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**UNIVERSITÄT
BERN**

Faculty of Medicine
Institute of Medical Education
Assessment and Evaluation Unit

Report on the ESMO Examination 2023 in Medical Oncology

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1. Introduction

This report was prepared by the Institute of Medical Education, University of Bern, Switzerland. The 2023 examination in Medical Oncology conducted by the European Society for Medical Oncology (ESMO) took place on October 21st, 2023, in the locations Athens, Baghdad, Biratnagar, Cairo, Chennai, Heidelberg, Istanbul, Ljubljana, Madrid, Milan, Moscow, Paris and Thun. 748 candidates participated in this examination, which consisted of 100 multiple choice questions written in English, French, Slovenian and Spanish.

2. Method

2.1 Candidates

748 candidates participated in the examination: 13 in Athens, 5 in Baghdad, 8 in Biratnagar, 17 in Cairo, 155 in Chennai, 26 in Heidelberg, 71 in Istanbul, 10 in Ljubljana, 269 in Madrid, 24 in Milan, 43 in Moscow, 83 in Paris and 24 in Thun.

2.2 Format

The examination 2023 was composed of 100 multiple choice questions: 75 type A questions (single choice), and 25 type K' questions (quadruple correct/incorrect decision).

3. Performance of measurement

The diagrams on page 7 give an overview of the psychometric properties of the examination for the group of Western European. This group was chosen for the keyvalidation and the pass/fail limit. The upper diagram shows the distribution of the items in terms of difficulty, the diagram underneath in terms of the discrimination index. At the bottom of this page the reliability (Cronbach's Alpha = 0.83), and the standard error of measurement (3.9) are given. The reliability for the total group is 0.87, the standard error of measurement is 3.9.

4. Results

4.1 Score distribution

The score distribution is shown on page 8. On average, candidates answered correctly to 62.1% (2022: 60.7%) of the questions, with a standard deviation of 10.9% (2022: 11.8%).

4.2 Passing score

On November 28, 2023, the ESMO Examination Working Group discussed the questions which displayed statistical deviations. For content reasons, one A questions was eliminated from the evaluation. Therefore, 99 questions remained in the analysis and final evaluation of each candidate.

After psychometric analysis of the difficulty of the examination, analysis of the Rasch model, as well as the difference between mean and pass/fail limit in the last years, the Examination Working Group decided to set the pass/fail limit at 54.5% correct answers (2022: 53.2%), in order to keep the passing requirement fair and comparable to previous years.

578 attendees (77.3%) passed the examination, and 170 attendees (22.7%) failed the examination (2022: 77.4% passed and 22.6% failed).

4.3 Detailed analyses

From page 9 on, the score distributions for the different locations of the examination are given. The score distributions in percent are shown in the following table.

Location	n	Mean %	SD %	success %
Athens	13	66.0	6.1	100.0
Baghdad	5	48.7	17.1	60.0
Biratnagar	8	42.2	8.4	0.0
Cairo	17	56.4	10.1	58.8
Chennai	155	61.3	11.0	75.5
Heidelberg	26	61.5	10.7	69.2
Istanbul	71	65.0	8.0	87.3
Ljubljana	10	75.5	6.1	100.0
Madrid	269	63.5	10.1	82.9
Milan	24	63.4	11.1	70.8
Moscow	43	51.8	10.1	37.2
Paris	83	62.6	10.1	81.9
Thun	24	64.9	11.1	87.5
Total	748	62.1	10.9	77.3

The candidates were then grouped into 5 regions according to the address given upon inscription. The countries with the largest numbers of attendees were rated separately. In comparison to the year 2022, there were more candidates from Germany & Switzerland, India, Spain & Portugal and other countries. Candidates from Switzerland and Germany were rated together, as well as candidates from Spain and Portugal. These score distributions are shown on page 12. The score distributions in percent are shown in the following table.

Region	n	Mean %	SD %	success %
Egypt	18	57.9	10.7	66.7
Germany and Switzerland	60	64.5	10.6	80.0
India	155	61.6	10.9	77.4
Spain and Portugal	78	64.7	8.1	91.0
Other countries	437	61.7	11.2	74.8
Total	748	62.1	10.9	77.3

The blueprint analyses are shown on pages 13 and 14. On the graph concerning blueprint 1, it can be seen that candidates had more difficulties answering questions on “Endocrine cancers” than questions on “Gynecologic malignancies” or “Sarcomas”.

For the graph concerning blueprint 2, a further example shows that questions on “Screening and prevention” were answered correctly more often than those on “Other issues” and “Epidemiology, Etiology, Clinical research”. However, this does not allow conclusion on the origin of these differences: The attendees could have performed better in some fields, or the questions were more difficult. Comparisons are also difficult because some fields are represented by few questions (e.g. “Central nervous system malignancies”, “Sarcomas”, “Endocrine cancers” are represented by 1-3 items).

The graphs on page 15 show the expected as well as the true values for each field in blueprint 1, separated for each location. It can be seen that candidates from all different locations performed similar: They could exceed the expected values in several blueprint fields, ranging from 4 out of 13 blueprint fields in Chennai and Paris to 9 out of 13 in Moscow. Candidates from the other locations lie in between.

4.4 Differentiated feedback to the individual candidate

Feedback letters with their individual results detailed according to blueprint 1 were given to all candidates. An example of such a feedback letter is given on page 16.

5. Summary

748 candidates participated in the 2023 written examination in Medical Oncology by the European Society for Medical Oncology, in Athens, Baghdad, Biratnagar, Cairo, Chennai, Heidelberg, Istanbul, Ljubljana, Madrid, Milan, Moscow, Paris and Thun.

The exam consisted of 100 multiple choice questions, one item had to be eliminated from the evaluation. The exam shows a reliability of 0.87 (Cronbach's Alpha).

