



Training for Coordinating Professionals as Part of Dutch Integrated Care for Childhood Overweight and Obesity – A Mixed-Methods Evaluation

Koetsier LW^{1*}, Boutalab L¹, Seidell JC¹, Baan CA² and Halberstadt J¹

¹Department of Health Sciences, Faculty of Science, Vrije Universiteit Amsterdam, Amsterdam Public Health Research Institute, Amsterdam, The Netherlands

²Tilburg University, Tranzo, Tilburg School of Social and Behavioural Sciences, Tilburg, The Netherlands

Abstract

Introduction: Healthcare professionals play an important role in childhood overweight and obesity care, yet they often feel ill-equipped to manage this complex and sensitive health problem. As part of Dutch integrated care for childhood overweight and obesity, a training for coordinating professionals (CPs) was designed and carried out. This study gains insight into the experiences of CPs with the training based on the four levels of Kirkpatrick's model of training evaluation: (1) reaction, (2) learning, (3) behaviour, and (4) results. **Methods:** Eleven CPs who completed the training participated in this mixed-methods study. First, completed questionnaires on the four levels were analysed with Qualtrics. Next, the transcripts of semi-structured interviews on levels 1, 3 and 4 were analysed in MAXQDA using thematic analysis. **Results:** On level 1, participants were satisfied with the training as it stimulated their professional and personal development. Barriers, improvements and needs from the training varied between participants based on their background. On level 2, CPs improved perceived knowledge about integrated care and its practice, skills for providing overweight and obesity care, coaching attitudes, and trust and commitment towards local integrated care. On level 3, the extent to which the learnings were practised depended on the experience and local context of the CP. Last, on level 4 CPs mentioned noticing post-training practical results for themselves, the child and the family, integrated care partners, and the participants' organisation. **Conclusions:** The training contributed to improve perceived knowledge, skills and attitudes of CPs. This study recommends sufficient implementation of local integrated care, to optimally practise what was learned during the training. More on-time evaluations of the training and taking the perspective of the organisation into account is needed. This would improve the training and give CPs confidence to adequately provide support and care to children with overweight and obesity and their families.

Keywords: Pediatric obesity; Education; Health care providers; Primary health care; Mixed-methods appraisal

List of abbreviations

CP: Coordinating Professional; YHC: Youth Healthcare; HCP: Health Care Professional

Introduction

Educating healthcare professionals

Healthcare professionals (HCPs) play an important role in the management of childhood obesity, which is a complex challenge for them since multiple factors need to be considered [1]. However, HCPs often feel ill-equipped to manage this complex health issue, as they believe themselves unprepared to adequately provide support and care to children with obesity [2-4]. HCPs experience their previous healthcare education inadequate in addressing obesity care, they favour more education to improve their knowledge, skills and attitudes for managing childhood obesity [5-9]. It is specifically necessary to train HCPs with behavioural skills such as motivational interviewing techniques and network care proficiency [8].

Providing education and tools may increase their confidence and self-efficacy to address potentially sensitive issues and improve their required competencies in obesity management [2,4,10,11].

The coordinating professional as part of Dutch integrated care

The management of childhood obesity should be in the form of integrated care, as part of an integrated approach that combines collective prevention and individual support and care. The Dutch integrated care is described in the 'National model integrated care for childhood overweight and obesity' and sets out a structure that provides a basis for local integrated care for children with overweight and obesity [12,13]. As part of this integrated care, a coordinating professional (CP) has a critical role in coordinating and monitoring the coherence of all activities. Although professionals from a variety of disciplines can fulfil the role of CP, the role is often fulfilled by youth healthcare (YHC) nurses dependent on the case and the family's care needs and how the care is organized locally [14,15]. The YHC nurse has a signalling role within the Dutch

YHC system as they have regular consultations with children and their parents. However, the competencies required for the specific CP role in order to provide and coordinate the support and care for children with obesity and their families, have not elaborately been part of Dutch YHC nurses' education [7,12,16]. The tasks of the CP are: conducting the assessment of psychosocial and lifestyle factors [17], coordinating the collaboration between a variety of professionals, supporting and motivating the child and family during the support and care process, monitoring progress and initiating follow-up steps. The CP likewise ensures collaboration between the social and healthcare domains – an important condition for success, especially when multiple problems might contribute to the development or maintenance of obesity [12,18,19].

Training for coordinating professionals

To address the gap in CPs' knowledge, skills and attitudes regarding providing support and care to children with obesity within integrated care, a training programme specifically targeting CPs has been developed and has not yet been evaluated [20]. The eight-day training is based on the Dutch national model, the Dutch description of the role of a CP, input from professionals involved in integrated care, CPs and other HCPs [12,20,21]. During the training the CPs were introduced to a variety of tools such as the directory for the psychosocial and lifestyle exploration [17], an illustrated tool to support the conversation [22], the joint assessment of care needs (GIZ) [23] and the webtool measuring Quality of Life of children with overweight and obesity [24-27].

Importance of evaluating training programmes

The Kirkpatrick model for training evaluation describes four levels (Figure 1) [28]. In concordance with Kirkpatrick's model, training has little value unless what is learned can be applied in practice, therefore it is important to evaluate training on improvement of organisational outcomes [28]. An evaluation will highlight whether the invested money and time were worthwhile, if changes need to be made to the training, and if the learned aspects from the training are practicable [28,29]. To create an in-depth evaluation the four levels of Kirkpatrick's model were used as a theoretical framework since they were found suitable for the aim of this study [28].

Aim of the Study

The aim of this study is to gain insight into the experiences of the CPs with the training using Kirkpatrick's four levels using a qualitative and quantitative research methodology. The results of the evaluation can be used to improve the training, maximise the transfer of learning to behaviour, and demonstrate the value of the training to the organisation. The research question is: What are the experiences of CPs with the training developed as part of Dutch integrated care?

Methods

Study population

The study population consisted of eleven CPs who participated in the pilot of the national training. The sampling method consisted of convenience sampling, as the selection of the study population (participating CPs) was already known [30]. CPs were invited by 'Child on a Healthier Weight', a national program that aims to secure and coordinate the (local) implementation and further development of the integrated care, to participate. Participation in the research was not an inclusion criterion of the training. CPs were asked to participate in the study before the start of the training. Inclusion criteria for both the training and research are shown in Figure 2.

The content of the eight-day training, that occurred over eight months, can be found in Table 1. Participants were informed about the research and its purposes prior to the training and could withdraw from the research at any moment. The questionnaire started with an informed consent form for both the questionnaire and the interview. All participants gave consent. Since the research did not fall under the Medical Research Involving Human Subjects Act (WMO), the study protocol was self-checked by the Research Ethics review committee of the Faculty of Science (BETHCIE) from the Vrije Universiteit Amsterdam (VU) Faculty of Science, stating that the research project did not require further evaluation by the Research Ethics Review Committee of the VU Amsterdam Faculty of Science.

