

2023

The Impact of a Graduate-Level Applied Research Course on Graduate-Level Nutrition Students' Research-Related Perceptions, Attitudes, and Knowledge

Alexandria Caljean
Marywood University, acaljean@m.marywood.edu

Kaitlyn M. Eck
Marywood University, keck@maryu.marywood.edu

Follow this and additional works at: <https://ecommons.udayton.edu/jde>



Part of the [Dietetics and Clinical Nutrition Commons](#), [Higher Education Commons](#), and the [Nutrition Commons](#)

Recommended Citation

Caljean, Alexandria and Eck, Kaitlyn M. (2023) "The Impact of a Graduate-Level Applied Research Course on Graduate-Level Nutrition Students' Research-Related Perceptions, Attitudes, and Knowledge," *Journal of Dietetic Education*: Vol. 1: Iss. 2, Article 3.

Available at: <https://ecommons.udayton.edu/jde/vol1/iss2/3>

This Original Research is brought to you for free and open access by the School of Education and Health Sciences at eCommons. It has been accepted for inclusion in Journal of Dietetic Education by an authorized editor of eCommons. For more information, please contact mschlangen1@udayton.edu, ecommons@udayton.edu.

The Impact of a Graduate-Level Applied Research Course on Graduate-Level Nutrition Students' Research-Related Perceptions, Attitudes, and Knowledge

Alexandria Caljean, Marywood University
Kaitlyn M. Eck, Marywood University

ABSTRACT

Nutrition professionals report low levels of research utilization and engagement. This study explored the associations between completion of an applied nutrition research (capstone) course and students' research-related perceptions, attitudes, and knowledge. Nutrition graduate students at a university in Pennsylvania completed an online survey at the beginning and end of a semester. The survey assessed perceptions of research participation and application, attitudes regarding research, and self-efficacy for conducting research, engaging in evidence-based practice, and collaborating on research. Students in a capstone course (n=17) learned about applying research in the field and conducted a research project. Non-capstone students (n=11) were not in the course. Paired samples t-tests indicated that Capstone students' self-efficacy for conducting research and engaging in evidence-based practice increased significantly throughout the semester. Non-significant increases were noted for perceptions of research participation and application, attitudes regarding research, and self-efficacy for collaborating on research. Non-capstone students' self-efficacy for engaging in evidence-based practice increased significantly throughout the semester. No other significant differences were noted. Independent samples t-tests indicated that at the end of the semester, Capstone students had significantly greater self-efficacy for conducting research.

KEYWORDS

research, nutrition education, evidence-based practice, applied research course, graduate education

INTRODUCTION

Research is important in all healthcare fields as it provides leverage for evidence-based practice, which is especially important within

the field of nutrition and dietetics.¹ The knowledge that research evokes within the field of nutrition and dietetics can be used to educate and guide professionals in practice.¹ Further, the utilization of research is known to

improve overall health outcomes through the development of nutrition-related public policies and updates to standards of care in clinical settings.² The Academy of Nutrition and Dietetics (The Academy) expects dietetics professionals to incorporate relevant research into their practice.¹ The Academy considers basic research skills to be an essential practice competency for entry-level registered dietitian nutritionists (RDNs), and involvement in research (conducting in addition to utilizing research) is considered an essential aspect of advanced-level practice.³⁻⁵

In alignment with the importance placed on research by the Academy, studies have shown that RDNs believe that research is important within the field.^{6,7} However, low levels of research utilization and engagement have been reported by nutrition professionals.⁸ Current research indicates that less than half of RDNs regularly “Interpret, analyze, and integrate evidence-based research findings” in their practice and an even smaller percentage conduct research.⁹ The 2020 Commission on Dietetic Registration Entry-Level Dietetics Practice Audit found that only 17% of Dietitians were involved in conducting literature reviews and only 1-3% of dietitians participated in other aspects of conducting research (e.g., designing studies, writing manuscripts, complying with IRB).⁹ Research is crucial for the development and advancement of evidence based interventions and for the general advancement of the field of nutrition and dietetics, thus low rates of research engagement may hinder advancement of dietetics care and practice.¹⁰

