



المؤتمر الدولي: مخرجات التعليم العالي ومتطلبات سوق العمل الليبي
"رهانات الحاضر وأفاق المستقبل"
29 يناير 2022



The Perception of Graduates on the Curriculum for Nutrition Education A Case Study at the Faculty of Public Health at the University of Benghazi

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<https://doi.org/10.36602/jeps.2022.103.08>

Abstract

One of the principle qualities that graduated students must possess is complete confidence and knowledge in performing their works. A comprehensive training course on a physical nutritional examination approved by the Academy of Nutrition and Dietitian was designed for the graduates of the Nutrition Department of the College of Public Health, University of Benghazi. This research aims to study the significant differences in skills improvement. 200 graduates were enrolled in this training course. A validated questionnaire was used before and after the course. The consequences and opportunities for improving the practical skills were studied. The data were analyzed using non-parametric measurements by SPSS version 20. Result: after training, participants noted an increase in their ability to assess subcutaneous fat and muscle, fluid build-up, and malnutrition $P = \leq 0.00$. There is a significant increase in graduates' conformance 45% (n= 90) in touching patients. 50% (n=100) of graduates have increased their focus on the importance of adding medical essentials to the curriculum of the Nutrition Department. 82% (n=91) and 18% (n=36) felt that they needed more training in communication. The training program was effective in improving skills among most of the graduates.

Keywords: Training Courses, Nutritional physical examination, Curricula, Graduates

تصور الخريجين للمناهج التعليمية للتغذية

دراسة حالة بكلية الصحة العامة بجامعة بنغازي

محفوظ أحمد المنصوري

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مركز طرابلس الطبي

جامعة بنغازي

جامعة بنغازي

الملخص

من الصفات الأساسية التي يجب أن يمتلكها الخريجون الثقة الكاملة والمعرفة في أداء أعمالهم. تم تصميم دورة تدريبية شاملة حول الفحص الغذائي البدني المعتمد من أكاديمية التغذية وأخصائي التغذية لخريجي قسم التغذية بكلية الصحة العامة بجامعة بنغازي. يهدف هذا البحث إلى دراسة الفروق المهمة في تحسين المهارات بعد الدورة التدريبية. تم تسجيل 200 خريج في

هذه الدورة التدريبية. تم استخدام استبيان تم التحقق منه قبل وبعد الدورة. تمت دراسة نتائج وفرص التحسين في المهارات. تم تحليل البيانات باستخدام القياسات غير المعيارية بواسطة SPSS الإصدار 20. النتيجة: بعد التدريب، لاحظ المشاركون زيادة في قدرتهم على تقييم الدهون والعضلات تحت الجلد، وتراكم السوائل، وسوء التغذية. $P = 0.00$ هناك زيادة كبيرة في مطابقة الخريجين 45% (ن = 90) في لمس المرضى. 50% (ن = 100) من الخريجين زادوا تركيزهم على أهمية إضافة أساسيات الطب إلى مناهج قسم التغذية. 82% (ن = 91) و 18% (ن = 36) شعروا أنهم بحاجة إلى مزيد من التدريب في الاتصال. كان البرنامج التدريبي فعالاً في تحسين مهارات معظم الخريجين .

الكلمات المفتاحية: الدورات التدريبية، الفحص البدني الغذائي، المناهج الدراسية، الخريجين.

Introduction

One of the indicators prompted by local and international education quality standards is the follow-up of graduates to search for their competencies. Researchers are currently focusing on studying and improving higher education to find out whether graduates possess the competencies needed to prepare them for the labor market (Pérez, Soto and Orduño, 2012). This approach is part of the methodology followed by the Department of Nutrition, Faculty of Public Health, which seeks to support and enhance the efficiency of their graduates. The Future of Education and Skills Education 2030 Distance-Educator, defines competence as: "a competency is more than knowledge and skills. It involves the ability to meet complex demands, using and mobilizing psychosocial resources including; skills and attitudes in a particular context". According to Lan (2020) and Smith (2017), graduates should possess higher education in order to acquire professional competencies and skills that include knowledge, understanding, and confidence. According to Yosef et al (2013), who conducted a study on the opinions of employers about the professional competencies of graduates coming to the labor market, the results showed that a high percentage of graduates' lack interpersonal skills, followed by the loss of the ability to think deeply, plan a career and some of them also lack the scientific side.

