

ORIGINAL RESEARCH

An evaluation of nutrition education in baccalaureate nursing programs across the county

Stacey Palmer, Jane Dimmitt Champion*

School of Nursing, The University of Texas at Austin, Austin, Texas, United States

Received: January 17, 2025

Accepted: July 30, 2025

Online Published: August 12, 2025

DOI: 10.63564/jnep.v15n9p7

URL: <https://doi.org/10.63564/jnep.v15n9p7>

ABSTRACT

Background: Obesity in the United States plagues 70% of adults and over 30 million are diagnosed with diabetes. Research confirms diet as the most significant risk factor, yet this is not being disseminated to providers. Extensive research exists confirming the lack of nutrition education in medical programs, while little exists within nursing programs.

Methods: Eighty United States baccalaureate nursing programs were evaluated for nutrition content along with a survey of the faculty regarding their opinions of the nutrition curriculum. Program evaluation and survey data were analyzed using descriptive statistics.

Results: Among baccalaureate nursing programs, 66% of programs required a nutrition course, averaging 2 hours while 34% of programs had no nutrition requirement, and only 16% had evidence-based nutrition content.

Conclusions: Medical school curricula are moving to include evidence-based nutrition content. Nursing is compelled to address this curriculum deficit thereby facilitating appropriate dissemination of evidence-based nutrition education.

Key Words: Evidence-based nutrition, Nutrition education, Nursing education, Plant-based nutrition, Nutrition in nursing

1. INTRODUCTION

Nurse Practitioners (NPs) are in a prime position to positively affect the health of the nation by educating patients on the prevention and treatment of chronic disease and obesity with evidence-based nutrition (EBN). Competence in this model of care requires that nurse practitioners receive this foundational education on nutrition and the effect diet has on obesity and chronic disease at the foundational baccalaureate level. However, nutrition courses are not currently mandatory for nursing curricula by accrediting bodies for prelicensure or at the graduate level. Rather, nutrition education is reported to be integrated throughout the curriculum as testable knowledge on the National Council Licensure Examination (NCLEX) with no nutrition education mandated

at the graduate nursing level.^[1]

Nurses are at the core of the healthcare system and the United States is facing a steadily increasing chronic disease and obesity epidemic that is crippling our country. In 2017, dietary risk factors accounted for 11 million deaths among adults worldwide.^[2] Reports indicate that nurse practitioners list nutrition as a high priority topic of interest and request additional training and resources to be used in clinical practice and counseling.^[3] This desired education reflects the declining health of patients that nurse practitioners care for daily. Almost 70% of adults in the United States are considered overweight or obese, while over 30 million have a diagnosis of diabetes, and almost 800,000 Americans die from cardiovascular disease yearly. The United States spends 90% of the

*Correspondence: Jane Dimmitt Champion; Email: jdchampion@mail.nur.utexas.edu; Address: School of Nursing, The University of Texas at Austin, 1710 Red River St, Austin, Texas, United States.

\$3.8 trillion in healthcare cost on chronic diseases with the costliest conditions noted to be heart disease, stroke, cancer, diabetes, and obesity which is also an independent major risk factor not only for all-cause mortality but for each of these identified chronic conditions. Obesity and heart disease alone cost the country \$217 billion and \$147 billion, respectively.^[4] In 2016, 7 of the top 10 causes of death were due to chronic conditions with heart disease and cancer comprising 46% of all deaths in the United States.^[5]

Despite a large and convincing body of evidence-based research on the impact diet has on the development of chronic disease, dissemination of the knowledge to medical providers has been limited leading to inadequate translation of the evidence into practice. A lack of EBN within programs generates a practice gap which has been identified as a significant concern to the healthcare industry. The American Heart Association's Science Advisory Board concluded in 1985 that the exposure to nutrition education in United States medical schools was inadequate, recommending an adjustment to a minimum of 25 hours of nutrition education over a six-year program.^[6] A review of the literature by Devries and Freeman in 2017 found that despite lifestyle interventions as a first-line treatment for many chronic diseases and obesity, this option is not emphasized in medical training and is rarely used in practice with primary care providers spending an average of 10 seconds discussing nutrition and counseling.^[7]

Acknowledging this lack of nutrition education as a legitimate concern, the medical community has begun to move forward with decades of recommendations to increase nutrition content in medical school curricula. To remain on par with current evidence-based practice and continue to provide the highest quality care, it is imperative that nursing programs also address the concern of inadequate nutrition education in nursing school curricula. As medical programs incorporate nutrition education throughout their medical training, it is vital for nurses and nurse practitioners to have this foundational practice perspective of diet to prevent and treat chronic disease and obesity, as it will be necessary to foster a cohesive team approach to patient care.

