



Clinical Dietetics Practice Audit in India: A Collateral Collaboration of Dietitians from India and the United States

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DIETETICS IS A GLOBAL PROFESSION, yet there are significant differences in dietetics education, training, and scope of practice among countries.¹ The International Confederation of Dietetic Associations (ICDA) facilitates international professional definitions to address these differences. A dietitian is defined as a professional who applies the science of food and nutrition to promote health, prevent and treat disease, and to optimize the health of individuals, groups, communities, and populations.² Since 1996, ICDA has periodically published reports summarizing education and activities reported by national dietetic organizations.^{1,3-6} Credentialing requirements also differ worldwide. ICDA reports identify voluntary criteria, and many countries have eligibility requirements related to education, supervised practice, competencies, or examinations. Some input provided to ICDA from national dietetics organizations is supported by practice audit results; however, many countries have not conducted practice audits. Because the profession of dietetics is increasingly becoming global, one must understand similarities and differences in dietetics across the globe.

WHO PRACTICES AS DIETITIANS IN INDIA?

The belief that food contributes to both causing and healing disease is deeply rooted in the historical health belief system in India. Ayurvedic principles originated in the Veda era in India and

continue today.^{7,8} Agni is the universal principle of transformation that manifests as our digestive fire; it mediates between the internal and external, transforming food into bodily tissue and waste, interpreting information into experiential knowledge, and discerning between nutritious material and waste products.⁸ These beliefs in the need for and healing power of food in health serve as the basis of the modern dietetics profession in India.

The current dietetics profession in India became organized in 1962, when the Indian Dietetic Association (IDA) was formed (Jagmeet Madan, Indian Dietetic Association, personal communication, December 5, 2021). The Indian Dietetic Association functions similarly to the Academy of Nutrition and Dietetics. Initially, a life membership category served to recognize dietetics professionals. Significant milestones during the evolution of the dietetics profession in India include the following:

- **1962:** Dietetics profession organized. IDA Life Membership category created based on academic degree or for medical doctors interested in nutrition.
- **1981:** Honorary Registered Dietitian (RD; Unless specified as US RDN, the term RD will be used to refer to the credential issues by the Indian Dietetic Association and RD Board of the Indian Dietetic Association) credential introduced based on academic food and nutrition degrees and experience (in multispecialty hospital or teaching clinical nutrition).

- **1995:** RD credential created based on examination in addition to academic and experience requirements. List of hospitals approved for internships published. Academic syllabus created.
- **2009:** Train-the-trainer workshops conducted for educators on a newly developed competency package.
- **2012:** Academic requirements changed to any graduate with degree in Food Nutrition and Dietetics with 1 or 2 years of postgraduate degree. Requirements introduced for dietetic trainers (preceptors) for internships. Alternate non-internship experience route added (2 years of experience in multispecialty hospitals).
- **2016:** Six-month continuous internship requirement added. Revised competency package to add research; 50 case studies required.
- **2018:** Non-internship multispecialty experience route increased to 5 years.
- **2020:** In response to COVID, a virtual program offered for students (orientation, case studies, and refresher course) and train-the-trainer workshops. Increased the number of examination centers to seven.

Currently, to be eligible to take the registration examination, professionals can gain the required experience through one of two pathways: a formal internship or 5 years of employment in multispecialty hospitals.

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Universities develop their own curricula for awarding food and nutrition academic degrees within University Grants Commission guidelines.⁹ IDA also posts recommended curriculum subjects necessary to meet requirements to take the RD examination.¹⁰ However, curricula leading to “food and nutrition degrees” in India are heterogenous. Universities are increasingly offering master of science programs focusing specifically on clinical nutrition or clinical dietetics.

By 2021, 901 individuals had been awarded the RD credential from the RD Board of India (similar to the Commission on Dietetics Registration for the Academy of Nutrition and Dietetics) (Bamini Murugesh, RD Board of India, personal communication, January 12, 2022). The average examination pass rate is 10% to 15%. An estimated 10,000 to 15,000 dietitians are IDA members (eg, RDs, life members). An estimated 10,000 dietitians have submitted documentation and been approved as IDA life members, but how many are still practicing dietetics is unknown.

IDA is recognized as the professional association for both RDs and non-RDs in India. Many other dietitians are also employed and practicing in India, but the number is unknown. There is currently no legal or universally accepted definition of the skills, competencies, or educational requirements for non-RD practitioners in India. Clients and the health care organizations that employ dietitians have no assurances that practitioners who are not IDA life members are qualified to provide the services they currently deliver.

WHAT IS A PRACTICE AUDIT?

A practice audit, sometimes referred to as a role delineation study, is an empirical practice analysis designed to collect information about what dietitians do in practice in various settings.¹¹ The results are used by professional associations, educators, and credentialing agencies to (1) develop evidence-based requirements for dietetics educational preparation and (2) certify that dietetic practitioners have achieved the necessary knowledge, skills, and competencies. Ultimately, the credential protects the public by ensuring that those who

possess it have the requisite knowledge and skills to provide safe care.

The Academy of Nutrition and Dietetics (Academy) has been conducting and using practice audit results following the first role delineation studies in the early 1980s.¹²⁻¹⁴ The first practice audit update was conducted in 1995 and published in 1996.¹¹ The Academy conducts updates (usually every 5 years) to ensure that the guidance being used to govern the profession is consistent with current dietetics practice.¹⁵⁻¹⁹ The most recent practice audit completed in 2020 includes similar questions to those on the 2015 practice audit.²⁰ In the United States, the emphasis is on understanding the requirements for entry-level practice. The Commission on Dietetic Registration defines *entry level* as ≤ 3 years since registration.²⁰ The most recent Academy Practice Audit sample included all US registered dietitian nutritionists (RDN)s in their first 5 years of practice.²⁰ As in past practice audits, the results show that entry-level US RDNs (with ≤ 3 years of experience) are different from those with ≥ 4 years of practice.²⁰ Practice audits include demographic data and a list of activities.²⁰ For each activity included in the practice audit, participants are asked to describe the ways of involvement (not involved, performed under supervision, performed without supervision, or supervise/manage), frequency of involvement (daily, weekly, or monthly), and perception of risk to the public if the activity is not performed satisfactorily (very low, low, moderate, high, or very high).²⁰

Although the Academy Practice Audit includes the breadth of US RDNs practice, the focus for this project in India was only on the activities that involved nutrition care and research. For this study, the project team and the RD Board reviewed the questions used in the 2015 Practice Audit to determine which would apply to clinical dietetics practice in India.¹⁹ They selected five nutrition screening activities, 25 nutrition assessment and monitoring/evaluation activities, 36 nutrition diagnosis and nutrition intervention activities, and six research activities. For some items, the activities were separated because the researchers believed there could be differences in how the two components of the activity would be rated in India (eg, separation of

calculation of nutrients and fluid, or separation of conducting vs evaluating nutrition-focused physical examinations). Demographic questions were tailored to IDA requirements for eligibility to become an RD.

WHY ARE PRACTICE AUDIT RESULTS IMPORTANT IN INDIA?

Few data are currently available about dietetic practice in India, other than registration examination results. Despite the continued evolution of requirements designed to create a common skillset and baseline knowledge for dietitians, considerable heterogeneity exists in the educational preparation of dietitians across India. The core curriculum varies considerably between educational programs and institutions.¹⁰

In 2021, the Government of India passed the National Commission for Allied and Healthcare Professions Bill, which includes nutritionists.²¹ This bill has started the process of recognizing nutrition and dietetics as one of the important allied health care professions in India. Such recognition implies standardization of the prerequisite curriculum, training, skills, and qualifications supported with experiential learning and certification of competence.

A vital part of the Indian government recognition process is having reliable data to document current activities. IDA, the largest Indian organization representing nutrition and dietetics practitioners, is widely connected with government agencies and professional organizations and is well positioned to take the lead in this initiative. These practice audit data are necessary to establish a baseline for promoting guidelines for homogeneity in educational preparation throughout India. Ideally this effort will standardize the requirements centrally and then disseminate them nationwide.

