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Online training needs assessment (TNA) among Municipal Nutrition Action Officers (MNAOs) in the Philippines

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ABSTRACT

Introduction: A training needs assessment (TNA) was conducted by the Department of Science and Technology, Food and Nutrition Research Institute (DOST-FNRI) to design appropriate and relevant trainings for Municipal Nutrition Action Officers (MNAOs). In the Philippines, MNAO is a nutrition officer who serves at the municipal level and is tasked to ensure the localisation of the Philippine Plan of Action for Nutrition (PPAN) in Local Government Units (LGU) to ensure proper implementation of activities on Public Health Nutrition (PHN). **Methods:** A total of 162 MNAOs in the country answered the online TNA survey conducted from April to May 2023. **Results:** Based on the results of the TNA survey, there was a need for DOST-FNRI to design and conduct trainings related to the top three core competencies identified by MNAOs: Creating policies and standards related to food and nutrition; advocating legislation, regulation, and nutrition policies; and designing appropriate nutrition information education and communication (IEC) materials. **Conclusion:** Based on the study results, it is recommended that LGUs allocate funds for capacity building of the public health workforce to create a skilled workforce in the community that will coordinate the formulation, implementation, monitoring, and evaluation of nutrition plans at the municipal level. For future consideration, curriculum design for professional development in public health nutrition should include core competencies on food and nutrition policy programme, nutrition programme management, and IEC development.

Keywords: capacity-building, competency, training needs assessment

INTRODUCTION

The need for nutrition educators who are competent, motivated with sufficient resources and access to the most recent ideas and best practices in the world is increasing (Hughes, 2003a). Competency is more than the knowledge and skills of individuals, but also about the motivation and leadership skills in line with the organisation (Mueller *et al.,* 2015). In the Philippines, Local Nutrition Focal Points (LNFP), or more commonly known as Nutrition Action Officers (NAO), serve as nutrition educators. The said function is subsumed in their administrative responsibilities to manage and ensure the delivery of quality nutrition service among its constituents in the local

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government units (LGU). Depending on which level of local government unit, the title changes with the addition of the local level before the words "nutrition action officer". An MNAO is the head of the nutrition office who handles nutrition programmes at the municipal level. To ensure that various nutrition-specific and nutrition-related/sensitive programmes are implemented efficiently, the National Nutrition Council (NNC), the country's highest policy making and coordinating body on nutrition, released its latest version of a proposal in 2021 for the creation of nutrition offices and its first ever NAO Handbook published in 2022 to guide both existing and new nutrition action officers. Moreover, in Ignacio & Bullecer's study, they described MNAOs as important for achieving successful implementation of the Philippine Plan of Action for Nutrition or PPAN, a directional framework for the improvement of the country's nutrition status (Ignacio & Bullecer, 2015).

The main responsibility of a NAO is to coordinate the formulation, implementation, monitoring, and evaluation of the LGU's nutrition action plan (NNC, 2022) and to manage the nutrition programmes of his/her locality; orient and update the Local Nutrition Council members on the PPAN and nutrition-related laws, policies and programmes; and conduct nutrition promotion or advocacy activities, among other responsibilities (NNC, 2021). While there is a preference for a registered nutritionist-dietitian or a graduate of similar degree relevant to the position of a nutrition action officer, Ignacio & Bullecer (2015) reported otherwise, stating that in the case of most municipalities, the position of MNAO is not a permanent post and is occasionally dependent on the current Local Chief Executive (LCE), making the MNAO a "MNAO designate". MNAO designate or designated MNAO is the term used to refer to an individual who is assigned to perform the duties of an MNAO. Sometimes, the MNAO designate is also performing other duties from another line agency where he/she is originally assigned to; this puts the nutrition office under the line agency where the MNAO designate is primarily connected (Ignacio & Bullecer, 2015). One of the common issues identified and problem stated in the NAO Handbook is the "difficulty in coping with the demands of the position", especially for MNAO designates who perform dual roles (NNC, 2022). This supports the study conducted by Ignacio & Bullecer in 2015 where the findings revealed that MNAO designates felt inadequate in performing their functions as MNAO, further suggesting that there is a need for capacity development.

