North Clin Istanb 2026;13(5):577–588
doi: 10.14744/nci.2026.67760

Original Article FAMILY MEDICINE

Integration of behavioral, social and human sciences into Turkish undergraduate medical curricula: A descriptive curriculum document analysis

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ABSTRACT

OBJECTIVE: The objective of the study was to examine the representation of the Behavioral, Social and Human Sciences (BSSH) topics defined in the National Core Curriculum 2020 (NCC-2020) within undergraduate medical curricula in Turkiye, evaluate the documented educational characteristics of their integration, and explore differences according to selected institutional characteristics.

METHODS: Medical faculties providing undergraduate medical education during the 2019–2020 academic year were identified through the official website of the Council of Higher Education. Publicly available undergraduate curriculum documents from 56 medical faculties were retrieved from institutional websites. The NCC-2020 BSSH framework consisted of 35 main categories and 217 subcategories (252 items), which were consolidated into 208 BSSH topics after removing duplicate or conceptually overlapping items. The presence of these topics in course titles was examined. Documented teaching methods, assessment methods, and responsible academic departments were also analyzed. Differences in BSSH representation were examined according to accreditation status, institutional type, geographical region, and the year in which faculties admitted their first students.

RESULTS: The documented representation of BSSH topics in undergraduate medical curricula was limited and uneven. Only 14 of the 208 BSSH topics were represented in at least 80% of curricula, whereas 130 topics (62.5%) appeared in fewer than 20% of faculties. Accredited medical faculties incorporated significantly more BSSH topics into their curricula than non-accredited faculties ($p<0.05$). Lecture-based teaching and written examinations predominated in the curriculum documents, while learner-centered teaching methods, performance-based assessment approaches, and interdisciplinary participation from the social sciences and humanities were documented only rarely. No significant differences were found according to institutional type or the year in which faculties admitted their first students, whereas significant regional differences were observed.

CONCLUSION: The documented integration of BSSH into undergraduate medical curricula in Turkiye remains limited and uneven. Although a common curricular core centered on preventive medicine, public health, and routine professional practice was consistently represented, broader humanistic, structural, and systems-oriented dimensions of BSSH were substantially less visible. These findings support the need for more comprehensive and longitudinal integration of BSSH through learner-centered educational approaches, competency-based assessment, and interdisciplinary collaboration

Keywords: Accreditation; behavioral; social and human sciences; curriculum integration; medical education; undergraduate medical curriculum.

Cite this article as: *Layik ME, Saracoglu M, Korkmaz Yalcin D, Yildiz S. Integration of behavioral, social and human sciences into Turkish undergraduate medical curricula: A descriptive curriculum document analysis. North Clin Istanb 2026;13(5):577–588.*

Received: May 07, 2026 *Revised:* September 20, 2026 *Accepted:* September 23, 2026 *Online:* October 15, 2026

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Istanbul Provincial Directorate of Health - Available online at www.northclinist.com

Recent conceptualizations increasingly define health and healthcare from a holistic perspective grounded in complex systems thinking [1]. This shift has redefined the competencies expected of physicians and requires undergraduate medical education to move beyond a predominantly biomedical focus by incorporating the psychological, behavioral, sociocultural, environmental, and genetic dimensions of health [2]. Preparing physicians who are able to understand patients not only through their biological conditions but also through their behavioral, social, and humanistic contexts has therefore become one of the principal rationales for integrating Behavioral, Social and Human Sciences (BSSH) into medical education [3]. In line with this perspective, the Institute of Medicine recommended the systematic integration of BSSH into undergraduate medical education to improve patient care, physician-patient relationships, and healthcare systems [4]. This position was subsequently reinforced by the Association of American Medical Colleges (AAMC), which emphasized that scientific knowledge and biomedical competence alone are insufficient for effective medical practice [2]. Likewise, competency frameworks such as CanMEDS and the World Federation for Medical Education Global Standards define competencies closely aligned with BSSH, including communication, professionalism, ethics, cultural responsiveness, and patient-centered care [4, 5].

Following these international developments, several initiatives have been undertaken to strengthen the role of BSSH in undergraduate medical education in Turkiye. Although the 2014 National Core Curriculum (NCC) did not identify BSSH as a separate curricular component, it emphasized professionalism and recommended the integration of behavioral, social, and human sciences within the curriculum [6]. This approach was substantially expanded in the revised NCC-2020, in which BSSH was formally established for the 1st time as a distinct curricular component with explicitly defined behavioral, social, and humanistic competencies [7]. Against this background, the present study aimed to establish a national baseline for the integration of BSSH into undergraduate medical education in Turkiye immediately before the implementation of the NCC-2020. Specifically, the study examined the extent to which the BSSH topics subsequently included in the NCC-2020 had already been incorporated into undergraduate medical curricula during the 2019–2020 academic year. In addition, it investigated whether the level of BSSH integration differed according to institutional characteristics, including medical faculty type (public/foundation), accreditation status, year of establishment, and geographical region.

Highlight key points

- BSSH representation was limited and uneven across medical curricula in Turkiye.
- Broader humanistic, structural, and systems-oriented domains were underrepresented.
- Accredited faculties showed greater representation of BSSH topics.
- Documented teaching and assessment relied mainly on conventional approaches.
- Interdisciplinary participation from non-medical disciplines was limited.