Theoretical framework

During the study, Kirkpatrick's model was used to conduct an in-depth evaluation.

(1) Level 1 focused on participants' reaction to the training. This level was built on three components: involvement with the training, relevance of the training, and participant satisfaction.

(2) Level 2 focused on how much participants learned from the training. This was divided into four components: perceived knowledge, attitude, trust and commitment, based on their participation in the training.

(3) Level 3 comprised how participants practised what was learned during the training by reflecting on their behaviour in practice. This level was covered by three main questions and related to: (1) the possibility to practise what was learned, including contributing and hindering factors, (2) how participants managed to practise what was learned, including challenges and needs, and (3) the degree of support received from the participants' organisation, including needs to successfully practise what was learned.

(4) Level 4 concerned results approximately three months after the training to practise what was learned. As the questionnaire was sent directly after the training and participants had two to three months to practise what was learned, questions were asked in a prospective manner.

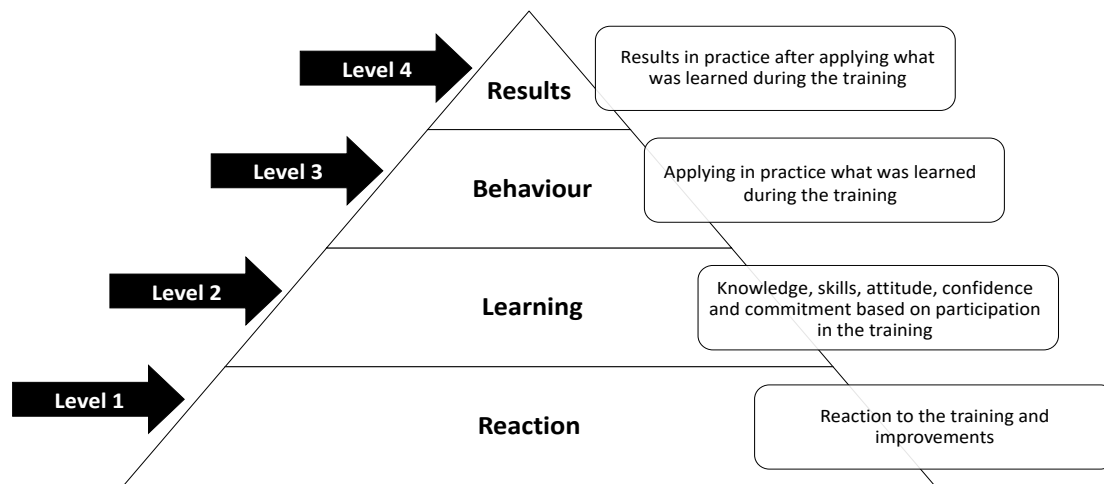


Figure 1: Levels of Kirkpatrick’s model (28).

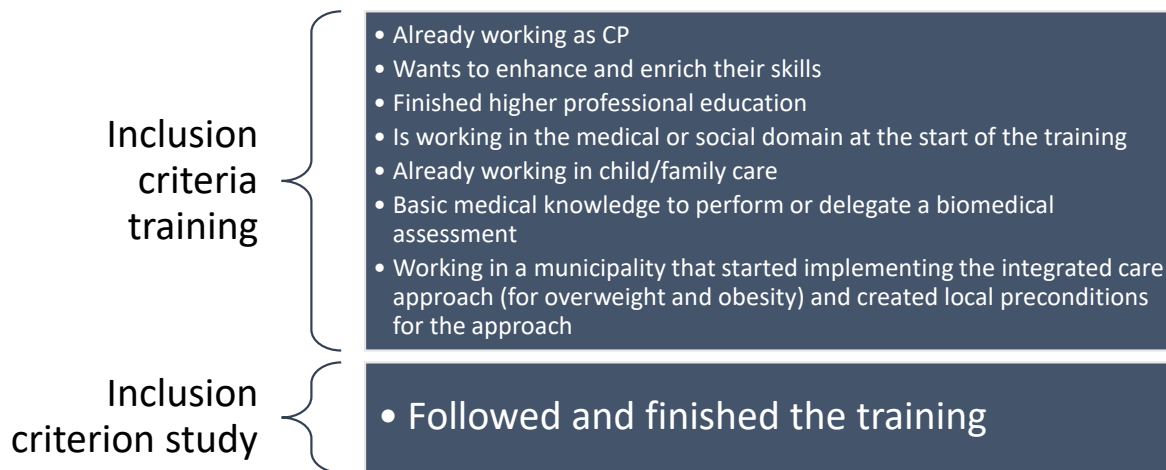


Figure 2: Inclusion criteria of the training and of this study.

Day 1	Your role as CP in integrated care
	<ul style="list-style-type: none"> • Knowledge and vision of the integrated care, latest developments and its meaning for the CP. • Proactively perform the six steps in the guidance process of the National model of integrated care. • Core competences of the CP. • Personal leadership and coaching attitude.
Day 2	Coaching attitude
	<ul style="list-style-type: none"> • Coaching attitude: experience and do! • Coaching attitude and strengthening self-management of the child and family, in collaboration with integrated care partners. • Own stigmatisation, underlying views and prejudices. • Practise with an open, non-judgemental, supportive and stimulating attitude.
Day 3	Work from a broad perspective
	<ul style="list-style-type: none"> • Vision on a broad view of integrated care, what is a broad view, how do you broaden your view? What does this mean for the cooperation with the child and family and the integrated care partners? • Practise with assisting tools that encourage a broad view. • Integrated care, what does it yield?
Day 4	Broad view and link to the six steps in the coordinating process of integrated care

	<ul style="list-style-type: none"> Working with the six steps in the coordinating process: why, how and what? What dilemmas can you encounter in practice? Determining what is really going on in the family, how do you do that? Practise with tools. How do you coordinate the process, what does that require from you?
Day 5	Collaborating with integrated care partners
	<ul style="list-style-type: none"> What is a successful collaboration and what does it require from you? Coordinating a good cooperation with the child and family and the integrated care partners. How do you stay proactive and show leadership when the cooperation does not go well?
Day 6	Effectively coping with dilemmas
	<ul style="list-style-type: none"> How to deal with dilemmas, complex situations and moral decisions. How do you remain effective and proactive? Reflecting on one's thoughts/actions and their effect on the coordinating process: what is needed to learn jointly with the child and family and the integrated care partners? Experiment and practise with tools that can assist when coping with dilemmas.
Day 7	Choice of CPs/as required
	<ul style="list-style-type: none"> In the context of 'participants in control', the group determines what this day will be about, based on challenges that practice demands and the group encounters at work. Examples: interviewing techniques, influencing styles, deepening of systemic action, linking with integrated care partners from the social domain, low health skills, culture-oriented work, etc.
Day 8	Harvesting learning gains & festive closure
	<ul style="list-style-type: none"> Zoom in on: where was I, where am I now, and what do I take with me into the future? What was an important learning moment for you? Sharing insights from evaluation with child and family and integrated care partners. Evaluate & Festive closing & certificate distribution.

