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Research Article

Comparison of Oncological Disease Rates in Health Board Reports Based on the National Regulations

Duygu Bayir Garbioglu,[1] Arif Garbioglu[2]

[1]Department of Medical Oncology, Zonguldak Bulent Ecevit University Faculty of Medicine, Zonguldak, Türkiye
[2]Zonguldak Forensic Medicine Branch Office, Council of Forensic Medicine, Zonguldak, Türkiye

Abstract

Objectives: We aimed to identify the demographic characteristics of oncological patients applying for a Health Board Report (HBR), the differences between the evaluation criteria in the oncology section of disability and incapability regulations and the discrepancies within the disability regulation in the field of oncology leading to potential loss of rights as well as identifying the possible interpretation differences and offering solutions to address them.

Methods: Sociodemographic data of 375 subjects who applied for a HBR between 2019 and 2023, including the reason for applying to the health board, and the oncology section score they obtained in accordance with the disability regulations is recorded.

Results: A comparison of the disability and incapability regulations showed that 11.5% of the patients experienced loss of rights in accordance with the current regulations. The oncological scores of stage 1, 2 patients increased according to the current regulations while there was a reduction in the oncological scores of stage 3 patients ($p<0.001$).

Conclusion: An update in the current regulation, considering the gaps or the aspects that might have been perceived differently by clinicans will help prevent the loss of rights for patients who apply to the Health Board due to disabilities.

Keywords: Cancer, disability, regulations, incapability

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Disability is defined by the World Health Organization (WHO) as any impairment, lack of activity or participation restrictions in social life.[1,2] Almost everyone can become temporarily or permanently disabled at some point in their life due to an accident, environmental factors or a chronic illness.[3] The WHO estimates that 1.3 billion people today – about 16% of the world's population – suffer from a serious disability.[3] According to the results of a population and housing survey conducted in Turkey in 2011, the rate of the population aged 3 years and above with at least one disability is 6.9% (4.876.000 people).[4] The number of registered and living disabled people in the national disability data system, which is based on the reports of the Disability Health Board, has been reported as 2.511.950 as of 2020.[4] Disabled people who are registered and alive in the aforementioned data system are most frequently (40.63%) in the 'chronic illness' disability group.[4] Cancers are also in the group of chronic diseases that can hinder the individual's working capacity and life functions and require continuous care and treatment. It has been reported that an estimated 19.3 million new cancer cases were diagnosed globally in 2020, and approximately 10 million deaths occurred due to cancer.[5] In Turkey, the incidence of cancer was 233.834 in the same year.[6]

Address for correspondence: Duygu Bayir Garbioglu, MD. Zonguldak Bulent Ecevit Universitesi Tip Fakultesi Tibbi Onkoloji Anabilim Dali, Zonguldak, Türkiye
Phone: +90 372 261 20 02 **E-mail:** duygubayir@hotmail.com

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The quality of life of disabled population and the quality of services provided to them are important national health indicators that play a significant role in the development of the country. Regulations have been made in tax law with the aim of facilitating the participation of disabled individuals in socioeconomic life and eliminating the inequality of competition between the disabled and the non-disabled.[7] The International Labor Organization reports that people with severe or mild disabilities make up 15% of the world's population, and about 4 out of 5 of them are of active working age.[8] In Turkey, according to Article 30 of the Law No. 4857 on Labor, employers are obliged to employ disabled workers in their workplaces. Under this law, disabled individudals to be employed must be at least 14 years old and provide a HBR certifying a disability of at least 40%.[9] According to a population and housing survey, the employment rate of the disabled in Turkey is 22.1%.[10] Thanks to the employment policy provided for disabled individuals in the light of legal regulations, their participation in workforce will enable them to benefit from insurance coverage, which will lead to a reduction in the social aids and services provided to disabled individuals from the social security budget.[9]

In Turkey, individuals apply to the Health Board to access health and social rights such as home care payment, care services, disability pension, pension for a relative of the disabled, employment quota for the disabled, free travel, retirement, tax reductions or exemptions.[4,11] Until February 20, 2019, Health Board assessment was based on the provisions and attachments of the Regulation on Disability Criteria, Classification and Health Board Reports for Disabled Individuals published in the Official Gazette no. 28603 dated 30.03.2013, however in the current practice, it is calculated according to the provisions and attachments of the Regulation on Disability Assessment for Adults published in the Official Gazette no. 30692 dated 20.02.2019.

