Tailoring Integrated Care and Support for Overweight and Obesity to Adolescents: From the Perspectives of Professionals Working According to the Dutch National Model.

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Abstract

Background

Child and adolescent obesity is a multifactorial disease associated with various health consequences. The Dutch national model of integrated care for childhood overweight and obesity, characterized by collaboration among professionals from both healthcare and social domains, outlines a trajectory to guide children and their families toward a healthier lifestyle. Although the model is designed for children aged 2 to 18, it requires different tailoring for adolescents as opposed younger children due to differences in health consequences, behaviour, social environment.

Objective

The aim of this study is to investigate what is necessary to successfully tailor the Dutch integrated care approach to adolescents.

Methods

This study adopted a qualitative design. Input from learning community meetings and the self-determination theory were used to support the study. Ten semi-structured interviews were conducted with professionals providing integrated care and support for overweight and obesity to adolescents. Data was analysed using inductive thematic analysis.

Results

Analysis identified five themes regarding how professionals address psychosocial factors. These themes describe that professionals focus more on creating approachable contact moments, changing adolescents' weight perception and motivation, understanding the world experienced by adolescents, empowering their ownership in drafting a plan, and handling challenging family dynamics. Two themes were identified regarding what professionals perceive as additionally necessary. These describe the need for suitable materials, tools, and interventions, as well as organizational changes and better collaboration.

Conclusion

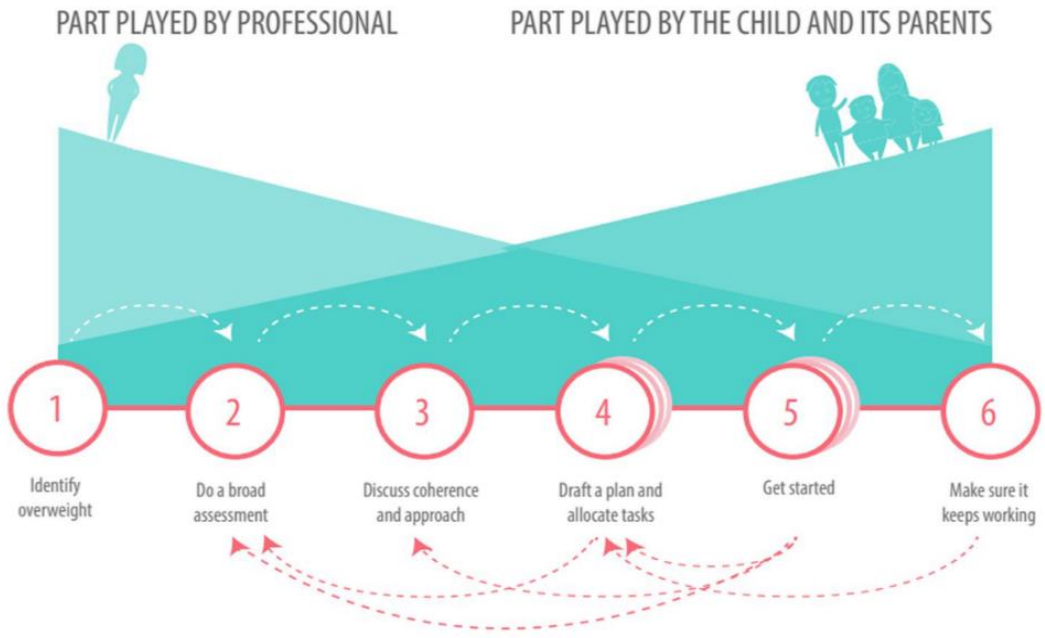
Professionals perceive that suitable resources, organizational adjustments, and improved collaboration are required to optimally tailor the Dutch integrated care approach to adolescents. When providing integrated care and support to adolescents, professionals strive to connect with, empower, and understand the world of the adolescent. From this understanding, they attempt to shift focus and motivation, suggest healthier behaviours within the adolescent's social norms while remaining attentive to family dynamics.

