







## The trending topic of specialty in Turkey: Clinical nutrition

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### ABSTRACT

**Objective:** The curriculum of nutritional education covered in medical schools remains inadequate in both, developing and developed countries. In this study, we analyzed the current knowledge and practices regarding clinical nutrition among Turkish clinicians by examining their publications, abstract presentations, and congress participation in the field of clinical nutrition.

**Methods:** We conducted a search on PubMed using the headings "Turkey" and "nutrition" to identify all the published literature on clinical nutrition in Turkey. Abstract books and websites were searched to identify the abstracts published by Turkish clinicians in the Turkish Society of Enteral and Parenteral Nutrition (KEPAN) and the European Society for Clinical Nutrition and Metabolism (ESPEN) Congresses during the period from 2010 to 2020.

**Results:** Total 378 publications on clinical nutrition that were published by Turkish clinicians till the end of 2019 were identified; 43.4% of them were published within the previous 5 years. Most (69.8%) of these publications were from fields related to general clinical nutrition. The first article was published on the subject of malnutrition in 1961. About 500–850 healthcare professionals participated in the KEPAN congresses during the previous decade. The highest participation in these congresses was from physicians, with an increasing interest in nutrition congresses among all healthcare professionals. Abstract submissions increased in each consecutive congress except in the congress held in 2017. The progressive increase in number of abstract submissions from Turkey to the ESPEN congresses peaked in 2018. Turkey was announced as the country with the most abstract submissions to the ESPEN congresses in 2017 and 2018.

**Conclusion:** There is a progressively increasing trend in the number of publications on clinical nutrition in Turkey. KEPAN has played an important role in raising interest in the field of clinical nutrition among clinicians.

**Keywords:** Abstract, clinical nutrition, publication

### Introduction

Malnutrition is common in hospitalized patients; however, nutritional status assessment is often ignored by physicians (1). The amount of nutritional education in medical schools remains inadequate, not only in underdeveloped countries, but also in developed countries, potentially being the underlying cause of undetected malnutrition (2, 3).

Physicians generally believe that they have adequate knowledge and skills regarding patient nutrition (4). Although nutrition education is an essential part of gastro-

intestinal specialty programs, nutritional training is understated in most training programs (5).

Given the inadequate nutrition training provided in medical schools, courses on clinical nutrition provide the opportunity of additional learning to interested individuals. A survey that was performed six months after the completion of a two-day course on clinical nutrition showed the effectiveness of this training program in changing the nutritional management practices of physicians (6). Moreover, a short course on basic nutrition for residents improved their basic knowledge and raised the number of consultation requests for nutritional support (7). Ow-

ing to the physicians' minimal training and experience in nutritional treatment, there is a need for multidisciplinary nutrition support teams in many healthcare facilities (8).

In Turkey, the first clinical nutrition meeting was held in Izmir with the participation of 150 clinicians in February 20, 1993. Thereafter, the Turkish Society of Enteral and Parenteral Nutrition (KEPAN) was founded in 1994. The KEPAN had only 55 members during the first general assembly held on January 21, 1995; currently, the KEPAN has about 1500 multidisciplinary and multi-professional (physicians, dietitians, nurses, and pharmacists) members. Formal collaboration of the KEPAN and the European Society of Parenteral and Enteral Nutrition (ESPEN) began during the ESPEN congress that was held in Rome in 1995; Turkey was then accepted as a council member of the ESPEN (9).

The KEPAN organizes national clinical nutrition congresses in Turkey every alternate year. The first congress was held in 1996, followed by those in 1998, 2000, 2002, and 2004. The 2006 congress was a joint meeting of the KEPAN and the ESPEN. The subsequent congresses were organized in 2009, 2011, 2013, 2015, 2017, and 2019. In addition to the congresses, in 1997, the KEPAN started the Total Nutritional Therapy (TNT) program that is expected to be on going for 10 years in several centers in many different regions of the country. Since 2006, KEPAN started to implement the Lifelong Learning (LLL) courses organized by the ESPEN by translating it into the Turkish language. Currently, the KEPAN has 42 teachers with ESPEN TLL diploma and the KEPAN is capable of providing 13 LLL modules in Turkish, meeting the requirement for obtaining an ESPEN diploma. Thus far, three clinicians from Turkey have earned the ESPEN diploma. Six LLL module-training sessions (three modules in the morning and three in the afternoon) are conducted regularly twice each year. In 2017, the KEPAN organized a course targeted only at state hospital pharmacists; the 240 participating pharmacists were divided into four different groups. Each of the 10 LLL courses was conducted separately for each group (9). Moreover, the KEPAN has played an important role by preparing the modules of the "ESPEN Pre G LLL Modules" program that aim to provide students with the basic concepts of clinical nutrition in the Faculty of Medicine.