MATERIALS AND METHODS

This study employed a descriptive web-based document analysis of publicly available undergraduate medical curricula to evaluate the integration of BSSH. Medical faculties providing undergraduate medical education during the 2019–2020 academic year were identified through the official website of the Council of Higher Education (YÖK). Faculties that had not yet graduated their first cohort, foundation universities located outside Turkiye, and faculties whose curriculum documents were not publicly accessible were excluded. The faculty selection process is summarized in Figure 1. The final sample consisted of 56 medical faculties, of which 23 were accredited by the National Medical Education Accreditation Board (UTEAK) [8] (Fig. 1).

The BSSH section of the NCC-2020 comprised 35 main topics and 217 subtopics (252 topics in total). Before analysis, the list was reviewed to identify duplicate and conceptually overlapping topics. Topics with identical titles appearing under different main topics were counted only once. Topics with different wording were merged only when the differences were considered terminological rather than conceptual, that is, when they referred to the same educational concept despite differences in wording. The list was refined through iterative discussions among the research team and the doctoral Thesis Monitoring Committee, which consisted of the authors and two medical education experts, one of whom had participated in the development of the NCC-2020. Any uncertainties regarding conceptual overlap were resolved through consensus. Following this process, a final

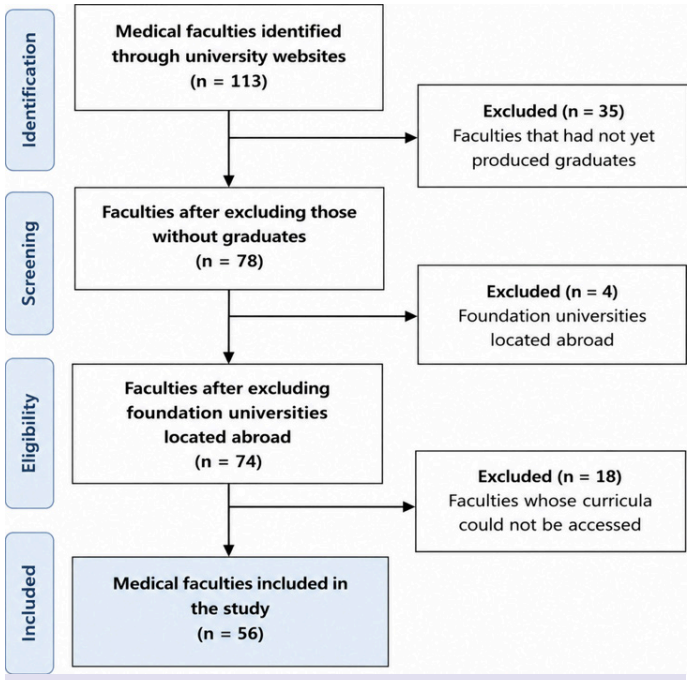


FIGURE 1. Flow diagram of faculty selection process.

list of 208 unique BSSH topics was retained as the unit of analysis. The complete list of these 208 topics is provided in Appendix 1.

The curricula of the included medical faculties were systematically reviewed using the final list of 208 BSSH topics. Identification of BSSH topics was based solely on course titles explicitly reported in the publicly accessible undergraduate curriculum documents published on the official websites of the medical faculties. Learning objectives, detailed course content, committee or module descriptions, internship documents, program outcomes, and detailed assessment documents were not used to identify BSSH topics because these materials were not consistently available across institutions. Attempting to infer BSSH topics from inconsistently available documents would have increased subjective interpretation and reduced the reproducibility of the analysis. Consequently, BSSH topics addressed within course content but not explicitly reflected in course titles may not have been captured.

In this study, "integration" was operationally defined as the explicit representation and documented distribution of BSSH topics across the undergraduate curriculum, as identified through course titles. The term refers to document-based curricular integration and does not imply verified implementation, educational effectiveness, or achieved student competence.

For each of the 208 BSSH topics, it was determined whether the topic was explicitly represented in a course title. When a topic was identified, additional descriptive information reported in the available curriculum documents was extracted, including the curricular phase (preclinical, clinical, or internship), course hours, educational delivery methods, curriculum component (e.g., committee, module, or internship), responsible discipline(s), assessment methods, and the academic department(s) responsible for teaching. These additional variables were used to describe the curricular placement and characteristics of the identified topics; they were not used to infer the presence of a BSSH topic when it was not explicitly stated in a course title. All extracted data were recorded in a Microsoft Excel spreadsheet.

This study was approved by the Van Yuzuncu Yil University Non-Interventional Clinical Research Ethics Committee (2021/06-02, 14 May 2021) and was conducted in accordance with the principles of the Declaration of Helsinki.

Statistical Analysis

The 208 BSSH topics identified from the NCC-2020 were searched in the undergraduate medical curricula of the included medical faculties and summarized as frequencies and percentages. Statistical analyses were performed using IBM Statistical Package for the Social Sciences Statistics for Windows, Version 21.0 (IBM Corp., Armonk, NY, USA).

The assumptions of normality and homogeneity of variance were assessed using the Shapiro-Wilk test and Levene's test, respectively. As all comparison groups satisfied the assumptions (all $p>0.05$), parametric tests were considered appropriate. Comparisons of the mean number of BSSH topics between two-group variables (year of establishment of the medical faculty, university status, and accreditation status) were performed using Student's t-test. Differences among geographical regions were analyzed using one-way analysis of variance (ANOVA), followed by Duncan's multiple range test for post hoc pairwise comparisons. Duncan's multiple range test was selected for post hoc comparisons because its stepwise procedure provides relatively high statistical power for detecting differences among group means. Compared with more conservative procedures such as Tukey's test, Duncan's test offers greater sensitivity for detecting smaller group differences, although with less stringent control of Type I error. In addition to p-values, effect sizes were calculated to evaluate the practical significance of

the findings. The authors used Cohen's d for Student's t-tests and eta squared (η^2) for one-way ANOVA.