The primary objective of the clinical audit was to identify core dietetics activities performed by Indian dietitians providing clinical care using a methodology similar to the 2015 Academy Practice Audit. Secondary objectives were to describe demographic characteristics of dietitians in India and examine differences between RDs and non-RDs in experience levels, rural vs urban settings, and education.

HOW WAS THE PRACTICE AUDIT INFORMATION GATHERED?

Figure 1 presents milestones in the 2021 India clinical practice audit. We received permission from the Commission on Dietetic Registration to use the questions and adapted methodology from the 2015 Practice Audit (Christine Reidy, Commission on Accreditation, personal communication, September 16, 2019). The questions were reviewed with the RD Board and the project team to make modifications to the demographic data and select those most relevant to clinical dietetics practice and research. The ethics review was completed by PSG College of Technology, who deemed the study exempt (Sri P S Govindasamy Naidu was one of the sons of Sri Sama Naidu and hence the third letter in the name 'PSG' signifies him. The founders propelled several charity expeditions through generations and have hence immortalized the name "PSG."). The questionnaire was pilot tested by PSG graduate students with dietitians to verify that it was clear and understandable.

The project team and the RD Board developed a plan to invite practicing dietitians in India to complete the questionnaire. Regional IDA chapters have different formats for contacting their members; however, a centralized digitized member database was not available. IDA had a list of RD trainers, university dietetics program directors, and IDA conference attendees. At the 2021 International IDA Convention, the President of the IDA introduced the concept of the practice audit.²² Invitations were sent out from January through April 2021 via e-mail and through WhatsApp messages, social media posts (Facebook or Instagram), and a link on the IDA website. University dietetics education program directors were sent e-mail invitations and asked to share them with other dietetics faculty and program graduates (ie, snowball technique). Other nutrition societies were also asked to distribute e-mail invitations to their members who were dietitians (eg, Nutrition Society of India, Indian Association for Parenteral and Enteral Nutrition, and Indian Society of Parenteral and Enteral Nutrition). Most participants responded to weblinks distributed through e-mail and WhatsApp (n = 1,573) and social media (n = 546). Because of the COVID-

19 pandemic, data collection stopped in May 2021.

WHO ANSWERED THE PRACTICE AUDIT QUESTIONNAIRE?

Of 2,119 respondents who completed the demographic questions by May 31, 2021, 778 were screened as eligible to complete the clinical dietetics and research practice audit questions because their practice included providing nutrition care. Table 1 summarizes the demographics for dietitians who responded.

Dietitians who completed the clinical practice audit were different from other dietitians in all demographics (Table 1), as follows:

- More likely to be RDs (23% vs 11.6%)
- More experienced
 - Less likely to have <3 years of experience (39% vs 52%)
 - More likely to have >10 years of experience (30% vs 16.7%)
- Less likely to be professors (1% vs 13%)
- More likely to have their highest degree as a master's in food and nutrition/dietetics (66% vs 57%)
- More likely to have had a master's degree in food and nutrition/dietetics when first hired as a dietitian (73% vs 60%)

WHAT WERE THE CORE ACTIVITIES?

Criteria from the Practice Audits were used to determine core activities for dietitians from India.^{19,20} Core activities were defined as those in which at least 40% of practicing dietitians were involved in some way, and the average frequency of involvement was at least 5 days per month.

The Practice Audits only report core activities for entry-level US RDNs (≤ 3 years since registration).^{19,20} Because of the differences in experience requirements to become an RD in India, the distinction of entry level starting when the US RDN credential is awarded is not applicable. In contrast to the Academy practice audit reporting exclusively entry-level dietitian data, in the RD sample for the India practice audit, only 39% of dietitians had <3 years as an RD, and many of those also reported additional years of experience as non-RDs.

Table 2 summarizes the frequency, mean, and standard error for responses for all dietitians who completed the clinical practice audit. Of all 72 Nutrition Care/Research activity statements, 68 (94%) were core activities for dietitians of all experience levels. The 34 items (47%) that met the criteria for entry-level US RDNs in the 2020 Practice Audit are denoted in Table 2.

Only four activities were identified as non-core activities because $<40\%$ of respondents reported involvement:

- Recommend medications
- Write orders for medications
- Conduct grocery store tours
- Negotiate payment from third-party payers and other health care decision-makers (eg, physicians, administrators) to promote client/patient access to care

HOW WERE THE DATA ANALYZED?

Four factors were identified as potentially affecting the practice of dietetics in India: credentialing status (eg, RD vs non-RD), experience level, setting (eg, urban vs rural), and education.

An analysis of RDs' vs non-RDs' level of involvement, frequency of involvement, and perception of risk was compared using frequency and percentage tables. The association between RDs and non-RDs in a core activity was analyzed using Pearson's χ^2 and Fisher's exact test.

The data were analyzed to determine significant differences in the reported level of involvement between task categories (Nutrition Screening, Nutrition Assessment and Monitoring/Evaluation, Nutrition Diagnosis/Nutrition Intervention, and Research) by using independent-sample *t* tests for credentialing status (RD vs non-RD), setting (rural vs urban), and experience level (entry level and beyond). Furthermore, significant differences were analyzed using analysis of variance for education and experience levels and in post hoc tests, using Tamhane multiple comparisons and least significant difference tests applied to check the differences in specific groups. IBM SPSS Statistics (version 27) was used for all analyses.