The educational curriculum is based on scientific knowledge, advanced knowledge, skills, and attitudes separately. Effective learning requires linking these axes together, and students must also be part of a situation in which they are asked to solve a problem as a step to prepare them for the job market (Wolff, R., and Booth, M. 2017). One of the methods to raise competencies for graduates is the curriculum development process, which is defined as a targeted, gradual and systematic process to bring about positive improvements in the educational system and the graduates' competencies to meet the labor market and meet the needs of society Cumming (Cumming, 2010). As is well known, the curriculum is the main focus of any learning process. To improve the quality of higher education, which is in the interest of improving educational outcomes, it is not sufficient to enhance the curricula with knowledge additions without having realistic strategic plans concerned with updating teaching methods and evaluation, studying the conditions of the labor market and tracking the performance of graduates (IBE-UNESCO and APCEIU, 2018).

In the context of strategies for changing teaching and evaluation methods that would raise the level of educational attainment, which lies in choosing the best evaluation and teaching methods, it is in fact one of the plans developed by the Nutrition Department at the University of Benghazi, which led to improving the level of educational attainment as indicated by the study conducted by Elfagi et al, (2020). Besides, Nouh , Elfagi and Omar (2020) discussed the effect of using a blended learning approach in enhancing students' achievement and outcome.

Through these studies, researchers have noted weaknesses in educational outcomes, especially on the clinical side. Effective occupational training is one of the methodologies used in higher education institutions in many countries of the world (Gordillo, Barra, and Quemada ,2017); (Aldubayan, and Aldisi, 2019); and (Ozfidan, 2017). Among the recommendations emphasized by many studies and organizations such as UNESCO, (2016), and APCEIU, (2018) educational institutions should know the strengths and weaknesses of the educational curricula and the obstacles that graduates face in performing their labor field.

Based on these recommendations, the nutritional physical examination comprehensive training course that was prepared and used in this study was selected. The nutritional physical examination is a clinical training course consisting of nutritional assessment, diagnosis, intervention, monitoring, and evaluation. As an essential part of a nutrition assessment, a physical examination focusing on nutrition is very important in identifying signs and symptoms related to nutritional malnutrition. (Ingram and Oosterkamp, 2014). The nutritional focused physical examination considers muscle and fat wasting, fluid accumulation, and functional status. These four factors, in addition to weight loss and adequacy of dietary intake, are used to identify malnutrition. As a physical exam is required to assess four of the six recommended diagnostic criteria for malnutrition, it is standard of practice in nutrition care to perform NFPE in a nutrition assessment (Grosemans, Coertjens and Kyndt, 2017).

The current research is significant in terms of the effectiveness of comprehensive training courses and their ability to enhance the practical skills of the graduate before and after training, and the expected secondary result is the change in the ability of graduates and an increase in confidence during job performance. The Nutrition Department aims to establish a nutrition board certificate as well as to change the department to clinical based department; accordingly, the authors aimed to identify the strengths and weaknesses points to improve the study plans and educational curricula. The researchers aim to determine whether there are statistically significant differences between pre- and post- observations differs compared to zero. Furthermore, this paper aims to assess the influences of Nutritional Physical Examination Comprehensive Training Course and improvements in curricula and the graduates of the Nutrition Department, Faculty of Public Health, at University of Benghazi.