It is proposed that these low levels of research utilization and engagement may be a result of minimal research exposure during preparation for entry into the dietetics field,¹¹ more specifically, a lack of exposure to the application of research in dietetics practice.¹¹ Barriers to research that have been reported by RDNs, include lack of research skills, time, financial resources, and staff.⁶ A study assessing predictors of RDNs’ involvement in research found that over half of RDNs lack

confidence in their ability to conduct research.¹² Dietitians commonly report lack of confidence in their ability to interpret statistics and limited knowledge or research methodology as barriers to utilizing and conducting research.¹³ RDNs who do conduct research reported that they possessed various skills and characteristics which helped them, such as knowledge of writing skills, organization, a questioning mind, and the ability to be persistent and driven.¹⁴

It has been reported that RDNs are most likely to participate in elementary research but few are involved in more complex, large-scale research.⁶ A barrier to research in various practice areas within dietetics may come from a misconception that only research dietitians can conduct research and that RDNs practicing in other areas (e.g., clinical, community, food service) may not perceive research to be part of their job description.⁸ A survey examining research involvement of RDNs showed that dietitians were more likely to conduct research if their job description explicitly stated the expectation of conducting research, and that RDNs with more experience within the field were more likely to conduct research.⁸

Although courses in statistics and research are requirements of accredited Dietetics programs, many RDNs feel that the statistics and research coursework completed during their college education was inadequate. Many reported that the research and statistics courses lacked a nutrition focus, which made it difficult to learn to apply the content in practice.¹³ Studies assessing factors that improve rates of conducting and utilizing research indicate that dietitians believe continued education (e.g., webinars, and classes), and collaborating with a research mentor would help them overcome barriers to research.^{2,6,15} Forthcoming changes to the requirement for entry-level practice in the field of dietetics include raising the minimum degree required from a Bachelor’s degree to a Master’s degree. This change has the potential to allow dietetics students to complete additional courses in research methodology

and statistics prior to entering the workforce. These graduate level courses may focus on the application of course material in the field of nutrition and dietetics in contrast to the more general focus of required undergraduate statistics and research courses.¹² Previous research has shown that applied nutrition research course (i.e., course that allow students to complete a research project) improve students' self-efficacy for research.¹⁶

Conducting and utilizing research is important for the integration of evidence-based practice in nutrition and dietetics however, research has shown that nutritional professionals utilize and conduct research at a low rate.^{9,10} Thus it is important to identify strategies for improving rates of research utilization and engagement. While research shows that nutrition professionals who have completed courses in research methodology and statistics are more likely to utilize and conduct research,¹² few studies have explored associations between completion of graduate-level applied nutrition research courses and students' perceptions, attitudes, and self-efficacy related to engaging in (utilizing and conducting) research as a part of their future career. This study aims to explore the impact that a graduate-level applied nutrition research course has on nutrition students' perceptions, attitudes, and knowledge related to utilizing and conducting research as a part of their future career.

METHODS

Sample

The Marywood University Institutional Review Board (IRB) approved this observational cohort study, and all students provided consent online before completing the initial and follow-up surveys. Nutrition graduate students (n=77) from a university in Northeastern, PA were recruited via convenience sampling to complete an online survey. Emails were sent to students through a department list serve and announcements were made in graduate nutrition classes. Recruitment materials specified that the

survey would take about 15 minutes to complete and would focus on nutrition graduate students' perception, attitudes, and self-efficacy related to utilizing and conducting research as a part of their future careers. The initial survey was administered in January 2021 and the follow-up survey was administered in April 2021. Eligible participants were currently enrolled in a graduate nutrition program, and were 18 years of age or older. If students did not have matching participant IDs for completed surveys at the beginning and end of the semester they were excluded from the analysis. Students were grouped into those who were enrolled in a graduate nutrition capstone (applied nutrition research) course (n=31) and those who were not. Students who were not enrolled in capstone were enrolled in a basic (non-applied) research class (n=37), or were completing a thesis project (n=9).