Taking all these into consideration, this present study sought to identify the training needs of MNAOs in the field of public health and community nutrition in their respective municipalities. Specifically, it determined: (1) the willingness of LGUs and MNAOs to pay for training and how much training fee they were willing to pay; (2) the preferred mode and number of days allotted for attendance in training; (3) the degree of proficiency on public health and community nutrition; and (4) the perceived need for training on public health and community nutrition. The results of this study will be used to design appropriate and relevant trainings that will be included in the current course offerings of the Department of Science and Technology, Food and Nutrition Research Institute (DOST-FNRI).

MATERIALS AND METHODS

The study employed quantitative method and developed an online survey questionnaire that was administered

among study participants to identify the training needs of MNAOs in the Philippines.

Study participants

The participants of the study were registered nutritionist-dietitians performing as MNAOs or MNAO designates in the local government units in the Philippines.

Research instrument

There were two stages in developing the research instrument. The first stage was the development of the questionnaire, followed by the pre-testing of the questionnaire.

Stage 1: Development of questionnaire

The training needs assessment (TNA) online questionnaire developed by DOST-FNRI for determining the training needs of the members of the Nutritionist Dietitians Association of the Philippines (NDAP) was used in this study particularly questions on public health. This online questionnaire was based on the International Competency Standards for Dietitian-Nutritionists developed by the International Confederation of Dietetic Associations in 2016 and the Essential Practice Competencies for the Commission on Dietetic Registration's Credentialed Nutrition and Dietetics Practitioners written by Worsfold, Grant & Barnhill (2015) for the Academy of Nutrition and Dietetics (2015). The online survey questionnaire was pre-tested before its administration and it included seven nutrition field competencies as follows: public health, food service, business and industry, clinical, academe, research, and ethics and professionalism.

Specifically, questions on core competencies in the field of public health from the DOST-FNRI-TNA online questionnaire were used in this study. For each public health and community nutrition competency, participants were asked to answer the degree of proficiency and perceived need for training.

The degree of proficiency was answered by the respondents based on the following:

- Competent – None to less than three years community and public health work-related experience; knowledge of the subjects/topics in the area/skills are gained from undergraduate course;
- Advance – More than three years community and public health work-related experience, but without graduate degree related to food and nutrition; OR none to less than three years community and public health work-related experience, but with graduate degree or graduate units related to food and nutrition; knowledge of the subjects/topics in the area/skills are gained from work experience or graduate school;
- Proficient – Three years or more community and public health work-related experience, with a Master's Degree related to food and nutrition or with a doctoral degree unit; possess knowledge/ skill, but less than the level of an expert; able to discuss and consistently implement majority of the subjects/topics in this area;
- Expert – Five years community and public health work-related experience or more with a Doctoral Degree related to food and nutrition; possess knowledge/ skill as a result of training and experience/able to speak and act in authority in this area.

Meanwhile, the perceived need for training was answered based on the following:

a. No training needed
b. Low need for training
c. Moderate need for training
d. High need for training

Stage 2: Pre-testing of the questionnaire

Pre-testing is an assessment of the entire questionnaire, its administration, and the encoding of its data for analysis. It is recommended to conduct pre-testing on a sample of around 35 participants (Farnik & Pierzchala, 2012).

For this study, pre-testing was conducted among 30 MNAOs recruited through the assistance of NNC. Google Forms was used as the platform for the creation of online survey questionnaire and collection of responses. Once the participants agreed to join the study, invitation letters and informed consent forms were sent to them. After obtaining the accomplished informed consent forms, the link to the online questionnaire was sent to them.