A literature review showed studies providing an overall review of the Health Board applications[11–13] as well as studies focusing on neurological diseases,[14] rheumatologic diseases,[15] psychiatric diseases,[16] and locomotor system diseases.[17] Additionally, there are articles focusing on Health Board applications for geriatric population[18] and childhood.[19] However, there is no study in the literature examining the Health Board applications of oncology patients. Due to absence of research on this topic, we aimed to determine the demographic characteristics of oncologic patients applying for a HBR, differences between disability regulation and incapability regulation assessment criteria in the oncology section, and the discrepancies within the disability regulation in the field of oncology, leading to potential loss of rights as well as identifying possible interpretation differences and offering solutions to address these issues.

Methods

This study was conducted in compliance with the ethical principles of the Declaration of Helsinki, and approved by the Local Ethics Committee.

In this retrospective study, we retrieved and analyzed the records of 791 patients who presented to the Zonguldak Bülent Ecevit University Faculty of Medicine Hospital between 2019 and 2023 to obtain a HBR and were evaluated in the Medical Oncology outpatient clinic. Patients under 18 years of age, patients with repeated visits, patients with two or more independent malignancies, those applying for status determination and those applying for disability retirement were excluded. A total of 375 patients who met the inclusion criteria were analyzed.

Sociodemographic data of the patients such as age and gender, along with the year of the HBR, the reason for applying to the Health Board, tumor site, tumor stage, and the oncology section score they obtained according to the Regulation on Disability Evaluation for Adults, were recorded. We also calculated the oncology section score of the same patients according to the Regulation on Disability Measurement, Classification and Health Board Reports for the Disabled as well as the difference in score compared to the disability regulation and entered them into the database.

Descriptive statistics for continuous data were presented as mean±standard deviation, median, minimum, maximum, minimum, maximum values, while number and percentage values were provided for discrete data. The normal distribution of continuous data was assessed using the Shapiro-Wilk test. Group comparisons of nominal variables were made using the Chi-Square/Fisher's Exact test (for cross tabulations).

Statistical analysis of the study was performed using the Statistical Package for Social Sciences (SPSS) version 22.0 software (IBM Corp., Armonk, NY, USA). A p value of <0.05 was considered statistically significant.

Results

Of 375 patients included in the study, 209 (55.7%) were female and 166 (44.3%) were male. The mean age of patients was 60.14±13.35 years, with the youngest being 23 years-old, and the oldest being 90 years-old. The most common three cancers in the study population were breast cancer (n=114, 30.4%), lung cancer (n=63, 16.8%) and colon cancer (n= 57, 15.2%), respectively. More than one third of the patients had stage 2 disease at the time of diagnosis (n=135, 36.0%) (The patient characteristics are summarized in Table 1).

Table 1. Patient characteristics

n=375	Mean±SD Median (Min-Max)	
Age (years)	60.14±13.35 60.00 (23-90)	
	n	**%**
Gender		
Female	209	55.7
Male	166	44.3
Oncologic Diagnosis		
Breast cancer	114	30.4
Lung cancer	63	16.8
Colorectal cancer	57	15.2
Stomach cancer	29	7.7
Gynecologic cancers	27	7.2
Head-neck cancers	17	4.5
Prostate cancer	13	3.5
Pancreatic cancer	12	3.2
Central nervous system cancers	9	2.4
Testicular cancer	9	2.4
Bladder cancer	8	2.1
Other cancers	17	4.6
Disease stage at diagnosis		
Stage 1	42	11.2
Stage 2	135	36
Stage 3	103	27.5
Stage 4	95	25.3