Methodology

This work is a quasi-experimental study. Informed consent was obtained from participants who were also assured of the confidentiality of the information collected. The study extended from September 2019 to March 2020. The training course extended for one week from 26th October 2020 to the 2nd of November 2019; four hours per day. The period of pre-test data collection extended from the half of September 2019 to the half of October 2019. The pre- and post-training questionnaires were programmed to be filled using standard web browsers. The questionnaires were distributed into two phases, the first was before the beginning of the training course and the second phase after the end of the course directly. The actual attendance of the course was 200 graduates with a response rate (54%) out of 370 graduates of the Nutrition Department of the Faculty of Public Health who filled out the pre-session questionnaire. One of the reasons for the absence of the 170 participants was that the training course was in the morning shift, and this matter contradicted their work time, and the other reason was that the graduates residing outside Benghazi apologized for their inability to join the training program. The responses were transported into an output file and imported into SPSS©. The authors used

a validated structured questionnaire approved by the Academy of Nutrition and Dietitian. The participants of the questionnaire had to be members in the announced training program as well as having the B.A degree in Nutrition. To announce this study, the researchers sent a brief description to all the graduates throughout the online training groups .The questionnaire was conducted under the standards of the nutritional physical examination approved training plan, which links aspects of knowledge and understanding between dietetics and clinical diagnosis. Outcome measurement tools are the nutritional physical examination checklist. The pre- and post-training collected data include the nutritional physical examination skills knowledge. The post-training collected data include a change in skills, performance, and confidence. This course was offered by a Medical Specialist in the Intensive Care Unit. The normality of sample distributions was tested according to the Shapiro-Wilk scale. The significant correlation for all variables was set at $P \leq 0.05$, and this means the data were not normally distributed. The non-parametric ANOVA (Friedman test) was done to test the paired data frequency at a statistically significant level: $P \leq 0.05$, analysis of skill performance was done by Wilcoxon Signed Ranks.

Result and Discussion

The dominated aim of this research was to study the effectiveness of comprehensive training courses and their ability to improve the graduates’ practical skills. From figure 1 two hundred graduates were enrolled in this training program where the majority of participants in the sample were female (90%) of the total sample and the rest (10%) male. In the region of the educational level, the highest percentage was for the Bachelor's degree by 86% of the total sample, followed by 11% (n=22), 3% (n=6) for was a master's and diploma degree, respectively. Most of the participants in this study were working in hospitals as dietitians (48.5%) and 30.5% were unemployed while the rest working in public clinics, private clinics, and academics; 11.5%, 5%, and 4.5% respectively.