PRACTICE APPLICATIONS

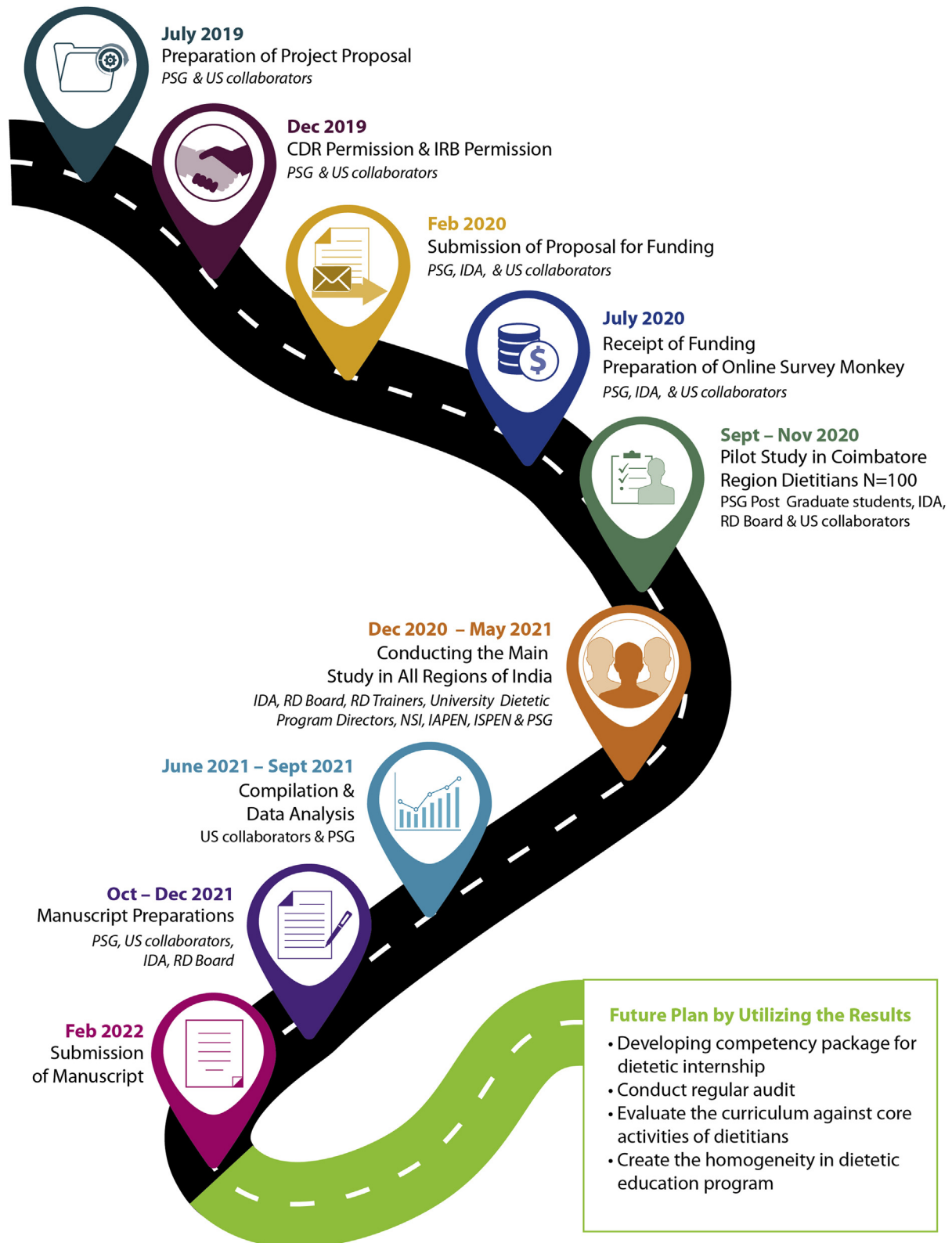


Figure 1. Project process timeline for the 2021 Indian Clinical Dietetics Practice Audit. CDR = Commission on Dietetic Registration; IAPEN = Indian Association of Parenteral and Enteral Nutrition; IDA = Indian Dietetic Association; IRB = institutional review board; ISPEN = Indian Society of Parenteral and Enteral Nutrition; NSI = Nutrition Society of India; PSG = PSG College of Arts and Science.

Table 1. Selected characteristics of respondents to the 2021 Indian Clinical Dietetics Practice Audit, including dietitians (n = 2,119), dietitians in clinical dietetics (n = 778), registered dietitians (n = 179), and nonregistered dietitians (n = 543)

Variable	All (n = 2,119)	Screened as ineligible to complete clinical practice audit (n = 1,351)	Completed clinical practice audit (n = 778)	Responses		
				RDs (n = 179)	Non-RDs (n = 543)	Other (n = 56)
Credential^a						
RD	279 (13)	100 (11.6)	179 (23)			
Non-RD	1,840 (87)	1,251 (88.4)	599 (77)			
Years of Employment						
RD employed as RD	1,545	805	740	179		
<3	116 (41.58)	47 (52.2)	69 (39)	69 (39)		
3–5	29 (10.39)	13 (14.4)	16 (9)	16 (9)		
5–10	55 (19.71)	15 (16.7)	40 (22)	40 (22)		
≥10	69 (24.73)	15 (16.7)	54 (30)	54 (30)		
Non-RD employed as non-RD				130	543	
<3	343 (32.82)	160 (33.5)	183 (34)	46 (35)	183 (34)	
3–5	143 (13.68)	64 (13.4)	79 (15)	19 (15)	79 (15)	
5–10	254 (24.31)	127 (26.6)	127 (23)	35 (27)	127 (23)	
≥10	281 (26.89)	127 (26.6)	154 (28)	30 (23)	154 (28)	
Only other nutrition-dietetics employment ^b				58	65	18
<3	145 (46.03)	137 (57.8)	8 (44)	44 (76)	41 (63)	8 (44)
3–5	33 (10.48)	29 (12.2)	4 (22)	5 (9)	7 (11)	4 (22)
5–10	44 (13.97)	42 (17.7)	2 (11)	5 (9)	9 (14)	2 (11)
≥10	33 (10.48)	29 (12.2)	4 (22)	4 (7)	8 (12)	4 (22)
Current Employment						
Select the location of your primary employment	1,211	444	767	178	536	54
Rural	149 (7.03)	51 (11.5)	98 (12.6)	16 (9)	67 (12)	16 (30)
Urban	1,062 (50.12)	393 (88.5)	669 (86)	162 (91)	469 (86)	38 (70)
Current employment situation	1,154	442	732	179	534	50
Nutrition/dietetics-related paid position						
Employed in 1	545 (47)	205 (46)	340 (46)	100 (56)	223 (42)	17 (34)
Self-employed in 1 (e.g., consultant, independent contractor, private sector)	277 (24)	93 (21)	184 (25)	38 (21)	127 (24)	19 (38)
Employed in ≥2	92 (8)	34 (8)	58 (8)	16 (9)	37 (7)	5 (10)
Self-employed in ≥2	63 (5)	18 (4)	45 (6)	4 (2)	37 (7)	4 (8)
Owner or partner of a nutrition/ dietetics enterprise that employs others	71 (6)	29 (7)	42 (6)	7 (4)	33 (6)	2 (4)
Volunteering in unpaid nutrition/ dietetics-related position(s)	4	1	3	2 (1)	24 (4)	1 (2)

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Table 1. Selected characteristics of respondents to the 2021 Indian Clinical Dietetics Practice Audit, including dietitians (n = 2,119), dietitians in clinical dietetics (n = 778), registered dietitians (n = 179), and nonregistered dietitians (n = 543) (continued)

Variable	All (n = 2,119)	Screened as ineligible to complete clinical practice audit (n = 1,351)	Completed clinical practice audit (n = 778)	Responses		
				RDs (n = 179)	Non-RDs (n = 543)	Other (n = 56)
Not employed						
Other reason	56 (5)	26 (6)	30 (4)	5 (3)	29 (5)	0 (0)
Raising a family	42 (4)	15 (3)	27 (4)	5 (3)	23 (4)	2 (4)
Retired	4	1	3	2 (1)	1 (0)	0 (0)
Full job title of your primary position	1,185	432	753	177	530	32
Junior clinical dietitian/nutritionist	51 (4)	14 (3)	37 (5)	7 (14)	27 (5)	3 (9)
Dietitian	340 (29)	105 (24)	235 (31)	45 (25)	182 (34)	8 (25)
Clinical dietitian/nutritionist	296 (25)	97 (22)	199 (26)	39 (22)	143 (27)	3 (9)
Senior dietitian/chief dietitian/ senior nutrition/manager	190 (16)	53 (12)	137 (18)	52 (29)	83 (16)	2 (6)
Consultants/educators/counselor	177 (15)	72 (17)	105 (14)	24 (14)	72 (14)	9 (28)
Public health nutritionist	9 (1)	5 (1)	4 (1)	1 (1)	2 (0)	1 (3)
Professor	63 (5)	55 (13)	8 (1)	2 (1)	4 (1)	2 (6)
Other	59 (5)	31 (7)	28 (4)	7 (4)	17 (3)	4 (13)
Average hours worked per week in primary position	1,160	418	742	173	522	47
<20 (part time)	327 (28)	134 (32)	193 (26)	42 (24)	134 (26)	17 (36)
20–39 (less than full time)	200 (17)	66 (16)	134 (18)	32 (18)	95 (18)	7 (15)
≥40 (full time)	633 (55)	218 (52)	415 (56)	99 (57)	293 (56)	23 (49)
RD is a requirement for employment in primary position	1,210	443	767	178	537	52
Required	153 (13)	58 (13)	95 (12)	23 (13)	64 (13)	8 (15)
Preferred but not required	583 (48)	177 (40)	406 (53)	100 (56)	277 (56)	29 (56)
Makes no difference	474 (39)	208 (47)	266 (35)	55 (31)	196 (36)	15 (29)
Other credentials are required for employment in primary position	2,119	1,341	778	178		52
Yes	1,220 (58)	1,031 (77)	189 (24)	52 (29)		16 (31)
No	899 (42)	310 (23)	589 (76)	126 (71)		36 (69)
Educational preparation						
Highest level of education earned	688	407	279	63	190	26
3- to 6-mo certificate course in nutrition and dietetics-related education	14 (2)	9 (2)	5 (2)	1 (2)	2 (1)	1 (4)
Bachelor's degree						
Food, nutrition, and dietetics	40 (6)	23 (6)	17 (6)	1 (2)	12 (6)	6 (23)
Life/biological sciences or other	5 (1)	3 (1)	2 (1)	1 (2)	1 (1)	1 (4)
Postgraduate diploma in clinical nutrition and dietetics	100 (15)	55 (14)	45 (16)	16 (25)	29 (15)	1 (4)
Master's degree						
Food, nutrition, and dietetics	417 (61)	233 (57)	184 (66)	34 (54)	134 (71)	16 (62)
Life/biological sciences or other	6 (1)	2 (0)	4 (1)	1 (2)	2 (1)	0 (0)