On average, candidates answered correctly to 62.1% of the questions, with a standard deviation of 10.9%.

The pass/fail limit was set at 54.5%. 578 (77.3%) candidates passed the examination.

The next examination will be held on Saturday, 14th September 2024.

Difficulty distribution, Difficulty/discrimination index diagram of Western European

ESMO

21.10.2023
Western_EU

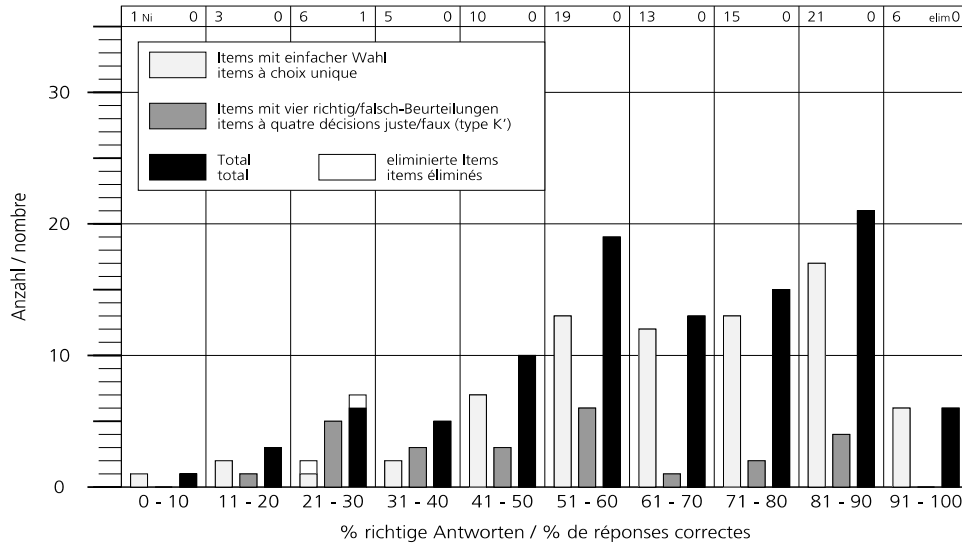
Examination in Medical Oncology

Schwierigkeitsverteilung

Distribution de difficulté

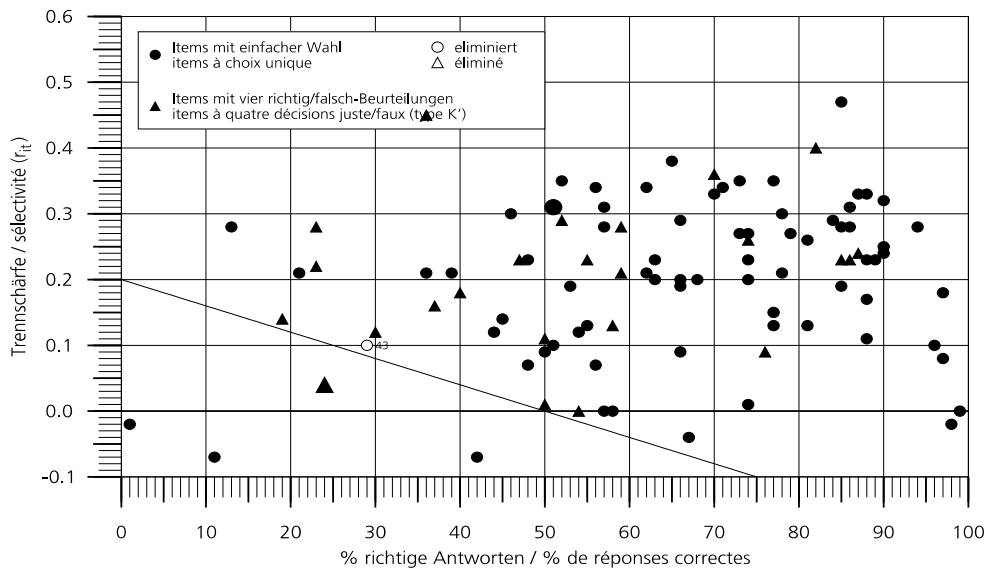
K' Halbpunktbewertung

K' évaluation à demi-points



Schwierigkeits-/Trennschärfediagramm

Diagramme difficulté/sélectivité



Reliabilität (CRONBACH-alpha)
auf 100 Items gerechnet
Standardmessfehler ($s_e = s_x \sqrt{1-r_{tt}}$)
auf 100 Items gerechnet

0.834
0.835
 ± 3.9
 ± 3.9

Fiabilité (r_{tt})
calculée pour 100 items
Erreur type ($s_e = s_x \sqrt{1-r_{tt}}$)
calculée pour 100 items