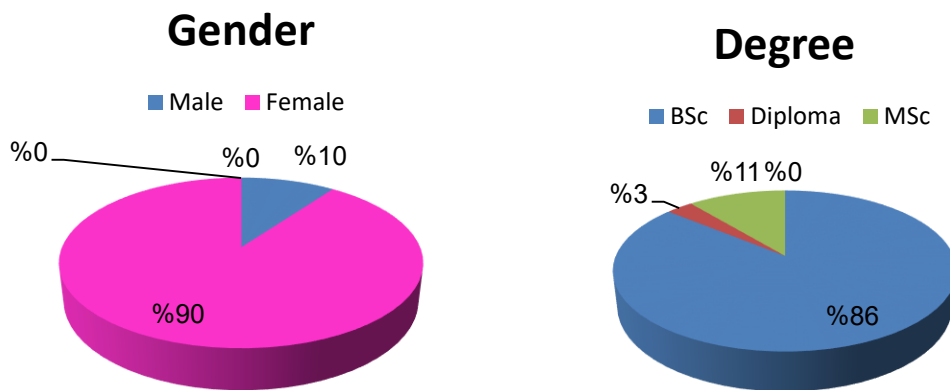


Figure (1): Subject Characteristics

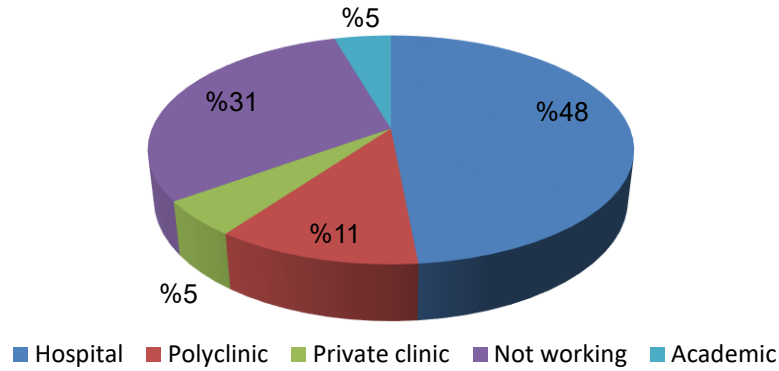


Figure (2): Professional statuses

Most of the registered graduates from different graduation years (2000 up to 2019), with the largest percentage being 32% for 2019 graduates, followed by 16%, 9.5%, and 9% for 2012, 2014, and 2013 graduates, respectively as shown in Figure 3. The barriers that graduates faced during applying nutritional physical examination during their work in hospitals and clinics are presented in figure (4). The barriers included Lack of training/education, which constituted the largest percentage about (39%), followed by 28% and 17.5 %, lack of hands-on experience and discomfort touching patients, respectively. only 15.5 % of participants selected other barriers where the researchers will discuss this in the open questions.