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Table 1. Selected characteristics of respondents to the 2021 Indian Clinical Dietetics Practice Audit, including dietitians (n = 2,119), dietitians in clinical dietetics (n = 778), registered dietitians (n = 179), and nonregistered dietitians (n = 543) (continued)

Variable	All (n = 2,119)	Screened as ineligible to complete clinical practice audit (n = 1,351)	Completed clinical practice audit (n = 778)	Responses		
				RDs (n = 179)	Non-RDs (n = 543)	Other (n = 56)
Doctorate						
Food, nutrition, and dietetics	56 (8)	39 (10)	17 (6)	7 (11)	8 (4)	1 (4)
Life/biological sciences or other	4 (1)	3 (1)	1	0 (0)	0 (0)	0 (0)
Foreign	2	— ^c	—	0 (0)	0 (0)	0 (0)
Other (please specify)	44 (6)	40 (10)	4 (1)	2 (1)	2 (1)	0 (0)
Type of sponsoring organization and mode of learning for your highest level of education	645	360	285	63	192	26
University Grants Commission (UGC)-recognized university						
In person (full- or part-time)	492 (76)	267 (74)	225 (79)	53 (84)	154 (80)	22 (85)
Distance learning	66 (10)	36 (4.7)	30 (11)	2 (3)	23 (12)	2 (8)
Accredited foreign university, in person (full- or part-time) student	28 (4)	16 (4)	12 (4)	2 (3)	4 (2)	1 (4)
Non-UGC-recognized university						
In person (full- or part-time)	40 (6)	30 (8)	10 (4)	5 (8)	5 (3)	1 (4)
In person (full- or part-time) or distance learning from private institution	19 (3)	11 (3)	8 (3)	1 (2)	6 (3)	0 (0)
Highest level of education when first employed as a dietitian	1,550	403	285	66	193	226
3- to 6-mo certificate course in nutrition and dietetics-related education	23 (1)	15 (4)	8 (3)	2 (3)	5 (3)	1 (4)
Bachelor's degree						
Food, nutrition, and dietetics	99 (6)	56 (14)	43 (15)	7 (11)	30 (16)	6 (23)
Life/biological sciences or other	13 (1)	9 (2)	4 (1)	0 (0)	3 (2)	1 (4)
Unknown plus diploma course	39 (3)	26 (6)	13 (5)	4 (6)	140 (73)	16 (62)
Master's degree						
Food, nutrition, and dietetics	448 (29)	240 (60)	208 (73)	52 (79)	5 (3)	0 (0)
Life/biological sciences or other	42 (3)	37 (9)	5 (2)	0 (0)	2 (1)	1 (4)
Doctorate						
Food, nutrition, and dietetics	24 (2)	20 (5)	4 (1)	1 (2)	8 (4)	1 (4)
Life/biological sciences or other	4 (0)	—	—	0 (0)	0 (0)	0 (0)
Other (please specify)	858 (55)	—	—	0 (0)	0 (0)	0 (0)

Data are presented as n or n (%). Abbreviations: RD = registered dietitian; UGC = University Grants Commission.

^aA participant was classified as an RD if they answered the question verifying they were an RD OR if they identified any years worked as an RD. Participants were classified as non-RDs if they recorded only years worked as a non-RD or recorded years worked as both non-RD and other. If the participant only recorded years worked as "other," they were classified as other. "Other" included working in wellness centers, communications, and education.

^bIndicates employment where being a dietitian was not required (health educator coach, sports nutritionist, school nutrition counselor, wellness).

^cDashes indicate not available.

Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit

Activity	Ways Involved							Frequency of Involvement			Risk								
	%							%			%								
	1	2	3	4			24	4	1	1	2	3	4	5					
	Involved, % ^a	Not involved	Perform Under Supervision	perform Without Supervision	supervise/ Manage	Total, n	Scale, $\mu \pm SE$	Daily	Weekly	Monthly	Total, n	Scale, $\mu \pm SE$	Very low	Low	Moderate	High	Very high	Total, n	Scale, $\mu \pm SE$
Nutrition screening^a																			
Take health measurements (eg, blood pressure, blood glucose, hemoglobin, and cholesterol)	64.3	35.7	29.6	11.1	23.6	740	2.22 \pm 0.043	50.9	17.3	31.8	220.0	13.23 \pm 0.743	20.4	11.7	32.0	27.2	8.7	206.0	2.92 \pm 0.087
Perform anthropometric measurements*	91.2	8.8	22.4	38.4	30.5	774	2.91 \pm 0.034	48.3	30.1	21.6	263.0	13.02 \pm 0.589	25.5	18.0	34.6	16.7	5.2	246.0	2.58 \pm 0.067
Take diet histories*	98.8	1.2	19.5	47.7	31.6	775	3.10 \pm 0.027	70.6	22.0	7.4	364.0	17.90 \pm 0.497	27.2	12.2	31.6	21.5	7.5	335.0	2.70 \pm 0.0698
Collect nutrition data to identify at-risk population groups*	77.3	22.7	19.9	31.6	25.8	748	2.60 \pm 0.040	41.1	27.9	30.9	265.0	11.30 \pm 0.656	19.6	18.4	34.0	22.0	6.0	250.0	2.76 \pm 0.074
Prioritize patients' nutrition risk*	95.4	4.6	29.3	34.7	31.4	761	2.93 \pm 0.032	60.1	25.5	14.4	333.0	15.578 \pm 0.568	17.8	13.2	28.6	28.6	11.8	304.0	3.04 \pm 0.073
Nutrition Assessment and Monitoring/Evaluation^{bcd}																			
Evaluate clients' overall health status (eg, physical and clinical conditions and physiological and disease status)*	97.7	2.3	31.4	35.8	30.4	694	2.94 \pm 0.032	63.3	23.2	13.5	297.0	16.26 \pm 0.592	17.6	16.5	30.0	27.8	8.1	273.0	2.92 \pm 0.073
Evaluate vital signs	84.1	15.9	28.2	27.3	28.6	653	2.69 \pm 0.041	64.5	21.6	13.9	231.0	16.48 \pm 0.669	14.7	16.6	30.0	28.1	10.6	217.0	3.03 \pm 0.082
Perform nutrition-focused physical examination (eg, examine to determine loss of subcutaneous fat, muscle wasting, ankle or sacral edema, or ascites by use of observation and percussion, palpation, or auscultation)*	77.0	23.0	27.8	24.0	25.2	730	2.51 \pm 0.041	46.0	34.6	19.4	263.0	12.62 \pm 0.651	16.7	15.0	39.0	21.1	8.1	246.0	2.89 \pm 0.074

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Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit (*continued*)