Cronbach's alpha of the questionnaire was computed to determine if the scale of 0.70 was reliable. The results of pre-testing using the Cronbach's alpha for core competency questions and perceived training ranged from 0.8 to 0.95. There were no revisions done to the questionnaire.

Data collection

To ensure full participation of MNAOs in the study, the DOST-FNRI sent an official letter to NNC to enjoin MNAOs of different municipalities all over the country to accomplish the TNA questionnaire. Link to the TNA online survey questionnaire was sent to NNC for dissemination to MNAOs. The DOST-FNRI research team also followed-up on the participants through their official registered email addresses contained in the NNC directory.

Respondents accomplished the online TNA questionnaire via Google Forms. There were two major parts to the online TNA questionnaire, namely the profile of the respondents and the field of competencies.

Statistical analysis

Data collected from study participants were processed and analysed. For data analysis, frequencies and proportions or percentages were generated for each of the competencies using IBM SPSS Statistics for Windows version 21.0 (IBM Corporation, Armonk, New York).

Ethical consideration

Prior to the conduct of the online TNA survey, the questionnaire and informed consent form used for the study were approved by the FNRI Institutional Ethics Review Committee, with Protocol Code FIERC-2021-013. Information regarding the TNA's objectives, type of research intervention, participant selection, voluntary participation, procedure, duration, risks and benefits, reimbursements, confidentiality, sharing of results, right to refuse or withdraw, and contact details were included in the informed consent form. Participants agreed to participate in the study by clicking the consent button in the Google Forms. Participants were assured of the confidentiality of information collected in the study.

RESULTS

Results from the online TNA survey among MNAOs are shown in the tables. A total of 162 MNAOs in the country answered the online TNA survey from April to May 2023. Majority of the respondents were females (78.4%) and one-third (34.0%) of the respondents were 31-40 years old.

Table 1 shows that majority (66.7%) of the MNAOs who answered the TNA survey were those working in the public health nutrition service from one to ten years. Face-to-face training was the preferred mode of training (79.6%) as indicated in Table 2. Most of the participants (82.0%) mentioned that their respective LGUs were willing to pay for their training in the amount of PHP 1,000 to PHP 5,000 for three days as shown in Table 3. In addition, a total of 46 participants (28.4%) were willing to pay for their own training in the amount of PHP 1,000 to PHP 5,000 as shown in Table 3. Table 4 shows the degree of proficiency of training for the fields of public health nutrition and community nutrition. In general, across all competencies, 50% of the TNA survey participants rated their degree of proficiency as competent.

For perceived need of training, seven core competencies were perceived as high need for training. These included: (1) advocating legislation, regulation, and nutrition policies that may impact nutrition in the community; (2) creating policies and standards related to food and nutrition; (3) designing nutrition information, education and communication (IEC) materials; (4) designing nutrition programmes within the municipality using appropriate indicators; (5) implementing public health activities; (6) evaluating nutrition programmes within the municipality using appropriate indicators; and (7) implementing nutrition programmes within the municipality with appropriate timetable and budget allocation. The two core competencies which the study participants perceived with moderate need were monitoring nutrition programmes within the municipality using appropriate indicators and presenting and discussing the nutrition programmes to barangay, municipal, and provincial nutrition committee as shown in Table 5.

Table 1. General characteristics and number of years in service of TNA survey participants

Characteristics and number of years in service	*n (%)*
Sex	
Male	32 (19.8)
Female	127 (78.4)
Prefer not to say	3 (1.8)
Age	
19-20 years old	1 (0.7)
21-30 years old	25 (15.4)
31-40 years old	55 (34.0)
41-50 years old	49 (30.2)
51-59 years old	25(15.4)
60 years old and above	7(4.3)
Number of years in public health nutrition service	
0 years	7 (4.3)
<1 year	16 (9.9)
1-10 years	108 (66.7)
11-20 years	17 (10.5)
21-30 years	7 (4.3)
31-40 years	5 (3.1)
41-50 years	1 (0.6)
No answer	1 (0.6)
Number of years in community nutrition service	
0 years	4 (2.4)
<1 year	19 (11.7)
1-10 years	109 (67.3)
11-20 years	20 (12.3)
21-30 years	8(5.0)
31-40 years	1(0.6)
41-50 years	1 (0.6)

DISCUSSION

This study identified the training needs of MNAOs in the field of public health and community nutrition in their respective municipalities. Results of this study can be used in designing appropriate and relevant trainings for MNAOs.