As noted, a significant body of research exists confirming the lack of nutrition education in medical programs, however, very little information is published regarding the nutrition education in nursing education programs. This study proposed an assessment of nutrition content within baccalaureate nursing programs in the United States. The findings provide a foundation for implementation of evidence-based nutrition education in nursing programs addressing the impact of diet on the prevention and treatment of chronic disease and obesity.

Literature review

A comprehensive review of the literature was conducted across PubMed, Cumulative Index to Nursing and Allied Health Literature, Web of Science, and Google Scholar databases to summarize findings regarding the education included in the professional education of nurses, nurse practitioners, and physicians. While the breadth of evidence-based research is vast concluding that increased nutrition education would prevent and treat many of the chronic conditions ailing Americans and in turn decrease costs to healthcare, little action is taking place to educate those responsible for providing the nutritional guidance to the population.

Currently, literature related to the nutrition education received by providers in training is almost exclusively focused on the physician curriculum. Numerous studies find that over a six-year medical school program, the median number of hours of nutrition education received in medical schools is below the minimum 25 hours recommended by the National Academy of Sciences and the American Society for Nutrition.^[8] Specifically, in a review of the literature, Devries and Freeman found that medical students receive less than 20 hours of nutrition education in their training which is also supported in findings from a 2014 review by Kris-Etherton et al. as well as a 2024 report from Findley et al.^[7,9,10] In 1985, the National Academy Press published a 140-page report detailing the inadequacy of nutrition education in US medical schools with a sense of urgency prompting the Institute of Medicine (IOM) to recommend 25-30 hours of nutrition to the 4-year medical curriculum.^[11] A follow up survey conducted from 2000-2013 found that the nutrition hours remained unchanged despite the recommendation^[6] while a survey conducted in 2010 reported that the percentage of medical schools offering a dedicated nutrition course had dropped from 35% in 2000 to 25% in 2008.^[9]

This standstill regarding nutrition education in medical training is amidst industry acknowledgement that nutrition education should be included in the medical school curriculum. In the 1990s, the American Medical Student Association formed the Nutrition Curriculum Project publishing a national consensus report on the essentials of nutrition education in medical schools and gained a support from the National Heart, Lung, and Blood Institute; the National Institute of Diabetes and Digestive and Kidney Disease; and 21 medical schools. In 2003 the US Medical Licensing Examination was updated to include a sub score to the step 1 medical examinations supporting the imperative that nutrition be recognized as a scientific discipline within the medical curriculum by both medical educators and students. In August 2007, the Association of American Medical Colleges called on medical schools to educate medical students on obesity

prevention and treatment with the publication “Contemporary Issues in Medicine: Prevention and Treatment of Overweight and Obesity.”^[9] With no substantive changes being made in the core curriculum of medical schools, in 2012 the NHLBI convened a group of interdisciplinary nutrition education experts to develop and renew proactive approaches to nutrition education and research for healthcare professionals.^[9] The Harvard Law School Food Law and Policy Clinic published a report in 2019, “Doctoring our Diet: Policy Tools to Include Nutrition in U.S. Medical Training”, with recommendations for policy changes needed at each stage of medical education to improve nutrition education in the curriculum.^[12]

Following the explosion of evidence regarding the effect diet has on chronic conditions, in 2021, the USPSTF added a B recommendation guideline for “intensive behavioral dietary counseling for adult patients with hyperlipidemia and other known risk factors for cardiovascular and diet related chronic disease. Intensive counseling can be delivered by primary care clinicians or by referral to other specialists, such as nutritionists or dietitians”^[9] In May 2022, the US House of Representatives passed a bipartisan resolution establishing goals to increase nutrition education in medical school training and in September 2022 the White House administration convened the White House Conference on Hunger, Nutrition, and Health encompassing a call for increasing nutrition education in medical school education. This prompted medical education governing bodies to collaborate in March 2023 with over 100 medical education professionals for the Summit on Medical Education in Nutrition.^[10]

The major barrier identified throughout literature for including nutrition education in the medical curriculum is a lack of time. Devries and Freeman respond that this reasoning is subpar because educating future providers on the leading risk factor for premature death, a poor-quality diet, is a meaningful topic of instruction.^[7] This sentiment has been demonstrated in numerous studies assessing the confidence providers have in discussing lifestyle changes for the prevention and treatment of chronic conditions as most graduate trainees report feeling unprepared to discuss nutrition issues with patients.^[9] A 2017 survey of cardiologist found that 90% did not feel adequately prepared to discuss nutrition with patients while 95% felt it was their responsibility to provide this education to their patient.^[12] These results were also reflected in a survey of 114 internal medicine interns finding that 92% felt dietary advice could help patients improve their health but 86% felt inadequately trained for these discussions.^[10] Aspry et al. reported survey data showing that only 14% of internal medicine trainees felt confident in discussing nutrition and diet with patients while Mondala and Sannidhi reported that less than 25% of physicians felt confident in

their nutrition training.^[6,13] These results are echoed through numerous surveys of medical specialties from primary care to obstetrics and surgical residency.^[11] Proponents of increasing nutrition education for medical trainees highlight that even incremental education will improve the providers’ confidence and propensity toward educating patients on proper dietary habits.^[7,11]