Score distribution total

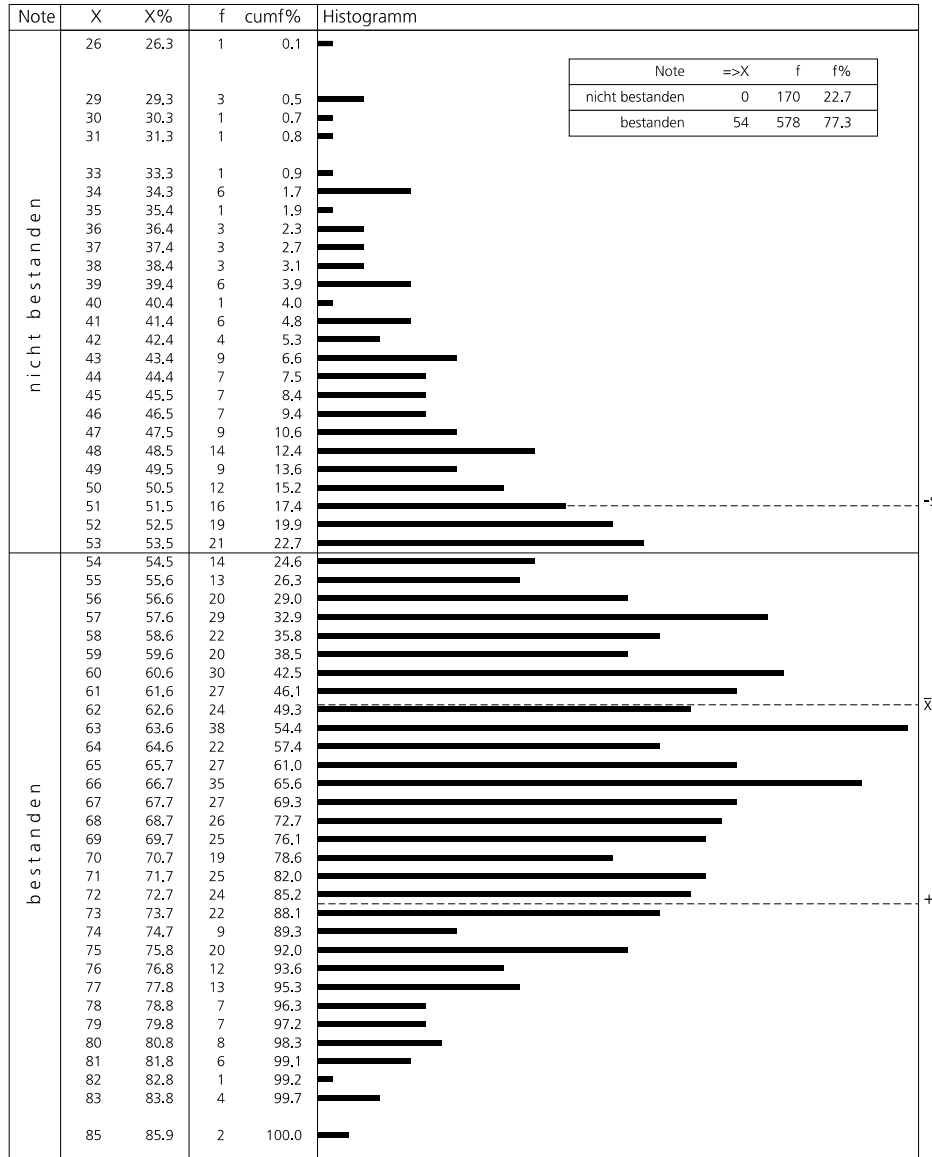
ESMO

21.10.2023
Total

Examination in Medical Oncology

Punkte- und Notenverteilung
K* Halbpunktbewertung

Répartition des points et des notes
K* évaluation à demi-points



Note	=>X	f	f%
nicht bestanden	0	170	22.7
bestanden	54	578	77.3

Anzahl KandidatInnen
mögliches Punktemaximum
Mittelwert
Standardabweichung

N_p 748
 N_i 99
 \bar{x} 61.47
 s 10.76
 $\bar{x}_{\%}$ 62.09
 $s_{\%}$ 10.87

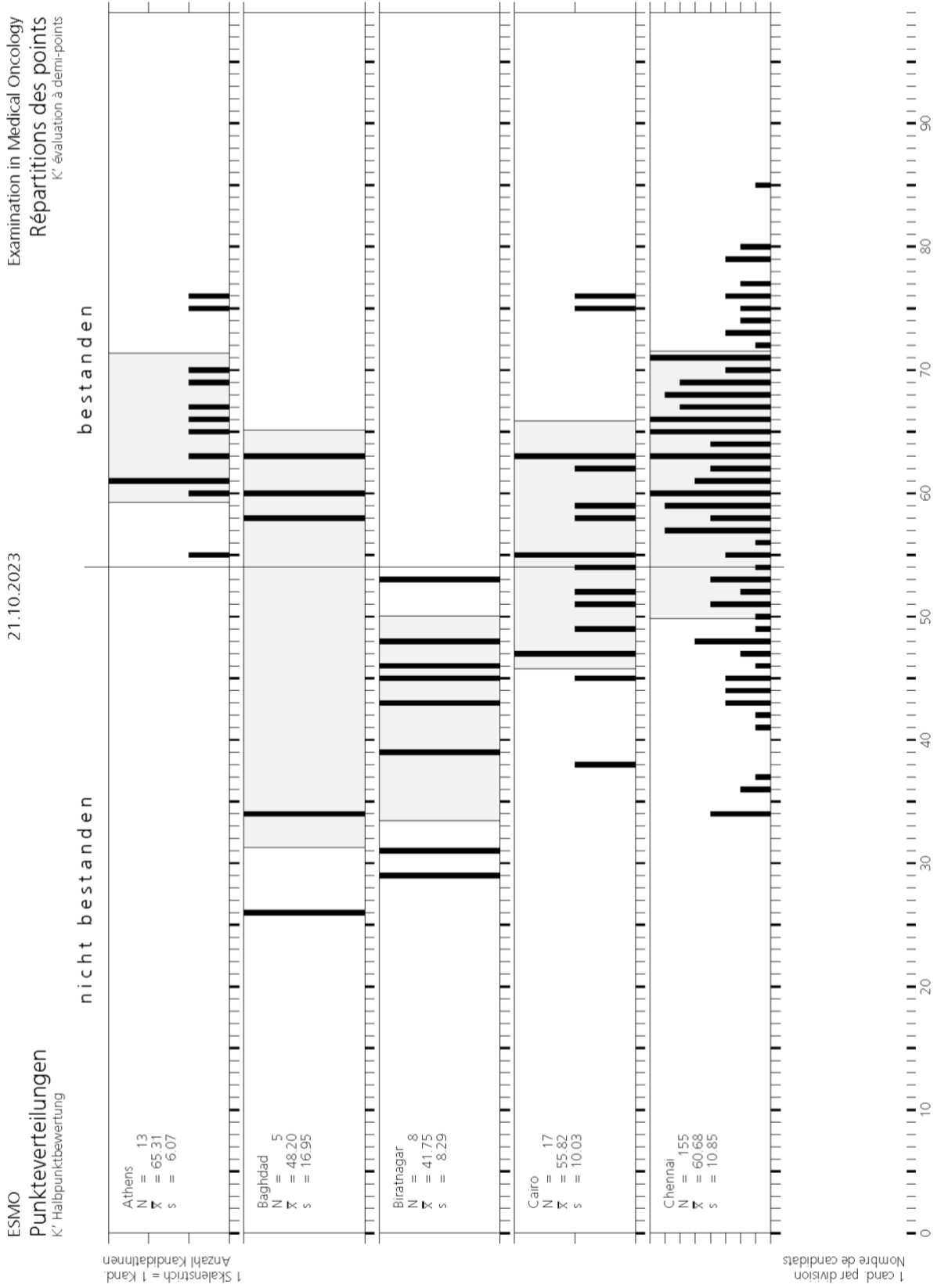
nombre de candidats
score maximum possible
moyenne
écart type

