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Hands-on nutrition training for pediatric primary health care practitioners: a novel combination of culinary and applied nutritional education to promote healthy eating habits in childhood (Dr. PED-Chef)

«Training curriculum guide for **V**ocational **E**ducation and **T**raining (VET) providers and academic institutions»

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This document has been developed by the consortium of the project 'Hands-on nutrition training for pediatric primary health care practitioners: a novel combination of culinary and applied nutritional education to promote healthy eating habits in childhood – Dr. PED-Chef. The partnership comprises 6 partners from 6 countries:

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Coordinator	NTNU Norwegian University of Science and Technology	Norway
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	University of Navarra	Spain
	CSI – Center for Social Innovation	Cyprus
	GAZI UNIVERSITESI	Turkey
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Introduction

This training curriculum guide aims to explain how to implement the knowledge gained through this project in courses related to nutritional and culinary training for pediatric primary health care practitioners in the context of accredited training seminars, or in the academic curriculum of medical, nursing, and other health professional schools.

The document will be a useful tool for vocational education and training (VET) providers as its aim is:

- To stimulate and promote high standards of vocational training among pediatric primary health care practitioners
- To improve related services offered to children and their families

The document is expected to improve capacity building of VET providers and other types of training organizations to better equip and train professionals who are involved in pediatric health care provision. Is also expected to encourage collaboration among different types of professionals by providing the necessary knowledge and tools. The training's innovative aspect emphasizes culinary medicine to promote healthy eating for children and their families.

Background

World Health Organization (WHO) has raised the alarm on obesity-related complications and mortality of non-communicable diseases. Unhealthy nutrition habits and obesity are often initiated in early life stages. The highest EU childhood overweight rates are found in Southern Europe, i.e., Greece, Cyprus, Italy, and Spain, ranging from 18% to 52% in boys and 13% to 43% in girls (WHO, 2018). The causes of overweight and obesity are embedded in a complex system of genetic and epigenetic factors that interacts with a social framework that determines behaviour, as well as environment and living conditions. The factor that puts children at greatest risk of being overweight or obese is having obese parents (Fleten, Nystad, Stigum et al., 2012). Another known risk factor for overweight and obesity in the Western world is lower socioeconomic status (Hemmingsson, 2018), and children that grows up in

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urban areas have less risk for developing overweight and obesity compared to those growing up in rural areas (Biel, Hovengen, Groholt et al., 2013). Furthermore, psychological, and emotional distress is a link between socioeconomic status and weight gain. Children growing up in families with lower socioeconomic disadvantage are more exposed to parental frustrations, neglect, abuse and violence and lack of support and cohesion. These children are at increased risk for emotional overload that could trigger maladaptive coping strategies such as eating to suppress negative emotions (Hemmingsson, 2014). Even though psychological issues, emotional eating strategies and adverse childhood experiences are risk factors for developing overweight and obesity, these areas have had little focus in strategies for preventing overweight and obesity for children.

To pave the way toward preventive strategies for overweight and obesity among children one should identify the risk factors. It needs to be kept in mind the complexity of reasons for performing non-optimal nutritional choices on an everyday basis, despite knowledge of best practice. For improving preventive measures for overweight and obesity, interventions should be targeted through social structures and preferably as early in life as possible (Følling, 2020). One fundamental issue is knowing how to motivate people to modify their eating habits and dietary choices, and to increase physical activity. In general, people may not be able to find motivation or energy for this change through recommendations, commercials, or governmental campaigns. An increase in executive ability in everyday habits within a family should be emphasized.

The socioeconomic gradient is important to acknowledge when it comes to challenges with overweight and everyday choices, and thereby address the diversity and numerous risks children, adolescents and families face in their everyday life. Although the environment (parents, school, peers) influences obesity, a WHO report (2016) emphasizes that pediatric care professionals are equally important supervisors. Increasing the health professionals' knowledge and skills in communication and counselling play an important part in families' initiatives for change. However, a review study showed that nutrition issues are insufficient incorporated in medical education, and this can affect students' knowledge, skills, and confidence to implement nutrition care into patient care (Crowley, Ball, Hiddink, 2019).