### Main Points

- The number of research on clinical nutrition is expanding in Turkey.
- KEPAN has a positive influence on improvement of clinical nutrition practices and knowledge in Turkey.
- Multidisciplinary approach on clinical nutrition is promising in Turkey.

To our knowledge, the first Clinical Nutrition Student Congress was organized by the KEPAN in 2016 to raise awareness among healthcare students (medical, dietetics, nursing, and pharmacy) schools. Thereafter, this congress has been organized annually in different regions of Turkey, and about 400 students have participated each year (9).

Furthermore, in order to increase the awareness regarding malnutrition among primary healthcare professionals (doctors, dietitians, nurses) to enable them to identify patients at risk of malnutrition and refer them to upper-level healthcare institutions for nutritional therapy, the KEPAN organized education programs in 2019 and 2020. Total 998 clinicians participated in these education programs in 11 groups in seven different cities of Turkey (9). This project was conducted as a part of the Optimal Nutritional Care for All (ONCA) activities.

The KEPAN plays an important role in Turkey in terms of improving the education and encouraging scientific publication and congress participation by clinicians working in the field of clinical nutrition. The KEPAN supports and encourage the clinicians' practice and research interest in clinical nutrition. At least 100 participants were provided sponsorship by the KEPAN for congresses participation. Moreover, any KEPAN member whose abstract has been accepted by the ESPEN congresses is supported for their registration fees by the KEPAN. In addition, the KEPAN provides financial support to members when they apply with a publication indexed in Science Citation Index or Science Citation Index-Expanded. Annual financial research project support is also provided for up to five research projects conducted in Turkey.

This study aimed to assess the current knowledge and practices regarding clinical nutrition among Turkish clinicians by examining the publications, abstracts, and congress participation in the field of clinical nutrition.

## Methods

Medline search was conducted on PubMed® (U.S. National Library of Medicine, National Institutes of Health, USA) (10) using the headings "Turkey" and "nutrition" to identify all the literature published by Turkish clinicians till 2019 on subjects related to clinical nutrition. Although enteral nutrition and parenteral nutrition are parts of clinical nutrition, publications were classified as those on clinical nutrition (other than parenteral and enteral nutrition), parenteral nutrition, enteral nutrition, and in vitro clinical nutrition.

Abstract books of the KEPAN congresses were checked to determine the total number of abstracts published in

the previous decade. Details of congress participation by healthcare professionals were obtained from the KEPAN bulletins (9) and from the congress organization agency.

Total number of abstracts and abstracts submitted by Turkish clinicians at the ESPEN congresses in the previous decade were identified by browsing the data available on the ESPEN website regarding previous congresses (11).

No statistical analyses were performed. The values represent the frequencies for the categorical variables.

## Results

Total 4162 publications were identified using the headings "clinical nutrition and Turkey" in the PubMed search conducted on April 10, 2020. We excluded 625 of these studies that were not authored by Turkish researchers and 3159 that were not related to the field of clinical nutrition (including studies on eating habits, diet, breast-feeding, nutritional status of plants, and animal feeding). Finally, 378 publications from Turkey in the field of clinical nutrition that were published till the end of the year 2019 were evaluated (Figure 1). Almost