Table 1. Content of the eight-day national training.

Data collection

This study used an mixed-methods approach to gain insight into the experiences of the CPs with the training. To enrich and complement the quantitative data, qualitative data (interviews) were obtained to support the quantitative data (questionnaires) (31). The qualitative method was inductive. Data collection took place from June to September 2021. Data have been de-identified and were stored on the university server in a secured folder; only team members of the research team had access to the folder.

Quantitative data collection

Immediately after finishing the eighth day of the training, a questionnaire (self-assessment) was sent to the participants and executed via Qualtrics (research software) in order to collect insights into Kirkpatrick's four levels [28]. The questionnaire focused on level 1 'reaction', level 2 perceived 'learning' and level 4 'results', and included a consistent set of closed questions to be scored between 0 and 100. The closed questions were supported by open questions. Level 3 'behaviour' was not part of the questionnaire, since CPs did not have enough time to practise what was learned directly after the eighth day of the training. The results of the questionnaire constituted preparation for the interviews.

Qualitative data collection

Semi-structured in-depth interviews were held with the same participants within two to three months after the end of the training. Interviews were audio recorded, transcribed

verbatim, and de-identified by removing personal characteristics. The data were collected by the main researcher of this study (LK), who conducted eleven interviews of approximately 45 minutes. The interviews were held online via ZOOM (N=5) or in person (N=6). An interview guide [see Appendix] was made based on level 1 'reaction', level 3 'behaviour' and level 4 'results' of Kirkpatrick [28]. The interview guide was discussed among the research team and an expert in qualitative research provided input (HB). To acquire more in-depth information, the main researcher (LK) supplemented the interview guide based on the answers of the questionnaire given by each participant. Since level 2 perceived 'learning' was adequately explored in the questionnaire, it was unnecessary to re-evaluate it.

Interview questions relating to level 1 focused on the relevance of and satisfaction with the training. For example: 'What information from the training was most relevant for you?' or 'What do you think of the training, did you spend your time usefully?'. Level 3 included questions on the extent to which it was possible to implement and incorporate the knowledge in practice. For example: 'How did you practise what you learned?' or 'What would help you deal with challenges?'. Last, level 4 questions were asked to gain insight into first results in practice. For example: 'Do you already notice first outcomes of practising what you learned during the training?' or 'How does practising what you learned influence the organisation?'.

A member check was performed by sending summaries of the interviews to the participants to ensure interpretations of the data corresponded with what they meant to convey; this increases the reliability of the study [32]. During the research the consolidated criteria for reporting qualitative research (COREQ) were considered [33].

Data analysis

Data analysis was conducted from September to November 2021. The closed questions of the questionnaire were analyzed in Microsoft Excel. A thematic analysis was used to analyse the de-identified transcripts of the interviews. An inductive coding process consisting of open, axial and selective coding was performed by a team of three members (LK, LB and HB) [32,34]. The first three transcripts were independently open-coded by the main researcher (LK) and assisting researcher (LB). To ensure the quality of the process a third researcher (HB) guided the coding process. A framework of the code tree was developed after the first three interviews were analysed. The main researcher (LK) used the framework to analyse other transcripts and supplemented the framework with additional themes and subthemes. Constant discussions with the assisting researcher (LB) were held to improve reproducibility of the analysis. The third researcher (HB) was approached when questions arose or when revision of the code tree was needed. After six interviews no new themes emerged from the data analysis, indicating data saturation was achieved. During the coding process the researchers used MAXQDA Analytics Pro 2020.

After finalising the code tree and final formulation of the qualitative results, additions were made based on the open questions from the questionnaire. Open questions were analysed and sorted in Microsoft Excel. The code tree was supplemented with additional subthemes if necessary, that were translated to English since the surveys were conducted in the native language (Dutch). This was done to ensure data from the questionnaire was not left out from the analysis. As the

interviews were in the native language (Dutch), translation of the emerged themes, subthemes and quotes to English was needed in agreement with official translators of the university in order to report the results.

Results

Participant characteristics

Eleven CPs participated in this study after one withdrew from the training. General characteristics of the participants are presented in Table 2. All participants were women.

The four levels of Kirkpatrick's model

The reporting of the results is structured according to the four levels of Kirkpatrick's model. Table 3 shows an overview of the themes and subthemes.

Level 1 Reaction of the CPs to the training

Level 1 focused on participants' overall reaction to the training. On the questionnaire level 1 was scored with a mean of 80.7 on a scale of 0–100. The three components of level 1 were scored with a mean of 83.9 for 'involvement with the training', 80.6 for 'relevance of the training' and 78.1 for 'satisfaction of the participants with the training'. An extensive overview of the component scores and subscores are presented in Table 4. Themes formulated based on the analysis of the interviews and open questions are elaborated on below.

N	Age (years)	Education	Function	Organisation	Active (years) as CP
1	36-40	Higher Ed nurse	YHC nurse ^a and CP ^b	Municipal health service	<1
2	60-65	Higher Ed nurse	Specialised YHC nurse and CP	Hospital	3.5
3	50-55	Higher Ed nurse	Project leader local integrated care and CP	Municipal health service	1
4	26-30	Master in advanced nursing practice	Specialised YHC nurse and CP	Municipal health service	2
5	40-45	Higher Ed nurse and lifestyle coach	YHC nurse and CP	Municipal health service	5
6	26-30	Higher Ed nurse	YHC nurse and CP	Municipal health service	<1
7	46-50	Higher Ed nurse	YHC nurse and CP	Municipal health service	1.5
8	46-50	Higher and post-Higher Ed nurse	YHC nurse and CP	Municipal health service	2
9	26-30	Higher Ed nurse	YHC nurse and CP	Municipal health service	<1
10	26-30	Higher Ed nurse	YHC nurse and CP	Municipal health service	1
11	30-35	Higher Ed nurse	YHC nurse and CP	Municipal health service	2

^aYHC nurse = Youth Health Care nurse; ^bCP = Coordinating professional

Table 2: General characteristics respondents.

Level and theme	Subtheme
Level 1 Reaction of the CPs to the training	1.1 CPs experienced added value of the training
	1.2 Participants' varied background
	1.3 Training initiates personal and professional growth
	1.4 Desired improvements and additions to the training
Level 2 Learnings from the training	2.1 Knowledge
	2.2 Attitude
	2.3 Trust
	2.4 Commitment
Level 3 Behaviour in practice	3.1 Starting CPs experiment with what they learned
	3.2 CPs' experience determines how much they practise what they learned
	3.3 Local context and support from the organisation of the CP influences practice
Level 4 Results of the training in practice	4.1 Expected results of practices
	4.2 First results in practice for the CP
	4.3 First results in practice for child and family
	4.4 First results in practice for integrated care partners
	4.5 First results in practice for the organisation

Table 3: Overview of themes and subthemes.