eliminierte Fragen (Nummern)

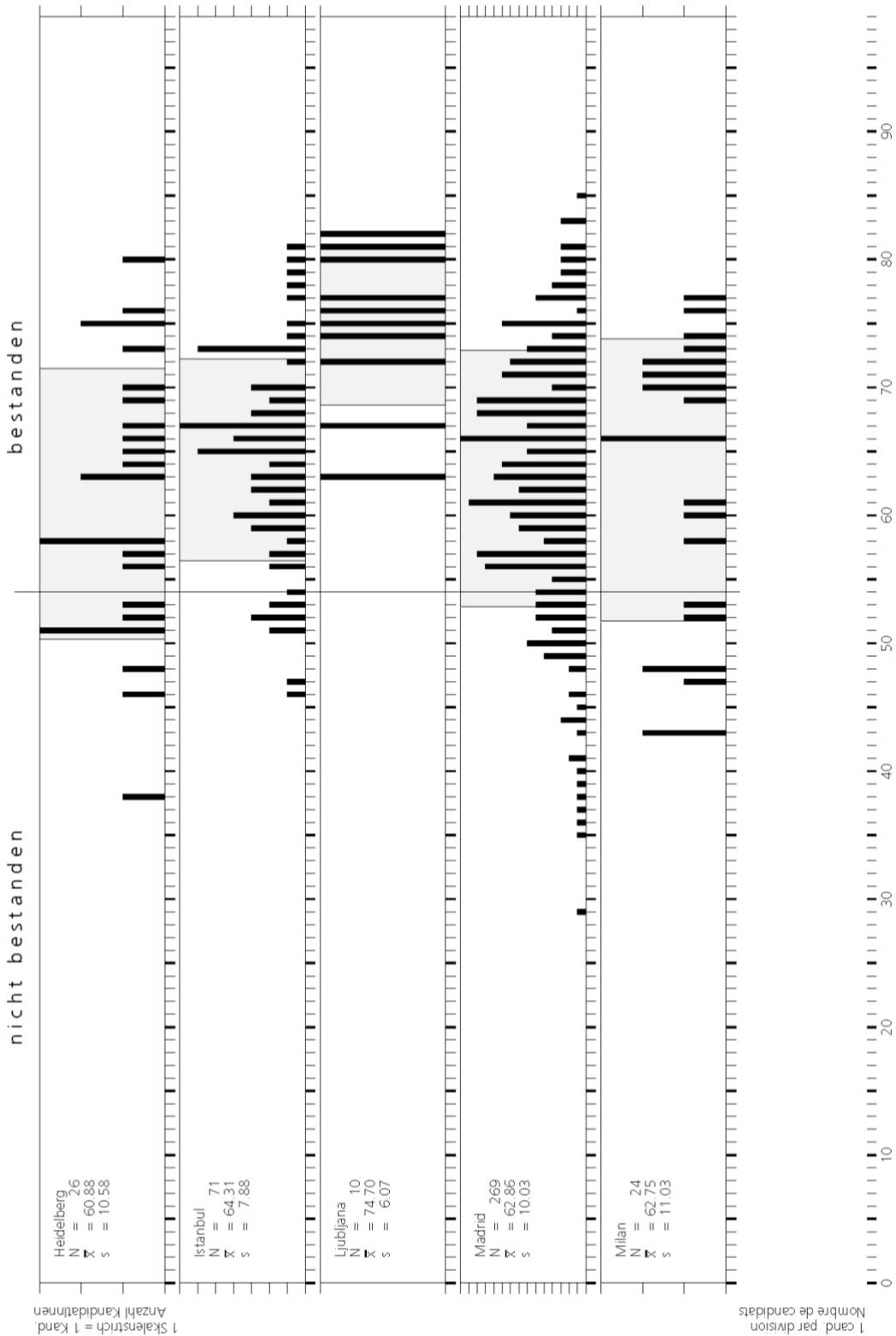
43

questions éliminées (numéros)

Score distribution (location)