Instruments

The survey gathered demographic data and assessed graduate nutrition students' perceptions, attitudes, and self-efficacy related to research. Perceptions of research were assessed via two subscales, perceptions of research participation (7 items), and perceptions of research application (5 items). These two subscales were adapted from The Academy of Nutrition and Dietetics' Dietetics Practice-Based Research Network (DPBRN) 2013 survey conducted to assess RDNs' perceptions of research.⁶ The items were adapted to make them applicable to a student (rather than professional) audience (e.g., "I see research as part of my job" became "I see research as part of a dietitian's job"). A 5-item scale was used to assess attitudes regarding research. Self-Efficacy related to research was assessed via three subscales. The self-efficacy for conducting research subscale contained 4-items from the DPBRN 2013 survey Research Activity subscale (i.e., "I am confident in my ability to develop a research question", "I am confident in my ability to consent subjects", "I am confident in my ability to collect data", and "I am confident in my ability to analyze data").⁶

Self-efficacy for engaging in evidence-based practice (6 items) and self-efficacy for research collaboration (6 items) were measured using items adapted from the Level 1 (evidence-based practice) and Level 2 (collaboration in research) subscales of the Research Involvement Questionnaire (RIQ).⁴ The RIQ was originally developed to measure research involvement (“How much are you currently involved in the following activity?”) and was adapted to assess self-efficacy (“I am confident in my ability to”). All items were scored on a 5-point scale from strongly disagree to strongly agree. Items in each of the 6 subscales were averaged to create scale scores ranging from 1 to 5. Higher scores indicated greater perceptions of research participation or application, attitudes towards, and self-efficacy for conducting research, engaging in evidence based-practice, and collaborating on research.

Intervention

The graduate level capstone (applied) nutrition research course in nutrition that was used to group the students (capstone vs. non-capstone students) was offered to students completing a master’s in nutrition. Non-capstone students were enrolled in a basic (non-applied) research class, or were completing a thesis project. The capstone course aimed to improve students’ ability to collect and analyze qualitative data, and to write abstracts that succinctly summarize research studies through integrative and applied learning. The course also aimed to enhance student understanding of the multitude of ways research is used by nutrition professionals, while highlighting ways in which the students will be able to utilize research in their future careers.

For the first six weeks of the semester students in the capstone course were assigned one peer-reviewed journal article to read each week. The abstract was removed from the copy of the article provided to the students. After reading the article the students were required to write a 250-word structured abstract for the article. Students received feedback on their abstracts, and during class time the methods,

results, conclusions, and strengths and limitations of the articles were discussed in depth. Special attention was given to helping students interpret the tables and figures in the articles. During the second half of the 3-hour once a week class period, students observed the course instructor conduct a semi-structured interview with a nutrition professional to explore their use of research in practice. During the seventh week of the semester each student utilized the same semi-structured interview guide that the instructor had used in class to conduct an interview with a nutrition professional. All interviews were recorded and transcribed, and the data were entered into a shared excel file. During the second half of the semester class time was devoted to completing small group research projects. Students were divided into groups of 4 to 6 students and were assigned a research question related to the interview data that had been collected (e.g., How do nutrition professionals stay up to date on research and trends? and What barriers to utilizing and conducting research do nutrition professionals experience?). During the 30 minutes to one hour of class a new research skill would be introduced (i.e., qualitative data analysis, overview of IRB materials, research poster creation, poster presentation). During the remaining class time students worked in groups to apply the skills they had learned. Over the course of 4 weeks the students analyzed qualitative data to identify themes and trends in the data, wrote an abstract related to their research question, designed a research poster, and presented their research at a research symposium on campus.

Data Analysis

Descriptive statistics (means, standard deviations, and percentages) were used in order to describe the study sample. Average scores were computed for each of the 6 subscales at the beginning of the semester (January) and at the end of the semester (April). Students were divided into two groups, those who were enrolled in a capstone

Table 1. Age and Gender of Nutrition Graduate Student’s Enrolled in a Capstone Course and those who are Not Enrolled in a Capstone Course

Variable	Total Sample Mean (SD) n (%) n=28	Non-Capstone Mean (SD) n (%) n=11	Capstone Mean (SD) n (%) n=17	p-value*
Age	24.47 (2.69)	24.25 (3.04)	24.64 (2.43)	0.635
Gender				0.304
Male	3 (10.71%)	2 (18.18%)	1 (5.88%)	
Female	25 (89.29%)	9 (81.82%)	16 (94.12%)	

*Independent t-tests

nutrition course (capstone students) and those who were not (non-capstone students).