Activity	Ways Involved						Frequency of Involvement						Risk						
	%						%						%						
	1	2	3	4	Total, n	Scale, $\mu \pm SE$	24	4	1	Total, n	Scale, $\mu \pm SE$	1	2	3	4	5	Total, n	Scale, $\mu \pm SE$	
	Involved, % ^a	Not involved	Perform Under Supervision	perform Without Supervision	supervise/ Manage		Daily	Weekly	Monthly			Very low	Low	Moderate	High	Very high			
Evaluate nutrition-focused physical examination findings*	90.5	9.5	25.1	37.1	28.3	650	2.84 ± 0.034	59.9	25.6	14.5	263.0	15.55 ± 0.667	13.8	20.1	37.1	22.8	6.3	224.0	2.86 ± 0.073
Evaluate anthropometric measurements*	94.3	5.7	20.4	40.3	33.6	663	3.02 ± 0.034	51.7	35.0	13.3	263.0	13.94 ± 0.644	15.4	23.3	33.8	21.3	6.3	240.0	2.80 ± 0.073
Compare physical development with standard growth charts	82.1	17.9	20.4	34.0	27.6	652	2.71 ± 0.041	37.4	24.2	38.4	219.0	10.34 ± 0.729	17.6	15.1	36.6	24.4	6.3	205.0	2.87 ± 0.080
Conduct fitness/activity assessment	74.1	25.9	18.7	27.9	27.5	641	2.57 ± 0.045	35.8	35.3	28.9	190.0	10.29 ± 0.748	19.6	21.2	39.1	16.2	3.9	179.0	2.64 ± 0.081
Evaluate eating habits, patterns, and choices of clients*	99.3	0.7	17.5	47.3	34.4	668	3.15 ± 0.028	70.7	22.1	7.1	280.0	17.93 ± 0.565	18.2	19.0	34.8	23.7	4.3	253.0	2.77 ± 0.071
Evaluate influence of psychological status on eating behaviors*	92.8	7.2	21.1	40.4	31.3	654	2.96 ± 0.035	58.7	30.4	10.9	247.0	15.41 ± 0.653	12.6	21.2	36.5	24.3	5.4	222.0	2.89 ± 0.072
Evaluate intake/output*	86.9	13.1	26.2	30.4	30.4	642	2.78 ± 0.040	76.7	17.0	6.3	223.0	19.15 ± 0.591	9.3	18.1	31.9	33.8	6.9	204.0	3.11 ± 0.075
Evaluate intake of specific nutrients*	93.9	6.1	22.2	39.9	31.8	639	2.97 ± 0.035	63.5	24.9	11.6	249.0	16.34 ± 0.642	11.2	17.0	32.7	32.3	6.7	223.0	3.06 ± 0.074
Evaluate and monitor medication*	74.0	26.0	36.0	18.3	19.6	616	2.32 ± 0.043	67.5	17.8	14.7	197.0	17.06 ± 0.715	9.2	13.0	29.3	35.3	13.0	184.0	3.30 ± 0.084
Evaluate and monitor nutrition supplement use (dietary supplement)*	94.7	5.3	27.4	37.7	29.6	645	2.92 ± 0.035	64.4	22.4	13.2	250.0	16.48 ± 0.642	12.6	16.5	36.4	25.5	9.1	231.0	3.02 ± 0.075
Evaluate and monitor tolerance of diet, tube feeding, and nutrition supplement/formula	80.8	19.2	31.9	23.5	25.4	646	2.55 ± 0.042	82.9	10.0	7.1	211.0	20.37 ± 0.552	10.2	14.8	19.9	37.8	17.3	196.0	3.37 ± 0.087
Evaluate tolerance of parenteral nutrition	64.6	35.4	36.7	10.8	17.1	630	2.10 ± 0.043	75.5	11.6	12.9	155.0	18.71 ± 0.748	9.2	8.5	19.7	35.9	26.8	142.0	3.63 ± 0.102
Calculate parenteral nutrition intakes*	63.1	36.9	28.5	19.6	15.0	601	2.13 ± 0.044	72.8	15.2	11.9	151.0	18.21 ± 0.774	7.9	10.1	27.3	34.5	20.1	139.0	3.49 ± 0.098

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Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit (continued)

Activity	Ways Involved						Frequency of Involvement						Risk						
	%						%						%						
	1	2	3	4			24	4	1			1	2	3	4	5			
	Involved, % ^a	Not involved	Perform Under Supervision	perform Without Supervision	supervise/ Manage	Total, n	Scale, $\mu \pm SE$	Daily	Weekly	Monthly	Total, n	Scale, $\mu \pm SE$	Very low	Low	Moderate	High	Very high	Total, n	Scale, $\mu \pm SE$
Calculate oral and enteral nutrition intakes*	79.0	21.0	24.6	31.9	22.6	634	2.56 ± 0.042	84.7	11.2	4.1	196.0	20.82 ± 0.536	7.8	16.8	26.8	38.0	10.6	179.0	3.27 ± 0.082
Calculate nutrition requirements*	97.0	3.0	21.4	45.9	29.7	640	3.02 ± 0.031	72.3	22.5	5.2	249.0	18.30 ± 0.585	12.3	15.4	34.8	29.1	8.4	227.0	3.06 ± 0.075
Calculate fluid requirements*	84.7	15.3	30.1	29.6	25.0	628	2.64 ± 0.041	78.9	15.2	5.9	204.0	19.61 ± 0.597	7.5	14.0	29.6	37.1	11.8	186.0	3.32 ± 0.080
Calculate electrolyte requirements	78.4	21.6	31.5	23.8	23.1	606	2.48 ± 0.044	77.0	15.3	7.7	183.0	19.18 ± 0.655	7.7	12.4	29.0	37.9	13.0	169.0	3.36 ± 0.084
Compare laboratory results to normal values*	96.5	3.5	23.4	44.5	28.6	632	2.98 ± 0.032	70.4	13.4	16.2	247.0	17.60 ± 0.631	11.5	18.5	28.2	31.7	10.1	227.0	3.11 ± 0.077
Review medical records for information, including nutrition-related data*	94.3	5.7	25.9	40.2	28.3	637	2.91 ± 0.035	63.3	15.6	21.1	237.0	16.03 ± 0.683	11.5	17.1	37.3	26.3	7.8	217.0	3.02 ± 0.075
Present at medical rounds (at patient bedside) or grand rounds (for all in auditorium)	69.6	30.4	23.7	25.3	20.6	622	2.36 ± 0.045	76.6	16.0	7.4	100.0	19.09 ± 0.673	9.9	17.9	30.2	32.7	9.3	100.0	3.14 ± 0.088
Present at patient care conferences (clinical meetings)	73.7	26.3	25.0	27.1	21.7	617	2.44 ± 0.044	24.0	21.6	54.4	100.0	7.16 ± 0.729	11.4	21.5	43.7	19.0	4.4	100.0	2.84 ± 0.080
Assess needs and identify resources for ongoing nutrition care (eg, nutrition counseling or home enteral and parenteral nutrition)*	85.3	14.7	23.8	34.2	27.3	627	2.74 ± 0.040	55.4	32.4	12.3	100.0	14.71 ± 0.727	10.4	12.4	39.4	28.5	9.3	100.0	3.14 ± 0.078
Nutrition diagnosis and intervention^{de}																			
Diagnose nutrition problems*	97.5	2.5	27.4	42.7	27.4	592	2.95 ± 0.033	72.2	18.5	9.3	100.0	18.17 ± 0.626	12.2	14.1	28.8	32.2	12.7	100.0	3.19 ± 0.083
Recommend diets*	99.3	0.7	21.0	48.9	29.5	587	3.07 ± 0.030	80.3	15.5	4.2	100.0	19.94 ± 0.532	12.3	18.5	26.1	31.8	11.4	100.0	3.11 ± 0.083

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Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit (*continued*)