Multiple correspondence analysis (MCA) was performed to explore the relationships among categorical variables, reduce data complexity, and visualize their configuration in a two-dimensional space.

RESULTS

A total of 56 medical faculties met the inclusion criteria and were included in the analysis. Of these, 49 (87.5%) were public universities and 23 (41.1%) were accredited. Nearly all accredited faculties (95.7%, n=22) were public universities.

The included medical faculties were distributed across all geographical regions of Turkiye. Fourteen faculties were located in the Marmara Region, 12 in Central Anatolia, 9 in the Black Sea Region, 6 each in Eastern Anatolia and the Aegean Region, 5 in the Mediterranean Region, and 4 in Southeastern Anatolia.

The representation of the 208 BSSH topics was examined across the curricula of the included medical faculties. The highest proportion of BSSH topics represented in a single curriculum was 34.1% (n=71), indicating that no curriculum represented more than approximately one-third of the BSSH topics. Only five faculties represented 30% or more of the BSSH topics (n>62), whereas 26 faculties represented between 20% (n=42) and 25% (n=52). The lowest proportion of BSSH topics represented in a single curriculum was 10.1% (n=21), and only three faculties represented fewer than 15% (n=31) of the BSSH topics.

Representation of BSSH topics was compared according to the geographical region of the university, the year in which the institution admitted its first students (before 2000 vs. 2000 or later), accreditation status during the 2019–2020 academic year, and institutional type (public or foundation). A statistically significant difference was found among geographical regions in the mean number of BSSH topics represented in the curricula (p=0.004, η^2=0.31). Faculties located in the Mediterranean Region had the highest mean number of represented BSSH topics, whereas those in the Southeastern Anatolia Region had the lowest. The mean numbers of BSSH topics represented in the remaining geographical regions were generally similar.

No statistically significant difference was found in the mean number of BSSH topics represented in the curricula between faculties established before 2000 and those established in 2000 or later (p=0.150, Cohen's d=0.39). Nevertheless, faculties established before 2000 had a higher mean number of BSSH topics represented in their curricula.

Table 1. Descriptive statistics and comparison of the mean number of BSSH topics according to medical faculty characteristics

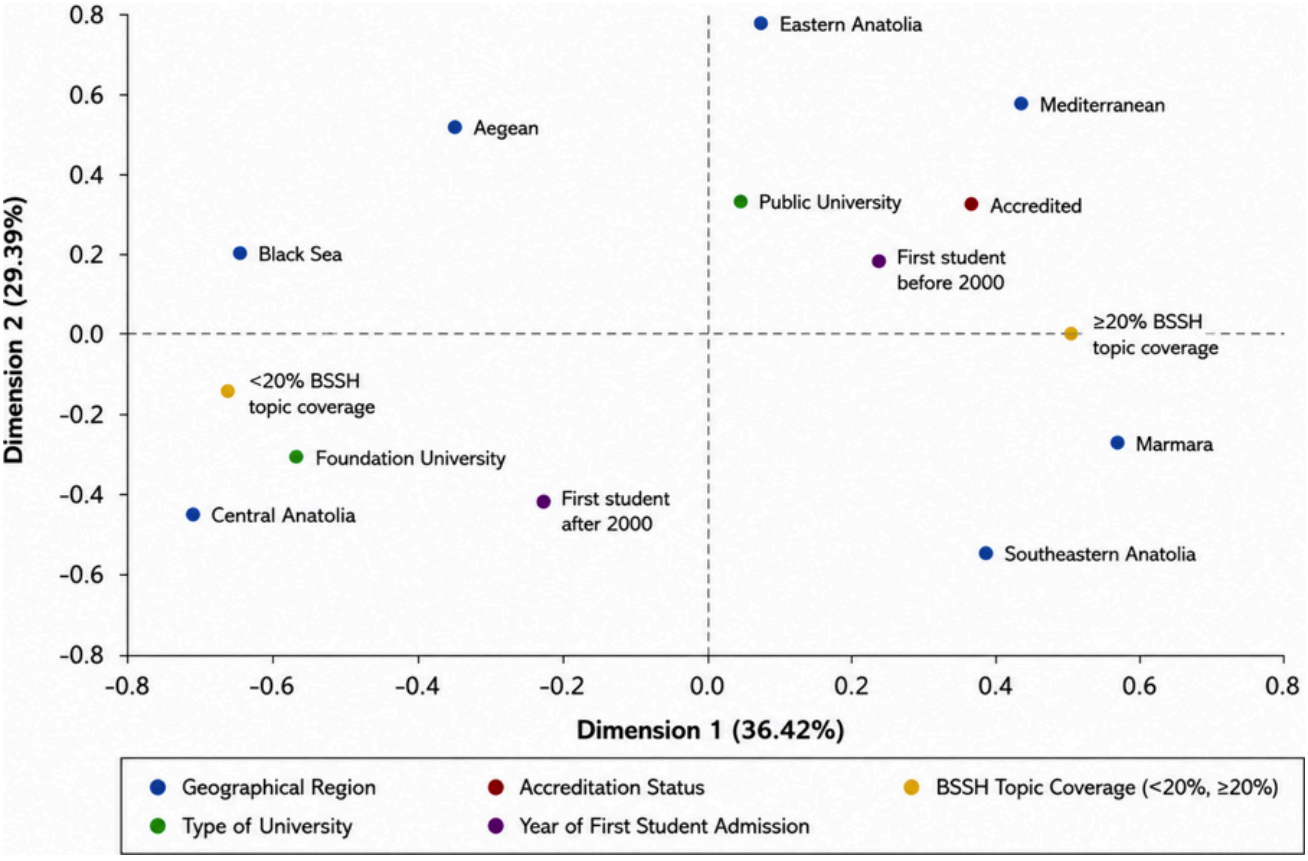
Characteristics	n	Mean number of BSSH topics±SD	p
Geographical region			
Mediterranean	5	55.20±11.48[a]	0.004
Eastern Anatolia	6	48.83±13.76[ab]	
Aegean	6	52.50±8.78[ab]	
Southeast Anatolia	4	33.25±8.85[c]	
Central Anatolia	12	42.33±8.48[bc]	
Black Sea	9	45.22±6.36[ab]	
Marmara	14	52.07±9.11[ab]	
Year of first student admission			
Before 2000	28	49.57±10.22	0.150
After 2000	28	45.46±10.81	
Type of university			
Public	49	48.14±10.43	0.248
Foundation	7	43.14±11.84	
Accreditation status (2019–2020)			
Accredited	23	52.48±11.22	0.003
Not accredited	33	44.06±8.81	