While there are copious discussions in the healthcare literature regarding the need to educate medical students and physicians on nutrition, very little is published regarding educating nurses on nutrition. Nurses account for the largest health care occupation in the United States^[14] with 3 million registered nurses and 290,000 advanced practice nurses who account for over 1 billion patient visits per year^[15,16] The professional responsibilities of nurses are to provide whole person care, (physical, social, mental, and spiritual) to patients, their families, the community and populations across the care continuum.^[17] Core duties are described as health promotion, disease prevention, and coordination of care via diagnosis and interventions.^[17] Nutrition is one of 13 domains of nursing practice used to fulfill these duties and responsibilities and is defined as “the activities of taking in, assimilating, and using nutrients for the purposes of tissue maintenance, tissue repair, and the production of energy” and has been a central component of nursing care since Florence Nightingale.^[18] However, as role differentiation between nurses and dietitians emerged from 1950–1970, the required hours dedicated to nutrition education in the nursing curriculum became more integrated into other courses.^[19] Ultimately, required educational hours in basic nutrition and diet therapy for RN licensure was eliminated, even though nutrition continues to be testable content on the NCLEX. Nutrition as a focal area of practice is included in the core competencies, yet it is not identified in *The Essentials of Baccalaureate Education for Professional Nursing Practice*,^[20] nor is it required at the graduate level as demonstrated by *The Essentials of Master’s Education in Nursing*^[21] or the *Advanced Practice Registered Nurses Consensus Model*.^[22]

In the United States, nutrition education in nurse training is noted to be weaved through various courses within the prelicensure coursework, though the education provided is outdated. In 1987, Stotts et al. surveyed U.S. nursing school faculty and course directors finding that all 264 Bachelor of Science in Nursing (BSN) programs responding included nutrition content and only 54% required at least one stand-alone nutrition course with approximately 21.5 hours of nutrition content. Most programs taught nutrition assessment, enteral and parenteral nutrition therapy, and diet counseling while only 70% of the programs taught nutritional biochemistry. Only 50% of the graduate program faculty responding to the

survey felt that the nutrition content in their program was adequate.^[23]

These gaps in undergraduate nursing nutrition education have been acknowledged for decades and increasingly addressed internationally, though the content to be included remains unclear. While this acknowledgement of the importance of nutrition education is flourishing in healthcare and specifically in the realm of medical education, there has been a decline in nutrition courses in nursing which is reflected in nursing students' incompetence in fundamental nutrition and components of a healthy diet.^[24] This finding is demonstrated in a recent study assessing nursing students' nutritional knowledge where researchers found that nursing students lack knowledge in all areas of nutrition, whether general or specialized.^[25] The barriers to including nutrition education in nurse training are echoed from those cited in the medical literature, which is as a lack of available credits in the current curricula. Ironically, this leads to a significant disconnect between the current education of nurses and the tenants of health promotion and disease prevention that are foundational to the nursing profession.

Nutrition education in undergraduate nurse training should be foundational for building advanced diagnosis and treatment skills in the advanced provider roles. Nurse Practitioners (NP) are one of the largest health care provider groups in the US requiring skills and knowledge to provide effective nutritional counseling to patients, yet the nutrition education received in training is subpar. Chao et al. (2023) found that advanced practice nursing students received an average of 14 hours of nutrition education, which is even below the deficient findings of medical students. The authors also report findings that the majority of nursing faculty felt that more nutrition education was necessary with 93% of the programs surveyed not requiring a nutrition course.^[26]

Nurses are at the forefront of healthcare with the most patient contact and thus are key multidisciplinary facilitators of nutritional care for patients. This is highlighted in the Bipartisan Policy Center's 2012 report, "Lots to Lose: How

America's Health and Obesity Crisis Threatens Our Economic Future" calling for improvements in training of health care professionals regarding diet, physical activity, wellness, and disease prevention by infusing nutrition and physical activity information in training and continuing education.^[27] The report also recommends training and credentialing of nurses as health coaches for delivering preventive services to those at high risk of developing chronic conditions. Though so seemingly germane to the profession of nursing, in reviewing the literature, very little regard is given to the hours or content of nutrition education in the most foundational aspects of nurse training, the BSN programs. Therefore, it is worth assessing the current nutrition education across the U.S. while also exploring faculty opinions on nutrition education within their programs.