Activity	Ways Involved						Frequency of Involvement						Risk						
	%						%						%						
	1	2	3	4			24	4	1			1	2	3	4	5			
	Involved, % ^a	Not involved	Perform Under Supervision	perform Without Supervision	supervise/ Manage	Total, n	Scale, $\mu \pm SE$	Daily	Weekly	Monthly	Total, n	Scale, $\mu \pm SE$	Very low	Low	Moderate	High	Very high	Total, n	Scale, $\mu \pm SE$
Plan oral diets with multiple nutritional requirements*	95.4	4.6	20.2	45.4	29.8	590	3.01 ± 0.034	79.6	15.8	4.5	100.0	19.79 ± 0.561	12.1	14.6	29.3	34.8	9.1	100.0	3.14 ± 0.082
Adapt regular oral diets to meet individual preferences or needs*	94.8	5.2	18.9	47.2	28.7	581	2.99 ± 0.034	79.4	15.4	5.1	100.0	19.73 ± 0.575	12.9	14.9	34.0	33.0	5.2	100.0	3.03 ± 0.079
Help patients/residents with daily menu selections	91.2	8.8	14.3	44.7	32.3	582	3.01 ± 0.037	75.9	20.6	3.5	100.0	19.07 ± 0.621	9.7	25.0	42.0	18.2	5.1	100.0	2.84 ± 0.075
Recommend nutritional supplements for clients on oral diets*	92.8	7.2	24.4	40.7	27.8	583	2.89 ± 0.037	59.6	26.1	14.3	100.0	15.49 ± 0.728	12.2	19.7	34.6	29.3	4.3	100.0	2.94 ± 0.078
Write orders for clients on oral diets*	82.2	17.8	16.1	37.2	28.8	572	2.77 ± 0.044	76.3	17.8	5.9	100.0	19.09 ± 0.680	9.4	22.0	35.2	27.7	5.7	100.0	2.98 ± 0.083
Provide advice on safe, effective use of herbal and dietary supplements, functional foods, and nutrients	90.5	9.5	21.6	41.8	27.1	582	2.87 ± 0.038	61.3	24.6	14.1	100.0	15.84 ± -0.731	10.3	20.5	39.5	24.9	4.9	100.0	2.94 ± 0.076
Recommend nutrition status laboratory tests*	85.4	14.6	30.5	32.3	22.6	567	2.63 ± 0.042	45.2	25.4	29.4	100.0	12.16 ± 0.813	11.0	14.0	40.9	29.9	4.3	100.0	3.02 ± 0.080
Write orders for nutrition status laboratory tests	72.1	27.9	29.0	24.6	18.5	552	2.34 ± 0.046	44.9	22.4	32.7	100.0	12.00 ± 0.898	11.6	15.2	42.8	26.8	3.6	100.0	2.96 ± 0.0863
Recommend tube feeding therapies*	66.7	33.3	30.5	19.5	16.8	555	2.20 ± 0.046	71.4	24.8	3.8	100.0	18.17 ± 0.800	7.6	10.7	26.7	38.2	16.8	100.0	3.46 ± 0.098
Write orders for tube feeding therapies	65.1	34.9	28.3	21.1	15.6	558	2.17 ± 0.046	76.9	17.9	5.2	100.0	19.22 ± 0.755	6.9	14.6	30.0	35.4	13.1	100.0	3.33 ± 0.096
Recommend intravenous or parenteral nutrition therapies	51.3	48.7	30.3	11.0	10.1	557	1.82 ± 0.042	56.9	26.5	16.7	100.0	14.87 ± 1.042	6.1	7.1	34.3	27.3	25.3	100.0	3.59 ± 0.113

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Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit (continued)

Activity	Ways Involved						Frequency of Involvement						Risk						
	%						%						%						
	1	2	3	4			24	4	1				1	2	3	4	5		
	Involved, % ^a	Not involved	Perform Under Supervision	perform Without Supervision	supervise/ Manage	Total, n	Scale, μ ± SE	Daily	Weekly	Monthly	Total, n	Scale, μ ± SE	Very low	Low	Moderate	High	Very high	Total, n	Scale, μ ± SE
Write orders for intravenous or parenteral nutrition therapies	46.2	53.8	27.1	9.5	9.7	558	1.75 ± 0.041	59.1	27.3	13.6	100.0	15.41 ± 1.105	3.4	8.0	37.9	33.3	17.2	100.0	3.53 ± 0.105
Recommend medications	26.8	73.2	15.8	4.5	6.5	557	1.44 ± 0.036	65.1	11.1	23.8	100.0	16.30 ± 1.328	9.5	11.1	31.7	22.2	25.4	100.0	3.43 ± 0.157
Write orders for medications	23.1	76.9	13.5	3.4	6.2	533	1.39 ± 0.036	63.8	12.1	24.1	100.0	16.03 ± 1.393	8.5	15.3	28.8	23.7	23.7	100.0	3.39 ± 0.161
Recommend clients receive physical, social, behavioral, or psychological services*	67.4	32.6	20.7	22.5	24.2	565	2.38 ± 0.049	41.5	30.4	28.1	100.0	11.45 ± 0.915	13.0	22.9	41.2	20.6	2.3	100.0	2.76 ± 0.087
Refer clients to social worker or community resources for ongoing services (eg, child nutrition programs or home-delivered meals)	49.5	50.5	16.7	14.3	18.5	558	2.01 ± 0.050	25.5	34.7	39.8	98.0	7.91 ± 0.960	16.5	26.4	40.7	14.3	2.2	91.0	2.59 ± 0.104
Educate clients on medical equipment use related to nutrition (eg, insulin pumps, feeding pumps, glucose monitoring equipment)	65.4	34.6	25.7	18.2	21.5	627	2.27 ± 0.046	43.4	33.1	23.5	166.0	11.97 ± 0.822	12.2	15.4	30.8	32.7	9.0	156.0	3.11 ± 0.092
Facilitate goal setting regarding health behavior*	78.2	21.8	18.0	33.8	26.4	560	2.65 ± 0.046	43.2	34.6	22.2	162.0	11.98 ± 0.829	14.8	22.8	40.9	20.1	1.3	149.0	2.70 ± 0.081
Counsel/educate clients and their families*	97.0	3.0	14.5	51.9	30.6	566	3.10 ± 0.032	67.2	22.5	10.3	204.0	17.12 ± 0.691	13.4	17.7	38.2	24.2	6.5	186.0	2.92 ± 0.081

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Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit (*continued*)

Activity	Ways Involved							Frequency of Involvement					Risk						
	Involved, % ^a	Not involved	%				Total, n	Scale, $\mu \pm SE$	%			Total, n	Scale, $\mu \pm SE$	%					
			1	2	3	4			24	4	1			1	2	3	4	5	
			Perform Under Supervision	perform Without Supervision	supervise/ Manage	Daily			Weekly	Monthly	Very low			Low	Moderate	High	Very high	Total, n	Scale, $\mu \pm SE$
Counsel on end-of-life issues related to nutrition and hydration	79.7	20.3	20.1	34.8	24.8	561	2.64 ± 0.045	58.3	26.5	15.2	151.0	15.20 ± 0.850	9.8	14.7	34.3	32.2	9.1	143.0	3.16 ± 0.092
Engage client or patient or substitute decision maker in the informed consent process before and during the provision of services	60.3	39.7	18.4	23.3	18.6	554	2.21 ± 0.049	46.4	31.8	21.8	110.0	12.62 ± 1.014	7.4	16.7	50.0	20.4	5.6	108.0	3.00 ± 0.091
Lead support groups for client populations	46.1	53.9	13.8	15.5	16.8	542	1.95 ± 0.050	27.7	27.7	44.6	83.0	8.20 ± 1.082	11.9	23.8	41.7	20.2	2.4	84.0	2.77 ± 0.107
Provide nutrition education program to groups	78.2	21.8	21.9	33.8	22.5	565	2.57 ± 0.045	15.5	25.7	58.8	148.0	5.34 ± 0.667	13.1	19.0	47.4	16.8	3.6	137.0	2.79 ± 0.085
Conduct grocery store tours	37.1	0.8	8.9	13.4	14.8	539	1.80 ± 0.049	15.0	25.0	60.0	80.0	5.20 ± 0.894	16.5	30.4	38.0	13.9	1.3	79.0	2.53 ± 0.109
Provide fitness education	68.5	31.5	15.6	30.5	22.3	537	2.44 ± 0.050	36.6	30.5	32.8	131.0	10.34 ± 0.913	14.9	20.7	38.0	24.8	1.7	121.0	2.78 ± 0.094
Design services to meet nutrition-related needs of populations	61.6	38.4	17.9	24.3	19.4	547	2.25 ± 0.050	27.0	36.0	36.9	111.0	8.30 ± 0.915	7.8	23.3	42.7	24.3	1.9	103.0	2.89 ± 0.091
Provide health-promotion or risk-reduction programs to population groups	59.6	40.4	17.8	23.4	18.4	555	2.20 ± 0.049	19.8	21.6	58.6	116.0	6.21 ± 0.829	11.1	25.0	42.6	17.6	3.7	108.0	2.78 ± 0.095
Collaborate in decision-making with a health care team*	73.1	26.9	28.0	24.9	20.2	550	2.38 ± 0.046	46.6	30.1	23.3	146.0	12.62 ± 0.884	8.1	20.6	43.4	25.0	2.9	136.0	2.94 ± 0.081
Participate in discharge planning	56.1	43.9	18.5	21.2	16.3	551	2.10 ± 0.049	74.1	16.4	9.5	116.0	18.54 ± 0.861	7.2	15.3	47.7	22.5	7.2	111.0	3.07 ± 0.093

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Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit (*continued*)