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Implementing patient-centred communication in nutrition counselling is important, and the application of patient-centered communication and other social learning theories, can enrich planning of educational interventions for patients (Cushing, 2015). The core concepts of patient-centered communication include: 1) eliciting and understanding patient perspectives, 2) understanding the patient within his or her unique psychosocial and cultural contexts, 3) reaching a shared understanding of patient problems and the treatments that are concordant with patient values, and 4) sharing power and responsibility (Epstein, Franks, Fiscella et al, 2005; Epstein & Street, 2007). Three main barriers are detected in patient-centered communication and need to be addressed: health providers perceived lack of time, negotiating evidence-based treatment plans with patients, and provider attitude (Naughton, 2018). Including parents in nutrition-related interventions is necessary because children have limited control over their own food choices, especially in early ages (Hingle, et al 2010). The indirect role parents have on their child's nutritional choices becomes important as children and adolescence get opportunities to make selections themselves, before having fully developed abilities to defend themselves from persuasive attempts (Scaglioni, et al, 2018).

Culinary medicine is an evidence-based field that brings together nutrition and culinary knowledge and skill to assist patients in maintaining health and preventing and treating disease. Culinary nutrition education programs are naturally experiential, social, skills-based, and effective in improving nutrition-related beliefs, knowledge, and behaviors, and can serve as motivational experiences that have been identified as "drivers" of behavior change (Fredericks, Koch, Liu, et al, 2020). Culinary medicine can also be provided as part of medical curricula or incorporated as continuing education. In culinary medicine courses, basic healthy food preparation and acquisition of skills are addressed while taking into consideration time, financial resources, and cultural food traditions of patients aiming to make dietary changes (Hauser et al, 2020).

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Literature review summary

According to the World Health Organisation (WHO), 124 million children and adolescents are obese – a tenfold increase in the last four decades while nearly one in five presents an overweight status (Abarca-Gómez et al., 2017). WHO and European Childhood Obesity Surveillance Initiative (COSI) weighted more than 250,000 children in three different years: 2007-2008, 2009-2010, and 2012-2013 (World Health Organization. Regional Office for Europe, 2017). Focusing on 7-year-old children (the age group with which most countries participated), the prevalence of overweight in 2012/2013, by gender, ranged from 19% to 43% (boys), and 13% to 43% (girls) (World Health Organization. Regional Office for Europe, 2018).

Overall, southern European countries were ranked first, with the highest prevalence of overweight and obesity (OECD, 2019). In general, prevalence of overweight in children aged 5-9 years living in OECD countries is estimated at 31%, over 40% in Italy, Spain, Cyprus, and Greece, and 24 % in Norway. Since COSI started in 2007, 12 countries have participated in at least 3 rounds of data collection. Greece, Italy, Portugal, and Slovenia reported significantly lower prevalence in overweight and obesity by the end of the 3rd round (OECD, 2019). Decreased percentages were also observed in Ireland and Spain, in contrast with Belgium, Czechia and Norway, that did not report any change.

Childhood obesity is a major public health challenge of the 21st century (Han et al., 2010). Childhood obesity is a significant risk factor for obesity in adulthood and is associated with diabetes, heart disease and certain types of cancer (OECD, 2019). The OECD analysis revealed that by the end of 2050, overweight and related diseases will shrink life expectancy by about three years across the OECD, EU28 and G20 countries. On average in OECD countries, overweight will cost 70% of all treatment expenditures for diabetes, 23% for cardiovascular diseases and 9% for cancers. OECD estimates that treating overweight-related diseases will cost USD 425 billion a year, based on Purchasing Power Parity, in 52 countries

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analyzed across the OECD, G20, EU28 and OECD accession countries and selected partner countries (OECD, 2019).

Research indicates significant gaps in nutritional knowledge and counselling skills among health professionals, which could be related to the limited or complete lack of nutrition training in undergraduate and postgraduate training. A survey among EU pediatricians revealed that although most were convinced of their role in obesity prevention and management, they did not feel sufficiently competent to deliver relevant services because of limited knowledge in nutrition issues (Mazur et al., 2013). Some innovative techniques to train professionals use culinary education, described as 'a new evidence-based field in medicine that blends the art of food and cooking with the science of medicine', aiming to assist people in making medical decisions in relation to healthy eating as a way of preventing or treating illness and maintaining wellbeing (La Puma, 2016). The conceptual model behind this method is that health professionals practicing a healthful behavior are more likely to properly counsel their patients about these behaviours (Eisenberg et al., 2013). Programs combining culinary and nutritional education have shown to be effective for health professionals' training. Relevant programs tailor-made for pediatricians and other relevant pediatric professionals do not exist in Europe (Polak et al., 2016). Furthermore, research indicates significant gaps in health professionals' knowledge and skills related to nutrition (Cuerda et al., 2017). Pediatricians as well as other health professionals, such as nurses who provide care and lifestyle advice to parents and children, recognize the importance of healthy nutrition promotion and obesity prevention during childhood, but do not feel sufficiently trained to deliver relevant services and consultation.