21.10.2023

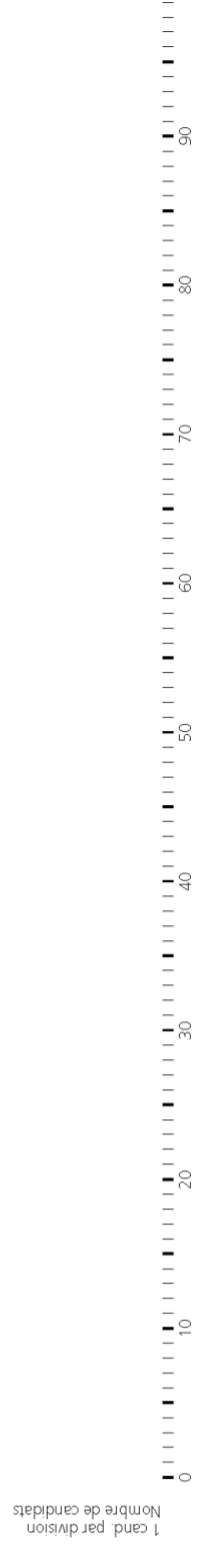
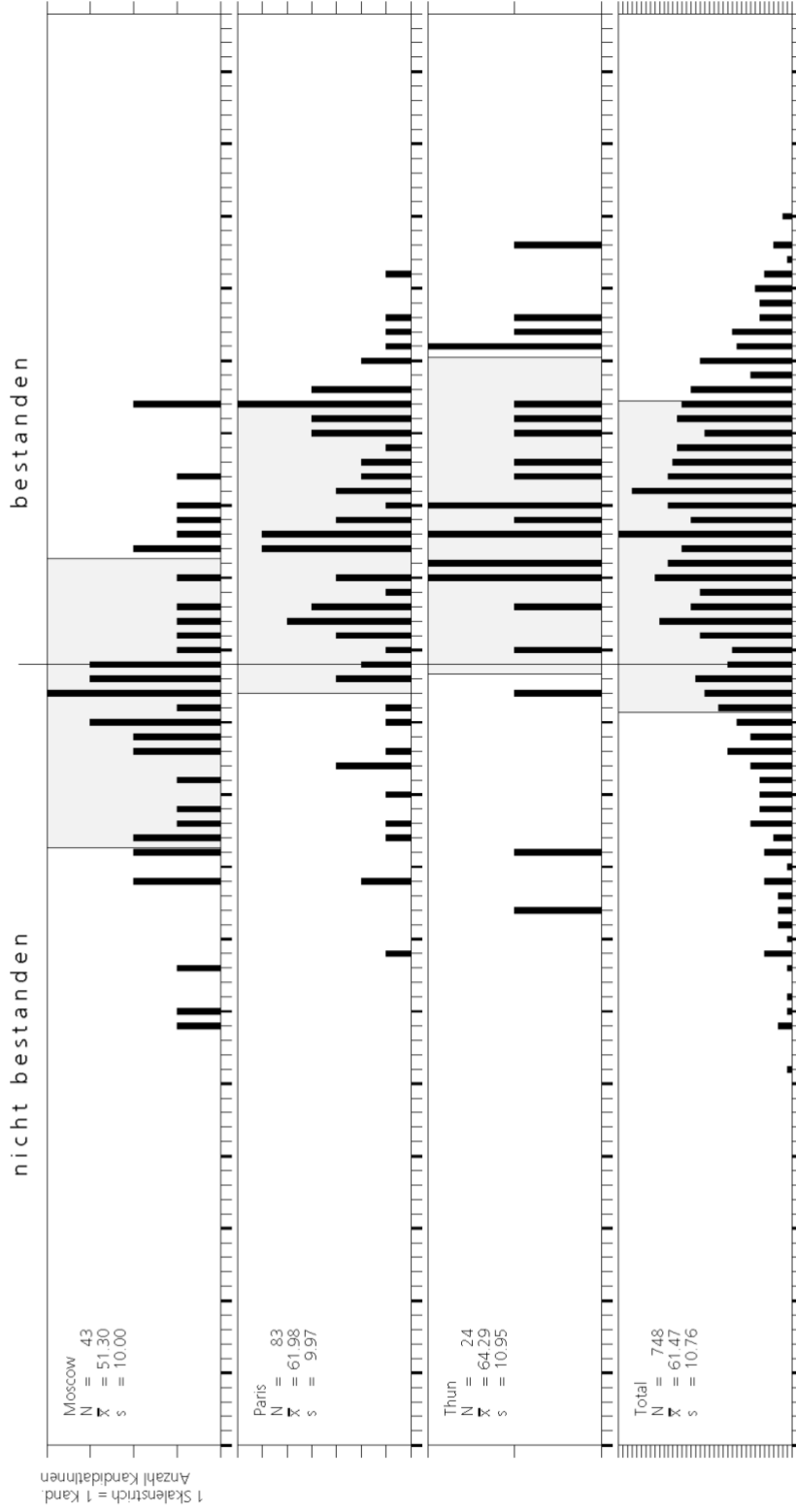