Activity	Ways Involved							Frequency of Involvement					Risk							
	%							%					%							
	1	2	3	4				24	4	1				1	2	3	4	5		
	Involvement, Not	Perform	perform	supervise/	Total, Scale,			Daily	Weekly	Monthly	Total, Scale,			Very	Low	Moderate	High	Very	Total, Scale,	
Involved, % ^a	Under Supervision	Without Supervision	Manage	n	$\mu \pm SE$					n	$\mu \pm SE$		low				high	n	$\mu \pm SE$	
Negotiate payment from third-party payers and other health-care decision-makers (eg, physicians, administrators) to promote client/patient access to care	25.7	74.3	10.6	6.2	8.9	548	1.50 ± 0.041	29.2	24.6	46.2	65.0	8.46 ± 1.248	14.9	20.9	41.8	19.4	3.0	67.0	2.75 ± 0.126	
Distribute nutrition information through the media	72.6	27.4	17.9	29.8	24.9	570	2.52 ± 0.048	22.2	35.3	42.5	153.0	7.17 ± 0.735	14.7	30.1	31.5	17.5	6.3	143.0	2.71 ± 0.093	
Document client care using problem, etiology, signs/symptoms (PES) statements*	74.9	25.1	22.0	30.5	22.3	622	2.50 ± 0.044	62.9	22.3	14.9	175.0	16.13 ± 0.777	11.7	16.0	39.9	25.2	7.4	163.0	3.01 ± 0.085	
Document client care using some methodology or procedures other than PES statements	67.0	33.0	22.0	22.7	22.3	613	2.34 ± 0.046	65.2	25.8	9.0	155.0	16.76 ± 0.798	8.1	18.9	45.3	24.3	3.4	148.0	2.96 ± 0.078	
Identify nutrition-related problems within population groups	69.6	30.4	22.0	24.8	22.8	618	2.40 ± 0.046	37.8	28.0	34.1	164.0	10.54 ± 0.825	9.9	17.9	45.0	21.9	5.3	151.0	2.95 ± 0.082	
Research^{b, f, g, h}																				
Review research literature	62.3	37.7	25.6	22.3	14.5	579	2.14 ± 0.045	19.0	31.4	49.6	137.0	6.31 ± 0.740	20.3	19.5	35.3	15.0	9.8	133.0	2.74 ± 0.106	
Develop hypothesis for research studies	46.9	53.1	30.3	8.3	8.3	557	1.72 ± 0.039	21.5	14.0	64.5	93.0	6.37 ± 0.963	16.3	20.7	38.0	17.4	7.6	92.0	2.70 ± 0.119	
Design research studies	47.4	52.6	31.2	9.1	7.1	551	1.71 ± 0.038	16.7	10.7	72.6	84.0	5.15 ± 0.925	14.1	21.2	36.5	20.0	8.2	85.0	2.87 ± 0.123	

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Table 2. Way(s) involved, frequency of involvement, and perception of risk for 72 activities for registered dietitian nutritionists (n = 778) who responded to the 2021 Indian Clinical Dietetics Practice Audit (continued)

Activity	Involved, % ^a	Not involved	Ways Involved				Frequency of involvement					Risk								
			Perform Under Supervision	Perform Without Supervision	perform	supervise/ Manage	Total, n	Scale, $\mu \pm SE$	Daily			Weekly		Total, Scale, $\mu \pm SE$	Very low	Low	Moderate	High	Very high	Total, Scale, $\mu \pm SE$
									1	2	3	4	1							
Conduct/contribute to research studies	55.5	44.5	34.4	10.4	10.7	550	1.87 ± 0.042	20.7	12.0	67.4	92.0	6.11 ± 0.957	13.7	24.2	37.9	15.8	8.4	95.0	2.81 ± 0.115	
Report research at professional conferences	42.5	57.5	24.7	9.5	8.4	550	1.69 ± 0.041	15.1	12.3	72.6	73.0	4.84 ± 0.952	17.7	20.3	40.5	13.9	7.6	79.0	2.73 ± 0.128	
Comply with ethics review requirements	48.5	51.5	29.5	7.8	11.3	550	1.79 ± 0.043	26.7	10.5	62.8	86.0	7.47 ± 1.082	16.1	24.1	27.6	21.8	10.3	87.0	2.86 ± 0.131	

^aDiffers (P < 0.001) by experience and ways involved.
^bDiffers (P < 0.05) by RD status and frequency of involvement.
^cDiffers (P < 0.05) by level of education and frequency of involvement.
^dDiffers (P < 0.05) by experience and ways involved.
^eDiffers (P < 0.05) by rural/urban and frequency of involvement.
^fDiffers (P < 0.05) by rural/urban and frequency of involvement and ways involved.
^gDiffers (P < 0.05) by RD status and ways of involvement.
^hDiffers by level of education and ways involved.
ⁱListed as a Core Activity in the 2020 Academy Practice Audit.

ARE THERE DIFFERENCES BETWEEN RDs AND NON-RDs?

Only 13% of participants in the practice audit indicated that being an RD was a requirement of their job (Table 1). It is generally believed that RDs and non-RDs are hired and practice the same way in clinical dietetics positions. However, the practice audit data indicate that there are many similarities but also some differences in how they practice.

The first analysis indicated that there were significant differences in the Nutrition Assessment/Monitoring and Evaluation, Nutrition Diagnosis, and Research categories of activities in either ways of involvement or frequency of involvement. In those areas, we then evaluated at the task level to determine the nature of the differences. Eighty percent of the 25 Nutrition Assessment activities were significantly associated with credential status. However, only 39% of 36 Nutrition Diagnosis/Intervention activities were significantly associated with credential status. Likewise, two of six Research activities were associated with being an RD. Figure 2 shows the 33 activities that were associated with RD vs non-RD status.

In addition, there were only two activities in each of the three categories in which the frequency of involvement was associated with being an RD or non-RD:

- Perform anthropometric measurements
- Take diet histories
- Present at medical rounds (at patient bedside) or grand rounds (for all in auditorium)
- Evaluate nutrition-focused physical examination findings
- Write orders for medications
- Counsel on end-of-life issues related to nutrition and hydration
- Conduct/contribute to research studies

ARE THERE DIFFERENCES BY EXPERIENCE, AREA (RURAL VS URBAN), OR EDUCATION?