a, b, c: Different superscript letters indicate statistically significant differences between groups according to Duncan's multiple range test (p<0.05). Groups sharing at least one common letter are not significantly different. BSSH: Behavioral, Social and Human Sciences; SD: Standard deviations

Although public medical faculties had a higher mean number of BSSH topics represented in their curricula than foundation medical faculties, the difference was not statistically significant (p=0.248, Cohen's d=0.47).

The mean number of BSSH topics represented in the curricula was significantly higher in accredited medical faculties than in non-accredited faculties (p=0.003, Cohen's d=0.85) (Table 1).

The results of the MCA are presented in Figure 2. Figure 2A shows the category plot, in which categories located closer together have more similar profiles and therefore tend to be more closely associated, whereas categories located farther apart indicate weaker associations. Dimension 1 explained 36.42%, and Dimension 2 explained 29.39% of the total inertia, together accounting for 65.81% of the total variation.



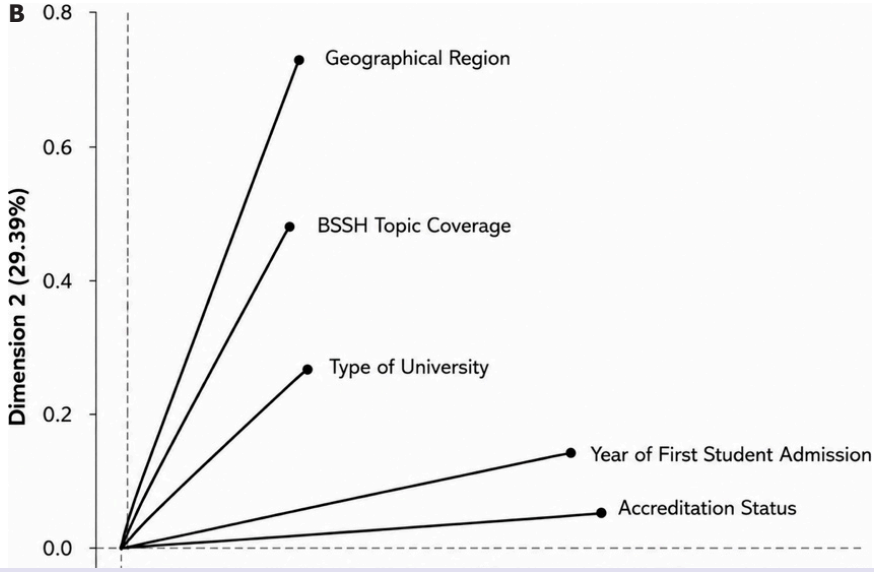


FIGURE 2. **(A)** Multiple correspondence analysis (MCA) category plot illustrating the relationships among geographical region, university type, accreditation status, year of first student admission, and Behavioral, Social and Human Sciences (BSSH) topic coverage. Categories located closer together have more similar profiles and therefore tend to be more closely associated, whereas categories located farther apart show weaker associations. The categories "<20%" and "≥20%" represent medical faculties with BSSH topic coverage below and at least 20%, respectively. Dimension 1 and Dimension 2 explain 36.42% and 29.39% of the total inertia, respectively. **(B)** Discrimination measures of the variables included in the MCA. Variables located farther from the origin contribute more to the discrimination of the two dimensions, whereas variables located closer to the origin contribute less. Dimension 1 and Dimension 2 explain 36.42% and 29.39% of the total inertia, respectively.