2. METHODS

2.1 Program evaluation

This study assessed nutrition education within 80 traditional baccalaureate nursing programs in the United States (no programs were offered as hybrid at the baccalaureate level). Programs were identified by methodically dividing the United States into three geographical sections and selecting approximately 25 programs from each section. Beginning with the western seaboard and counting in a top-down pattern, the first 16 states went into section 1 (westernmost), the next 17 states went into section 2 (middle), and the remaining 18 states went into section 3 (easternmost). Texas fell into section 1 due to its westernmost portion falling into the top-down pattern. Section 1 included WA, OR, CA, ID, NV, AZ, AK, UT, MT, WY, CO, NM, TX, ND, SD, and HI from which 25 programs were randomly chosen; section 2 included KS, OK, MN, IA, MO, AR, LA, WI, IL, TN, MS, KY, IN, MI, OH, AL, and NE from which 26 programs were randomly chosen; and section 3 included FL, GA, SC, NC, VA, WV, DC, MD, DE, NJ, PA, NY, CT, RI, MA, VT, NH, and ME from which 29 programs were randomly chosen (see Figure 1).

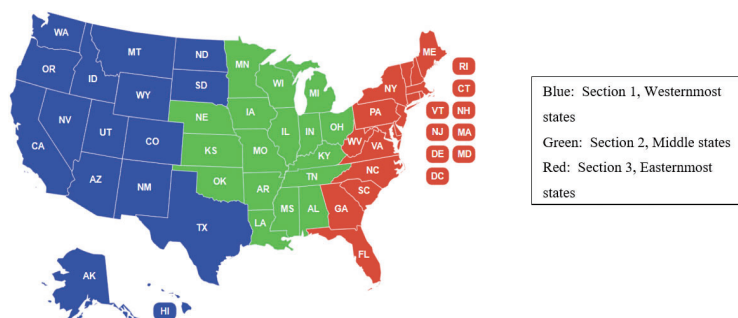


Figure 1. Map of sections evaluated

Previous studies evaluating medical program curricula for nutrition content and recommendations assessed approximately 45 programs per study. To provide a robust evaluation of nursing program curricula, the aim of this study was to evaluate a minimum of 75 programs by choosing at least 25 programs from each geographical section of the United States. Additional programs were chosen in the event a program(s) did not have the nursing curriculum available on the website, however, all were readily assessable. Programs per state were identified using a website listing baccalaureate nursing programs by state (www.bsnprograms.org/programs-by-state).

The search engine used to access each program website was Google. All programs included in the assessment were accredited by a national accreditation board, graduating at least one cohort of nursing students by December of 2020. The programs were assessed according to the curriculum content on the nursing program's website. An evaluation tool was created and used to document the name of the program, the style of program instruction (traditional versus hybrid), size of the nursing program, whether a nutrition course was required, nutrition course descriptions, semester nutrition course(s) occurred, and estimated number of nutrition hours required in baccalaureate coursework. The evaluation tool was created specifically for this assessment to provide a systematic method for documentation of specific descriptors of the nursing program and whether a nutrition course was required within the nursing curriculum. In addition to identifying whether a nutrition course was required, descriptors were included to compare the accrediting board, state, size of the program, and program style (hybrid versus traditional). These descriptors were chosen because they directly compare the basic structure of the nursing programs for identification of factors that may contribute to inclusion or exclusion of a nutrition course. For those programs requiring a nutrition course, additional descriptors were chosen to identify if the requirement was in the prerequisite curriculum or in the nursing program curriculum, the semester when required, the name of the course, course description, and total number of course hours. This evaluation allowed a comparison of the content of the nutrition course (basic nutrition course versus an evidence-based nutrition course) as well as a comparison of the complexity of the course related to the course hours. Data were analyzed using SPSS for descriptive statistics of frequencies and percentages to identify and compare programs requiring or not requiring a nutrition course, geographical sections, basic nutrition course curricula, and evidence-based nutrition course curricula.

2.2 Faculty survey

A Qualtrics survey was also sent to 288 baccalaureate program directors and faculty from the identified nursing programs to assess their opinions concerning the nutrition content in baccalaureate nursing programs. The survey was sent over a period of 3 weeks. To maximize the response rate, the days of the week were varied as well as the time of day. The initial email was an introduction to the survey, the second email was sent as a reminder with the same subject line and content in the email, the third email was sent with a subject line requesting "just 3 minutes" of the participant's time and the final email was sent with a "last chance for your opinion" subject line.

Questions were selected that would generalize the geographic region and sub-region of the program, the nutrition requirement of the respondent's program, the respondent's opinions on the nutrition requirements in the program, and their familiarity with diet as a prevention and treatment for chronic disease (see Table 1). The Google search engine used to access each program's website. Descriptive statistics for frequencies and percentages were analyzed using SPSS. All methods and procedures for this study were approved with exempt status by the University of Texas at Austin Institutional Review Board.

3. RESULTS

3.1 Program evaluations

The evaluation of the baccalaureate nursing programs found that a total of 66% (N = 53) programs required a nutrition course and 34% (N = 27) had no nutrition requirement. Evidence-based nutrition content was found in 16% (N = 13) of programs while the other 40 program descriptions focused on the macronutrients and micronutrients of food and the metabolic and digestive processes of the body. The evaluation found that the average number of course hours of nutrition education required in baccalaureate nursing programs across the country is two hours.