Paired sample t-tests were conducted to identify differences in student’s research-related perceptions, attitudes, and self-efficacy between the beginning and end of the semester. Additionally, independent samples t-tests were conducted to identify differences in end of the semester research-related perceptions, attitudes, and self-efficacy between students enrolled in a capstone course and those who were not.

RESULTS

A total of 45 (58% response rate) students completed the beginning of the semester

survey and a total of 46 (60% response rate) students completed the end of the semester survey. A total of 28 students (11 non-capstone students and 17 capstone students) had completed both the beginning of the semester survey and the end of the semester survey and were included in the final analysis. Students answered a series of questions (i.e., number of siblings, fist letter of mother/female guardian’s first name, middle initial) and their responses were used to generate a participant ID. If students’ answers did not match at the beginning and end of the semester their participant IDs would not match and their data were not included in the final analysis. The 28 students in the final sample had an average age

Table 2. Research-Related Perceptions, Attitudes, and Self-Efficacy of Nutrition Students Not Enrolled in a Capstone Course

	Beginning of Semester Mean ± SD n= 11	End of Semester Mean ± SD n=11	p-value*
Perceptions of Research Participation	4.36 ± 0.50	4.53 ± 0.49	0.137
Perceptions of Research Application	4.84 ± 0.22	4.80 ± 0.27	0.714
Attitudes Regarding Research	3.13 ± 0.30	3.11 ± 0.27	0.796
Self-Efficacy for Conducting Research	3.70 ± 0.74	4.00 ± 0.34	0.185
Self-Efficacy for Engaging in Evidence-Based Practice	3.53 ± 0.80	4.14 ± 0.28	0.039*
Self-Efficacy for Collaborating on Research	3.76 ± 0.74	3.98 ± 0.51	0.322

*Paired samples t-tests

*p<0.05

of 24.47 ± 2.69 years and were primarily female (89%). There were no significant differences ($p < 0.05$) in age or gender between students who were enrolled in a capstone course and those who were not (Table 1).

When comparing non-capstone student's perceptions, attitudes and self-efficacy related to research from the beginning of the semester to the end of the semester few significant differences were noted (Table 2). Self-efficacy for engaging in evidence-based practice increased significantly ($P = 0.039$) from the beginning (3.53 ± 0.80) to the end (4.14 ± 0.28) of the semester. There were no significant differences between beginning of the semester and end of the semester scores for perceptions of research participation, perceptions of research application, attitudes regarding research, self-efficacy for conducting research, and self-efficacy for collaborating on research.

For students enrolled in a capstone course, significant changes in self-efficacy for conducting research, and self-efficacy for engaging in evidence-based practice were observed. At the end of the semester, students had significantly higher self-efficacy for conducting research (4.54 ± 0.45 , 4.16 ± 0.59 ; $p = 0.017$) and self-efficacy for engaging in evidence-based practice (4.50 ± 0.49 , 4.17 ± 0.62 ; $p = 0.009$) than at the beginning of the semester.

Although there were no other significant changes from the beginning to the end of the semester, scores for perceptions of research participation or application, attitudes regarding research, or self-efficacy for collaborating on research all trended upward (Table 3).

When comparing end of the semester perceptions, attitudes, and self-efficacy related to research between capstone students and non-capstone students a few significant differences were noted (Table 4). Students enrolled in a capstone course had significantly higher scores for self-efficacy for conducting research (4.54 ± 0.45 , 4.00 ± 0.34 ; $P < 0.001$), self-efficacy for engaging in evidence-based practice (4.50 ± 0.49 , 4.14 ± 0.28 ; $p = 0.019$), and self-efficacy for collaborating on research (4.48 ± 0.47 , 3.98 ± 0.51 ; $p = 0.014$) than non-capstone students respectively. At the end of the semester capstone students and non-capstone students did not differ significantly in their perceptions of research participation, perceptions of research application, and attitudes regarding research (Table 4).