The Philippines has three levels of local governments, as follows: (1) provincial and independent cities, (2)

Table 2. Preferred mode of training and number of days allotted for attendance in training

Preferred mode of training and number of days allotted for attendance in training	*n (%)*
Preferred mode of training	
Face-to-face	129 (79.6)
Online synchronous training	18 (11.1)
Online asynchronous training	5(3.1)
Combination of online synchronous and asynchronous training	10 (6.2)
Number of days	
1 day	8 (5.0)
2 days	35 (21.6)
3 days	100 (61.7)
>3 days	17 (10.5)
Other answers[†]	2 (1.2)

[†]Other answers included: Any day, it depends on the day needed for the seminar

municipality/city, and (3) barangay. According to NNC in their 2022 NAO Handbook, each sub-national level (regional, provincial, municipal, and barangay) has a dedicated Local Nutrition Committee (LNC) comprising of the LCE, NAOs and representatives from the same agencies that are part of the NNC at the national level. The title of the nutrition action officer will depend on which level of local government unit they are under. For example, a PNAO or Provincial Nutrition Action Officer is the NAO of a province, a CNAO for the city, and MNAO for the municipal level. There is no NAO for the barangay level, instead the MNAO coordinates with the head of the LNC, in this case, the Barangay Captain and the Barangay Nutrition Scholars (BNS). In the Philippines, majority of MNAOs were females, who were tasked to ensure the localisation of the PPAN in LGUs to ensure proper implementation of activities on public health nutrition.

Face-to face training is commonly used as the traditional learning method and conducted in large or small groups (Gonzalez & Vodicka, 2008). In this study, the preferred mode of delivery for training is through face-to-face training. Studies showed that face-to-face training is the most powerful way of providing training because it allows opportunities for participants to dialogue, interact, discuss, and have immediate feedback from the facilitator (Fetsco & McClure, 2005; Benson *et. al.*, 2005).

In the study done by Ignacio & Bullecer (2015), one of the identified factors for smooth implementation of nutrition programmes is the strong political support that is also evident in the results of this present study, where most of the participants (82.0%) mentioned that their respective LGUs were willing to pay for their training in the amount of PHP 1,000 to PHP 5,000 (2 to 100 US dollars).

In this study, almost 50.0% of the TNA survey participants rated their degree of proficiency as competent across all competencies such as designing, presenting, discussing, implementing, and monitoring nutrition programmes within the municipality with appropriate timetable and budget allocation. This may be attributed to the four main roles of a NAO as indicated in the Handbook for Nutrition Action Officers (2022) that comprised the following: (1) advocates for the adaptation of policies that were

Table 3. LGU's willingness to pay MNAOs training and willingness to pay for own training

LGU to pay for training MNAOs training and to pay for own training	*n (%)*
LGU to pay for training	
Yes	133 (82.0)
No	29 (18.0)
Training fee† (If yes, how much)	
<1000 PHP	4 (2.5)
1000-5000 PHP	38 (23.5)
5001-10,000 PHP	15 (9.2)
>10,000 PHP	14 (8.6)
No answer	51 (31.5)
Other answers‡	40 (24.7)
To pay for own training	
Yes	46 (28.4)
No	116 (71.6)
Training fee†	
0 PHP	1 (0.6)
<1000 PHP	3 (1.9)
1000-5000 PHP	25 (15.4)
5001-10,000 PHP	2 (1.2)
>10,000 PHP	2 (1.2)
No answer	120 (74.1)
Others answers‡	9 (5.6)