Table 2. Health Board Assesment of Patient Characteristics

	n	%
Disease stage during submission to Health Board		
Stage 1	40	10.7
Stage 2	127	33.9
Stage 3	82	21.9
Stage 4	126	33.6
Remission status		
In-remission	186	49.6
Not in-remission	189	50.4
Reason for Applying to Health Board		
Benefit from disability rights	49	13.1
Benefit from SCT exemption	121	32.3
Benefit from tax reduction	44	11.7
Benefit from social care rights	161	42.9
Distribution of Health Board applications by year		
2019	76	20.3
2020	126	33.6
2021	38	10.1
2022	70	18.7
2023	65	17.3
Rate change based on the regulation		
Those with an increased rate	133	35.5
Those with a decreased rate	43	11.5
Those with no change	199	53.1
Loss of rights due to update in regulation		
Those with loss of rights	43	11.5
Those with no loss of rights	331	88.5

An analysis of the distribution of Health Board applications by year showed that the number of applications was the highest in 2020 (n=126, 33.6%). Based on the analysis of the distribution of disease stages at the time of the health board application, the two most common disease stages were stage 2 (n=127, 33.9%) and stage 4 (n=126, 33.6%), respectively. 50.4% of the patients were not in remission. The most common reason for appplying to the Health Board was to benefit from social care rights (n=161, 42.9%).

The average disability rate for oncological diseases according to the disability regulation was 65.0±16.5 (min: 40, max: 80), while the average incapability rate for oncological disease was 56.9±28.86 (min: 20, max: 80). When the rates calculated according to the regulations are considered; there was no change in 53.1% of patients, while it was increased in 35.5% of patients, and decreased in 11.5% of patients. In this regard, a comparison of the two regulations showed that 11.5% of the patients suffered a loss of rights according to the current regulation (The results are summarized in Table 2).

When Health Board applications are examined in terms of stage and tumor sites, the most frequent applications were related with stage 2 breast cancer (The distribution of tumor sites by stage is shown in Figure 1).

An analysis of the reasons for applying to the Health Board by stage showed that except for stage 1, the most common reason for application was to benefit from social care rights. In stage 1, the most common reason was to benefit from disability rights (Reasons for applying to Health Board by stage is shown in Figure 2).

When the differences in rates between the regulations are analysed by stage; there was an increase in the oncology scores of stage 1 and stage 2 patients when evaluated according to the current regulations compared to the previous regulation, while there was a decrease in the oncology scores of Stage 3 patients ($p<0.001$). It appears that stage 3 patients experienced a proportional loss of rights under current regulations compared to the previous one ($p<0.001$) (Table 3).

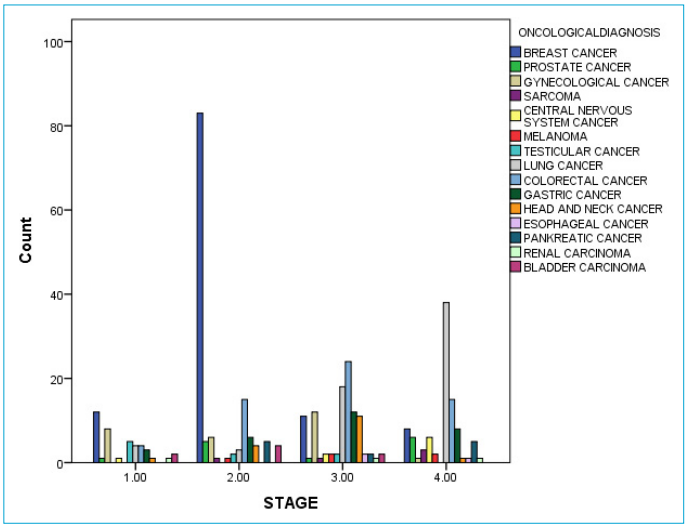

Figure 1. Distribuiton of patients' tumor sites by stage.