DISCUSSION

Overall, graduate level nutrition students had positive perceptions of research participation and application. This is in line with the findings

Table 3. Research-Related Perceptions, Attitudes, and Self-efficacy of Nutrition Students Enrolled in a Capstone Course

	Beginning of Semester Mean \pm SD n= 17	End of Semester Mean \pm SD n=17	p-value*
Perceptions of Research Participation	3.90 \pm 0.83	4.13 \pm 0.70	0.232
Perceptions of Research Application	4.55 \pm 0.95	4.66 \pm 0.32	0.684
Attitudes Regarding Research	3.02 \pm 0.49	2.86 \pm 0.43	0.173
Self-Efficacy for Conducting Research	4.16 \pm 0.59	4.54 \pm 0.45	0.017*
Self-Efficacy for Engaging in Evidence Based Practice	4.17 \pm 0.62	4.50 \pm 0.49	0.009*
Self-Efficacy for Collaborating on Research	4.25 \pm 0.65	4.48 \pm 0.47	0.068

*Paired samples t-tests

* $p < 0.05$

Table 4. End-of-Semester Research-Related Perceptions, Attitudes, and Self-Efficacy of Capstone Students and Non-Capstone Students

	Non-Capstone Mean ± SD n= 11	Capstone Mean ± SD n= 17	p-value [‡]
Perceptions of Research Participation	4.53 ± 0.49	4.13± 0.70	0.109
Perceptions of Research Application	4.80 ± 0.27	4.66 ± 0.32	0.239
Attitudes Regarding Research	3.11 ± 0.27	2.86 ± 0.43	0.098
Self-Efficacy for Conducting Research	4.00 ± 0.34	4.54 ± 0.45	<0.001*
Self-Efficacy for Engaging in Evidence-Based Practice	4.14 ± 0.28	4.50 ± 0.49	0.019*
Self-Efficacy for Collaborating on Research	3.98± 0.51	4.48 ± 0.47	0.014*

[‡]Independent t-tests

*p<0.05

of a survey conducted by the Academy, which found that 99.5% of nutrition professionals agreed or strongly agreed that research is important to the field of nutrition and dietetics.¹⁷ Similarly, in the current study students agreed more strongly that application of research is important compared to participation in research, which also aligns with the findings from the Academy survey.¹⁷ Perceptions of research were high in both the non-capstone and capstone groups at the beginning of the semester, and perceptions of research did not change significantly over the course of the semester suggesting that positive perceptions of research (e.g., research improves patient care, research can help to increasing reimbursement for dietitians) are fostered in nutrition students prior to the start of their graduate career.

Attitudes regarding research were low in both the non-capstone and capstone groups at the beginning of the semester (e.g., Seeing patients is more important than research, Research is not part of a dietitian's role) and attitudes regarding research decreased, although not significantly, from the beginning to the end of the semester in both groups. The decreased score indicates that at the end of the semester students were less likely to believe that dietitians should be engaged in research as part of their job. This suggests that graduate

level course work should highlight how research is integrated into the role of non-research dietitians. Previous research has identified failure to perceive research as part of the role of a dietitian as a barrier to utilizing and conducting research.⁸ Previous research has shown that dietitians prioritize patient care over research. Educating graduate students on the role research plays in the development of evidence-based guidelines,¹ improvement of patient outcomes,² and advancing the field of dietetics² may help to improve attitudes towards research.

Self-efficacy for conducting research increased significantly from the beginning to the of the semester in the capstone group but not in the non-capstone group. At the end of the semester self-efficacy for conducting research was significantly higher in the capstone group compared to the non-capstone group. This suggests that participation in the capstone class improved student's self-efficacy for conducting research. Research on undergraduate and graduate students in other healthcare fields (i.e., speech language pathology and social work) also found that completion of a research course was associated with improved research-self efficacy.¹⁸ Findings from both of these studies align with reports from RDNs who believe that education

on conducting and utilizing research would help them overcome barriers to research.^{2,6,15}

Further, self-efficacy for engaging in evidence-based practice increased significantly from the beginning to the end of the semester in both groups with significantly higher self-efficacy in the capstone compared to the non-capstone group at the end of the semester. This includes improved self-efficacy for understanding, interpreting, and applying research. Based on The Framework of Research Involvement developed by Wylie-Rosett et al.,¹⁹ these are the most basic forms of research involvement and thus, these are the activities that entry level dietitians most likely engage in.⁴ Thus, it is particularly important that graduate level courses result in improved self-efficacy in these areas.