**Table 1. Distribution of the published literature (PubMed) from Turkey in the field of clinical nutrition**

	Clinical nutrition	Parenteral nutrition	Enteral nutrition	<i>In vitro</i> clinical nutrition studies	Total
1960–1969	5	0	0	0	5
1970–1979	1	0	0	0	1
1980–1989	1	0	0	0	1
1990–1999	9	2	2	3	16
2000	2	2	1	0	5
2001	5	0	0	2	7
2002	5	1	1	3	10
2003	6	0	1	2	9
2004	5	0	3	1	9
2005	9	1	3	0	13
2006	10	2	2	0	14
2007	5	5	9	0	19
2008	11	1	0	0	12
2009	6	0	4	0	10
2010	4	0	3	0	7
2011	5	6	1	0	12
2012	4	5	5	0	14
2013	23	2	2	1	28
2014	18	3	1	0	22
2015	16	1	4	1	22
2016	33	4	4	0	41
2017	10	2	1	0	13
2018	38	5	2	0	45
2019	33	4	5	1	43
Total	264	46	54	14	378

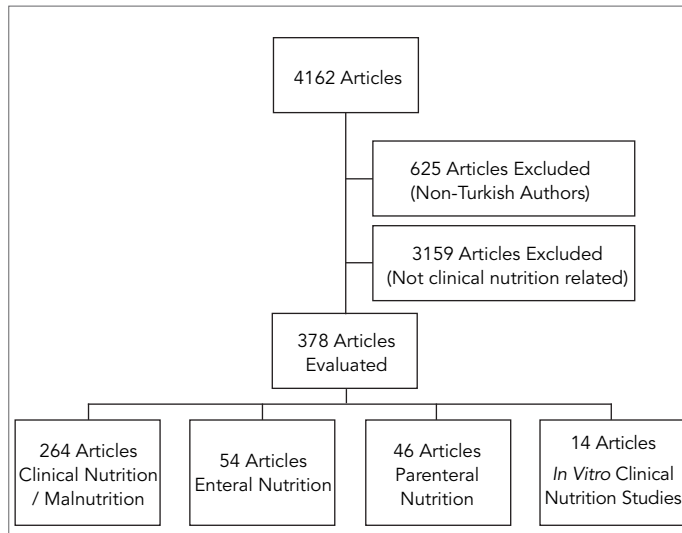


Figure 1. Analysis of the PubMed literature search

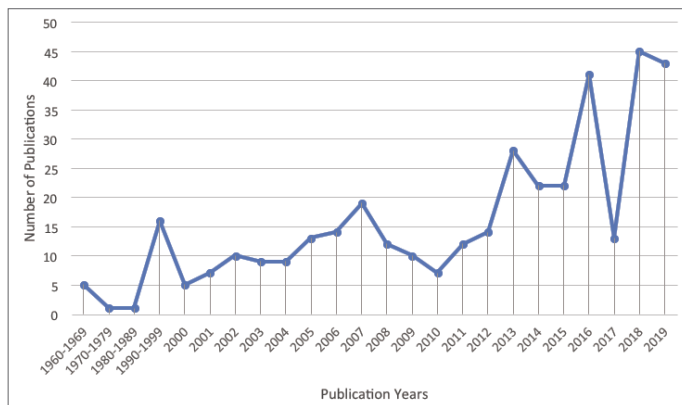


Figure 2. The trend of publications per year

half of these (43.4%) were published in the previous five years. Majority of these (69.8%) were related to general clinical nutrition. The total number of publications on enteral nutrition was higher than that on parenteral nutrition.

The year-wise distribution of these publications is shown in Table 1 and the trend of the publications is shown in Figure 2. There was an increasing trend in the number of publications from Turkey, except in 2017. The first article from Turkey was on the subject of malnutrition and was published in 1961 (12).

About 500–850 healthcare professionals participated in the KEPAN congress each year during the previous decade. The highest participation was by physicians, and there was an increasing interest of all healthcare professionals in the nutrition congresses (Table 2). In addition, abstract submissions increased in each successive congress except in that held during 2017.

The interest of Turkish clinicians in clinical nutrition is not limited to national congresses. They also attended the ESPEN congresses and submitted abstracts to this congress (Table 3). An increasing number of abstracts was submitted from Turkey to the ESPEN congresses during the previous decade, with most number of submissions being made in 2018. Turkey submitted the highest number of abstracts to the ESPEN congress in both 2017 and 2018. Of the total abstracts submitted to the ESPEN congress in 2017 and 2018, 13.36% (2017) and 25.31% (2018), respectively, were from Turkey.