1 Skalenstrich = 1 Kand
Anzahl KandidatInnen

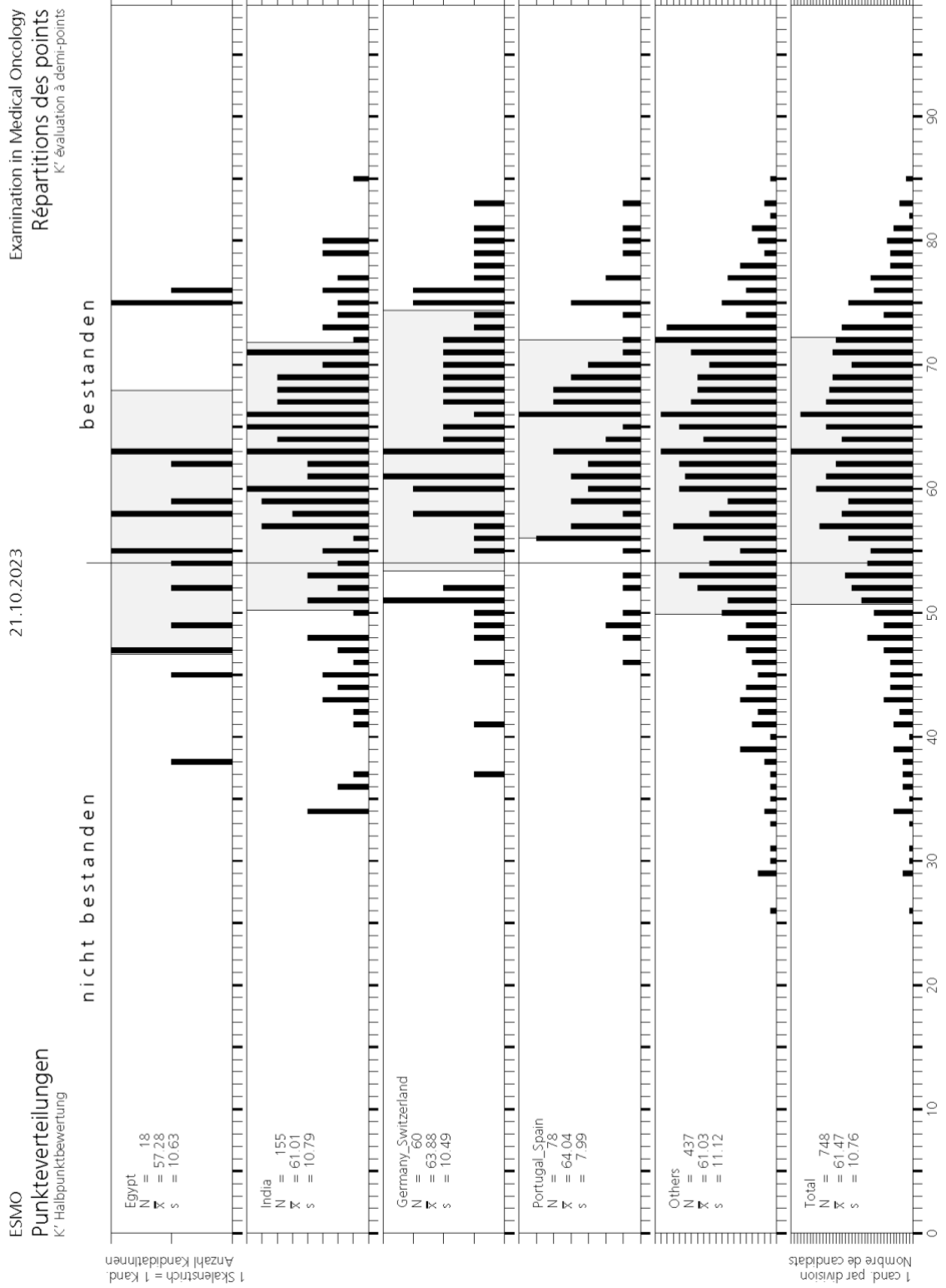
1 cand. par division
Nombre de candidats

21.10.2023

ESMO
Punkteverteilungen
K' Halbpunktbewertung



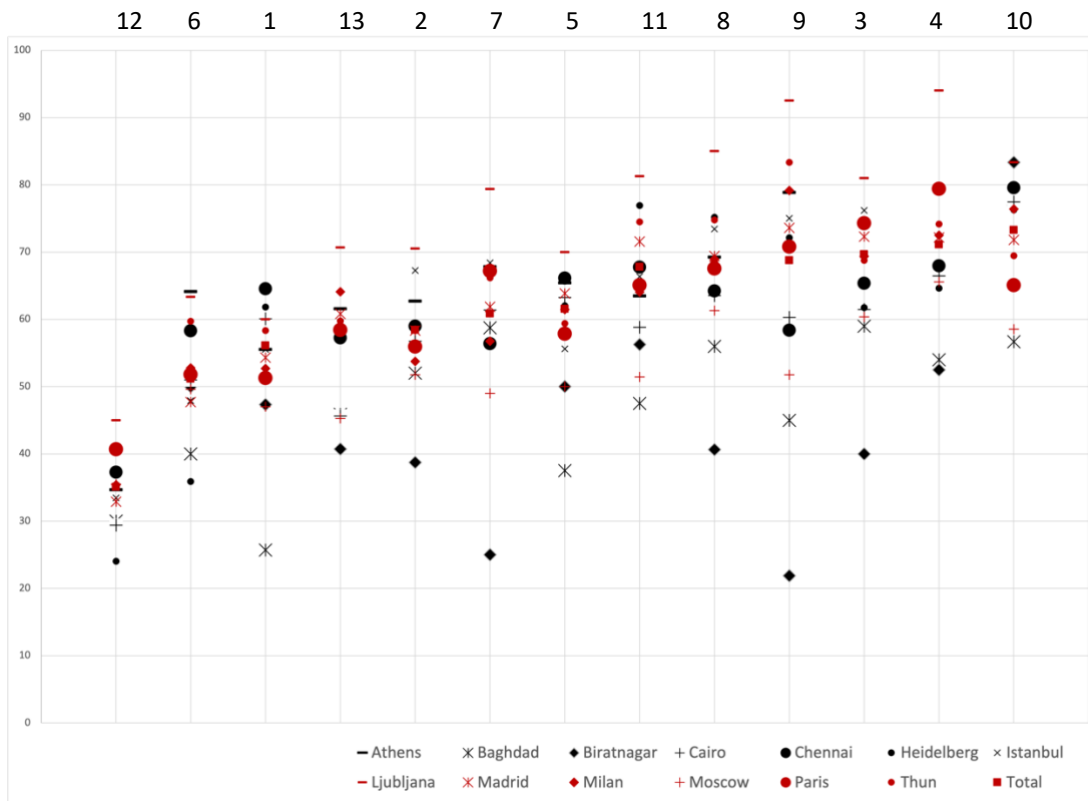
Score distribution (region)