Level	Component	Statement*	Minimum*	Maximum*	Mean*	Total mean*	Level mean*
1 Reaction	Involvement	Active involvement encouraged	79.0	100.0	91.4	83.9	80.7
		Training kept one's interest	53.0	100.0	77.2		
		Felt involved in training	70.0	100.0	83.3		
	Relevance	What is learned will help in practice	65.0	100.0	78.9	80.6	
		Was stimulated to use new knowledge in practice	55.0	100.0	81.1		
		What's expected from the CP was clear	65.0	100.0	83.1		
		Training connects with personal and professional development	60.0	100.0	78.8		
	Satisfaction	Training connects with daily practice	70.0	100.0	81		
		Received useful information before start of the training	40.0	95.0	75.1	78.1	
		Received useful information before the contact day	64.0	100.0	79.9		
Will recommend training to colleagues		50.0	100.0	78.7			
Satisfied with the training		50.0	100.0	78.6			

Table 4: Questionnaire findings level 1 'reaction'.

Level 1 Reactions

CPs experienced added value of the training: The participants appreciated lectures of guest speakers and success stories of CPs that already worked within integrated care. They also enjoyed peer review sessions thanks to the small group sizes (max n=6), acquired tips and broadened information. All participants were positive about the two main teachers of the training, as they were always available, inspiring and

motivating. Last, participants perceived added value of the overview of available tools, as this overview structured the integrated care and facilitated the process for the CPs.

Participants' varied background: The participating CPs differed in age, experience, educational background, organisation type and target group or age of the children they provide support and care to. Participants generally considered that these variations in background were informative and inspiring, as they could learn from the way CPs fulfilled their

role at different organisations. CPs with more experience preferred a like-minded group, mentioning that they often had to take the lead because their cases were used more often as examples. Some less experienced participants felt insecure when comparing their knowledge, skills and experience to others.

‘There was one participant that had more experience, but I actually found that to be a good thing. She was also extremely open, which made me feel free to ask all kinds of questions.’ (CP 5)

Training initiates personal and professional growth:

CPs perceived improvement of skills such as coaching, leadership and communication following reflection sessions during the training. They developed awareness about their own (and others’) weight bias and stigma of childhood overweight and obesity, learning from guest speakers who talked about their experiences providing care to children with overweight and obesity. CPs indicated feeling more confident at the end of the training, mostly thanks to the gained knowledge.

‘Prejudices, I have paid a lot of attention to that, you never really lose them. Because when I see one of those heavily overweight children walking down the street, you immediately become judgemental, you can’t escape it. And so you won’t feel guilty about it but just knowing that it’s there, and then put it aside, you try to clear it out of your mind ...’ (CP 7)

Desired improvements and additions to the training:

According to the CPs the structure and content of the training should be improved and tailored to prior experience and knowledge of participants. Some aspects of the training were experienced as either superficial or too broadly explained. The CPs wished for in-depth information to broaden their knowledge. They also wanted more attention to cultural influences, culturally sensitive tools, groups in a lower social economic position, multi-problem circumstances of the families, complex case histories, and resistance from both the child and their families. Some suggested the training should focus less on coaching and reflection. Likewise, the link between theory and practice of providing support and care to children with overweight or obesity within integrated care was missed or introduced late. CPs would have liked to receive an overview of the tools earlier, as well as a clear description of their professional profile.

‘First, I was really trying to figure out how I was going to get started, I would have very much liked to get more background and theory first ... I really feel like I was flying solo, like my goodness how am I going to do this?’ (CP 2)

Although CPs understood the limitations imposed by COVID-19, the online education was still experienced as difficult. Informal contact was missed, there was less interaction and participants were easily distracted.

Level 2 Learnings

Knowledge: The most important aspects CPs learned were background knowledge about adopting an open and coaching attitude, the national model, and learnings based on the experiences of other participants. CPs mentioned to perceive knowledge about available tools, coaching skills and the complexity of overweight and obesity thanks to what was learned in the training.

Attitude: CPs indicated that the importance of practising the learned attitude (e.g., coaching and open attitude) related to an improved connection and relationship with children and families, for instance a deeper understanding of underlying problematics in families. Especially a non-judgemental attitude was considered of added value to practice.

Trust: Most CPs mentioned they would gain more trust in practising what they learned if they felt able to experiment and were provided with suitable knowledge, skills and tools. They would also gain more trust within themselves in providing support and care if they received support from colleagues and if the preconditions for local integrated care were sufficiently organised.

Commitment: Concerning commitment from the CPs, available tools such as the psychosocial and lifestyle assessment and the process steps as part of the national model were already being used by a few CPs (12, 17). Most CPs adopted a coaching attitude during the training. To stay committed and further practise what was learned, CPs need time to experiment, prepare consults and evaluate their working method. CPs wanted more commitment from local integrated care partners and improved implementation of local integrated care.

Level	Component	Statement	Minimum*	Maximum*	Mean*	Total mean*	Level mean*
2 Learning	Knowledge	Gained enough new knowledge	60.0	90.0	76.5	76.5	80.7
	Attitude	It is worth practising the learned attitude	70.0	100.0	88.0	88.0	
	Trust	Has confidence in practising what was learned	70.0	100.0	77.9	75.1	
		Expects support to practise what was learned	50.0	100.0	72.4		
	Commitment	Determined to practise what was learned	60.0	100.0	83.2	83.2	

Table 5: Questionnaire findings level 2 ‘knowledge’.

Level 3 Behaviour in practice

Level 3 focused on how participants practised what they learned. Themes formulated based on the analysis of the interviews are elaborated on below.

Starting CPs experiment with what they learned:

Several CPs described practising what they learned from the training as trial-and-error. CPs indicated that sufficient preparation contributed to more beneficial consults with children and families, since more information could be obtained. To facilitate this practice CPs recommended using, for example, visual tools that helped explain the complexity of overweight and obesity, which is especially useful for families with low health literacy or language barriers. Attention needed to secure CPs' knowledge could be achieved by means of follow-up sessions with peers, peer review sessions and on-the-job training. Last, having faith in the integrated care and believing it pays off motivated CPs to practise what they learned. A few CPs did not (yet) have a clear view of the added value of the integrated care.