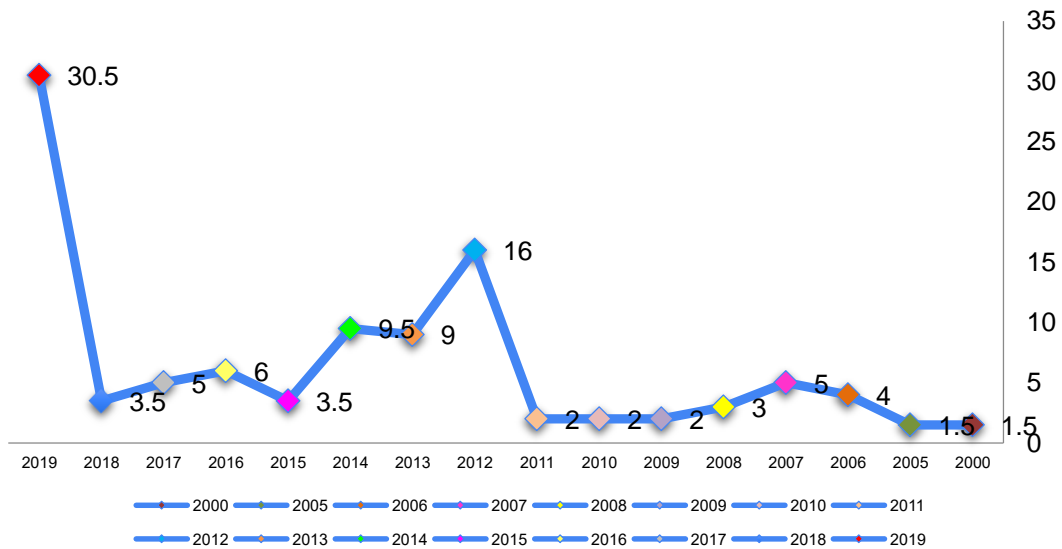


Figure (3): Sample Distribution by Year of Graduation

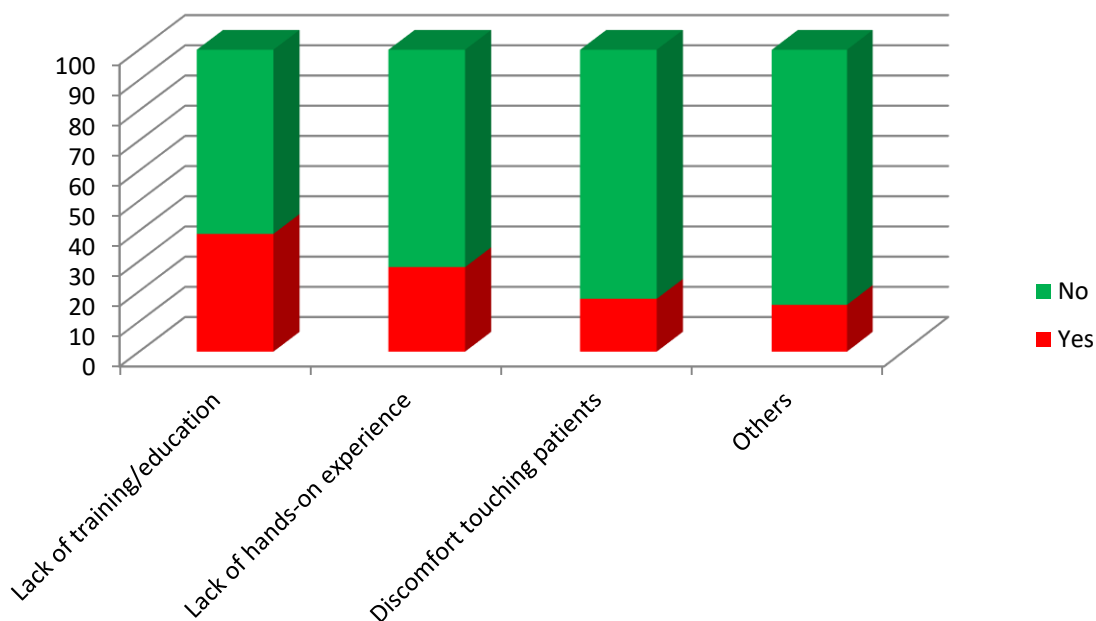


Figure (4): Barriers facing graduates during applying nutritional physical examination

Among the basic questions that were asked to the graduates were the extent of their knowledge of the importance of this training course, their belief about the importance of designing a course of medical essentials to the undergraduate curriculum and their confidence and satisfaction with their performance as shown in Table (1). These questions were asked before and after the start of the course in the same context. The researchers noticed that there were positive statistically significant differences between the tribal meaning and the dimensional meaning of the two questions (it is important to insert medicine course to an undergraduate degree and their confidence during dealing with patients) ($P= 0.000$, $P = 0.001$) respectively. There were no statistically significant differences in the question of the necessity to conduct an effective nutritional clinical examination with the medical team ($P= 0.898$).

Table 1: The Paired Data Frequency Distributions (n=200)

| Questions | Measures tool | Response Grade | | | | | Mean | P |
|---------------------------------------------------------------------------------------------------------------|---------------|-----------------|--------------------|---------------|----------------|----------------|------|------|
| | | Not important | Slightly important | I don't know | Important | Very Important | | |
| Is it necessary to conduct an effective nutritional clinical examination with the medical team? | Pre-test | 6 (3%) | 20 (10%) | 91 (45.5%) | 47 (23.5%) | 35 (17.5%) | 3.43 | .898 |
| | Post-test | 9 (4.5%) | 17 (8.5%) | 90 (%45) | 46 (23%) | 38 (19%) | 3.43 | |
| Do you think it is important to insert a medicine course into an undergraduate degree? | Pre-test | 13 (6.5%) | 38 (19%) | 39 (19.5%) | 61 (30.5%) | 49 (24.5%) | 3.47 | .000 |
| | Post-test | 2 (1.0%) | 13 (6.5%) | 6 (3 %) | 79 (39.5%) | 100 (50%) | 4.35 | |
| Response Grade | | | | | | | | |
| How comfortable do you feeling when deal with patients/clients to perform a nutritional clinical examination? | | V.uncomfortable | Uncomfortable | I don't know | Comfortable | V.Comfortable | | |
| | Pre-test | 6 (3%) | 14 (7%) | 26 (13%) | 129 (64.5%) | 53 (26.5%) | 3.86 | .001 |
| Post-test | 0 | 2 (1%) | 16 (8%) | 46 (23%) | 90 (45%) | 4.16 | | |

*significant (p<0.05)

The pre- and post-test responses in the study are abridged in Table 2. After comparing the pre- and post-test by Wilcoxon signed ranks test to analyze the skills improvement "paired survey data, the researchers established that there were statistically significant differences (P =0.000), as the graduates' perception on the importance of the clinical nutritional examination increased significantly. Their perceived ability to assess subcutaneous fat and muscle wasting, fluid accumulation, and immune deficiency increased. There was no significant difference in their ability to assess the physical signs of micronutrient deficiencies or excesses (P = 0.548).