When evaluating only those programs that required a nutrition course, the average number of hours of nutrition education required was three hours. With 88% of programs accredited by the Commission on Collegiate Nursing Education, this was not a significant factor in the nutrition requirement of a nursing program. The size of the nursing program was not reported frequently enough for comparison among programs with only 13 programs noting approximate admissions in the BSN programs per semester or year on their website.

Table 1. Qualtrics survey questions to program directors

Survey Questions	Response Options
How many students are admitted into your traditional baccalaureate nursing program per semester?	0 = 0-25 1 = 26-50 2 = 51-75 3 = 76-100 4 = over 100
How would you describe your program's geographical region?	West Midwest Southwest Northeast Southeast
How would you describe your program's sub-region?	Mid-Atlantic - Virginia, West Virginia, Pennsylvania, Maryland, Delaware, New Jersey Central Plains- Iowa, Missouri, Kansas, Nebraska Great Lakes - Minnesota, Wisconsin, Illinois, Indiana, Ohio, Michigan New England - Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut Pacific Northwest - Washington, Oregon, Idaho Rocky Mountains - Utah, Colorado, New Mexico, Wyoming, Montana None of the above
How many course hours of nutrition are required in your program's baccalaureate nursing curriculum?	0 = 0 hours 1 = 2 hours 2 = 3 hours 3 = 4 hours 4 = 5 hours 4 = 6 hours
What is your level of satisfaction/dissatisfaction with the number of nutrition hours required in your baccalaureate nursing program?	0 = very satisfied 1 = somewhat satisfied 2 = no opinion 3 = somewhat dissatisfied 4 = very dissatisfied
If a nutrition course is required in your program curriculum, is the content evidence-based nutrition information?	0 = no 1 = yes 2 = do not know 3 = no nutrition course in program
In your opinion, how important/unimportant is the inclusion of evidence-based nutrition education in a baccalaureate nursing program?	0 = very important 1 = somewhat important 2 = no opinion 3 = somewhat unimportant 4 = very unimportant
At what level are you familiar/unfamiliar with the use of diet as prevention and treatment of chronic disease and obesity?	0 = very familiar 1 = somewhat familiar 2 = minimally familiar 3 = minimally unfamiliar 3 = somewhat unfamiliar 4 = very unfamiliar
At what level do you agree/disagree that having a traditional basic nutrition course (versus one with evidence-based nutrition regarding diet and disease) is sufficient for the baccalaureate nursing program?	0 = completely agree 1 = somewhat agree 2 = no opinion 3 = somewhat disagree 4 = completely disagree
At what level do you agree/disagree that baccalaureate nursing programs should require evidence-based nutrition education courses in the program curriculum?	0 = completely agree 1 = somewhat agree 2 = no opinion 3 = somewhat disagree 4 = completely disagree
How many hours (course hours) of evidence-based nutrition education do you feel is appropriate for a baccalaureate nursing program?	0 = 0 hours 1 = 1 hour 2 = 2 hours 3 = 3 hours 4 = 4 hours 5 = 6-8 hours
In your opinion, how important/unimportant is it for evidence-based nutrition to be introduced at the baccalaureate level?	0 = very important 1 = somewhat important 2 = no opinion 3 = somewhat unimportant 4 = very unimportant
In your opinion, how important/unimportant is it for evidence-based nutrition to be included in advanced practice nursing programs?	0 = very important 1 = somewhat important 2 = no opinion 3 = somewhat unimportant 4 = very unimportant

With respect to geographic locality, of the 25 programs evaluated in section 1, 80% (N = 20) required a nutrition course and 24% (N = 6) of these included evidence-based diet and disease education; in section 2 only 50% (N = 13) required a nutrition course and of these only 11% (N = 3) included evidence-based diet and disease education; 69% (N = 29)

of programs in section 3 required a nutrition course while only 14% (N = 4) included evidence-based diet and disease education. There was no correlation or significance found in the presence of a nutrition course (basic or EBN) with respect to the geographical region or any of the variables identified on the evaluation tool (see Figure 2).