Introduction

Child and adolescent obesity is a growing health concern (WHO, n.d.). In 2023, in the Netherlands, 12.7% of the children aged 4 to 17 had overweight and 4.1% had obesity (CBS, 2023). Although overweight is linked with mildly increased health risks, it can lead to obesity, which is categorised as a disease and associated with substantially higher risks of health problems (WHO, n.d.). These risks can be both short- and long-term and include the development of metabolic complications, cardiovascular diseases, and psychosocial problems due to a decrease in self-esteem and quality of life. (Lister et al., 2023; van der Heijden et al., 2021). Obesity is a multifactorial condition that arises from an interplay of various individual factors (e.g., biological and psychosocial) and environmental factors (e.g., sociocultural factors and physical environment) (Kansra et al., 2021; Lister et al., 2023). Therefore, an integrated care approach is necessary to address this complexity (Brownell, 2010; Seidell et al., 2012).

Between 2016 to 2018, the Dutch National model for integrated care for childhood overweight and obesity was developed and implemented in 2019 by the program Child on a Healthier Weight. Integrated care is characterised by a collaborative network of organisations and professionals from the healthcare and social domain, providing support at the right moment by the appropriate professional (Halberstadt et al., 2023). The Dutch model provides a structure for locally integrated care for children aged 2-18 yrs. with overweight and obesity (Halberstadt et al., 2023). It outlines a six-step trajectory, beginning with assessing the factors causing and maintaining overweight or obesity followed by tailored care and support until the child and parents can maintain a healthy lifestyle (Figure 1)(Halberstadt et al., 2023). This process is coordinated and monitored by a coordinating professional (CP) (Halberstadt et al., 2023). Materials such as conversation charts can be utilized to facilitate conversation and assess underlying factors, considering that these factors can vary among children, adolescents, and their families (Halberstadt et al., 2023; JOGG, 2024).

Figure 1 The Six-step Trajectory Outlined in the National Model (Halberstadt et al., 2023)



Weight management in adolescence is uniquely challenging due to the significant physical, behavioural, and social changes that occur during this life phase, necessitating a well-tailored approach for this age group (Jones et al., 2019; Steinbeck et al., 2018; WHO, 2024) During adolescence, the likelihood of developing obesity increases and comorbidities manifest more frequently compared to when obesity is present during younger paediatric ages (Karnebeek et al., 2019; Patton et al., 2016) Moreover, adolescents with obesity more often experience lower self-esteem, negative body image, and an increased risk of developing emotional and behavioural disorders compared to their healthy-weight peers (Jebeile et al., 2021; Kansra et al., 2021) Changes characterizing this life phase can affect weight management, including the temporary imbalance in brain maturation occurring during this period. This imbalance leads to impulsive behaviour, difficulties in following plans, and challenges in recognising long-term health consequences, potentially hindering the lifestyle changes necessary for weight management (Shulman et al., 2016; Steinbeck et al., 2018). Furthermore, the social environment rapidly changes during adolescence, by shifting towards peers and participation in digital environments potentially influencing health behaviours (Lorant & Tranmer, 2019; Patton et al., 2016; Rounsefell et al., 2020). More importantly, adolescents start seeking more independence, leading to changing parent-child relationships (Jebeile et al., 2021; Patton et al., 2016). Therefore, a trajectory to a healthier lifestyle relies more on the active participation of the child than on that of parents, as is the case in younger age groups (Steinbeck et al., 2018).
Behavioural interventions that include behaviour counselling on diet and physical activity modifications have been proven successful for weight reduction in adolescents (Cardel et al., 2020; Lee et al., 2021). Additionally, having a professional who can consistently serve as a link between the family and various healthcare professionals has been shown to be of great importance (Cardel et al., 2020). However, adolescents are more likely to drop out of lifestyle weight management programs as opposed to younger children (and their caretakers) (Danieles et al., 2021; Zeller et al., 2004). A systematic review on the perspectives of adolescents with obesity revealed a perceived lack of services specifically aimed at their age group. The review identified tailoring of interventions to the individual as an important factor (Jones et al., 2019). Adolescents prefer weight loss interventions that are customized to their age group and reported a higher willingness to participate when programs were developed with their specific age-group in mind (Jones et al., 2019). This underscores the necessity for well-tailored integrated care and support.