According to the Framework of Research Involvement, “active involvement in research through collaboration with others” is the second level of research involvement.¹⁹ There was a non-significant increase in self-efficacy for collaborating on research seen in the capstone group from the beginning to end of the semester, and self-efficacy for collaborating on research was significantly greater in the capstone group compared to the non-capstone group at the end of the semester. This suggests that the capstone course begins to increase self-efficacy for these more advanced research skills, but that additional research experience in the field may be needed for significant improvement to be seen. Previous research has shown that dietitians feel that collaborating with a research mentor would help them overcome barriers to research.^{2,6,15} A research program that was developed to support interdisciplinary research in a health care team found that the program improved dietitians’ attitudes and self-efficacy related to research, and intention to conduct research in the future.²⁰ Therefore, providing nutrition graduate students with research opportunities, and establishing research mentorships for early career dietitians may have the dual benefit of improving level of involvement in research and research self-efficacy of RDNs.

The results should be considered in light of the limitations of the study. The small sample size is a limitation of the study. Convenience sampling was utilized, and a power calculation was not utilized to determine optimal sample size. Although 45 students completed the beginning of the semester survey and 46 students completed the end of the semester survey, only 28 surveys could be paired using participant IDs. The low survey match rate may be a result of the complex coding system required by the University IRB to ensure participant anonymity. Existing valid tools to assess student’s research-related knowledge, attitudes, and perceptions could not be located in the literature, thus the study relied on non-validated survey instruments. Additionally, statistically significant between and within group differences often corresponded to differences of less than half a point on a five-point scale, which may not be clinically relevant. Student’s exposure to research outside of the capstone class, as well as enrollment in other graduate level classes was not accounted for. Further caution should be taken when generalizing the results of this study to other graduate level nutrition programs which may have different curricula.

CONCLUSIONS

A graduate level applied nutrition research capstone course significantly increases nutrition students’ self-efficacy for conducting research and for engaging in evidence-based practice but not for collaborating on research. While graduate level courses may be effective at improving self-efficacy for entry level research skills, building confidence in more advanced research skills, such as collaboration, may require practical experience in the field. Students’ perceptions of research application and participation were fairly high and did not change significantly from the beginning to the end of the semester. Students’ attitudes towards research were low, and also did not change significantly from the beginning to the end of the semester. Highlighting the ways in which research is integrated into the role of

non-research dietitians may help to improve attitudes towards research. Improved understanding of the impact of graduate-level applied nutrition research courses may lead to improvements in graduate-level dietetic education. Strengthening graduate-level applied nutrition research courses may encourage students to utilize and engage in research upon entering the workforce. Future research should focus on identifying aspects of graduate level course work that can improve self-efficacy for research collaboration, perceptions of research and attitudes towards research. Continued research may help to determine if graduate programs that are accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) should be required to offer applied research courses. Future studies should focus on comparing thesis programs, applied nutrition research course/capstone programs, and non-research-based degrees. Additionally, identifying strategies that can be utilized in the workplace to help early career dietitians improve their perceptions, attitudes, and self-efficacy related to research may be beneficial.

CONFLICT OF INTEREST

The authors report no conflicts of interest.