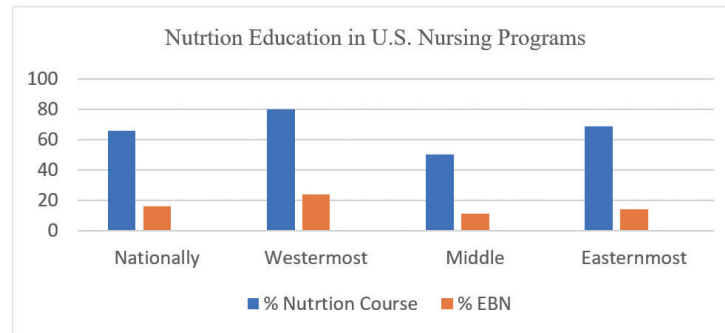


Figure 2. Percentage of nutrition courses and EBN content in U.S. nursing programs

3.2 Survey results

The intention of the survey sent to the baccalaureate program directors and faculty of the evaluated programs was to assess the stakeholder's perceptions concerning the status of nutrition education not only in the baccalaureate program, but in nurse education. The message received was not in responses, but in the lack of responses. During evaluation of the program curricula, baccalaureate program directors and faculty were identified at random to receive the program survey previously described. Of the 288 surveys sent to the 80 program's key stakeholders, two were noted as duplicate and one message failed, leaving 285 to be successfully sent. The optional Qualtrics survey had an embedded link to allow respondents to opt out of the survey and any future emails from the sender by essentially rejecting the survey request. Qualtrics notes those who activated this link as a "bounced" email. These emails are noted anonymously with the distribution data and removed from the distribution list for any future distributions. Of the 285 successfully delivered emails sent to the program directors and faculty of the baccalaureate nursing programs, 60% (N = 171) opted to activate this link essentially refusing to participate in the "short Nutrition in Nursing survey." Geographically, section 2 had the highest rejection rate at 62% (N = 71), section 1 at 59% (N = 46) and section 3 was on par at 56% (N = 54).

After 4 requests to complete the "3-minute survey on nutrition in nursing" to the 114 participants who did not reject the survey, only 23% (N = 26) participated. Overall, 62% (N = 16) of respondents reported having 3 hours of nutrition education in their program while 15% (N = 4) reported 0 hours; 54% (N = 14) reported to be satisfied with the nu-

trition education provided and 27% (N = 7) reported to be dissatisfied while 23% (N = 6) had no opinion. Almost all respondents (96%; N = 25) consider EBN as important to the baccalaureate nursing program (BSN) and 100% (N = 26) report being familiar with the concept of EBN to treat and prevent chronic disease and obesity. With 54% (N = 14) of respondents disagreeing that a basic nutrition course is sufficient for BSN programs, 85% (N = 22) agree that an EBN course should be included in the BSN program, 85% (N = 22) agree that this is an important concept in the BSN program, and 93% (N = 24) agree it is important in the advanced practice programs (APN). Regarding the appropriate number of nutrition hours recommended, 50% (N = 13) of respondents support three hours. Due to the poor response rate, response data could not be further analyzed with confidence or significance.

4. DISCUSSION

The results of the curriculum evaluations of BSN programs across the United States are even more concerning than those findings of the nutrition education in medical training. While two thirds of BSN programs evaluated required a nutrition course, it is alarming that one third required none and of those requiring a course only 16% of courses contained EBN content. It was found that nursing programs in the westernmost section of the country most frequently included nutrition courses with the highest percentage of EBN content while the easternmost section was slightly behind in nutrition requirements and EBN content. The BSN programs in the middle section of the country provided strikingly fewer hours of nutrition education as well as less EBN content. It

is interesting to note that the highest rejection rate of the faculty survey came from those faculty in programs in the middle section of the country.

According to the survey responses, two thirds of the program faculty reported 3 hours of nutrition education while 15% reported no nutrition education. An overall concern in these findings is that while almost all faculty responding to the survey agreed that EBN is important and all acknowledged familiarity of the concept of diet in prevention and treatment of chronic disease, 77% were either satisfied or had no opinion on the current nutrition content in their BSN programs. There appears to be a disconnect between the acknowledgment of nutrition as an important concept for education in the BSN program and the application of the nutrition content within the program coursework. While most faculty agreed that a basic nutrition course was not sufficient for adequate nutrition education, half of respondents agreed that 3 hours of nutrition education was sufficient in the BSN program. Almost all respondents agreed that EBN should be taught in the advanced practice programs.

A potential limitation of this study was a concern that program directors and faculty would perceive the survey negatively resulting in low response rates regarding the program evaluation of nutrition content. With a low response rate of 9% from targeted nursing program faculty, this is a possible reason. Another potential limitation was the concern of limited content regarding the BSN curricula on program websites to adequately assess nutrition education, however each program evaluated provided comprehensive program details. This study, assessing the nutrition education in nursing programs, provided a robust sample as compared to previous studies of medical programs.