The objective of this study is to investigate what is necessary to successfully tailor the Dutch integrated care and support for overweight and obesity to adolescents (12 -18 yrs.). The previously described differences between adolescents and younger children raised challenges and questions among professionals on how to effectively tailor integrated care and support for adolescents. When examining literature, various studies have investigated weight management programs for overweight and obesity in adolescents (Cardel et al., 2020; Danieles et al., 2021; Jones et al., 2019) However, the Dutch National model is unique due to its aspect of integrated care and support, making the results of these studies not applicable to this context. It is important to address this research gap in order to improve the tailoring and successful delivery of integrated care and support to adolescents. This thesis describes learning community meetings focused on delivering integrated care and support to adolescents. Key topics that emerged from the analysis of these meeting summaries led to the formulation of the research question. Addressing this question, ten semi-structured interviews, guided by the self-determination theory, were conducted with diverse professionals providing integrated care and support to adolescents with overweight or obesity according to the Dutch national model.

Methods

Study Design

This study used an emergent and interpretative qualitative design, consisting of input from learning community meetings followed by semi-structured interviews to explore the experiences and perspectives of professionals on integrated care and support for adolescents aged 12-18 yrs. with overweight and obesity. The self-determination theory (SDT) was used as a conceptual framework (Ryan & Deci, 2000). Methods are described according to The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist (Appendix A) (Tong et al., 2007).

Learning Community Meetings

Local project leaders organise the implementation of the Child to Healthier Weight program in their municipalities. Through these local project leaders, JOGG (Youth on a Healthy Weight), a national organisation that assists municipalities in implementing integrated care according to the Dutch National model, received questions and identified challenges related to providing integrated care and support to adolescents. As a result, between December 2023 and January 2024, JOGG organised three learning community meetings to facilitate exchange of experiences and knowledge on integrated care for adolescents among professionals. Four CPs and two local project leaders from different municipalities participated. Under the initiative and guidance of JOGG advisors, professionals systematically discussed the topics: Differences and challenges in providing care and support to adolescents as opposed to younger children, for each step of the six-step trajectory of integrated care. Adolescents were defined as children between 12-18 years old, in agreement among the participants and JOGG, as this is the age they generally go to secondary school in the Netherlands. Discussions took place in both plenary sessions and small workgroups. Additionally, two guest speakers presented on adolescent brain development and development of an eHealth tool for adolescents. Research intern and Health Sciences master's student JvA was present at the second meeting.

A team consisting research intern JvA, national project manager of Care for Obesity at Vrije Universiteit Amsterdam BvdD (PhD, MD), research coordinator Child to a Healthier Weight at JOGG LK (PhD), and advisor Child to a Healthier Weight at JOGG GvL, analysed the meeting summaries from these learning community meetings and identified key topics. These included psychosocial factors defined as both psychological and social elements and the interaction between them (Upton, 2013). Emerging key topics focused were: Parental role, Conversation about weight, Building a connection and are fully outlined in the results section. While allowing for an open view, these key topics led to the formulation of the following research question: "*How do professionals analyse and address psychosocial factors, and what do they believe is additionally necessary, during integrated care and support for adolescents (12-18 yrs.) with overweight and obesity?''*

The Self-Determination Theory

The self-determination theory (SDT) focuses on the motivational aspects behind human behaviour and consists of multiple mini-theories. In this study, the focus was on one of those mini-theories as guidance, the basic psychological needs theory (BPN). This theory states that three psychological needs, autonomy, competence and relatedness, must be satisfied to achieve autonomous motivation (Ryan & Deci, 2000; Vansteenkiste et al., 2020) Numerous studies across cultures and age groups have confirmed the importance of these needs in understanding influences on motivation and engagement (Nalipay et al., 2020; Ng et al., 2012; Ryan et al., 2022) The SDT has been used for research in various