'I had come to terms with the fact that I had to learn, practise and experiment with things to find out what does or doesn't work. If things weren't going well, which was the case at first, then it was okay ... I would just have to make a new appointment, a new plan, and try again.' (CP 2)

'We have very specific target groups here, and we have people that don't do so well with a lot of written material. They are really happy to take with them something that is more visual.' (CP 4)

CPs' experience determines how much they practise what they learned: The extent to which participants practised what they learned was determined by their experience and skills. For instance, insufficient experience as a YHC nurse made it difficult to practise. One CP followed the training right after having joined the YHC organisation, which made the start of the training difficult. Experience in a YHC organisation and with the target group was considered desirable due to the complexity of providing support to children with overweight and obesity and their families. Last, participants without prior experience with the role of CP felt more insecure.

'Of course, that depends a bit on experience, some people had not been working at youth healthcare services for that long, so they had not seen that many children and families. During the training I saw quite a few people with little experience ...' (CP 9)

Local context and support from the organisation of the CP influences practice: Besides individual CPs' experience, the extent to which they practised what they learned depended on the local context in which they fulfilled their role. CPs mentioned that when the local integrated care was not yet sufficiently constructed, cooperation between integrated care partners was difficult and tasks fell on the CP. An already-existing network in which partners know how to find each other was therefore considered essential.

'You hear that healthcare providers are sent to the training and have no idea what is expected of them. Then they come back to the practice and want to get started, but the network is not ready.' (CP 9)

'The CPs obviously have to bring it into practice, but how things are organised at the municipality is in fact important.' (CP 11)

Support from the organisation, such as clear communication about expectations, sufficient time and a CPs' task description appeared to be essential. This all benefited from the project leader (responsible for implementation of the local integrated care) having a background in the healthcare domain and being invested in creating commitment among integrated care partners. Last, to provide clarity about the CP's role within the local context it was essential for CPs that colleagues within the organisation be aware of the CP's role and accompanying tasks. Participants also wished for more colleagues to be educated in the CP role in the same organisation, as they wanted to share cases and responsibilities.

'It's difficult that I am one of the few CPs in the municipality, my colleagues don't always understand this. This makes everything even more burdensome. If on top of everything you have to defend yourself to your colleagues as to why you are doing something, at some point you just don't feel like it anymore. I feel there is a considerable lack of support.' (CP 5)

Level 4 Results of the training in practice

Level 4 focused on observed practical results of the training. On the questionnaire the component 'believing in a positive impact when consequently practising what was learned' was scored with a mean of 80.5. An extensive overview of the component scores based on the closed questions is presented in Table 6. Themes formulated based on the analysis of the interviews and open questions are elaborated on below.

Expected results of practices: CPs expected first results to become visible after implementing what they learned, for instance families becoming more motivated and having a more open attitude. They hoped to reach more children and families and achieve successes with the target group.

First results in practice for the CP: As first results of the practical implementation CPs gained awareness of the role they fulfil as part of integrated care, acquired self-confidence and dared to be vulnerable, were more reflective, and had more of a 'feel' for integrated care as their involvement in the local network grew. They empathised more with the children and their families thanks to the new experience and knowledge. They also developed a different attitude and new skills, such as supporting the child and family, prioritising their need for help, and setting small goals. CPs mentioned that coaching skills were practised during consults since conversations were started differently and CPs did not feel the need to fill up silences.

'Yes, I am noticing indeed that I engage in the conversations differently, that I am much more aware of the tendency to solve everything. And that I also call sensitive topics by their name and in the process dare to make myself vulnerable.' (CP 2)

First results in practice for child and family: CPs experienced positive reactions from families about the support received. First results for the child and their family were observed once CPs started practising what they learned during the training. For instance, consults yielded more in-depth information and families gained insights on nutrition, physical activity and behavioural change. Prioritising and paying attention to multi-problem circumstances of the families by providing support and referring to the right professional within

the network created the opportunity for families to work towards goals. CPs indicated making goals and plans jointly with the child and family, to make them feel in control of and responsible for the treatment plan. By setting small goals, the changes made appeared to be more sustainable for the child and family.

'If you look at the entire picture and all the factors, and listen really well to the mother and what she wants or what their need is. That is important, you see what's going on at that moment.' (CP 1)

'Parents have the idea that they're doing it all themselves. And that is the nice thing about it, because it gives them confidence that it will all work out.' (CP 5)

'You mainly take a look at what is going well, what are people willing and able to change?' (CP 11)

First results in practice for integrated care partners:

A few CPs mentioned improved multidisciplinary collaboration and mutual contact between integrated care partners, as well as professionals inspiring each other. This was also considered favourable towards providing support and care for other diseases. CPs noted improved attention to the CP role and integrated care partners knew better what to expect from CPs.

'Everyone is active because the enthusiasm is contagious. If one person is involved, their co-worker will be more prone to think: what can we do? Lately we see everyone operating this way.' (CP 9)

However, first results in practice were not noticeable for every CP, as many mentioned that collaboration with integrated

care partners was still insufficient. Some CPs were busy creating commitment amongst local integrated care partners: making contact was difficult, not every professional was aware of integrated care, and there was little to no local support.

'I have the impression that they don't see me as CP, so every time I have to do it all over again, hello, this is what I do, think of me.' (CP 7)

First results in practice for the organisation: CPs had difficulty formulating the impact of their actions on the organisation, as they had not been practising long enough to notice an impact. A few CPs mentioned that more attention for integrated care was noticeable within the organisation. CPs stated that children were receiving appropriate support and care, as the care was being tailored to their needs and wishes. This created a better safety net for families and reduced the dropout risk. One CP indicated signalling overweight and obesity in children with other diseases, while heretofore she would neither identify nor discuss overweight or obesity in such cases. Most CPs saw a broad approach to diseases as promising, since more appropriate guidance can be offered if the professional takes a broader view of the child and family circumstances. Last, colleagues of the CP incorporated integrated care into their working method: they were for instance encouraged by the CP to take a broader view if they experienced difficulties in a case.

'I think that this approach can be used much more broadly, not only for children with overweight.' (CP 1)

Level	Component	Statement	Minimum*	Maximum*	Mean*	Level mean
4 Results (predictive)	Believing in a positive impact when subsequently practising what was learned	Believes seeing positive impact when subsequently practising what was learned during the training	70.0	100.0	80.5	80.5

Table 6: Questionnaire findings level 4 'results'.

Discussion

This study showed that the training contributed to improve perceived knowledge, skills and attitudes of coordinating professionals (CP), which is necessary to fulfil this critical role within integrated care for childhood overweight and obesity. CPs were satisfied with the training since it stimulated their professional and personal development. Their behaviour in practice varied and depended on the experience they had with the role of CP and the local context in which they fulfilled this role. First results were noted in practice: CPs improved their competencies and felt more able to fulfil their role, according to the CPs children and families were more open to and positive towards the CP, collaborations and contacts between integrated care partners improved, and more attention for the CP's role was noted within organisations.