Review of existing training opportunities results

An extensive desktop research including grey literature sources and information from academic departments/institutions, government sources, non-governmental organizations, European projects, service providers and consultants was conducted in order to locate educational programs concerning (a) nutritional science/nutrition related advice and guidance to pediatric populations and (b) culinary medicine education programs in Europe during the last 6 years. The results showed 417 training programs in 30 European countries. Very few

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were related with the concept of culinary medicine. Concerning the target groups, most of the programs were either postgraduate or undergraduate. Some training programs and tools for health professionals' knowledge and skills related to nutritional science/nutrition/culinary medicine exist in all European countries. However, some of the countries reviewed had a very limited number of training programs.

Focus group results

Parents, VET providers and healthcare professionals from many different organizations of the six partner countries participated in focus groups that were held within the context of the Dr. PED-Chef project. The aim of the focus groups was to explore the needs of pediatric care practitioners for effective provision of healthy nutrition guidance, health professionals' perceptions and attitudes towards training on the promotion of healthy nutrition to parents/ children in the frame of culinary medicine, and their needs towards such training. Results revealed both a knowledge gap as well as a need among pediatric care practitioners for further training in applied nutrition.

The reported areas requiring top attention are:

- There is need to educate parents to promote healthier dietary habits for their children
- It is often challenging to talk with children and families about weight problems
- The academic curriculum of physicians and specifically pediatricians lack adequate knowledge about nutrition principles, dietary guidelines related to weight status, in particular in case of children as reference population
- The interest in participating in a seminar related to children's nutrition is higher when this includes a culinary part

Target groups of training

The Dr. PED-Chef target groups include:

- Pediatricians
- Pediatric nurses
- Public health doctors and nurses
- Family doctors and GPs

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- Medical and nursing students specializing in pediatrics and other professionals involved in pediatric care, e.g., midwifes

It seems there is inadequate focus on nutrition principles both during under- and postgraduate education for physicians and other health professionals - especially concerning nutritional issues of specific populations such as children.

Dr. PED-Chef Training Modules

Module 1 Fundamentals of Healthy Nutrition for Primary Health Care Practitioners

Content

The obesity epidemic represents one of the main chapters of public health expenditure and, therefore, the promotion of a healthy lifestyle should start from childhood. As obesity has a multifactorial pathology, the therapeutic path must be personalized and based on a multidisciplinary approach. This module will provide primary health care practitioners with basic nutrition knowledge and with an overview of the problem of obesity to better understand the importance of a novel approach to prevent it and treat it from an early age.

Learning objectives

Participants should be able to:

- Describe nutritional principles
- Illustrate the role of different dietary patterns and lifestyles
- Describe latest evidence related to the influence of epigenetic, intestinal microbiota and the role of gender and hormones.
- Understand causes and effects of obesity
- Understand the importance of a multidisciplinary approach to prevent obesity and the role of family, school, and media.
- Apply correct nutrition to promote a healthy lifestyle from childhood

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Teaching methods

The module is lecture based with a theoretical part and a practical part that includes exercises and a case study with reflection task.

Recommendations

To facilitate the module's training, you need an auditorium and/or personal computers.

For further information about Module 1, see **appendix 1.**

Module 2 Useful resources and effective tools for promoting healthy eating for children, adolescents, and their families

Content

It has been found that the lifestyle and attitudes in the family context are factors that influence the development of childhood obesity. Families play a critical role in the prevention of childhood obesity, and in promoting healthy eating during different stages of their children's development. Healthy eating habits early in life predict healthy eating habits later in life. Our eating behavior is shaped at home, while the school environment is equally important for adolescents. In this module, specific food groups and nutrition examples for children's age groups and diseases are explained. In order to create and increase in healthy nutritional habits, some examples of effective tools are described, based on practice, gamification, and physical activities for prevention of obesity.