LGU: Local Government Unit; MNAOs: Municipal Nutrition Action Officers
†1 US dollar = 56.18 PHP (as of March 1, 2023)
‡Other answers included: Only travelling expenses can be shouldered by LGU; all expenses, any reasonable amount; chargeable against training and seminar allocation; depending on the place of training and how much to be spent; depends on Commission on Audit (COA) guideline, depends on LGU budget; for meals and snacks of the participants; if on official business, no specific amount, per diem - depends on the distance; usual transportation expenses and allowances, actual expense, depends on the cost, minimal amount, transportation and meals

formulated at the national and sub-national levels; (2) organises and facilitates the planning of workshop with the nutrition planning team serving as the resource person during the workshop; (3) coordinates and facilitates programmes and initiatives to relevant stakeholders; and (4) ensures the success of the activities of the nutrition council and reports the status of different priority groups to the LCE. LCE refers to the governor at the provincial level, mayor at the city or municipal level (NNC, 2022). Monitoring the status of nutrition projects and activities, conducting interviews of mothers, caregivers and barangay leaders during regular visits are also one of the NAO's duties and responsibilities. This includes monitoring the results and evaluation of nutrition programmes, which is conducted once or twice a year. Lastly, a NAO ensures the successful implementation of the Operation Timbang (OPT) Plus every first quarter of the year, making sure that the results of the OPT are recorded, consolidated, and analysed for presentation to the LNC and LCE (NNC, 2022).

Competency is defined by Hughes (2003a) as the standard for workforce development, while the Dietitians Board

Table 4. Frequencies on the degree of proficiency on public health and community nutrition core competencies among survey participants

Core competencies	*Degree of proficiency (n=162)*				
	Competent	*Advance*	*Proficient*	*Expert*	*No answer*
Public Health/Community Nutrition					
Design nutrition programmes within the municipality using appropriate indicators	81 (50.0)	51 (31.5)	14 (8.6)	1 (0.6)	15 (9.3)
Present and discuss the nutrition programmes to barangay, municipal and provincial nutrition committee	78 (48.1)	57 (35.2)	14 (8.6)	2 (1.2)	11 (6.8)
Implement nutrition programmes within the municipality with appropriate timetable and budget allocation	82 (50.6)	52 (32.1)	14 (8.6)	3 (1.9)	11 (6.8)
Monitor nutrition programmes implemented within the municipality using appropriate indicators	74 (45.7)	55 (34.0)	12 (7.4)	5 (3.1)	16 (9.9)
Evaluate nutrition programmes within the municipality using appropriate indicators	71 (43.8)	53 (32.7)	15 (9.3)	4 (2.5)	19 (11.7)
Design appropriate nutrition information education and communication (IEC) materials	75 (46.3)	49 (30.2)	17 (10.5)	4 (2.5)	17 (10.5)
Advocate legislation, regulation, and nutrition policies that may impact nutrition in the community	76 (46.9)	48 (26.6)	14 (8.6)	4 (2.5)	20 (12.3)
Implement public health	75 (46.3)	54 (33.3)	16 (9.9)	5 (3.1)	12 (7.4)
Create policies and standards related to food and nutrition	73 (45.1)	49 (30.2)	17 (10.5)	3 (1.9)	20 (12.3)

(2017) defined competency as overarching practices needed to work safely and effectively across the dietetic practice. However, Hughes (2003a) argued that competency standards are a variation of a worldwide movement within the sectors of education, training, and profession, further elaborating that the foundation of this movement is the idea that in order for individuals to perform well in a job, they must be taught and evaluated on their knowledge, skills, and attitudes necessary for an effective performance. Competency standards serve as a guide to a variety of workforce development tasks namely: providing a framework for the design and assessment of curricula that support the minimum standards, evaluating individuals' suitability for practice, guiding continuing professional development, and assisting in the evaluation and design of jobs (Jonsdottir *et al.,* 2011).