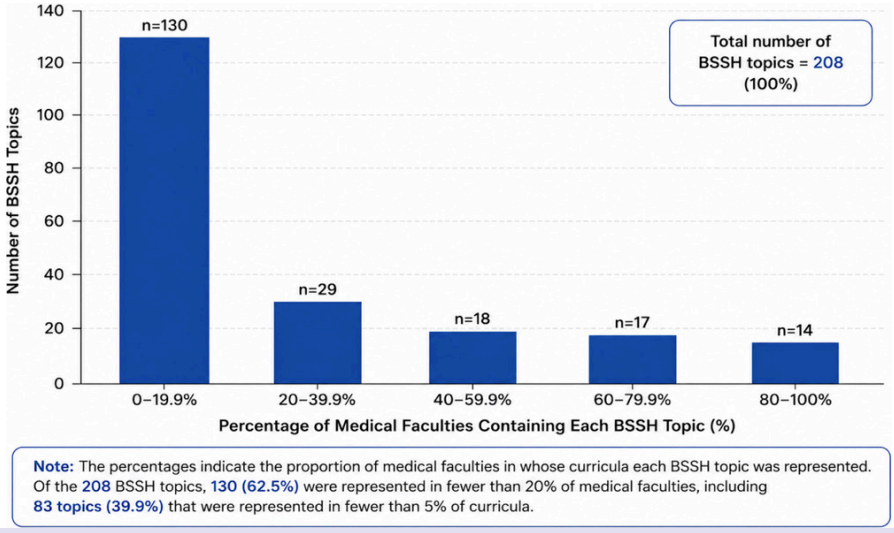


Figure 3. Distribution of the 208 Behavioral, Social and Human Sciences (BSSH) topics according to the percentage of medical faculties in which they were represented. The bars indicate the number of BSSH topics included within each percentage range. Of the 208 topics, 130 were represented in fewer than 20% of medical faculties; this group includes 83 topics that were represented in fewer than 5% of curricula.

The category plot showed that public universities, accredited medical faculties, admission of the first students before 2000, and representation of ≥20% of the BSSH topics tended to be positioned close to one another. Similarly, the Mediterranean, Eastern Anatolia, and Aegean regions were located closer to these categories than the remaining geographical regions.

Figure 2B presents the discrimination measures for the variables included in the MCA. Geographical region and the representation of BSSH topics contributed relatively more to Dimension 2, whereas accreditation status and year of first student admission contributed mainly to Dimension 1. University type also contributed to the discrimination of the dimensions, indicating that all variables included in the analysis contributed to the overall MCA solution.

To provide an overview of how the 208 BSSH topics were distributed according to their level of representation across curricula, topics were grouped into five 20-percentage-point intervals based on the proportion of medical faculties in which they were represented (Fig. 3). This categorization was intended to facilitate visualization of the overall distribution and to identify highly represented (80.0–100%) and underrepresented (0–19.9%) topics for further description in the subsequent tables.

Only 14 of the 208 BSSH topics were represented in at least 80% of the curricula of the included medical faculties (Table 2). These topics were predominantly related to preventive medicine and public health, including immunization, communicable disease control, reproductive and sexual health, substance use, occupational health, child protection, patient rights, and emergency preparedness. Together, they represent the common curricular core of BSSH education across the included medical faculties.

Table 2. BSSH topics represented in 80–100% of medical faculty curricula

Name of topic	n	%
Immunization	56	100.00
Sexually transmitted infections and their prevention	56	100.00
Substance use	53	94.64
Alcohol use	51	91.07
Child neglect and abuse	50	89.29
Managerial processes, occupational health and safety	50	89.29
Control of communicable diseases in the community	48	85.71
Occupational diseases	47	83.93
Chronic (non-communicable) diseases	47	83.93
Abuse (physical, emotional, and sexual)	46	82.14
Patients' rights and responsibilities	46	82.14
Emergencies and disasters	46	82.14
School health	46	82.14
Reproductive and sexual health	45	80.36

BSSH: Behavioral, Social and Human Sciences.

A total of 130 of the 208 BSSH topics (62.5%) were represented in fewer than 20% of the curricula. Because of the large number of topics in this group, they were organized into broad conceptual themes using the terminology and conceptual framework of the NCC-2020 BSSH list to facilitate presentation rather than to provide an additional level of analysis (Table 3). The underrepresented topics spanned a wide range of domains, including health systems and governance, social determinants of health, professional identity and physician well-being, professionalism and ethics, communication and teamwork, behavioral and mental health, culture and humanistic perspectives, vulnerable populations and the life-course approach, environment, disasters and planetary health, and digital transformation and emerging technologies.

To provide an overview of the distribution of BSSH topics across curricula, the 208 topics were grouped into five 20-percentage-point intervals according to the proportion of medical faculties in which they were represented (Fig. 3). The highest (80.0–100%) and lowest (0–19.9%) representation groups were subsequently examined in greater detail.

Since a single BSSH topic could be represented in multiple course titles and across different curricular phases, each representation (hereafter referred to as a BSSH topic occurrence) was analyzed separately according to its educational characteristics. Furthermore, when a course title involved more than one teaching method, assessment method, academic discipline, or responsible academic department, each characteristic was coded independently (multiple coding). Consequently, the total number of observations varies across the categories presented in Table 4 and may exceed the number of unique BSSH topic representations.

Most BSSH topic occurrences were identified during the preclinical phase (58.65%, n=1,891) and within committee-based curricula (56.65%, n=1,659). Classroom-based lectures were the predominant teaching method (79.71%, n=2,279), followed by seminars (5.91%, n=169) and workplace or clinical training (5.04%, n=144).

The most frequently used assessment methods were theoretical examinations (61.37%, n=2,250) and structured oral examinations (20.76%, n=761), whereas competency-based assessment accounted for only 6.52% (n=239) of all assessment methods and was used primarily during the internship phase.

Most BSSH topic occurrences (96.46%, n=2,344) were assigned to a single academic discipline. The academic departments responsible for teaching these BSSH topic occurrences were predominantly affiliated with faculties of medicine (95.46%, n=2,313), whereas only 1.49% (n=36) were affiliated with faculties of social sciences or other non-medical faculties (Table 4).

