77.5%) had already a previous diagnosis before the pandemic mostly hypothyroidism, with a treatment duration of over 6 years, and had received regular medical follow-up. This would tend to underestimate difficulties with access to health care.

In conclusion, the COVID-19 pandemic disrupted the medical care of thyroid patients in Serbia. For the patients treated in the public health care system, access to general practice was hindered, while access to specialist care was disrupted. It led to a switch from public to private health care, which was perceived as a financial burden for almost all the respondents. However, private health care proved to be an important safety net when the public system was overwhelmed.

The reported conditions and situations surely exist, to varying degrees, in many countries: therefore, the data can be instrumentalized to produce an improvement of public health care facilities and/or be used to coordinate and match public needs with the private health sector, at least in times of pandemics. This will certainly lead to more efficient management of any health crisis.

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Declarations

Conflict of interest All authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

Ethical approval The survey was anonymous and fully compliant with personal data protection legislation and was approved by the Ethics Committee of the University of Belgrade, Faculty of Medicine (1322/XII-6 year 2020).

Informed consent Participants agreed to fill out the survey voluntarily and understood that they could abandon it at any stage if they so wished. There were no financial or other incentives for taking part in the survey.

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