domains and has often served as a foundation for interventions, including lifestyle interventions among adolescents (Tapia-Serrano et al., 2023). The choice of this framework for this study is based on the notion that individuals with autonomous motivation are more prone to succeed in the self-regulation of health-related behaviour (Hagger et al., 2014). Additionally, it has been reported that healthcare professionals providing integrated care for children with overweight and obesity identified motivation as a prerequisite to achieving behavioural change (de Pooter et al., 2022). During integrated care for children, this relates mostly to parental motivation. However, for adolescents, participation and therefore required motivation needs to originate from the adolescents themselves (Silva et al., 2018). Furthermore, it is crucial to recognize that basic psychological needs are affected during this transitional life phase of adolescence. Autonomy is affected by changes in child-parent relationships, relatedness by changes in the social environment and an increased desire for peer acceptance, and lastly, competence by acquiring greater independence (Jebeile et al., 2021; Patton et al., 2016). The impact of adolescence on these basic psychological needs emphasises the relevance of the SDT to this study.

Participants

The participants were selected through purposive sampling via the professional network of researchers of Vrije University van Amsterdam and advisors of JOGG (Gray, 2022). Twelve participants were approached via email, two did not participate due to lack of time. To increase sample size, an attempt was made to recruit participants through a JOGG newsletter; however, this did not generate any responses within the study time period. To ensure the recruitment of experienced professionals capable of recognizing the specific needs of adolescents during integrated care, the inclusion criteria included: at least six months of experience providing integrated care and support to adolescents aged 12-18 with overweight and obesity according to the Dutch national model. No exclusion criteria were applied.

Setting and Data Collection

In April and May 2024, ten semi-structured interviews of approximately 45 minutes were conducted by researcher intern JvA. She has limited experience with interviewing. Besides the participant and the interviewer, no other individuals were present. At the participants' preference, nine interviews were conducted online via Microsoft Teams, while one took place at the participant's workplace. The interviewer had a pre-existing familiarity with some participants. She had met four participants during a learning community meeting and had briefly met another participant during a professional course. The interview guide (Appendix B) was developed by research intern JvA based on key topics from the learning community meetings, the self-determination theory, and literature, which was subsequently discussed with research coordinator LK (and minimally adjusted). After analysis of four interviews, the interview guide was evaluated with the members of the previously described research team JvA, BvdV, LK and research intern and Health Sciences master's student FP. No changes were deemed necessary. During all interviews, audio recordings were made, which were transcribed verbatim. Additionally, field notes were made to document the interviewer's observations (Green & Thorogood, 2018). A member check was conducted to ensure study credibility, involving the verification of interview summaries by the participants (Frambach, 2013; Green & Thorogood, 2018). Four participants provided minor feedback for clarification, which was taken into account during the analysis. Data was iteratively collected in parallel with analysis (Gray, 2022). Data saturation was reached on at least three of seven themes (Changing weight perception and motivation in adolescents, Empowering ownership in drafting

a plan, and Understanding the world experienced by adolescents) as no new codes emerged regarding these themes in the last three interviews (Gray, 2022).

Data Analysis

Due to the study's explorative nature, an inductive thematic analysis was performed, utilizing the program MAXQDA 2024 (Braun & Clarke, 2013). Data analysis involved researcher triangulation to ensure study credibility (Frambach, 2013). After familiarization with the data, two researchers interns (JvA and FP) independently open coded two transcripts which were compared and discussed until consensus was reached. The rest of the transcripts were solely coded by JvA, however, the process of axial and selective coding resulting in a coding tree (Appendix C) was discussed with FP. Themes emerging after selective coding were discussed with the research team (JvA, FP, BvdV and LK) Participants did not provide feedback on the study's findings after analysis.