DISCUSSION

This study provides a baseline assessment of the representation of BSSH in undergraduate medical curricula immediately before the implementation of the BSSH recommendations in the NCC-2020. Overall, the findings indicate that the documented representation of BSSH in undergraduate medical curricula in Turkiye was limited and varied substantially across medical faculties. The following sections discuss the study's principal findings regarding the scope of BSSH representation, accreditation, teaching and assessment approaches, and interdisciplinary participation.

In the present study, only a limited proportion of the BSSH framework was reflected in publicly available undergraduate medical curriculum documents, indicating that substantial areas of BSSH remain insufficiently represented. More importantly, the distribution of topics followed a clear curricular gradient rather than a random pattern. Only a limited common curricular core, represented in at least 80% of medical faculties, was identified, consisting primarily of topics related to preventive medicine, public health priorities, patient rights, occupational health, and routine clinical practice. In contrast, nearly two-thirds of the BSSH topics were represented in fewer than 20% of curricula and encompassed a broad range of domains, including health systems and governance, social determinants of health, professional identity and physician well-being, professionalism and ethics, communication and teamwork, behavioral and mental health, culture and humanistic perspectives, vulnerable populations, planetary health, and digital transformation. Taken together, these findings suggest that undergraduate medical curricula continue to prioritize clinically oriented, biomedical, and public health-related BSSH content, whereas broader relational, societal, humanistic, structural, and systems-oriented dimensions of BSSH remain substantially underrepresented. This pattern is consistent with international literature demonstrating persistent challenges in the comprehensive integration of BSSH

Table 3. Themes of BSSH topics represented in 0–19.9% of medical faculty curricula

Theme	Representative BSSH topics
Health systems, health policy, and governance	Globalization and health; Population changes and policies; Multi-stakeholder health approach (one health, international health regulations, national and international non-governmental organizations); Public policies that promote health; In health services (demand, presentation, access, etc.); Biopolitics and globalization; Disruption/prevention of health service delivery; Social accountability; Health and social structures, discourse communities, knowledge-power relationship; Physician payment methods and performance-based system; The impact of privatization and related policies on health; Integration of door retention and step health care.
Social determinants of health and health equity	Unemployment and Poverty; Violations of the right to health; Social justice and welfare; Child labor; Social environment and social well-being; Social/human capital, social support; Space and health; Internal migration; Migration for economic reasons; Economic well-being; The psychosocial burden created by violations of rights in social life; Indicators related to chronic diseases and inequalities arising from their distribution in society; Access to education and educational processes (including medical education).
Professional identity, physician well-being, and professional life	Workload and burnout; Loss of personal rights; Work and health interaction; Well-being of the Physician; Work-related diseases; The effect of the disease on work and returning to work after illness (rehabilitation); Stress in work environments; Alienation from the profession; Job satisfaction; Migration of health workers and free movement of labor; Professional values, professional identity development and historical perspective, being constantly open to professional and individual development; Defending health and profession; Organizational and managerial processes and working life.
Professionalism, ethics, and legal issues	Medical errors and unprofessional behavior; Legal and ethical divergences and dilemmas in medical practice; National and international documents, legal regulations and ethical codes related to medicine and health; Use of advanced technology and ethical issues; Ethical situations in medical record, prescription and report writing; Legal and ethical situations in forced treatment; Organizational and ethical issues; Reproductive health and ethics; Aspects of health practices that require self-criticism; Defensive medicine; Conflicts of interest, self-exploitation; Extreme medical applications; Abuse of power in health and education processes; Consent; Autonomy.
Communication, teamwork, and conflict management	Violence against healthcare workers; Communication problems; Conflict/intimidation (mobbing) in health service delivery processes; Intra-team and inter-team conflict; Intercultural interaction and problems (communication, ethics, etc.); Overly demanding patient; Manipulative patient; Resilient patient; Frequently admitted patient; Power relationship, control, power sharing; Conflict between disciplines and professions; Conflict between institutions/units.
Behavioral and mental health	Behavioral addiction (gambling, shopping, technological, internet addiction); Stress management; Exposure (use of health services by pretending to be a patient to gain benefits); Patient in age; Psycho-social aspects of symptoms and conditions such as chronic pain, dementia, sleep problems, and depression; Flexibility/resilience, embracing uncertainties/dilemmas; Stress-related physical and mental complaints; Loneliness and the need for social support; Familial and social burden due to addiction; Non-compliance with preventive and therapeutic practices/refusal (e.g. vaccine hesitancy); Physical and mental health; Major life events; Psychological and social well-being; Social isolation; Sedentary life.
Culture, society, and humanistic perspectives	Gender-based discrimination; Community and family health; Wellness states; Culture and health beliefs/behaviors; Body-mind dilemma and reductionist approaches; Cultural diversity in health perception, behaviors and practices; Commercialization of healthy living habits; In the processes of socialization and participation in social life; Scientific paradigm and paradigm shift; Consumer society and health; A world of belonging, purpose and meaning; Power and control; Involvement/influence in processes related to oneself; Medicalization of everyday life (medicalization); Participation in social life; Social and cultural diversity.