Composition of the exam (Blueprint 1)

Subscore		Number of items
1	Hematologic malignancies	7
2	Chest malignancies	10
3	Breast cancer	10
4	Gynecologic malignancies	5
5	Head and neck cancers	4
6	Central nervous system malignancies	3
7	Genitourinary cancers	8
8	Gastrointestinal cancers	10
9	Skin cancers	4
10	Sarcomas	3
11	Carcinoma of unknown primary site	4
12	Endocrine cancers	2
13	Others/Clinic	29

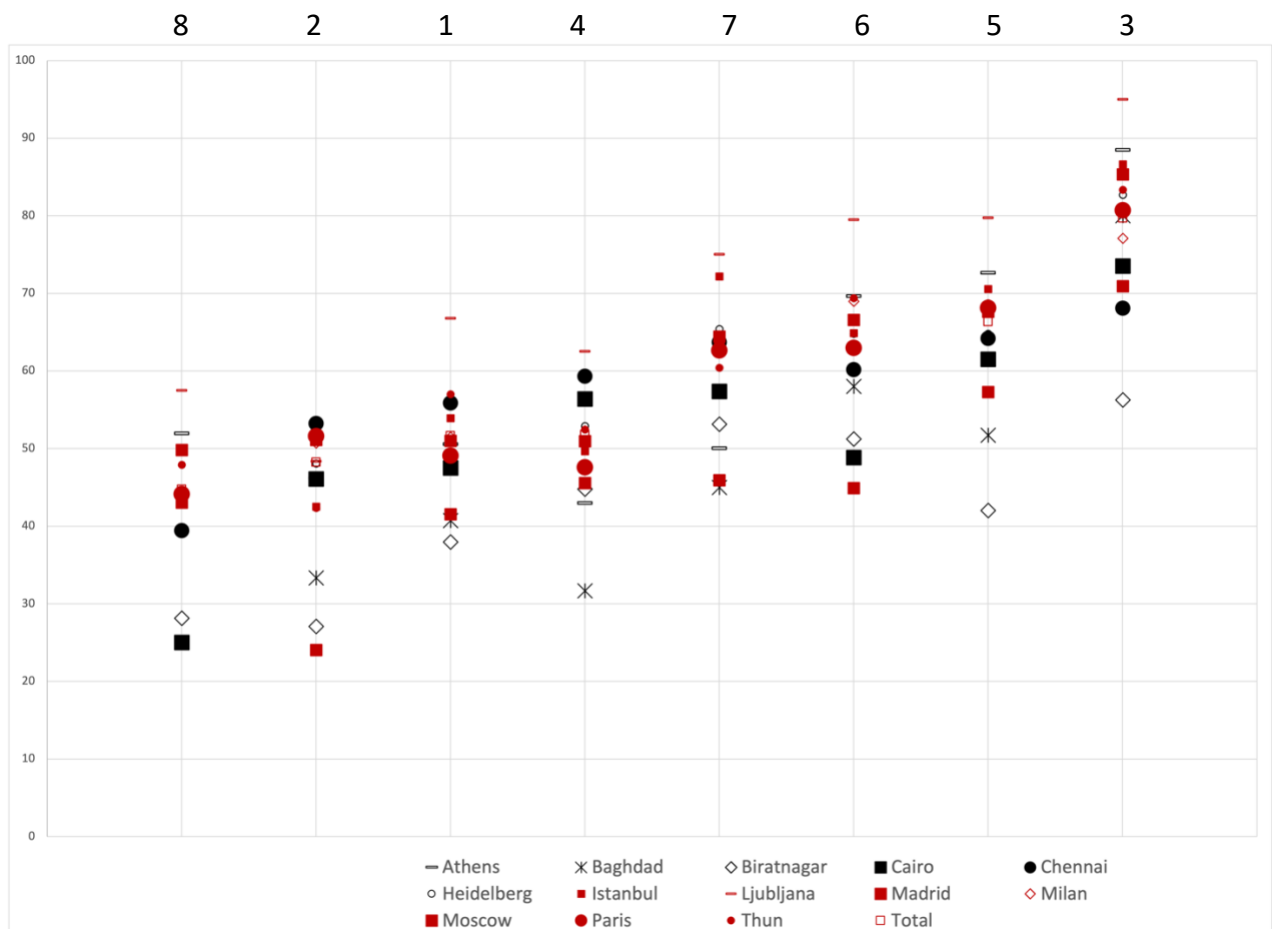
Subscoreanalysis sorted by performance in ascending order



Composition of the exam (Blueprint 2)