Ethical Considerations

All participants received information on the objective of the study and their right to withdraw. Prior to the interview, all participants gave signed informed consent to participate. This research did not need to be tested under the Dutch Medical Research Involving Human Subjects Act (WMO) (Ministry of Internal Affairs, 2022). The Ethics review committee of the Faculty of Science (BETHCIE) Vrije Universiteit Amsterdam self-check, declared the study as 'standard', thus review was not required. Privacy guidelines outlined in the General Data Protection Regulation (AVG) were followed (Autoriteit Persoonsgegevens, n.d.). The transcripts were anonymized by eliminating information that could reveal participants' identity and a unique code was assigned to each participant.

Results

Key topics that emerged from the learning community meetings, which shaped the research question and interview guide, are briefly discussed below, followed by a description of themes that emerged from analysis of the interviews.

Key Topics Learning Community

Key topics that emerged from the meetings regarded psychosocial factors: a) *Parental role,* professionals contemplated if parents should be present during consultations. They experienced that sometimes parents are overly involved, impacting the effectiveness of the process. Parental issues take a central role in integrated care for younger children but may shift in importance when working with adolescents. b) *Conversation about weight*, healthcare professionals reported to struggle to initiate the conversation about weight, due to the sensitivity of body image among adolescents. This results in a tension field between mental well-being and physical health. c) *Building a connection*, professionals highlighted the importance of establishing a good connection with adolescents. However, professionals often encounter resistance and face difficulties in communicating with adolescents for instance because they avoid eye contact. This complicates the identification of underlying problems.

Characteristics of Participants Semi-Structured Interviews

Ten participants aged 40-64, from various professions, were interviewed. They were employed in different municipalities at the time of the interview. All participants had experience working with adolescents as part of the integrated care process and in previous professional roles or other professional responsibilities (e.g., responsibilities as a youth healthcare nurse). Four participants were actively involved in organizing the implementation of integrated care and support for overweight and obesity in their municipality. One participant also had experience in conducting research involving participation of adolescents with obesity. Four of the CPs had attended the learning community meetings. An overview of the participants' characteristics is presented in Table 1.

Table 1 Overview Characteristics of Participants Interviews

Participant	Current profession and other relevant work experience	Age
P1	Paediatric physiotherapist and researcher	50-54
P2	CP 12+, Youth healthcare nurse	45-49
P3	Paediatric dietitian, lifestyle coach	45-49
P4	CP 4-18, Youth healthcare nurse, participant learning community	55-59
P5	Lifestyle care coordinator and former paediatric physiotherapist	60-64
P6	CP 4-18, Youth healthcare nurse, participant learning community	45-49
P7	Paediatrician with expertise in obesity	40-44
P8	CP 4-18, Youth healthcare nurse, participant learning community	40-44
P9	CP 4-18, Youth healthcare nurse, participant learning community	60-64
P10	CP 12+, Youth healthcare nurse	40-44

CP: coordinating professional

Themes Emerged from Analysis of Interviews

Analysis of the interview identified seven themes. Five themes related to how professionals address psychosocial factors during integrated care and support for adolescents: 1) Creating approachable contact moments and communication with adolescents, 2) Changing weight perception and motivation in adolescents, 3) Understanding the world experienced by adolescents, 4) Empowering ownership of drafting a plan, 5) Handling challenges in family dynamics. Additionally, two themes emerged regarding what professionals believe is additionally necessary for providing integrated care and support to adolescents: 6) Need for suitable materials, tools and interventions, 7) Need for organisational changes and better collaboration. The themes are thoroughly described below.

Theme 1 Creating Approachable Contact Moments and Communication with Adolescents

Professionals stated that it is important to communicate openly, honestly and to align word choice to the age group. Creating a safe, non-judgmental environment was mentioned as helpful in building a trustful relationship. As well as taking time, listening well, and stimulating frequent contact. Professionals reported that different cultural backgrounds or lower educational levels of adolescents pose barriers to effective communication. Additionally, limited time during consultations was sometimes mentioned as a factor limiting the thoroughness with which psychosocial factors were discussed. It was also mentioned that adolescents communicate differently, for instance finding it difficult to have direct eye contact. To address this, some professionals go for walks or use conversation tools, as explained by this lifestyle care coordinator: *''[…] we can look each other straight in the eye, but of course, adolescents sometimes find that very complicated. So if you have something to talk with, so that you both focus on something, sitting next to each other, both looking at a piece of paper, it can be very helpful in the conversation." (P5, lifestyle care coordinator)*