Interpret findings

Evaluation of levels 1 and 2 indicated that thanks to the training CPs gained more confidence in their role within integrated care for childhood overweight and obesity. The

finding relates to literature suggesting that training in obesity care can improve the confidence of HCPs [35]. This might result from improved competencies learned in the training, such as knowledge, skills about and appropriate attitude towards children with overweight and obesity, as it is suggested that they enhance the confidence of HCPs managing obesity [7,36,37]. Since literature indicates that HCPs need to improve these competencies in order to deliver adequate obesity care [7,11,38-40], achieving such improvement is considered to be a favourable outcome of the training. The confidence of CPs seems to be influenced by their level of experience. For example, three CPs had less than one year experience in overweight and obesity care, which may explain why they encountered more difficulties and felt less confident during training and in practice. This suggests that it would be desirable for participants of the training to have sufficient experience in a YHC setting, either as a YHC nurse or as a CP. According to literature, having experience with or expertise in providing obesity care contributes to successfully manage obesity [41] and can improve the confidence of professionals [37,42].

Furthermore, the improved confidence of CPs can be associated with their perceived capability. Literature suggests

that confidence improves the capability of providing obesity care, yet this association can also be reversed, where capability improves confidence [7,37,43]. Perceived capability aligns with self-efficacy; in our understanding, self-efficacy refers to the perceived capability of CPs to successfully provide support and care to children with overweight and obesity [44]. Pattel et al. shows that training HCPs has a positive influence on the self-efficacy of their childhood obesity management skills [2]. However, the association between confidence and self-efficacy is complex; besides confidence, multiple factors may influence perceived self-efficacy – for instance, internal factors such as motivation, interest and self-esteem, or external factors such as resources, task complexity and task environment [45], which were not explored in this study. A variety of factors need to be considered to determine overall practices of CPs.

We found that the degree to which CPs practised what they learned during the training depended on their experience and phase of implementation of the local integrated care (level 3). Previous literature mentions lack of experience and deficient arrangement of local preconditions, such as insufficient collaboration between integrated care partners, as a barrier to implementing integrated care [16,46]. Moreover, it takes CPs time to familiarise themselves with the integrated care; this made experimenting in practice rather challenging. Insufficient local implementation might have influenced the experienced lack of time for participants to practise what they learned [16,38]. Last, literature mentioned that clear conditions for sufficient implementation are needed [16,38,46], which is in line with the findings of our study. During the training, the inclusion criteria were not strictly followed as participants had little experience or worked under conditions with insufficient local implementation. Although inadequately following the selection criteria led to perceived barriers, participants' variety of backgrounds and organisations was experienced positively, as they mentioned they learned from the different experiences and contexts.

The study results on all four levels show that CPs experienced their role as difficult and demanding. First, the complexity and multi-problem circumstances of the families might have contributed to this experience [7]. Second, the emphasis on a coaching attitude during the training might have played a role on experiencing difficulties, since some CPs were used to providing support and care instead of coordinating the care process. Third, CPs felt multi-problem cases were difficult to coordinate; more attention for the coordinating role would have enabled CPs to manage complex multi-problem cases. Fourth, many CPs did not have experience with all the process steps of integrated care as described in the national model. Fifth, for some CPs their role was new, and they needed time and support to fulfil their role properly. Some were the only CP in their municipality and did not experience support from colleagues – in fact, colleagues were not always aware of the CP role, which made CPs wish for a job description. Literature confirms the necessity to clearly elaborate on role and actions to be taken [38]. Most CPs fulfil their role besides regular YHC activities, hence the role of CP was also experienced as difficult as it was added on top of regular activities [7]. Last, it can be difficult for CPs to keep in touch with what they learned from the training. Incorporating on-the-job training and offering continuing education can help CPs maintain their newly

developed competencies and remain confident in their role [7,28].

Strengths and Limitations

One strength of this study is the use of Kirkpatrick's

model. The model fits the aim of this evaluation since it is theoretically substantiated, timeless and flexible, and by using all levels of the model it is possible to show first results of the training and its impact in practice. Although in theory the levels are strictly divided, we are aware that in the practice of the integrated care for children with overweight and obesity, the levels are more overlapping from the perspective of the CPs; this appeared during the data analysis. Another strength is the use of a mixed-methods approach, through which insights were obtained by both quantitative and qualitative methods [47]. The COREQ checklist was taken into consideration [33]; data saturation was achieved as no new themes emerged from the data analysis after six interviews; a member check was incorporated; and the study involved investigator triangulation, contributing to the intersubjectivity of the data analysis.

One limitation of this study is that solely the perspective of CPs was explored. Other perspectives, like those of the organisation, integrated care partners, or children and families, were not taken into account. Since the CP role is rather unique in the context of the Dutch integrated care, the results of this study may not be generalizable to other contexts. COVID-19 measures affected the frequency of consultations between CPs and children and their families, contributing to CPs' limited time and opportunity to experiment; this might have influenced the results of the interviews. The questionnaire was sent out to respondents after the last day of the training, assuming the training was just finished. However, the days were spread over a period of approximately eight months; what participants learned from day one was probably already practised during the training days. Recall bias could also occur, based on the spread in time of the eight days of the training.

Recommendations and implications for practice

To optimise participants' learning process it is recommended to divide the content of the training into 'basic knowledge' (with a focus on practising) and 'in-depth knowledge' (with a focus on reflection and personal and professional development). Basic knowledge can be implemented as a crash course divided over a shorter period to provide a better link between theory and practice, so participants can remain stimulated to practise what is learned. This can also act as an entry-level course for participants with less experience, ensuring that every CP can participate and enabling CPs to practise directly. An in-depth knowledge course can provide more depth and link to CPs' practices, for example by providing more attention for the coordinating role of a CP.

To optimise the transfer of learning to practice (and the subsequent outcome) it is recommended to tighten the selection procedure for the current form of the training, taking necessary conditions for participation into account. When developing the basic and in-depth knowledge course, additional selection criteria need to be formulated corresponding to the aim of the

training. To minimise possible barriers for following the training and practising what was learned, necessary and desirable conditions for participation in practice are

recommended for the training in its current form, based on this study (Table 7).

Necessary conditions for participation	Desirable conditions for participation
Experience within a YHC organisation.	Experience with the role of CP.
Experience providing care to children with overweight and obesity.	CP is convinced by the added value of the training and integrated care.
Knowledge of the integrated care as described in the national model (28).	Multiple CPs from the same municipality or organisation participate (offering opportunities to spar and decreasing vulnerability of CPs).
A local network is already created.	Assurance of knowledge: certainty that CP will remain involved in local integrated care for a longer period.
Support within the organisation for the role of CP.	
Local preconditions are arranged (e.g., the presence of a project leader and sufficient time for the CP role).	
Clarity on what is expected of the CP.	

Table 7: Recommended necessary and desirable preconditions to participate in the training.