Table 2: Analysis skills improvement "Wilcoxon Signed Ranks Test" paired survey data

| Outcomes | Z-Statistics | P-values |
|-------------------------------------------------------------------------------------------|--------------|---------------|
| Rate your ability to assess an individual's subcutaneous fat stores clinically? | -7.651 | 0.000* |
| Rate your ability to assess an individual's muscle stores clinically? | -7.395 | 0.000* |
| Rate your ability to assess an individual for fluid accumulation clinically? | -7.316 | 0.000* |
| Rate your ability to assess an individual's degree of malnutrition status? | -5.433 | 0.000* |
| Rate your ability to assess the physical signs of micronutrient deficiencies or excesses? | -0.601 | 0.548 |

*significant ($p < 0.05$)

The variety of needs of the graduates to the training course are presented in Table (3). There was a significant decrease in graduates who believed they needed additional training in assessing muscle/fat wasting, as well as more hands-on experience. The graduates' comfort touching patients' skills was significantly increased.

Table 3: Clarifies the Different Needs of the Graduate Pre and Post the Training Course

| | pre | post | Pre- Mean | Post-Mean | P-value |
|----------------------------------------------------|----------------|-------------|-----------|-----------|--------------|
| Malnutrition diagnosis/criteria terminology | 63 (31.5 %) | 34 (17%) | | | |
| Assessing muscle and/or fat wasting | 32 (16 %) | 16 (25%) | | | |
| Assessing micronutrient deficiencies | 32 (16 %) | 23 (36%) | 2.63 | 3.40 | 0.000 |
| Communication skills with patient | 61 (30.5%) | 91 (82%) | | | |
| Additional hands-on-experience | 12 (6%) | 36 (18%) | | | |

*significant ($p < 0.05$)

To our best knowledge, this is the first Libyan study on graduates' training and job performance. This study presents an effective approach regarding the training of 200 graduates

of Nutrition Department. All barriers mentioned previously in relation to nutritional focused physical examination skills were consistent with many studies that examined the barriers that dietitians face in their fieldwork (Charney and Peterson, 2013). The main difficulty in this study (39%) was registered for the lack of interest in training and learning. The participants expressed their belief in the importance of changing training strategies in the scientific section. This result was similar to a study conducted in the Kingdom of Saudi Arabia in which a therapeutic dietitian agreed to their need to intensively train the new graduates (Aldubayan, et al, 2019). As well as according to the National Health Service (Department of Health UK, 2013) and the National Institute of Health and Clinical Excellence have recommended generally to increase the training program for health professionals in communication skills and urging them to continue education. There is evidence to suggest that communication skills are essential in helping people to alteration health-related behavior, which is a vital role for dietitians. There are positive differences ($P = 0.01$) in the opinion of the participants before and after the training course about the importance of applying a physical examination focused on nutrition in the presence of a multidisciplinary team, and this is exactly what we have found in many studies that focused on the training aspect after graduation (Ingram and Oosterkamp, 2014). In fact, following up on graduates and studying the labor market is one of the most important updating of educational outcomes, according to what was mentioned by (Ingram and Oosterkamp, 2014) and; (Grosemans, I., Coertjens, L., & Kyndt, E. 2017). Specifically, as stated in our study, rescuers also polled the opinion about the importance of adding some courses (principle of medicine and intensive care unit) to the undergraduate student's curriculum before starting the intensive course and after completing it, and we noticed a positive difference ($P=0.000$) in their viewpoint after increasing their knowledge achievement. Indeed, evaluating the effectiveness of such courses has proven challenging and has not been well researched (Thompson and Gutschall, 2015). As research conducted, it is difficult to measure the accuracy of benefiting from training even if the cognitive results are achieved, and this is due to the lack of the actual practical side of the course. To date, most of the course objectives have focused on examining their satisfaction with their performance, their perception of the course's effectiveness, and the extent to which they have increased academic achievement. In general, the skills performance achieved and enhanced by graduates in this course were the ability to assess an individual's subcutaneous fat, store muscle, fluid accumulation, and degree of malnutrition clinically. Similar to our study, a research conducted in the United States by (Pirantika and Purwanti, 2017) they found the same result except in the ability to assess the physical signs of micronutrient deficiencies or excesses 81% ($n=13$), there were no significant differences pre- and post-tests at $P\text{-value} > 0.005$. Approximately 140 participants did not notice a difference or improvement in their skills specifically the inability to assess micronutrient deficiencies or excesses, as indicated by (Esper, 2017). This is because a skill requires direct interaction with the patient and it is difficult to acquire this profession remotely. Furthermore, about 82% ($n = 91$) of participants underwent further training in patient communication skills, and additional hands on-experience 18% ($n=36$) and this is what previous researchers have found where 44% ($n=7$) would like more training in patient communication skills and 375 ($n=7$) need additional hands-on-experience (Aldubayan, et al 2019). All participants generally agreed that the skills which the graduates lacked were oral and written communication skills. Previous recommendations and reports in the dietetics field have emphasized communication and counseling as important skills for improving patient care (Pignone MP et al 2013). Their needs