Learning objectives

Upon completion of this Module participants should be able to:

- Understand the importance of being a role model for children regarding healthy nutrition and physical activity.
- Find the correct information/examples about healthy nutrition
- Prepare healthy food and set portions with visual materials
- Understand differences in age specific nutrition/disease specific nutrition
- Explain appropriate physical activity and how to apply it

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- Suggest games about healthy nutrition
- Understand the importance of physical activity and healthy nutrition and discuss the topics in the local community

Teaching methods

The module is lecture based with a theoretical part and a practical part that includes exercises and cases with reflection tasks.

Recommendations

To facilitate the module's training, you need an auditorium and/or personal computers.

For further information about Module 2 see **appendix 2.**

Module 3 Introduction to Culinary Medicine

Content

Module 3 "Introduction to Culinary Medicine" will provide the background to the evidence-based field of culinary medicine and bring together nutrition, culinary knowledge and skills to assist families in maintaining health, preventing and treating disease through the choice of high-quality healthy food. The module will provide interactive resources and materials to teaching basic culinary skills to interested participants and focus on practical aspects of day-to-day issues when people need to make lifestyle changes.

Learning objectives

Participants should be able to:

- Comprehend the concepts of culinary medicine, its importance in health and diet and how it can be applied to prevent health issues.
- Understand the transition to a better nutrition foundation
- Plan healthy meals following the indications of Culinary Medicine
- Incorporate culinary medicine in their lifestyle

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Teaching methods

The Module is lecture based with 2/3 theoretical part including audiovisual material and projection of videos as an audiovisual educational content. Audiovisual materials provide a complete foundation for conceptual thinking. They lead to meaningful associations with the participants and the trainers. Audiovisual materials improve the quality of the learning experience since they offer vividness and different impressions to the learning environment. Audiovisual materials can increase the attention span of the learning and teaching process and aids the trainer in providing a proper environment for capturing and sustaining the attention and interest of the participants. Using audio and visual sources can stimulate self-activities, help in the thought process, and induce discussions in the learning environment. This module also includes open ended discussions, sharing ideas and providing insightful thinking for the participants. Through this module a case study is presented where participants can have the opportunity to read, reflect and discuss the method of operation in practicing and implementing culinary medicine in their line of work. Module 3 provides several handouts that include simple, effective, and practical recommendations and indicative ways to help the participants implement culinary medicine in their work. Providing material to the participants that they can directly and efficiently use increases the chance of participants using the materials in their practice.

Recommendations

Trainers will need audiovisual equipment for watching the relevant videos provided in the module. A printer should be available in order to print and deliver material that is on the handouts for this module.

For further information about Module 3 see **appendix 3.**

Module 4: Health communication and counselling on healthy eating

Content

Module 4 covers different communication tools and approaches, both theoretical and practical to use for promoting healthy eating for families with younger children and

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adolescences. In the module, theoretical background knowledge will be introduced. Furthermore, practical assignments with simulated role-play to improve participants' competence for communicating healthy eating is provided. The ability to translate theoretical, knowledge-based information about children's normal eating development to practice will be emphasized. Hence, reflection on how professionals will communicate in their present clinical work will be of importance.

Learning objectives

Participants should be able to:

- Understand the meaning of Health Communication and the principles of Health Literacy, Bio-Psycho-Social model, Empowerment and Patient-Centered Communication
- Attain knowledge about aspects important for communication in promoting healthy eating in families with younger children and adolescents
- Combine health promotion skills and nutritional assessment tools to promote healthy eating in families with younger children and adolescents
- Reflect critically on their own and their workplace competence and practice in promoting healthy eating

Teaching methods

The Module is lecture based with 2/3 theoretical part including dialogues and reflection tasks. The last part is practical simulation training with role-play. Simulation is an attempt to imitate reality and copy essential aspects of a practice close to the problem in the clinic Simulated role-play is a pedagogical method for practicing health professionals' competence in incorporating theory into practice. Participants in the simulated role play practice on how to adapt their guidance, communication and recommendations to the child's and family's preferences and needs in each situation. The simulation group collaborates to implement the scenarios and divide the roles between them. The unique thing about simulated role playing is that you do not have a detailed case or script. However, the group should provide some preferred characteristics of the role for mother/father/child, for example, gender, age, social-economic conditions, attitudes, values etc. After a short round, the roles are swopped, and in

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this way, the participants in the simulation exercise gain experience in both being a health professional and a 'patient'.