Other materials such as the BMI curve and the positive health spiderweb were sometimes used to discuss weight, underlying causes or well-being. A few professionals suggested that collecting information digitally might be beneficial for this group, as it may be perceived as more anonymous by the adolescent. One CP also suggested that a questionnaire on general background information administered in advance could save time and allow for a more in-depth conversation during the first appointment. Whether parents are present during the contact moments varied among professionals, most CPs reported starting with parents and the child together, with parental contact decreasing throughout the process. A few professionals established agreements, about meeting adolescents or parents separately, at the beginning. One CP explained that this prevents resistance later: *''Yes, I've taught myself that now... Well, with the children I'm starting with now, I've begun doing that. However, with those whom I've been in contact with for over a year, when I suggest this halfway through, they start to dig in their heels. They find it a bit daunting to talk to me alone.''(P4, CP)*

Theme 2 Changing Weight Perception and Motivation in Adolescents

Most professionals described adolescents as passive, with little intrinsic motivation, and difficult to reach. A few other professionals noted that adolescents want to change their lifestyle, but feel unsuccessful, insecure, and guilty about not succeeding. Some adolescents appear to have given up and healthy standards can be demotivating, as described by this paediatric physiotherapist: *''When you look at the standards, like the norm healthy activity, the BMI, it often is so out of reach, and they tell us that too: 'If you say what the norm healthy activity is, I'll never reach that. Then I already think, I don't*

have to start because the gap is too big, compared to how it should be and then I'm never doing it right.' So what really helps is taking small steps […]'' (P1, Paediatric physiotherapist)

Most professionals indicated setting small, realistic goals to facilitate small successes. Moreover, they stressed the necessity of positive reinforcement and motivational interviewing. However, a few professionals mentioned not feeling adequately skilled in motivational interviewing techniques and expressed the need for repeated training and practice. One paediatrician reported initially using motivational interviewing techniques but stopped since it was time-consuming and had limited effect.

Additionally, many professionals stated trying to understand the adolescent's weight perception by asking what their body weight means to them and what they would like to see differently. These goals are often short-term, focusing on appearance or physical endurance. All professionals stated to shift focus to lifestyle, broader well-being or a positive self-image, as lifestyle changes do not directly result in weight loss which can be demotivating. Most professionals reported not discussing the long-term consequences of having overweight or obesity. Reasons for this included perceptions that information is already known, demotivating or that adolescents are unable to look far ahead. A few other professionals reported discussing consequences to initiate a conversation about weight, to motivate, or because they found that such information should not be withheld.

Theme 3 Understanding the World Experienced by Adolescents

A few professionals stated that it is challenging to resist temptations in the current physical environment and adolescents may not realize how unhealthy their behaviour is due to social norms among peers. Most professionals reported attempting to connect with the adolescent's world by asking questions about their activities during school breaks or after school. These professionals noted that high peer pressure is experienced by this age group. They tried to normalize this social pressure while discussing coping strategies within the adolescent's social norms as the examples given by this CP: *''[…] dare you say to your friends: fine, you all go get the kapsalon, I will just stay at school today, right, to resist the temptation, or I will get the kapsalon, but then I will make sure to compensate later in the day […] I give them suggestions without them feeling like they have to make a choice that has consequences for their social life.'' (P6, CP)*

Additionally, professionals reported encouraging adolescents to discuss their desire for healthier choices with their peers to find allies or to find a peer buddy for activities like exercising together. However, some professionals noted that adolescents dislike talking about their weight with peers. One CP mentioned that she would refer to other experts if peer pressure became too problematic.