Table 2. Abstracts and participation of healthcare professionals in the KEPAN congresses during the previous decade

	2011	2013	2015	2017	2019
<b>Abstracts, n</b>					
Oral	5*	5*	5*	6*	72
Poster	50	79	119	77	68
Total	55	84	124	83	140
<b>Participation of healthcare professionals, n</b>					
Physician	353	391	411	519	449
Dietician	119	107	131	165	212
Nurse	46	51	62	112	76
Pharmacist	10	35	17	29	31
Total	528	584	621	825	768

\*Oral presentations were limited to the best posters by the organizing committee.

**Table 3. Contribution to ESPEN congresses from Turkey with abstracts in the last decade**

Years	Total Number of Abstracts, n	Abstracts From Turkey, n (%)
2010	437	10 (2.29)
2011	588	7 (1.19)
2012	694	16 (2.31)
2013	619	6 (0.97)
2014	619	25 (4.04)
2015	689	19 (2.76)
2016	684	51 (7.46)
2017	681	91* (13.36)
2018	636	161* (25.31)
2019	702	59 (8.40)

\*Top country

## Discussion

In general, there is a consistent increase in the number of clinical nutrition publications and abstract submissions to the both the KEPAN and ESPEN congresses and participation in the KEPAN congresses by clinicians from Turkey. The support provided by the KEPAN in the form of financial support for publications, projects, registration fee of members with an accepted abstract for the ESPEN congress, and KEPAN congress sponsorship, might have exerted a positive influence on this trend.

The decline in the number of publications and abstracts for the KEPAN congress in 2017 could be explained by the coup attempt in Turkey during July 15, 2016 that might have reduced the motivation of clinicians. However, abstract submissions for the ESPEN congress in 2016 and 2017 were unaffected because the abstract submission deadline for the 2016 ESPEN congress was over in April 2016, 3 months before the coup attempt. Further, by the time of abstract submission deadline for the 2017 ESPEN congress, the researchers had enough time to recover from their negative motivation.

The participation of almost all the clinicians in the KEPAN congresses was sponsored either by the KEPAN or the nutrition industry. The nutrition industry reduced their budget to congress sponsorships in 2019; thus, there was a reduction in the number of healthcare professionals who participated in the KEPAN in spite of doubling of the KEPAN sponsorship.

In Turkey, additional payment to the academic staff as per their projects, researches, publications, patents, citations, and award, called the "academic incentive allowance" has been applied since 2016 (13). However, the criteria for this allowance have been revised almost every year. The "academic incentive allowance" criteria and academic promotion criteria exert an important influence on academicians in terms of congress participation and abstract submission. National congress abstract acceptances were not included in the "academic incentive allowance" criteria; therefore, number of abstract submissions to the KEPAN-2017 congress declined. However, oral poster presentation is a "must" criterion for academic promotion, resulting in increased number of oral poster sessions at the KEPAN-2019 congress which had a positive influence on increased number of abstract submission to KEPAN-2019 Congress. Although Turkey was declared as the country with the highest number of abstract submissions to the ESPEN congresses in both, 2017 and 2018, the revision of the "international congress abstract criteria" to only "full-text abstract" for "academic incentive allowance" during the previous year led to a decline in the number of abstracts submitted to the ESPEN-2019 congress.

This study has certain limitations. Abstract submission to the American Society for Parenteral and Enteral Nutrition congress was not assessed. Since the first study from Turkey on clinical nutrition was published in 1961, it was not possible to evaluate the publications according to the journal publishing index such as SCI/SCI-Expanded or rankings of the journals.

In Turkey, clinical nutrition has been a trending topic of research in the previous few decades. The KEPAN plays an important role in Turkey in increasing the interest of clinicians in the field of clinical nutrition. Promoting advances in the training of nutrition in medical and related healthcare schools, such as those for nursing, pharmacy, and dietetics may further help increase the interest in this field.

**Ethics Committee Approval:** Authors declared that the research was conducted according to the principles of the World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects", (amended in October 2013).

**Informed Consent:** Due to the design of the study, informed consent was not taken.

**Peer-review:** Externally peer-reviewed.

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Literature Search – K.D.; Writing Manuscript – K.D.; Clinical Review – H.G., M.U., S.K., K.Demirağ, O.A.

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