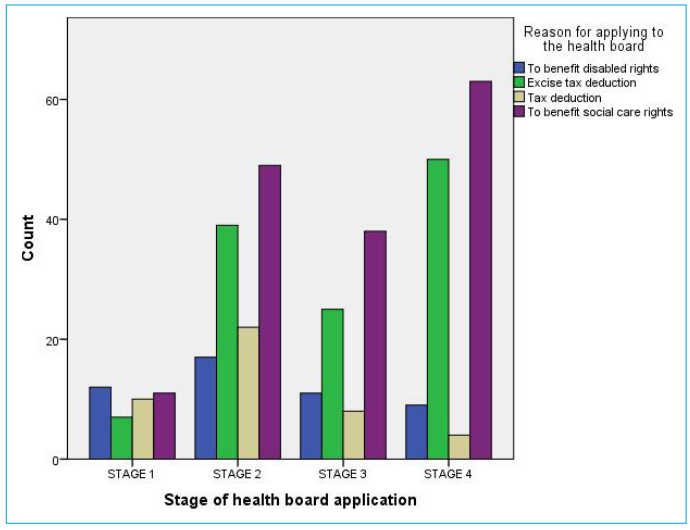

Figure 2. Change in stage by reason for applying to Health Board.

Discussion

The mean age of patients was 60.14±13.35 years, with the youngest being 23 years-old, and the oldest being 90 years-old. When compared to other studies evaluating the Health Board applications; the mean age was 33.18±26.63 years in a study by Baltaci et al.;[12] 49.6±26 years in a study by Terzi and Altin;[17] 36.97±25.76 years in a study by Cem et al.;[13] 77.62±7.74 years by a study Koca et al.;[18] and 38.24±15.07 years in a study by Yildiz et al.[16] The differences between our study and the literature may be attributed to the selection of the study population.

When we examined the distribution of patients by gender, the female-to-male ratio was 1.25. Studies that included all age groups have reported a higher incidence of disability in men compared to women.[13,20] Given that women often have a greater need for social rights, we might have had a higher proportion of women when compared to general population data.

An analysis of the patients by their tumor site showed that the most common diagnosis for women was breast cancer (n=114, 30.4%), while it was lung cancer for men (n=63, 16.8%). There was no comprehensive study specifically evaluating the diagnoses of oncology patients applying to the Health Board. Typically, studies tend to focus on the prevalance of disability within the general population. A study conducted by Benli et al. reported that among patients applying to the Health Board, the most common disabilities involved the musculoskeletal system (n=976, 37.0%), while the least (n=8, 0.3%) involved disabilities related to gynecological conditions, and 1.4% of patients (n=37) had oncological diseases.[11] In a study examining those who applied to the Incapability Health Board in Malatya in 2015, most of the applications was made to the pediatric psychia-

Table 3. Differences in rate based on the regulation by stage

	Stage 1		Stage 2		Stage 3		Stage 4		p
	n	%	n	%	n	%	n	%	
Loss of right status due to change in regulation									
Those with loss of rights	0	0	0	0	40	48.7	0	0	0.001*
Those with no loss of rights	40	100.0	40	100.0	42	51.3	126	100.0	
Change in rate due to change in regulation									
Those with increased rate	37	92.5	96	75.5	0	0	0	0	0.001*
Those with decreased rate	0	0	3	2.5	40	48.7	0	0	
Those with no change	3	7.5	28	22.0	42	51.3	126	100.0	
Gender									
Female	27	67.5	95	74.8	35	42.6	52	41.2	0.001*
Male	13	32.5	32	25.2	47	57.4	74	58.4	

*: Chi-Square Test/Fisher's Exact Test.

try department (n=665, 29.7%) and 6.6% (n=149) was for medical oncology department.[12] Another study focusing on the Health Board applications of the geriatric population reported that 4.9% of patients (n=34) had oncological diseases; oncological diseases were significantly more common in men than in women; and among patients with cancer that represented the highest disability rate, colon, lung and breast cancers were the most common.[18] In the present study, the high number of applications for stage 2 cancer can be attributed to the widespread implementation and establishment of early screening programs for breast cancer, which allows detection of breast cancers in early stage.