Table 3 (cont). Themes of BSSH topics represented in 0–19.9% of medical faculty curricula

Theme	Representative BSSH topics
Vulnerable populations and life-course approach	Violence against children; Elder neglect and abuse; Children with special needs (chronic health problems, neuro-developmental disorders)/disabilities; Priority/disadvantaged groups; Health at different stages of life; War/terrorism and migration, refugee; Children (unaccompanied, protected and street children); Peer bullying; Migrants/refugees, asylum seekers; Individuals stigmatized due to illness; Fragility; Child marriage; The burden of the caregiver and the giver; Cyber violence; Adolescent pregnancy; Maintaining functionality.
Environment, disasters, and planetary health	Water and food security; Accidents at home; Urbanization; Health problems related to nuclear accidents; Climate and energy policies; Ecological destruction and health impacts; Environmental and ecological ethics; Man-made disasters; Climate migration.
Digital transformation and emerging technologies	Artificial intelligence; Technology and health interaction; Media and management of excessive/noisy information; Current diagnosis-treatment tools; Digitalization, personal health data and management of big data; Online health apps; Wearable Technologies; Technological communication tools and channels.

BSSH: Behavioral, Social and Human Sciences.

into undergraduate medical education. Previous studies have identified structural and curricular barriers to BSSH integration and considerable variation in the incorporation of social determinants of health across medical schools [9–11]. Similar challenges have been reported across several of the domains that were underrepresented in the present study. Medical humanities education remains heterogeneous and often lacks longitudinal integration,[18] while emerging areas such as artificial intelligence and health systems science continue to require more systematic curricular integration [9]. More broadly, previous work has emphasized that meaningful BSSH education should extend beyond the inclusion of individual topics to incorporate humanistic, social, cultural, and structural perspectives throughout medical training [12–14]. Taken together, the present findings and international literature suggest that the challenge is not simply to increase the number of BSSH topics in medical curricula, but to achieve a more comprehensive and coherent integration of the broader domains of BSSH.

Another important finding of this study was that accredited medical faculties incorporated significantly more BSSH topics into their curricula than non-accredited faculties, with a large effect size. One possible explanation for this association is that accreditation processes may encourage closer alignment with NCC standards, including expectations related to BSSH. This finding is consistent with previous reports from other countries. In the United States, accredited medical schools have been shown to incorporate BSSH-related content into their curricula more systematically [10]. Accreditation has been widely recognized as a mechanism for promoting educational quality, supporting continuous curriculum improvement, and enhancing institutional recognition [11]. Supporting this perspective, a recently published international guide on BSSH integration emphasized the importance of developing a national framework to facilitate the systematic incorporation of BSSH into undergraduate medical education [12]. Overall, these findings suggest that accreditation and national curriculum standards may play complementary roles in promoting the integration of BSSH into medical education.

According to the curriculum documents analyzed, BSSH topics were most commonly planned as classroom lectures, indicating that their documented delivery continues to rely predominantly on conventional teaching approaches. This reliance on lecture-based teaching suggests a strong emphasis on content-oriented approaches in the documented curricula, with relatively limited documentation of interactive, experiential, or learner-centered methods. This observation is consistent with previous literature suggesting that effective BSSH education requires more than the inclusion of additional curricular content. Rather, the development of competencies such as communication, professionalism, ethical reasoning, collaboration, and reflective practice depends on educational approaches that are contextual, interdis-

Table 4. Features of BSSH topics

	Features	n	%
Curricular phases of course titles containing BSSH topics	Preclinical	1891	58.65
	Clinical	983	30.49
	Internship	350	10.86
Curriculum containing course title	Committee	1659	56.65
	Internship	1065	36.37
	Other (elective, course, special study module, block etc.)	204	6.97
Training delivery methods	Trainer presentation (lecture/classroom)	2279	79.71
	Skill training practices	137	4.79
	On-the-job/Clinical training	144	5.04
	Seminar	169	5.91
	Other (lab practice, community-based training, case-based training, problem-based learning, team-based learning, etc.)	130	4.49
Measurement and evaluation methods	Theoretical exams	2250	61.37
	Practical exams	201	5.48
	Structured oral	761	20.76
	Competency exam	239	6.52
	Other (mini clinical exams, presentation, simulated patient assessment, project assignments, CORE, OSCE, homework etc.)	154	4.20
	No assessment	61	1.66
Discipline(s) offering the course	Single discipline	2344	96.46
	Multi-disciplinary	86	3.54
Faculty members' faculties	Faculty of medicine	2313	95.46
	Social sciences and others	36	1.49
	Undetermined	74	3.05

BSSH: Behavioral, Social and Human Sciences.

ciplinary, and actively engage learners. A 2016 international consensus report highlighted the importance of contextual and interdisciplinary learning for BSSH education [13], while Cuff and Vanselow similarly recommended interactive educational strategies that integrate BSSH throughout medical training [10]. Bleakley et al. [3] further argued that attributes such as ethical sensitivity, empathy, collaboration, critical reflection, and professional judgment are best developed through educational approaches extending beyond traditional biomedical teaching and incorporating perspectives from the humanities and the arts. Likewise, international experience suggests that BSSH should be introduced early in medical education and reinforced through longitudinal integration across the curriculum rather than being confined to isolated courses [3, 10, 13, 14].