Implications for nursing practice

This study has meaningful, multifaceted implications to the future of nurse education and the high-quality care expected from our profession. At the basic level, this project introduces evidence-based research that exists regarding diet as the most important factor in the prevention and treatment of chronic disease and obesity as well as the ongoing battle to have the evidence heard. The study also sheds light on the lack of dissemination of this evidence-based research into baccalaureate nursing curricula, ultimately leading to a practice gap for providers. The purpose of this project was to evaluate baccalaureate nursing programs across the United States with respect to the nutrition content required in the program curricula. In comparison to the numerous evidence-based recommendations previously made following the evaluations of medical training programs, this study finds that the current nutrition education in nursing curricula

is also woefully inadequate and antiquated. The goal of this study was to provide the basis for a standardized nutrition curriculum for all undergraduate nurse training programs with evidence-based learning objectives to be included as testable content on the NCLEX exam. At the graduate, entry to practice level, the goal would be to expand the provider's knowledge base and standardize the curriculum to emphasize diet as the first line prevention and treatment for chronic disease and obesity with testable learning objectives included on certification exams. Ideally, the advance practice provider tracks would emphasize EBN to the same degree as pathophysiology and pharmacology. It will also be imperative for continuing education units to be required for evidence-based nutrition at the same level as pharmacology given diet is the first line treatment of most chronic diseases and obesity.

5. CONCLUSIONS

The findings of this study highlight the lack of nutrition education within the current BSN curricula, despite being implicit in the foundational tenants of nursing. Expansive literature demonstrates the relationship between diet and chronic diseases and obesity, establishing that diet is the most significant risk factor for disability and premature death.^[7,28] With very little evidence-based nutrition education in nursing education programs, it is not surprising that most health care providers spend 10 second discussions on diet during an office visit.^[5-8]

The phenomenon of dismal EBN research dissemination into nurse education programs was confirmed in this evaluation of 80 baccalaureate nursing programs across the country. Research has confirmed that a lack of nutrition education in the medical school curriculum leads to a significant practice gap and subpar treatment for patients and this finding can be extrapolated to nursing education programs. Poor dissemination of EBN in nursing education is contributing to a significant practice gap in nursing practice and subpar treatment for patients. Nursing must pivot from the medical model of nutrition education in nurse education programs and move in the direction of the evidence-based research. America needs well-informed, properly educated nurses now more than ever. The quality of patient lives depends on it.^[28]

ACKNOWLEDGEMENTS

N/A

AUTHORS CONTRIBUTIONS

Dr. Palmer and Dr. Champion were responsible for study design and revising. Dr. Palmer was responsible for data collection. Dr. Palmer drafted the manuscript and Dr. Champion revised it. All authors read and approved the final

manuscript.

FUNDING

Not Applicable.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

INFORMED CONSENT

Obtained.

ETHICS APPROVAL

The Publication Ethics Committee of the Association for Health Sciences and Education. The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

PROVENANCE AND PEER REVIEW

Not commissioned; externally double-blind peer reviewed.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

DATA SHARING STATEMENT

No additional data are available.

OPEN ACCESS

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

COPYRIGHTS

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

REFERENCES

- [1] Van Horn L, Lenders C, Pratt C, et al. Advancing Nutrition Education, Training, and Research for Medical Students, Residents, Fellows, Attending Physicians, and Other Clinicians: Building Competencies and Interdisciplinary Coordination. *Advances in Nutrition* (Bethesda, Md.). 2019; 10(6): 1181–1200. PMID:31728505 <https://doi.org/10.1093/advances/nmz083>
- [2] Afshin A, Sur P, Fay K, et al. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2019; 393(10184): 1958–972. PMID:30954305 [https://doi.org/10.1016/S0140-6736\(19\)30041-8](https://doi.org/10.1016/S0140-6736(19)30041-8)
- [3] Lessem A, Gould S, Evans J, et al. A whole-food plant-based experiential education program for health care providers results in personal and professional changes. *Journal of the American Association of Nurse Practitioners*. 2020; 32(12): 788–794. PMID:31577667 <https://doi.org/10.1097/JXX.0000000000000305>
- [4] Centers for Disease Control and Prevention. Health and economic costs of chronic disease. 2022. Available from: <https://www.cdc.gov/chronicdisease/about/costs/index.htm>
- [5] Cresci G, Beidelschies M, Tebo J, et al. Educating Future Physicians in Nutritional Science and Practice: The Time Is Now. *Journal of the American College of Nutrition*. 2019; 38(5): 387–394. PMID:30726681 <https://doi.org/10.1080/07315724.2018.1551158>
- [6] Asprey K, Van Horn L, Carson J, et al. Medical nutrition education, training, and competencies to advance guideline-based diet counseling by physicians: a science advisory from the American Heart Association. *Circulation*. 2018; 137(23): 821–e841. PMID:29712711 <https://doi.org/10.1161/CIR.0000000000000563>
- [7] Devries S, Freeman A. Nutrition Education for Cardiologists: The Time Has Come. *Current cardiology reports*. 2017; 19(9): 77. PMID:28752276 <https://doi.org/10.1007/s11886-017-0890-6>
- [8] Schreiber K, Cunningham FO. Nutrition education in the medical school curriculum: a review of the course content at the Royal College of Surgeons in Ireland-Bahrain. *Irish Journal of Medical Science*. 2016; 185(4): 853–856. PMID:26563109 <https://doi.org/10.1007/s11845-015-1380-8>
- [9] Kris-Etherton P, Akabas S, Bales C, et al. The need to advance nutrition education in the training of health care professionals and recommended research to evaluate implementation and effectiveness. *American Journal of Clinical Nutrition*. 2014; 99(5): 1153S–1166S. PMID:24717343 <https://doi.org/10.3945/ajcn.113.073502>
- [10] Center for Health Law and Policy Innovation. Doctoring our diet II, nutrition education for physicians is overdue. [cited 2024 Dec 04]. Available from: https://chlp.org/wp-content/uploads/2024/06/Doctoring-Our-Diet-II_FINAL_6.10.24.pdf
- [11] Albin J, Thomas O, Marvasti F, et al. There and back again: a forty-year perspective on physician nutrition education. *Advances in Nutrition*. 2024; 15(6): 100230. PMID:38705195 <https://doi.org/10.1016/j.advnut.2024.100230>
- [12] Food Law and Policy Clinic. Doctoring our diet: policy tools to include nutrition in U.S. medical training. Harvard Law School. September 2019 Available from: https://chlp.org/wp-content/uploads/2013/12/Doctoring-Our-Diet_-September-2019-V2.pdf
- [13] Mondala M, Sannidhi D. Catalysts for Change: Accelerating the Lifestyle Medicine Movement Through Professionals in Training. *American Journal of Lifestyle Medicine*. 2019; 13(5): 487–494. PMID:31523214 <https://doi.org/10.1177/1559827619844505>
- [14] US Census Bureau. Statistical abstract of the United States: 2010. 129th ed. Washington, DC: US Census Bureau, 2010.