REFERENCES

1. Manore MM, Myers EF. Research and the dietetics profession: Making a bigger impact. *Journal of the American Dietetic Association*. 2003;103(1):108-112.
2. Anchondo IM, Campbell C, Zoellner J. Academy of Nutrition and Dietetics 2011 Survey on member research activities, needs, and perceptions. *Journal of the Academy of Nutrition and Dietetics*. 2014;114(5):803-810.
3. Brody RA, Byham-Gray L, Touger-Decker R, Passannante MR, Maillet JOS. Identifying components of advanced-level clinical nutrition practice: A Delphi study. *Journal of the Academy of Nutrition and Dietetics*. 2012;112(6):859-869.
4. Whelan K, Copeland E, Oladitan L, Murrells T, Gandy J. Development and validation of a questionnaire to measure research involvement among registered dietitians. *Journal of the Academy of Nutrition and Dietetics*. 2013;113(4):563-568.
5. ACEND accreditation standards for nutrition and dietetics internship programs (DI). Accreditation Council for Education in Nutrition and Dietetics;2016. <https://www.eatrightpro.org/acend/accreditation-standards-fees-and-policies/standards-fees-and-policies-introduction>
6. Dougherty CM, Burrowes JD, Hand RK. Why registered dietitian nutritionists are not doing research—perceptions, barriers, and participation in research from the Academy's dietetics practice-based research network needs assessment survey. *Journal of the Academy of Nutrition and Dietetics*. 2015;115(6):1001-1007.
7. Chrencik E, Xu R, Neal T, Steiber A. Renal dietitians' self-perceptions on research participation: A pilot study. *Journal of Renal Nutrition*. 2008;18(4):389-392.
8. Howard A, Ferguson M, Wilkinson P, Campbell K. Involvement in research activities and factors influencing research capacity among dietitians. *Journal of Human Nutrition and Dietetics*. 2013;26 (Suppl. 1):180-187.
9. Rogers D, Griswold K, Sauer KL, et al. Entry-level registered dietitian and dietetic technician, registered practice today: Results from the 2020 commission on dietetic registration entry-level dietetics practice audit. *Journal of the Academy of Nutrition and Dietetics*. 2021;121(2):330-378.
10. Braun A, Hill E, Gallo S, et al. Research at the Academy of Nutrition and Dietetics: What, how, and why? *Journal of the Academy of Nutrition and Dietetics*. 2022;122(11):2150-2162.
11. Stephens D, Taylor N, Leggat SG. Research experience and research interests of allied health professionals. *Journal of Allied Health*. 2009;38(4):107E-111E.
12. Byham-Gray LD, Gilbride JA, Dixon LB, Stage FK. Predictors for research involvement among registered dietitians. *Journal of the American Dietetic Association*. 2006;106(12):2008-2015.
13. Slawson DL, Clemens LH, Bol L. Research and the clinical dietitian: perceptions of the research process and preferred routes to obtaining research skills. *Journal of the American Dietetic Association*. 2000;100(10):1144-1148.
14. Whelan K, Markless S. Factors that influence research involvement among registered dietitians working as university faculty: A qualitative interview study. *Journal of the Academy of Nutrition and Dietetics*. 2012;112(7):1021-1028.
15. Vogt EAM, Byham-Gray LD, Touger-Decker R. Perceptions, attitudes, knowledge, and clinical use of evidence-based practice among US registered dietitians: A prospective descriptive pilot study. *Topics in Clinical Nutrition*. 2013;28(3):283-294.
16. Whelan K, Castelli KR, Trizio C, Howard O, Thomas JE, Madden AM. Undertaking a research project improves confidence in research skills among student dietitians. *Journal of Human Nutrition and Dietetics*. 2022;35(5):934-947.

17. Dougherty CM, Burrowes JD, Hand RK. Why registered dietitian nutritionists are not doing research; pPerceptions, barriers, and participation in research from the Academy's dietetics practice-based research network needs assessment survey. *Journal of the Academy of Nutrition and Dietetics*. 2015;115(6):1001-1007.
18. Unrau YA, Beck AR. Increasing research self-efficacy among students in professional academic programs. *Innovative Higher Education*. 2004;28(3):187-204.
19. Wylie-Rosett J, Wheeler M, Krueger K, Halford B. Opportunities for research-oriented dietitians. *Journal of the American Dietetic Association*.1990;90(11):1531-1535.
20. Johnson F, Black AT, JC. Practice-based research program promotes dietitians' participation in research. *Canadian Journal of Dietetic Practice and Research*. 2016;77(1):43-46.