Professionals had varying interpretations and perspectives on social media use. Some noted negative aspects like screen time (also due to excessive gaming), body image insecurity, unhealthy diet behaviour, while others recognized positive aspects such as the utilization of influencers as role models to motivate adolescents. A few professionals mentioned discussing social media use only when it naturally arose or when there was time for it and a few others stated they were not fully aware of adolescent's activities on social media: *''That is also a shortcoming, right? Because there is a generation gap that I, as a professional, do not always have a complete picture of the world they live in.'' (P3, Paediatric Dietician)*

Theme 4 Empowering Ownership of Drafting a Plan

A passive attitude of adolescents was also mentioned by professionals concerning drafting a plan for lifestyle changes. Professionals reported being pleased when adolescents come up with ideas, as they believe that changes can only be made if they are supported by the adolescents. Most professionals experienced that adolescents often do not know what they want, as stated by this CP: *"When I ask the question: What would you like to work on? What are your needs? They don't know. It surprises me."(P9, CP)*

To place the responsibility on the adolescents, professionals employed various strategies, such as providing suggestions for the adolescents to choose from or giving them the task of thinking about their goals and reporting back later. Self-direction was often reported to be empowered by focusing on the adolescent's wishes, of directing the conversations solely to them when parents were present, presence of parents, and allowing them to decide what to share with their parents when they were absent. One paediatric physiotherapist stated that help from parents only needs to be provided at the adolescent's request. While self-direction is encouraged, a few professionals indicated that not all adolescents are suited to this responsibility and may require more guidance. Given examples include those with lower educational levels, as it is difficult for them to make the right decisions, or those with obesity due to the severity of the health concern. Two professionals reported encountering problems with privacy regulations, preventing them from discussing observed problems with parents or referral to a specialist when an adolescent did not want to discuss parental permission.

Theme 5 Handling Challenges in Family Dynamics

Many professionals reported various ways of dealing with challenges regarding family dynamics. Based on their experience, some parents had relinquished responsibility or were unaware of their influence on their child's weight status. In these cases, most professionals reported to discuss parental influence. A few professionals stated, to point out to parents that their relinquished attitude is not helpful.

Additionally, strategies facilitating communication between parents and adolescents were also mentioned, such as the professional expressing the child's or parent's feelings as this example described by CP: *"[…] 'I would like it if you could also make contact with my mother because sometimes my mother brings things into the house that are not nice, of which I know that it is difficult for me and I have discussed this several times before' [...] but this is completely unknown to the parents. 'Oh, did he tell you that? Well, that's funny, because he himself asks to have it brought into the house.' Okay, then you should sit down at the table together […]" (P6, CP)*

Most professionals indicated that when there is not a supportive parental relationship, they encourage adolescents to seek help from others, such as family members, neighbours, mentors, or friends.

Whether parental problems like financial debt or divorce were addressed depended on the professional. A paediatric physiotherapist and a dietitian reported discussing these problems with the parents when they observed them. Most CPs indicated that whether these problems should be taken into account depended on whether the adolescent was affected by them. One CP shared that she often runs two parallel tracks: one with the adolescent and one with the parents, stating that this is taking up more time compared to families with younger children. Some professionals noted that adolescents are loyal to their parents and therefore do not mention parental problems when they are present. This also applies to parents, who do not always discuss their problems in the presence of their child. In such cases, it was mentioned that separate conversations are helpful.

Theme 6 Need for Suitable Materials, Tools and Interventions

Various professionals expressed a need for age-appropriate materials, tools, and interventions for adolescents. A few professionals found that visual materials in the style of Child to Healthier Weight were too childish and therefore did not use them. Additionally, many professionals stated that there are various tools available for younger children, but these are often not developed and suitable for adolescents. Some of those professionals expressed the need for tools appealing to this age group that can be used outside the consultation room, for instance noting agreements or monitoring their lifestyle, to keep it lively. Some professionals considered a digital tool desirable because they perceive adolescents as very digital and communicate differently (as discussed in theme a). A few of them stated this could also lead to time savings for professionals and contribute to communication among involved professionals.