While competency standards vary from region to region and country to country, these are set as a common

Table 5. Frequencies on the perceived need for training on public health and community nutrition core competencies among survey participants

Core competencies	*Perceived need for training (n=162)*				
	Not needed	*Low*	*Moderate*	*High*	*No answer*
Public Health/Community Nutrition					
Design nutrition programmes within the municipality using appropriate indicators	3 (1.9)	17 (10.5)	67 (41.4)	73 (45.1)	2 (1.2)
Present and discuss the nutrition programmes to barangay, municipal and provincial nutrition committee	5 (3.1)	25 (15.4)	70 (43.2)	60 (37.0)	2 (1.2)
Implement nutrition programmes within the municipality with appropriate timetable, and budget allocation	3 (1.9)	24 (14.8)	65 (40.1)	69 (42.6)	1 (0.6)
Monitor nutrition programmes implemented within the municipality using appropriate indicators	4 (2.5)	24 (14.8)	66 (40.7)	65 (40.1)	3 (1.9)
Evaluate nutrition programmes within the municipality using appropriate indicators	3 (1.9)	23 (14.2)	64 (39.5)	70 (43.2)	2 (1.2)
Design appropriate nutrition information education and communication (IEC) materials	5 (3.1)	21 (13.0)	57 (35.2)	77 (47.5)	2 (1.2)
Advocate legislation, regulation, and nutrition policies that may impact nutrition in the community.	2 (1.2)	16 (9.9)	61 (37.7)	80 (49.4)	3 (1.9)
Implement public health	6 (3.7)	22 (13.6)	60 (37.0)	71 (43.8)	3 (1.9)
Create policies and standards related to food and nutrition	3 (1.9)	16 (9.9)	59 (36.4)	80 (49.4)	4 (2.5)

ground (Dietitians Board, 2017). With International Confederation of Dietetics Associations (ICDA, 2016) cautioning that the international standards are not intended to replace any national standards, rather, these are meant to serve as a uniform foundation for national standards development or as the only standards where no other standards exist. While critics claim that an overemphasis on skills could result in people only being proficient in a certain occupation, supporters of the competency-based training method view it as a counterbalance against education resulting in people who know but cannot perform (Rivers, Aggleton & Whitty, 1998; Hughes, 2003a). Even with such varying outlooks, competencies are a widely accepted workforce development tool in public health. The key idea is that, while there are differences in the

mix of competencies needed to effectively address local issues in socio-cultural and other contexts, the competencies necessary for effective public health nutrition practice are generally consistent across countries and settings (Hughs, 2003a).

Competencies are the standards, and core competencies, on the other hand, are the necessary and quantifiable components of each competency. These are the knowledge, attitudes, skills, and behaviours that apply to all registered nutritionist-dietitians (RNDs) (Dietitians Board, 2017). A competent NAO is able to coordinate the formulation, implementation, monitoring, and evaluation of the nutrition plan at their respective local government level. It can be surmised that the core competencies of a NAO are based on these functions. This is confirmed by the Dietitians Board (2017), which has enumerated the following core competencies pertaining to public health nutrition. First, a dietitian should be able to apply public health nutrition knowledge to monitor and survey the population to create interventions, and implement and evaluate such interventions. Second, a dietitian can assist in the capacity building of vulnerable groups, while meeting clients' and stakeholders' needs to reduce health inequalities. Third, the dietitian must be able to contribute in the strategic planning of developing and improving services (Dietitians Board, 2017).