Recommendations

To facilitate the module's training, you need an auditorium and group rooms. For the simulated role-play there should be organized tutors to give advice and give guidance.

For further information about Module 4 see **appendix 4.**

Module 5: Health Communication and Counselling to Enhance Healthy Weight in Families at Increased Risk of Obesity

Content

Effective patient-provider communication, although acknowledged as a key clinical skill and linked to better outcomes for patients, providers, and society as a whole, is not a primary focus of many medical schools' curricula. Motivational Interviewing and Cognitive Behavior Therapy are patient-centered, directive communication frameworks appropriate for the health care setting with an ever-growing empirical evidence base. On the other side, the Transtheoretical Model of Change focusing on the decision-making of the individual is imperative to define cognitive and behavioral steps toward successful behavioral change. This module focusses on ways to effectively communicate with children/adolescents with impaired weight status or at increased risk of obesity, as well as families with obesogenic behaviors. It will train healthcare professionals on sustainable ways to address weight management effectively and consciously.

Learning objectives

Participants should be able to:

- Understand the psychosocial and familial dimensions of childhood obesity
- Understand the key theories behind motivational interviewing and cognitive behavioral therapy

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- Understand the key theory behind the transtheoretical model of change and recognize the stage of change for a child or parent
- Use multiple styles of communication strategies and techniques tailor-made to the child or parent
- Organize and appropriately structure a health behavior change and counselling session

Teaching methods

The Module is lecture based with 2/3 theoretical part including dialogues and reflection tasks. The last part is practical simulation training with role-play according to specific case-studies and supportive videos. Please see more details on simulation and role-playing described in Module 4.

Recommendations

To facilitate the module's training, you need an auditorium and group rooms. For the simulated role-play there should be organized tutors to give advice and give guidance.

For further information about Module 5 see **appendix 5.**

Module 6 Culinary Medicine in Practice

Content

The culinary medicine is a new evidence-based field in medicine that blends the science of medicine with the art of food and cooking. Its aim is to help people reach good personal medical decisions about accessing and eating high-quality meals that help prevent and treat disease and restore well-being. This module aims to provide the knowledge needed to develop culinary skills and to apply culinary techniques according to the foods and the nutritional requirements of healthy children and their families as well as in specific situations such as overweight/obesity, vegetarianism or veganism and coeliac disease.

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Learning objectives

Participants should be able to:

- Identify the key elements required for meal planning
- Describe the main healthy culinary techniques and apply them in different scenarios
- List healthy, cheap, and easy recipes with 3-5 ingredients
- Provide a list of healthy and high nutritional meals to vegetarian or vegan families
- Describe the main nutritional and culinary techniques for children and/or families with overweight or obesity problems
- Provide healthy and attractive foods and culinary techniques for children with coeliac disease

Teaching methods

The module is lecture based with six units that combine theoretical and practical contents, including reflection tasks about common myths, resolved questions and activities, a practical case, video files and additional links and on-line resources.

Recommendations

To facilitate the module's training, you need an auditorium, personal computers and a suitable space adapted for the show cooking.

For further information about Module 6 see **appendix 6.**

Resources

Parts & materials of the Training Modules

Each of the above-mentioned training modules has been developed to include the following parts:

- a PowerPoint presentation including the main content of the module

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- a complementing Word document which serves as the module's manual providing all the background information of each specific theme.
- assessment quizzes and questions to evaluate general knowledge on the module.

Implementation of the training

Who can be a VET trainer?

The level of education to be a VET trainer for this programme must be at level six i.e., minimum master's degree or similar. The faculty (trainers/instructors) to deliver the training should be professionals experienced in the field of pediatrics, nutrition, and public health. Each specific trainer/instructor should be experienced in the specific topic they will be teaching and should be able to support the delivery and assessment of the modules. This is helpful for the trainers as it will be easier for them to draw on their own experiences.

If the organization does not have internal access to trained professionals to carry out the trainings, it can call upon external partners with expertise in the specific topic, for example professional chefs as assistants for the topic culinary medicine.