- [15] American Association of Nurse Practitioners. More than 290,000 nurse practitioners licensed in the United States. 2020. Available from: <https://www.aanp.org/news-feed/290-000-nps-licensed-in-us>
- [16] Institute of Medicine. The future of nursing: leading change, advancing health. Washington, DC: The National Academies Press; 2011.
- [17] American Association of Colleges of Nursing. Nursing shortage. 2013. Available from: <http://www.aacn.nche.edu/media-relations/fact-sheets/nursing-shortage>
- [18] Herdman TH. NANDA international nursing diagnoses: definitions and classification, 2012-2014. Oxford, United Kingdom: Wiley Blackwell, 2012.
- [19] Englert DM, Crocker KS, Stotts NA. Nutrition education in schools of nursing in the United States. Part 1. The evolution of nutrition education in schools of nursing. *Journal of Parenteral and Enteral Nutrition*. 1986; 10: 522–7. PMID:3531564 <https://doi.org/10.1177/0148607186010005522>
- [20] American Association of Colleges of Nursing. The essentials of baccalaureate education for professional nursing practice. October 20, 2008. Available from: <http://www.aacn.nche.edu/education-resources/BaccEssentials08.pdf>
- [21] American Association of Colleges of Nursing. The essentials of master's education in nursing. March 21, 2011. Available from: <http://www.aacn.nche.edu/education-resources/MastersEssentials11.pdf>
- [22] American Association of Colleges of Nursing. The APRN consensus process. 2013. Available from: <http://www.aacn.nche.edu/education-resources/aprn-consensus-process>
- [23] Stotts N, Englert D, Crocker K, et al. Nutrition education in schools of nursing in the United States. Part 2: The status of nutrition education in schools of nursing. *Journal of Parenteral and Enteral Nutrition*. 1987; 11: 406–11. PMID:3112433 <https://doi.org/10.1177/0148607187011004406>
- [24] Dogan E, Borgen I, Ekiz P, et al. Nutrition education for nursing students: A scoping review. *Nurse Education Today*. 2024; 144: 106460. PMID:39423598 <https://doi.org/10.1016/j.nedt.2024.106460>
- [25] Stefano M, Marco S, Daniela C, et al. Nutritional knowledge of nursing students: a systematic literature review. *Nurse Education Today*. 2023; 126: 105826. PMID:37121074 <https://doi.org/10.1016/j.nedt.2023.105826>
- [26] Chao A, Zhou Y, Wei X, et al. Nutrition Education in Primary Care Adult and Family Nurse Practitioner Programs. *Nurse Educator*. 2022; 47(1): 47–50. PMID:34132231 <https://doi.org/10.1097/NNE.0000000000001050>
- [27] DiMaria-Ghalili R, Mirtallo J, Tobin B, et al. Challenges and opportunities for nutrition education and training in the health care professions: intraprofessional and interprofessional call to action. *American Journal of Clinical Nutrition*. 2014; 99(suppl): 1184S–93S. PMID:24646823 <https://doi.org/10.3945/ajcn.113.073536>
- [28] Locke A, Schneiderhan J, Zick S. Diets for Health: Goals and Guidelines. *American Family Physician*. 2018; 97(11): 721–728.