The documented assessment of BSSH topics relied primarily on written examinations and structured oral examinations, whereas performance-based, reflective, and workplace-oriented assessment methods were only rarely reported. This pattern suggests a greater emphasis on knowledge-oriented assessment than on approaches designed to capture broader BSSH-related competencies, such as professionalism, ethical reasoning, reflective capacity, interpersonal skills, and understanding of the social dimensions of health. Previous studies have similarly argued that assessment in BSSH should extend beyond factual knowledge to encompass systems thinking, sociopolitical awareness, and ecological perspectives [12]. A recent systematic review likewise identified reflective writing, self-assessment, structured observation, and written assignments as commonly recommended

approaches for assessing BSSH proficiency, while also highlighting the need for greater standardization and clearer competency frameworks [15]. Consistent with these observations, Carr et al. [16] reported that none of the reviewed studies employed an assessment framework specifically designed for medical humanities education, underscoring the continuing absence of theory-informed and internationally accepted assessment models. These observations highlight the need for competency-based assessment frameworks capable of evaluating the reflective, ethical, interpersonal, and social competencies expected of future physicians.

According to the curriculum documents, responsibility for teaching BSSH-related content was assigned predominantly to departments within faculties of medicine, whereas the involvement of educators from the social sciences and humanities appeared to be very limited. Although physicians play a central role in BSSH education, limited participation of experts from departments such as psychology, sociology, anthropology, philosophy, ethics, and the humanities may constrain students' exposure to the diverse perspectives needed to understand the social, cultural, behavioral, and ethical dimensions of health and illness. Previous literature has consistently emphasized that meaningful BSSH education depends on genuine interdisciplinary collaboration. Collett et al. [13] argued that the active involvement of social scientists is essential for effective BSSH teaching, while the AAMC recommended that BSSH should be delivered through interdisciplinary teams including both physician and non-physician educators [2]. Similarly, Batistatou et al. and Bleakley et al. [3, 17] highlighted that perspectives from the humanities and social sciences – including literature, philosophy, psychology, sociology, and the arts – contribute to the development of empathy, ethical reasoning, communication skills, reflective practice, and professional identity, and therefore should be integrated longitudinally throughout undergraduate medical education rather than confined to isolated courses. Collectively, these findings suggest that strengthening BSSH education requires interdisciplinary collaboration in curriculum design and teaching, enabling students to engage with the multiple perspectives that shape contemporary medical practice.

Overall, the findings suggest that undergraduate medical curricula in Turkiye have established an identifiable curricular core for BSSH education, particularly in areas closely aligned with preventive medicine and public health. However, broader humanistic, structural, and systems-oriented dimensions remain less visible, while teaching, assessment, and faculty composition continue to reflect predominantly traditional educational approaches. Together, these findings provide a baseline against which the implementation of NCC-2020 can be evaluated and may serve to inform future curriculum development aimed at achieving a more comprehensive integration of BSSH into undergraduate medical education.

Study Limitations

This study has several limitations. First, the analysis was restricted to publicly available undergraduate curriculum documents and was based solely on course titles. Because learning objectives, detailed syllabi, committee or internship documents, program outcomes, and assessment materials were not consistently available across institutions, these sources were not included in the analysis. Consequently, some BSSH content embedded within these documents may not have been captured, potentially leading to an underestimation of the extent of BSSH representation in undergraduate medical curricula. Nevertheless, restricting the analysis to publicly available and consistently available data sources ensured a transparent, reproducible, and comparable evaluation across all participating medical faculties. Furthermore, curriculum documents represent the documented rather than the implemented curriculum. Therefore, the term "integration," as used in this study, refers to documented curricular integration and should not be interpreted as evidence of implementation fidelity, educational effectiveness, or achieved student competence.

Conclusion

The present study demonstrates that the documented representation of BSSH in undergraduate medical curricula in Turkiye remains both limited and uneven. Although a common curricular core centered on preventive medicine, public health, and routine professional practice was consistently represented, broader humanistic, structural, and systems-oriented dimensions of BSSH were substantially less visible across curricula. Accredited medical faculties incorporated significantly more BSSH topics into their curricula than non-accredited faculties; however, conventional teaching and assessment approaches predominated, and interdisciplinary participation from the social sciences and humanities remained limited. Taken together, these findings suggest that strengthening BSSH integration requires more than

expanding curricular content alone. Future curriculum development should promote longitudinal integration of BSSH topics, learner-centered teaching, competency-based assessment, and interdisciplinary collaboration. As the findings reflect the period immediately preceding the implementation of NCC-2020, this study provides a baseline against which future developments in the documented integration of BSSH into undergraduate medical education in Turkiye can be evaluated. However, this document-based analysis does not establish the extent to which the documented curriculum was implemented in practice or translated into student learning and competence. Therefore, the findings should be interpreted as evidence of documented curricular integration rather than verified educational implementation or effectiveness.

Appendix Online Link: https://jag.journalagent.com/nci/abs_files/NCI-67760/NCI-67760_(0)_Appendix1-NCI-67760.pdf

Ethics Committee Approval: This study was approved by the Van Yuzuncu Yil University Non-Interventional Clinical Research Ethics Committee (2021/06-02 – 14/05/2021).

Informed Consent: Written informed consents were obtained from patients who participated in this study.

Conflict of Interest: The authors declare that there is no conflict of interest.

Financial Disclosure: The authors declared that this study received no financial support.

Use of AI for Writing Assistance: The authors declared that artificial intelligence was not used in the study.

Authorship Contributions: Concept – SY, MEL; Design – SY; Supervision – SY; Resource – MEL; Materials – MEL; Data Collection and/or Processing – MEL, DKY; Analysis and/or Interpretation – DKY; Literature Search – MEL, MS; Writing – MEL; Critical Reviews – SY, MS.

Peer-review: Externally peer-reviewed.

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