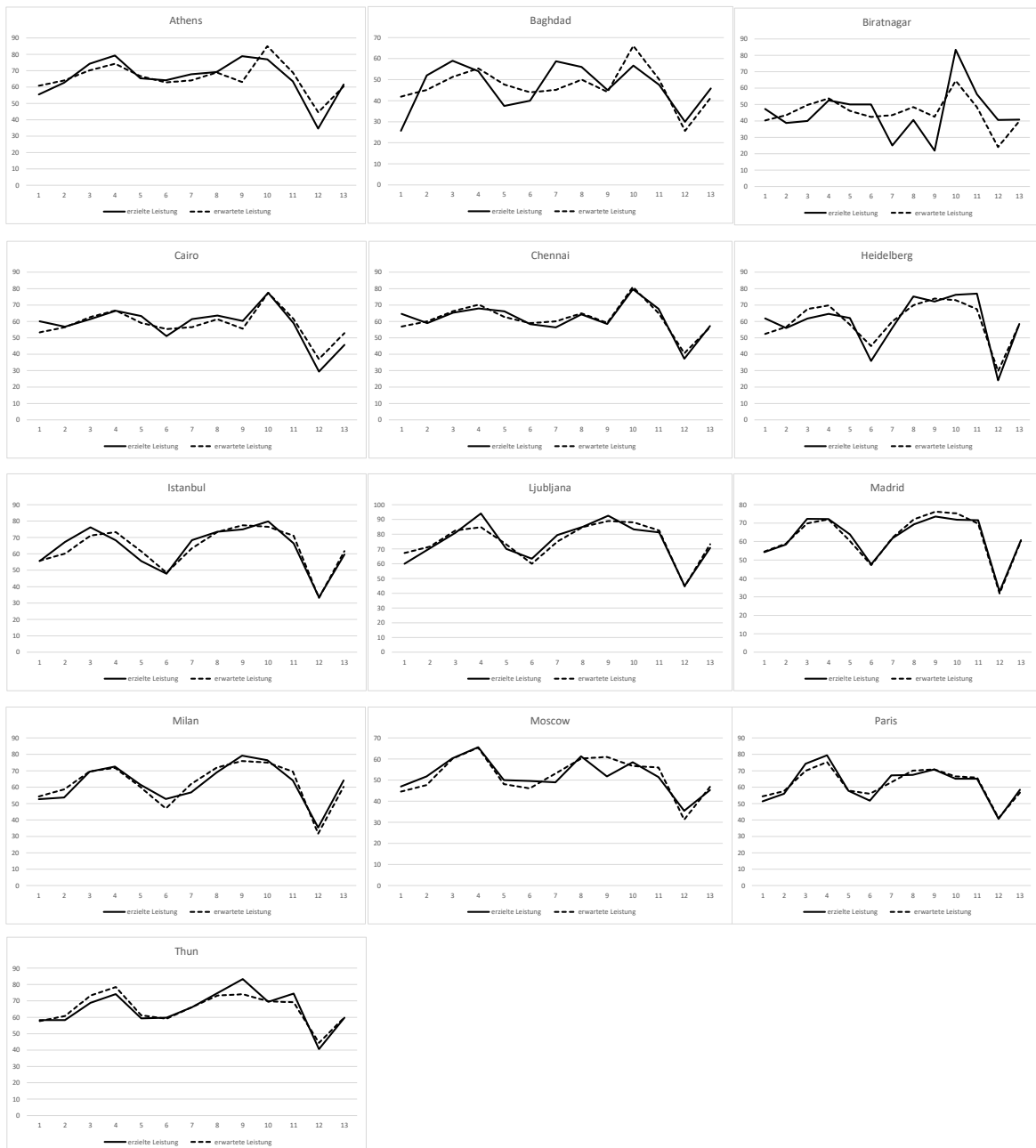
Subscore		Number of items
1	Biology, Immunology, Pathology incl. Tumour Markers, Laboratory medicine	14
2	Epidemiology, Etiology, Clinical research	3
3	Screening and prevention	2
4	Clinic, Differential diagnosis, Staging, Imaging	6
5	Therapy, Surgery, Radiation oncology, Anticancer agents, Biologic therapy, Response assessment and follow up	58
6	Complications of treatment, Supportive and Palliative Care, Communication and Psychosocial issues	10
7	Geriatric oncology, Cancer in adolescents and young adults, Cancer and pregnancy, Aids associated malignancies	2
8	Other issues	4

Subscoreanalysis sorted by performance in ascending order



Composition of the exam & Subscores according to location

Subscore		Number of items
1	Hematologic malignancies	7
2	Chest malignancies	10
3	Breast cancer	10
4	Gynecologic malignancies	5
5	Head and neck cancers	4
6	Central nervous system malignancies	3
7	Genitourinary cancers	8
8	Gastrointestinal cancers	10
9	Skin cancers	4
10	Sarcomas	3
11	Carcinoma of unknown primary site	4
12	Endocrine cancers	2
13	Others/Clinic	29



Sample feedback letter

ESMO Head Office
Education Department
Via Ginevra 4
CH 6900 Lugano / Switzerland

Mustermann Maxime

Feedback on your detailed exam results

On 21th October 2023 you participated in the ESMO examination in Madrid. In order to pass, 54 out of 99 questions had to be answered correctly (54.5%). Your results are shown in detail in the table below. Questions have been grouped into 'subsets / subscores' according to their content.

The column labelled 'points / of' indicates the number of points you obtained out of the maximum number of possible points in each subset.

In the 'success' column, the numbers tell you how your results compare to those of the other candidates.

- 1 You belong to the top 25 %
- 2 You belong to the mean (50 % of all participants)
- 3 You belong to the bottom 25 %, but not to the weakest 5 %
- 4 You belong to the weakest 5 %
- 0 Subscores with less than 6 questions will not be evaluated because of too small measuring reliability.

ESMO examination, 21th October 2023

9999 Mustermann Maxime

Points	of	success	subscore	
				total score: 68
				result: passed
5.0	7.0	1	Hematologic malignancies	
6.5	10.0	2	Chest malignancies	
8.0	10.0	1	Breast cancer	
3.0	5.0	0	Gynecologic malignancies	
3.0	4.0	0	Head and neck cancers	
3.0	3.0	0	Central nervous system malignancies	
6.5	8.0	1	Genitourinary cancers	
7.0	10.0	2	Gastrointestinal cancers	
1.0	4.0	0	Skin cancers	
1.5	3.0	0	Sarcomas	
3.5	4.0	0	Carcinoma of unknown primary site	
0.0	2.0	0	Endocrine cancers	
20.0	29.0	1	Others/Clinic	