Future research

For future research, this study proposes demonstrating the value of the training to organisations and the CPs' municipalities, and elaborating on experiences of children and families with integrated care and the CP. Future research is also needed to develop a training specifically designed for integrated care partners, such as general practitioners, paediatricians and paramedics, to enable them to fulfil their role in local integrated care. More timely evaluations and follow-ups need to be held in order to monitor the training (for instance at the start, during and after the training) and adjust as needed, so the training can be matched with the needs of CPs and facilitate their provision of overweight and obesity care. Last, further research is recommended to examine whether the training can lead to more adequate overweight and obesity care and improved overall health outcomes of children and their families. In other care contexts, for instance care for other diseases or other target groups, a central care provider can have a crucial role as well. These integrated care contexts can be inspired by the process of evaluating this training that was specifically developed for CPs.

Conclusions

This study gained insight into the experiences of the CPs with the eight-day training for CPs on the support and care they provide to children with overweight and obesity and their families as part of Dutch integrated care. CPs were satisfied with the training since it stimulated their professional and personal development. CPs improved perceived knowledge about integrated care and its practice, skills for providing support and care to children with overweight and obesity, coaching attitudes, confidence and more trust and commitment towards local integrated care. For CPs to optimally practise what they learned during the training, preconditions for local integrated care need to be adequately arranged and

implemented. Experience with the role of CP is useful and ensures CPs benefit more from the training. This evaluation offers guidance to clarify the value of the training for the CP's organisation. It is necessary to focus on the local implementation of the integrated care, to optimise the training based on the results of this study and to provide CPs with adequate knowledge, skills, attitudes and tools to manage childhood overweight and obesity.

Declarations

Ethics approval and consent to participate

All methods were carried out in accordance with relevant guidelines and regulations. Each participant received an information letter stating the reasons for conducting the research, and all gave informed consent to participate in this study. Since the research did not fall under the Medical Research Involving Human Subjects Act (WMO), the study protocol was self-checked by the Research Ethics review committee of the Faculty of Science (BETHCIE) from the VU Amsterdam Faculty of Science, stating that the research project did not require further evaluation by the Research Ethics Review Committee of the VU Amsterdam Faculty of Science.

Consent for publication

Not applicable

Availability of data and materials

All data generated or analysed during this study are included in this published article and the supplementary information files. The data analysed during the current study are available upon reasonable request from the corresponding author (l.w.koetsier@vu.nl).

Authors' contributions

LK conceived and designed the study with additional input from JH, CB and JS. LK conducted the interviews. LK and LB performed data analysis, with additional input from CB, JS and JH. LK led writing the manuscript, the writing process was in collaboration with LB. Quotes were picked by LB and checked on relevance by LK (and JH). Tables and figures included were made by LB and checked by LK. All authors (LK, LB, JS, CB and JH) edited, read and approved the final manuscript.

Authors' information

LK: she is a postdoctoral researcher at the Department of Health Science, Vrije Universiteit Amsterdam.

LB: she is a junior researcher at the Department of Health Science, Vrije Universiteit Amsterdam.

CB: she is a professor of Integrated Health care at Tranzo, Tilburg University.

JS: he is a professor of 'Nutrition and Health' at the Department of Health Sciences, Vrije Universiteit Amsterdam.

JH: she is an assistant professor childhood obesity at the Department of Health Sciences, Vrije Universiteit Amsterdam.

Acknowledgements

We would like to thank the coordinating professionals for their contribution to the study. Also, many thanks to Hella Brandt (HB) for her guidance and support during the thematic analysis.

Funding

This project was carried out as part of the project Care for Obesity, which was funded by the Dutch Ministry of Health, Welfare and Sport (grant number 328544, 329657, 977473, 332401). The authors have declared that no competing financial interests exist.

References

1. Hendrie GA, Coveney J, Cox DN (2012) Defining the complexity of childhood obesity and related behaviours within the family environment using structural equation modelling. *Public Health Nutr* 15(1): 48-57.
2. Patel BP, Hadjiyannakis S, Clark L, et al. (2021) Evaluation of a pediatric obesity management toolkit for health care professionals: A quasi-experimental study. *Int J Environ Res Public Health* 18(14): 7568.
3. Mazur A, Matusik P, Revert K, et al. (2013) Childhood obesity: Knowledge, attitudes, and practices of European pediatric care providers. *Pediatrics* 132(1): e100-e108.
4. Van der Voorn B, Camfferman R, Seidell J, et al. (2022) Talking with pediatric patients with overweight or obesity and their parents: self-rated self-efficacy and perceived barriers of Dutch healthcare professionals from seven disciplines. *BMC Health Serv Res* 22(1): 1-8.

5. Stein D, Weinberger-Litman SL, Latzer Y (2014) Psychosocial Perspectives and the Issue of Prevention in Childhood Obesity. *Front Public Health* 2: 104.
6. Alberga AS, Edache IY, Forhan M, et al. (2019) Weight bias and health care utilization: A scoping review. *Prim Health Care Res Dev* 20: e116.
7. Koetsier L, van Mil M, Eilander M, et al. (2021) Conducting a psychosocial and lifestyle assessment as part of an integrated care approach for childhood obesity: experiences, needs and wishes of Dutch healthcare professionals. *BMC Health Serv Res* 21(1): 1-11.
8. Dietz WH, Baur LA, Hall K, et al. (2015) Management of obesity: improvement of health-care training and systems for prevention and care. *The Lancet* 385(9986): 2521-2533.
9. Mold F, Forbes A (2013) Patients' and professionals' experiences and perspectives of obesity in health-care settings: a synthesis of current research. *Health Expect* 16(2): 119-142.
10. Walker O, Strong M, Atchinson R, et al. (2007) A qualitative study of primary care clinicians' views of treating childhood obesity. *BMC Fam Pract* 8(1): 1-7.
11. Van Gerwen M, Franc C, Rosman S, et al. (2009) Primary care physicians' knowledge, attitudes, beliefs and practices regarding childhood obesity: A systematic review. *Obes Rev* 10(2): 227-236.
12. Sijben M, van der Velde M, van Mil E, et al. (2018) National model integrated care for childhood overweight and obesity. Care for Obesity, Amsterdam.
13. Halberstadt J, Koetsier LW, Sijben M, et al. (2022) The development of the Dutch National model integrated care for childhood overweight and obesity (submitted).
14. Gurnani M, Birken C, Hamilton J (2015) Childhood obesity: causes, consequences, and management. *Pediatr Clin North Am* 62(4): 821-840.
15. Schwartz MB, Puhl R (2003) Childhood obesity: A societal problem to solve. *Obes Rev* 4(1): 57-71.
16. de Laat S (2022) Integrated care for childhood overweight and obesity: Implementation, experiences and effects of an innovative approach with the youth health care nurse as coordinating professional.
17. Koetsier LW, van den Eynde E, Eilander M, et al. (2021) Leidraad voor de psychosociale en leefstijlverkenning binnen de aanpak Kind naar Gezonder Gewicht: Care for Obesity, Amsterdam.
18. Care for Obesity, Partnerschap Overgewicht Nederland, Nederlandse Internisten Vereniging (2022) Guideline obesity in adults and children. Diagnostics, support and care for people with obesity or overweight combined with risk factors and/or comorbidities [Richtlijn overgewicht en obesitas bij volwassenen en kinderen. Diagnostiek, ondersteuning en zorg voor mensen met obesitas of overgewicht in combinatie met risicofactoren en/of co-morbiditeit]. Amsterdam/Rotterdam: Care for Obesity / Partnerschap Overgewicht Nederland / Nederlandse Internisten Vereniging.
19. Koetsier LW, van den Eynde E, Eilander MMA, et al. A psychosocial and lifestyle assessment for childhood obesity – results of a scoping literature review and focus groups with experts in the field. (submitted).
20. Hilgers A, van Riemsdijk M (2020) Training: Landelijk Leerlijn Centrale Zorgverleners. JOGG.
21. Gemeente Amsterdam, Samen Gezond 's-Hertogenbosch (2018) Profiel Centrale Zorgverlener voor kinderen met