for more training on malnutrition diagnosis/criteria terminology, assessing muscle and/or fat wasting, and assessing micronutrient deficiencies were decreased as shown in Table (3). Additionally, our study results were consistent with many studies that examined the needs of the trainees which were shown by analyzing the open-ended questions on the post-survey that was written by the participants such as; (nutritional diagnostics related to children, how to prepare intravenous solutions, need to understand biomarkers and laboratory tests more accurately, need for actual training in the tools of physical examination and anthropometry and other courses that flow into the clinical side). Researchers have found that it is possible to adjust some topics and add others to support the curriculum of the Nutrition Department and increase the educational attainment of bachelor's students.

Conclusion

The nutritional physical evaluation of the nutritional status is an essential component of the clinical nutrition practice of dietitians, especially within hospitals. According to the aim of this study, the performance of graduates was enhanced in many parameters, especially in malnutrition assessment, there are statistically significant differences between pre and post observations differs significantly from zero. Some of the areas like skill communications, dealing with patients, and hand experiences showed no differences significantly, and the graduate's asked for more training. However, the nutrition department's educational strategies that focus on clinical nutrition are not sufficient to meet the needs of a dietician. There is a need for specific competency training programs for all department graduates. At the same time, we need to update and modify the scientific curricula for bachelor's students to avoid these challenges of integrating a nutrition-focused physical assessment into nutritional care in the future. Nevertheless, more researches are needed to determine whether effective graduate training programs can be designed. Moreover, if it is possible to design it, the strategies for its inclusion in the Bachelor's curriculum for the Nutrition Department should be considered. The findings of the current study could serve as a predictor of the curriculum and graduates level. It can be considered as a source of information for academics, researchers, administrators, and decision-makers involved in planning, implementation, monitoring, and promotion of curriculum in Libya. The current study has some limitations. The researchers realize that the current study only involved students from one higher education institution is a limitation of the current study. Accordingly, the researchers did not generalise the results of the study but rather contextualised the study. It would be more valid if more graduates, stakeholders and administrators could involve in the study. There was a lack of Libyan resources that addressed curriculum and graduates' level in the higher education. The researchers utilized international literature for some arguments in the study and this was another limitation of the current study. Moreover, the fundamental weakness of the quasi-experimental design was the fact that test groups were not equivalent and therefore limited the generalizability of the study results. This reduced internal validity and the conclusions related to causality were not as absolute. In addition, there were not any more concerns about other factors which might impact the testing results.