These are further supported by the ICDA with its International Competency Standards for Dietitian-Nutritionist, enumerating similar competencies such as: develops and implements intervention plans, monitors and evaluates outcomes, and reports on it; establishes collaborative (shared) partnerships, consults with and advises clients, caregivers, team members and other stakeholders to improve care; uses client intervention and community development approaches, and collects and analyses relevant information related to an identified issue and proposes a solution (ICDA, 2016).

For perceived need of training, seven core competencies were identified by the MNAOs as high need for training. These included creating policies and standards related to food and nutrition, and advocating legislation, regulation, and nutrition policies that may impact nutrition in the community. These needs were followed by implementing nutrition programmes within the municipality with appropriate timetable and budget allocation.

Study results suggested that there was a need to enhance the knowledge and skills of MNAOs through capacity building. Capacity building is known in different terms such as continuing education and competency development for education (CapEd), to name a few. These are terms that mean provision for individuals to learn and improve their knowledge and skills by targeting specific competencies of the subject area or the profession.

Studies have acknowledged the importance of continuing professional development for effective delivery of service, especially for those professionals in the field of health whose competencies should be up to date (Martin *et al.*, 2008). As cited by Martin *et al.* (2008), the importance of continuing professional development as a means of access to current scientific information on nutrition is important to improve the profession's competence in a dynamic healthcare environment. This emphasises the significance of strengthening societal capacity to safeguard and promote public health by first creating a skilled public health workforce (Hughes, 2003a). The ability of communities to handle public health nutrition concerns is significantly

influenced by the public health workforce's capabilities (Jonsdottir *et al.*, 2011; Baillie *et al.*, 2009).

The studies of Palermo, Hughes & McCall (2010) and Hughes (2003b) believe that the important stage in the development of public health nutritionists' competencies should be done in the first few years following the qualification as a dietitian. Additionally, there is evidence suggesting that the existing NAOs lack the expertise necessary to carry out their job in an efficient manner. Ignacio & Bullecer (2015) recommended capacity building among MNAOs after their study revealed that MNAOs learned by performing duties and from assistance from the PNAOs.

CONCLUSION

Empowering the MNAOs in the field of public health and community nutrition is vital as they play a crucial role in the implementation of nutrition programmes. Equally important, the training needs of MNAOs identified in this study should be considered as vital inputs in designing appropriate and relevant trainings.

Based on the results of the TNA survey, DOST-FNRI will design and conduct trainings addressing the top three identified core competencies: (1) creating policies and standards related to food and nutrition; (2) advocating legislation, regulation, and nutrition policies; and (3) designing appropriate nutrition IEC materials.

It is recommended to LCEs that the following trainings be included in training programmes for MNAOs:

1. Food and Nutrition Policy Programmes,
2. IEC and Training Materials Development (Print and Non-Print),
3. Nutrition Leadership,
4. Nutrition Programmes Management,
5. Nutritional Assessment, and
6. Programme's Effectiveness and Cost Effectiveness.

The study findings support the need to allocate funds for capacity building of the public health workforce to create a skilled workforce in the community that will coordinate the formulation, implementation, monitoring, and evaluation of nutrition plans at the municipal level. For future consideration, curriculum design for professional development in public health nutrition should include core competencies on food and nutrition policy programmes, nutrition programmes management, and IEC development.

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Authors' contributions

Glorioso IG, principal investigator, conceptualised and designed the study, prepared the online TNA questionnaire, conducted pre-testing of online TNA questionnaire before its use, prepared the draft of the manuscript; revised the manuscript based on comments and suggestions of editor; and finalise the manuscript; and submitted the final manuscript to the Malaysian Journal of Nutrition; Gonzales MS, co-investigator, gave comments on the design of the study, edited the developed online TNA questionnaire, reviewed the draft manuscript; edited the draft and final manuscript before submission to the Malaysian Journal of Nutrition; Santos TM, co-investigator, conducted

review of related literature on TNA, assisted in the preparation of draft manuscript; and proofread the final manuscript.

Conflict of interest

The authors declare no conflict of interest.

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