Years of Experience

For purposes of analysis, dietitians were classified as entry-level using the

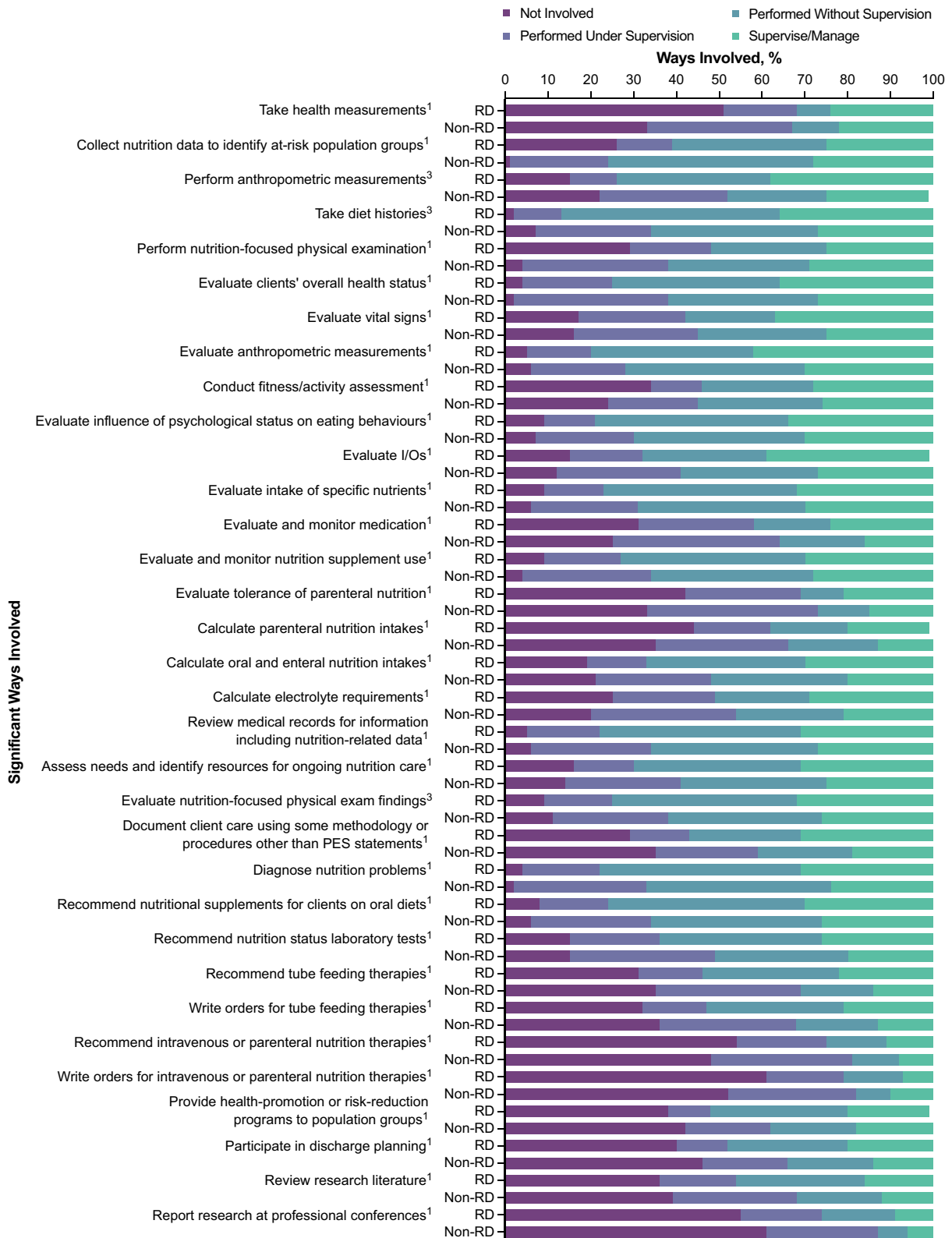


Figure 2. Way(s) involved for 33 activities for registered dietitians (n = 179) and nonregistered dietitians (n = 543) who responded to the 2021 Indian Clinical Dietetics Practice Audit. I/O = intake/output; PES = problem, etiology, signs/symptoms. ^aDiffers by ways involved ($P < 0.05$). ^bDiffers ($P < 0.05$) by both ways involved and frequency of involvement (only ways of involvement data shown).

same definition as the Academy (working ≤ 3 years as an US RDN), beyond entry level, and experienced dietitians. In addition, 73% of Indian RDs reported working as non-RDs (median, ~ 5 years), and 32% of Indian RDs reported working in “other” paid work experience (median, ~ 3 years). It is unclear how to consider total years of experience in practice audit analysis.

Experienced dietitians reported a significantly higher level of involvement in screening ($P \leq 0.000$) and Nutrition Assessment and Monitoring/Evaluation ($P < 0.01$) activities than less experienced dietitians (Table 2).

Rural vs Urban Areas

This preliminary analysis indicates that there may be differences in clinical dietetics practiced in rural vs urban areas; however, the sample was predominantly from dietitians working in urban settings ($n = 669$) compared with a smaller number of dietitians from rural settings ($n = 98$). With Nutrition Diagnosis and Intervention and Research activities, there was also a significant difference ($P \geq 0.01$) (Table 2).

Education

Dietitians with master's and post-graduate degrees performed Nutrition Assessment/Monitoring activities more frequently than those with other types of education ($P \geq 0.05$). For research activities, dietitians with master's and doctoral degrees were involved in different ways than other dietitians ($P \geq 0.05$) (Table 2).

HOW WILL THESE RESULTS BE USED IN INDIA?

This is the first practice audit that documents the activities performed by trained clinical dietitians in India. Ideally audits are done at regular intervals to document how dietetics practice is evolving over time. The RD Board can use the core activities to evaluate whether the required competencies for dietetic internships reflect the necessary competencies for practice in India. Likewise, university program directors can evaluate their curriculum against the core activities. These efforts could lead to more homogeneity in dietetics education programs throughout India.

Further evaluation, especially longitudinal assessments, between ways of involvement and frequency of involvement in activities between RDs and non-RDs and experience levels may provide insights into entry-level requirements. This is a particular benefit of routine and planned practice audits. It also may begin to clearly identify future hierarchies between RDs and non-RDs in India. Low registration examination pass rates indicate that educational resources based on actual practice may be strengthened throughout India to assist non-RDs in attaining their RD credential.

The goal to reduce the heterogeneity in training and job descriptions regardless of area (rural or urban) is only likely to be achieved by national regulation, such as the recent National Commission for Allied and Healthcare Professions Bill.²¹ However, the regulations ideally are based on practice audit data that can establish central norms to be applied throughout India, albeit with adaptation and customization as needed. The COVID-19 pandemic has expanded client access through telenutrition. Access may continue to be enhanced in the future, further decreasing geographical differences. In addition, access to training or education using virtual platforms can promote more consistency in education programs.

Practice audit results also can be useful in providing guidelines for hospitals, as they define roles and responsibilities, position descriptions, and salaries for both RDs and non-RDs. In addition, such results can provide insights to health care accreditation agencies regarding expectations of dietitian performance and outcomes.

Although the number of dietitians in India who have achieved the RD credential is still very small, evolution of the dietetics profession will likely continue, with a potential increase in the number of RDs if there are benefits of hiring RDs in health care. This process will be slow and contingent on simultaneous strengthening of the homogeneity among actual practice, university curriculum, dietetic internship competencies, and registration examination.

Continued benchmarking with other countries regarding credentialing and education program accreditation may lead to further enhancements in the role of the RD Board to more fully

support the recent legislation. For example the RD Board is not an autonomous body and does not conduct practice audits or other types of research regarding the RD credential or publish statistics about RD examination results.

Areas of uncertainty about differences in experience levels, educational preparation, and rural/urban differences may warrant future exploration to more fully understand the nature of these relationships.

WHAT ARE THE LIMITATIONS?

This is the first attempt to describe the clinical dietetics/nutrition practice of dietitians in India in a practice audit, and there are many lessons learned that can lead to improved practice audits in the future.

Limitations of the project include conducting the audit during pandemic conditions, in addition to the sampling methodology (eg, the need to be able to determine whether the sample is representative), the amount of missing data for some variables, ambiguity on how to best characterize experience, the potential for confusion on the meaning of the practice audit questions in the context of dietetics in India, and the narrow focus on only clinical dietetics/nutrition practice.

In future practice audits, it may be more important to describe the hospital and client population than to identify rural or urban settings. To minimize missing data because of a lack of understanding of questions, if and when the next practice audit is conducted, cognitive interviews would be helpful to increase certainty that the questions are worded in a way to be fully understood the same way in the context of dietetics practice in India. If a centralized digitized IDA member database were available, it would be possible to document representativeness of the sample.

WHAT IS THE BOTTOM LINE?

This project demonstrates that it is possible to conduct a practice audit in India. Whether this sample is truly representative of all dietitians practicing clinical dietetics or clinical nutrition in India is unknown, but this is a starting point that can be built on in the future. IDA and the RD Board will determine whether these data are

needed at regular intervals (1) to support decisions about registration examination content and curriculum requirements for undergraduates, postgraduates, and supervised practice and (2) to identify initiatives appropriate to continue to advance the practice of dietetics in India.

This practice audit was narrowly focused on the subset of questions from the Academy Practice Audit relevant to clinical dietetics/nutrition practice and research. In addition, the sample was limited to only those providing clinical dietetics/nutrition services in India. In the future, the practice audit can be expanded to more fully address other areas of dietetics practice in India, such as food service, management, public health, and dietetics education.

With the publication of this paper, IDA and the RD Board can support the concept of "RD" first put forth in 1996 with data from a clinical dietetics practice audit in India. This practice audit is a very important milestone in the continued refinement of dietetics practice in India and supports the ICDA goal of a universal definition of dietetics practice.

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STATEMENT OF POTENTIAL CONFLICT OF INTEREST

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