References

- Aldubayan, K., Aljuraiban, G. and Aldisi, D. (2019) 'Necessary knowledge and skills for dietitians in Saudi Arabia: A qualitative study', *Malaysian Journal of Medical Sciences*, 26(3), pp. 110–118

- Charney, P. and Peterson, S. J. (2013) 'Practice paper of the academy of nutrition and dietetics abstract: Critical thinking skills in nutrition assessment and diagnosis', *Journal of the Academy of Nutrition and Dietetics*. Academy of Nutrition and Dietetics, 113(11), p. 1545.
- Cumming, J. (2010). Contextualised performance: reframing the skills debate in research education. *Studies in Higher Education*, 35(4), 405-19.
- Department of Health UK (2013) 'Guide to the Healthcare System in England', National Health Service, (May), pp. 1–36.
- Elfagi, S., Elamni, S.F., Nouh, F., Eltohami, A. and Omar, M(2021)., Undergraduate Student Feedback on OSCE: The First Experience of a Nutrition Department, University of Benghazi 2019. *Journal of Advances in Education and Philosophy*; 4(5): 104-1110.
- Esper, D. H. (2015). Utilization of nutrition-focused physical assessment in identifying micronutrient deficiencies. *Nutrition in Clinical Practice*, 30(2), 194-202.
- Gordillo, A., Barra, E., & Quemada, J. (2017). A hybrid recommendation model for learning object repositories. *IEEE Latin America Transactions*, 15(3), 462-473.
- Grosemans, I., Coertjens, L., & Kyndt, E. (2017). Exploring learning and fit in the transition from higher education to the labour market: A systematic review. *Educational Research Review*, 21, 67-84.
- Ingram, V. and Oosterkamp, E. (2014) 'Literature review on the labour market impacts of value chain development interventions', LEI Wageningen UR, (August).
- Lan, M. T. Q. (2020). Graduate Generic Competences from the Perspective of VNU Employers. *Journal of Teaching and Learning for Graduate Employability*, 11(1), 131-145.
- Mordarski, B. (2016). Nutrition-focused physical exam hands-on training workshop. *Journal of the Academy of Nutrition and Dietetics*, 116(5), 868-869.
- Nor Aini Yusof et al. (2013) 'Improving Graduates' Employability Skills through Industrial Training : Suggestions from Employers', *Journal of Education and Practice*, 4(4), pp. 23–29.
- Nouh, F., Elfagi, S. and Omar, M., Influence of Integrated Teaching Strategies on Quality of Student Outcomes in A Clinical Nutrition Course in Undergraduate Level at Nutrition Department Faculty of Public Health; University of Benghazi.2020. *Journal of Advances in Education and Philosophy*; 4(4): 167-170.
- Ozfidan, B. (2017). Right of Knowing and Using Mother Tongue: A Mixed Method Study. *English Language Teaching*, 10(12), 15-23.
- Pérez, M. R., Soto, Y. M. and Orduño, T. C. (2012) 'Improvement of Competences of University Students, Experience Improvement of Competences of University Students, Experience A Program of Comprehensive Training Support. Proceedings of ICERI2012 Conference 19th-21st November 2012, Madrid, Spain
- Pirantika, A. Purwanti, R. S. (2017) 'Electronic blackmail ... Crimes feeding on the prosperity of communication, Universitas Nusantara PGRI Kediri, 01, pp. 1–7.
- Pignone MP, Ammerman A, Fernandez L, Orleans CT, Pender N, Woolf S, Lohr KN, Sutton S. "Counseling to promote a healthy diet in adults: a summary of the evidence for the U.S. Preventive Services Task Force. *Am J Prev Med*. 2003 Jan;24(1):75-92.
- Smith, S. (2017) 'Embedding Graduate Attributes into the Undergraduate Curriculum : Reflection and Actions Embedding Graduate Attributes into the Undergraduate Curriculum : Reflection and Actions', (May).
- The Future of Education and Skills Education 2030 | Distance-Educator.com' (no date).
- Thompson, K. L. and Gutschall, M. D. (2015) 'The time is now: A blueprint for simulation in dietetics education', *Journal of the Academy of Nutrition and Dietetics*. Academy of Nutrition and Dietetics, 115(2), pp. 183–194.
- UNESCO, 2016. Training tools for curriculum development: A resource pack supporting Inclusive education.

Wolff, R., & Booth, M. (2017). Bridging the gap: Creating a new approach for assuring 21st century employability skills. *Change: The Magazine of Higher Learning*, 49(6), 51-54.