Audience and number of participants

The first consideration when planning the training is who and how many participants should be included. The training course has been developed as a multidisciplinary training, to create a synergy between the different professions working with children and families. However, VET organizations and other stakeholders might be interested in targeting the training for a certain audience.

When choosing the number of participants considerations should be made into which aims the VET organisation or academic institution has. Some topics might encourage more discussion that others, as some modules contain more practical training. If trainers wish to facilitate a practical training with emphasis on the exchange of experiences and opinions, it might be necessary to leave more time for discussion and divide participants into smaller

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groups. However, the experience is that no more than 35 participants should be included at once, due to facilitate the culinary medicine part (Module 6).

Scheduling

When scheduling the training many different considerations must be taken into account. When carrying out the training the audience or target group will have different needs. The trainings can be carried out over the course of five days or over longer periods of time. These considerations should be made based on the availability of both trainers and trainees.

The experience of the consortium is that it should not be carried out in less than five days as the content is too extensive. However, if it is not possible to allocate the necessary hours in training, trainers can use different means of reducing the time that trainees must spend in the actual training by omitting certain parts and instead refer to the e-learning platform.

Technical resources

Considerations should also be made into the technical resources available for the target group. For example, if an organisation wishes to carry out the training online or partly in person and using the e-learning platform they should make sure, that all participants have access to a laptop or other technological devices that can be used to access the platform. The experience is that in person training works better with most audiences, as it allows for more discussion. However, as mentioned earlier the e-learning platform can be used to reduce the time allocated to the physical training, allowing more people to attend the trainings. The e-platform is also beneficial in situations where the organisation wishes to achieve certifications for all participants, as this is generated automatically by the platform. It also encourages participants to engage with the material outside of the training, giving them even more time to reflect. However, it should be made available to all participants in the training, to ensure the equal participation of all trainees.

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Involvement of the audience

As a multidisciplinary training and in line with the research conducted during the project's research period, the trainers should strive to as much as possible engage the audience in the presentation of the modules. As an experience from the trainings carried out by the consortium, both the practical training and group work helped to make the course more interactive, as it represented a variation to participate in simulated role-play and cooking classes in culinary medicine. Moreover, the use of practical training has the objective of engaging the audience with the material. The feedback from the evaluation was that this added value and made the learning more attractive (see next section about lessons learned).

Certification and Accreditation

When deciding on whether to offer certification and accreditation, VET organizations and academic institutions have multiple opportunities. Organizations can choose to attempt to have the training accredited in their own local context by contacting the local national agency in the country where the target group resides. This can be done either for the physical training or for the platform.

Upon completion of the e-learning course and the evaluation questions on the platform all participants are automatically provided with a certificate of completion. VET providers and academic institutions can also choose to produce their own certification in case they wish to achieve certification without using the platform or upon completion of parts of the training.

Lessons learned

Due to the COVID-19 pandemic the joint staff training event was not possible to perform face-to-face as planned, but it was replaced with a shortened online event (January 2022). However, from the transnational physical (face-to-face) training event, the consortium has gained certain experiences and lessons valuable to be shared for future trainings. Moreover, an evaluation of the training was conducted, and its results can be useful when planning for a future training.

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The following lessons learned are a summary of comments and recommendations received from trainers and trainees:

➔ The consortium's experience is that an in-person training would be preferable and gives more room for discussion and interaction.

➔ The analysis of participants responses of the face-to-face event was an overall high score between very satisfied and satisfied with the six modules. The evaluation sheet contained: relevance for the health professionals, clarity of the learning objectives, quality of the module content, quality of the presentation, duration of the module.

➔ The analysis of participants responses of the face-to-face event was that the interactive and practical part was most preferable. The simulated role-play allows in depth discussions and experiences for their profession, and practical cooking could make them more secure in using knowledge about nutrition in practice. These kinds of experiential activities are encouraged for this training.

➔ However, as the overall score for the course was high, the participants at the face-to-face training was reluctant to recommend the course to their co-workers. This was explained by that the content of the modules were not connected to each other and there were also overlapping information and some outdated knowledge. This was taken into consideration to improve the modules, and a revision of the course was done.

➔ Some modules need to be delivered ('taught') taking into consideration the national or local context or using examples from the local and national context. This was particularly true concerning the national guidelines and health services.

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Appendices

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