The current legal regulations in Turkey aim to enhance the participation of disabled individuals in production and social life. This resulted in an increase in the number of applications to hospitals for Health Board reports covering information about their disability and health status, the social rights they can benefit from and the sectors they cannot be employed.[18] It is believed that the factors contributing to the increase in requests for disability reports include the diagnosis made during an individual's active working life, the disease itself and intense treatments they receive, and often the progessive nature of the disease.

According to the current regulations in Turkey, disabled individuals can apply to Health Boards with various requests in order to benefit from health and social rights. Individuals with a disability rate of 40% or higher have different rights based on their disability rate and severity and duration of their condition. In Turkey, the number of people entitled to have home care benefit has increased approximately 19.9 times in 2023 compared to 2007. Twenty two percent of those who are entitled to have home care benefits are reported to have chronic ilnesses.[4] In a study by Yildiz et al., the most common reason for application was to receive disability benefit and have access to social aid/home care services.[16] In the present study, an analysis of reasons for Health Board applications by stage showed that the most common reason was to benefit from social care rights, followed by taking advantage of the exemption from special consumption tax (SCT). In Turkey, individuals with a disability rate of 90% or higher are exempt from SCT when they purchase a vehicle.[21]

Despite the fact that the tumor classification in the oncology section of the guidelines for disability areas included in the Annex of the Regulation on Disability Assessment for Adults, published in the Official Gazzette no. 30692 dated 20.02.2019 used for Health Board applications is more comprehensive than in the disability rate chart included in the annex of the incapability regulation, the subtitles under the oncology section may still lead to contradictions among themselves. When evaluating tumors based on stage; the remission process of stage 3 cancer is difficult to interpret for clinicians as it is not detailed enough. The scoring for this patient group during the remission process was lower than the scoring for stages 1-2 (up to the 5 year after remission), which suggests a scoring error in stage 3 cancer, where the estimated survival is lower. Furthermore, having similar scores in patients with stages 1-2 and stages 3-4 at 5 years after remission raises another point of discussion. An analysis of the differences in disability rate between the regulations by stage taking this fact into consideration showed that there was a significant increase in the oncology scores of stage 1 and stage 2 patients when evaluated according to the current regulation compared to the previous regulation, while there was a decrease in the oncology scores of stage 3 patients. Therefore, it appears that stage 3 patients experience a loss of rights by the current regulation compared to the previous regulation.

While the disability regulations are updated to comprehensively address the situations encountered in practice with the developments in medical science day by day, it still has shortcomings. Developing an updated regulation by taking into account the deficiencies or aspects that may be interpreted differently by clinicians will help prevent the loss of rights for patients applying to the Health Board for disability.

Issuing HBR for individuals with disabilities is a common practice for medical oncology professionals in hospitals. Therefore, we believe that the present study will increase the awareness of both subspeciality residents and specialists about the relevant legistation.

In Turkey, with this recent update in the disability regulation of cancer patients, there may be differences in interpretation among clinicans when determining disability rates, therefore further comprehensive studies involving different centers focusing on this issue would be beneficial for achieving standardization in practice.

The prolonged life expectancy as a result of the rapidly advancing treatment options in the field of medical oncology combined with socioeconomic and psychological disorders and environmental problems points to an increase in the number of disabled individuals in the future. Consequently, this situation will generate pscyhosocial, physical and economic problems within society. Therefore, in the light of studies to be carried out, efforts should be directed to prevent disability with a focus on the desires of disabled individuals, ensuring the participation of disabled individuals in society, and addressing issues related to their rehabilitation, care, education, health, employment and social rights.

Disclosures

Ethics Committee Approval: This study was conducted in compliance with the ethical principles of the Declaration of Helsinki, and approved by the Local Ethics Committee.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Authorship Contributions: Concept – D.B.G., A.G.; Design – D.B.G., A.G.; Supervision – D.B.G.; Materials – D.B.G., A.G.; Data collection &/or processing – D.B.G, A.G.; Analysis and/or interpretation – D.B.G., A.G.; Literature search – D.B.G., A.G.; Writing – D.B.G., A.G.; Critical review – D.B.G., A.G.

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