Overgewicht en Obesitas. Gemeente Amsterdam en Samen Gezond 's-Hertogenbosch.

22. Koetsier LW, van den Eynde E, Eilander M, et al. (2021) Praatplaat Vaststellen wat er speelt bij kind en gezin. Behorende bij de Leidraad voor de psychosociale en leefstijlverkenning binnen de aanpak Kind naar Gezonder Gewicht: Care for Obesity, Amsterdam.

23. Bontje MC, de Ronde RW, Dubbeldeman EM, et al. (2021) Parental engagement in preventive youth health care: Effect evaluation. *Children and Youth Services Review* 120: 105724.

24. Eilander MMA, Koetsier LW, Halberstadt J (2021) Handout praten over de gezondheidsgerelateerde kwaliteit van leven van kinderen met overgewicht of obesitas. Amsterdam: Care for Obesity.

25. Eilander MMA, Koetsier LW, Halberstadt J (2021) Flyer: Een vragenlijst over jouw leven. Care for Obesity, Amsterdam.

26. Eilander MMA, Koetsier LW, Halberstadt J (2021) Handleiding Meten en bespreken van de kwaliteit van leven van kinderen met overgewicht en obesitas. Care for Obesity, Amsterdam.

27. Eilander M, Van Mil M, Koetsier L, et al. (2021) Preferences on how to measure and discuss health related quality of life within integrated care for children with obesity. *J Patient Rep Outcomes* 5(1): 106.

28. Kirkpatrick JD, Kirkpatrick WK (2016) Kirkpatrick's four levels of training evaluation: Association for Talent Development.

29. Steensma H, Groeneveld K (2010) Evaluating a training using the “four levels model”. *Journal of Workplace Learning* 22(5): 319-331.

30. Green J, Thorogood N (2018) Qualitative methods for health research. Sage.

31. Williams C (2007) Research methods. *Journal of Business & Economics Research (JBER)* 5(3).

32. Boeije H (2005) Analyseren in kwalitatief onderzoek. Denken en doen.

33. Tong A, Sainsbury P, Craig J (2007) Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 19(6): 349-357.

34. King N (2004) Using Templates in the Thematic Analysis of Text. 256 p.

35. Campoverde Reyes KJ, Perez NP, Czepiel KS, et al. (2021) Exploring pediatric obesity training, perspectives, and management patterns among pediatric primary care physicians. *Obesity* 29(1): 159-170.

36. Ashman F, Sturgiss E, Haesler E (2016) Exploring self-efficacy in Australian general practitioners managing patient obesity: A qualitative survey study. *Int J Family Med* 2016: 8212837.

37. Buffart LM, Allman-Farinelli M, King LA, et al. (2008) Are general practitioners ready and willing to tackle obesity management? *Obes Res Clin Pract* 2(3): 189-194.

38. Timmers M, Blom K, Boendermaker L (2018) De Jeugdverpleegkundige als centrale zorgverlener. Hogeschool van Amsterdam, Lectoraat Kwaliteit en Effectiviteit in de Zorg voor Jeugd.

39. Bucher Della Torre S, Courvoisier D, Saldarriaga A, et al. (2018) Knowledge, attitudes, representations and declared practices of nurses and physicians about obesity in a university hospital: training is essential. *Clin Obes* 8(2):122-130.

40. Sanchez-Ramirez DC, Long H, Mowat S, et al. (2018) Obesity education for front-line healthcare providers. *BMC Med Educ* 18(1): 1-10.

41. Turner KM, Shield JP, Salisbury C (2009) Practitioners' views on managing childhood obesity in primary care: a qualitative study. *Br J Gen Pract* 59(568): 856-862.

42. Turner GL, Owen S, Watson PM (2016) Addressing childhood obesity at school entry: Qualitative experiences of school health professionals. *J Child Health Care* 20(3): 304-313.

43. Sturgiss E, Haesler E, Elmitt N, et al. (2017) Increasing general practitioners' confidence and self-efficacy in managing obesity: a mixed methods study. *BMJ open* 7(1): e014314.

44. Bandura A, Wessels S. Self-efficacy: na; 1994.

45. Gist ME, Mitchell TR (1992) Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management review* 17(2): 183-211.

46. van der Kleij R, Coster N, Verbiest M, et al. (2015) Implementation of intersectoral community approaches targeting childhood obesity: a systematic review. *Obes Rev* 16(6): 454-472.

47. Malina MA, Nørreklit HS, Selto FH (2011) Lessons learned: advantages and disadvantages of mixed method research. *Qualitative Research in Accounting & Management*.

***Corresponding author:** Dr. Koetsier LW, Department of Health Sciences, Faculty of Science, Vrije Universiteit Amsterdam, Amsterdam Public Health Research Institute, Amsterdam, The Netherlands; e-mail: leandra.koetsier@jogg.nl

Received date: February 26, 2024; **Accepted date:** June 08, 2024; **Published date:** June 26, 2024

Citation: Koetsier LW, Boutalab L, Seidell JC, Baan CA, Halberstadt J (2024) Training for Coordinating Professionals as Part of Dutch Integrated Care for Childhood Overweight and Obesity – A Mixed-Methods Evaluation. *J Health Sci Educ* 8(1): 246.

Copyright: Koetsier LW, Boutalab L, Seidell JC, Baan CA, Halberstadt J (2024) Training for Coordinating Professionals as Part of Dutch Integrated Care for Childhood Overweight and Obesity – A Mixed-Methods Evaluation. *J Health Sci Educ* 8(1): 246.