The need for interventions specifically for adolescents was also reported. This was related to sports as some adolescents do not find regular sports facilities easily approachable. As well as combined lifestyle interventions, due to the combination of sport and coaching. Moreover, resilience and related aspects as were mentioned by most professionals as helpful during the process to a healthier weight. A few of these professionals linked this to the need for resilience training, as this CP noted: *''[…] a bit of self-awareness and motivation. In addition, you fundamentally need a bit of self-confidence and self-respect [...] it's not made easy for them to resist all that, so you really need to be very strong to do that well. And what do they need for that? […] that's basically a bit of resilience training.'' (P8, CP)*

The necessity for cultural alignment during interventions was also mentioned, given examples were exercising with or coaching by (older) peers with similar backgrounds or religions. One CP perceived this need as she experienced that people prefer to go to a professional with a similar cultural background: *"a parent once told me '[…] you are very kind, nice and understanding, and you can explain everything to me just fine, but you just don't understand how our culture is, I can't explain that to you. But a Turkish dietitian does […] so just the fact that she understands that makes it easier for me to go to her.'" (P4, CP)*

Theme 7 Need for Organisational Adjustments and Better Collaboration

A few professionals reported challenges and desires regarding the organization of the Child to a Healthier Weight program. Most CPs reported that adolescents enter the integrated care trajectory during health checks at secondary schools, performed by themselves, colleague youth healthcare nurses, or through referrals from other healthcare professionals (e.g., general practitioners, paediatricians, dietitians). However, one CP expressed struggling to get adolescents through referrals and expressed the desire to raise more awareness for the program for children aged 12 and older among other professionals. This professional was also contemplating methods to encourage adolescents to self-refer. Moreover, another CP opted that a guideline for providing care and support for adolescents could be beneficial, describing, for example when to have parents present during conversation or which tools to use when.

Several professionals emphasised the necessity to look beyond their own expertise and the importance of collaboration. A few professionals noted that some adolescents had bad experiences with or lost their trust in healthcare professionals due to reasons such as personnel changes and poor alignment among professionals, leading to repeated discussions and adolescents being weighed at each appointment. Additionally, a paediatrician reported that when adolescents are referred back to primary care, they sometimes fall off the radar due to suboptimal communication. From this

professional's perspective, some adolescents use this moment to avoid youth healthcare nurses by saying they are already seeing a paediatrician. However, paediatricians do not provide the support needed for lifestyle changes: *''When you refer them back to the GGD or primary care, you lose a bit of control. The coordination is just not optimal yet, so it's very easy for things to come to a standstill, which is exactly what the adolescent wants. They don't want anything. So often nothing happens.'' (P7, paediatrician)*

In the context of collaboration the desire for a digital tool was also mentioned, as it could facilitate communication between involved professionals and making it clear who is doing what. Lastly, most CPs expressed a desire for contact with other CPs to exchange knowledge and experiences and learn from each other. Two CPs described feelings of loneliness and pioneering in guiding this target group.

Discussion

This is the first study to provide knowledge on what is necessary to successfully tailor Dutch integrated care and support for overweight and obesity to adolescents (aged 12-18 years). Firstly, findings regarding how professionals address psychosocial factors suggest that they focus more on contact accessibility and attempt to understand adolescent's perceptions and experiences. Professionals investigate adolescents' weight perception, motivation and social environment, to shift focus from weight to broader well-being and lifestyle changes, and search for opportunities for healthier behaviour within the adolescents' social norms. Additionally, professionals empower adolescents and their ownership of the process while addressing parental responsibilities and challenging family dynamics. Secondly, the study identified what professionals perceive as additionally necessary when providing integrated care for adolescents. This entails resources and organizational adjustments tailored specifically to this age group. Professionals recognize the necessity of improved collaboration and alignment during the trajectory and desire to exchange knowledge and experiences with other professionals providing care and support to adolescents. Study findings are vital as they can aid to better tailoring of integrated care and support to adolescents. Insights on addressing psychosocial factors can help professionals who feel challenged working with this age group. Additionally, findings on perceived necessities can support JOGG and local project leaders in successful implementation of the Child to a Healthier Weight program for adolescents.

This study's results show that although professionals encourage adolescent's ownership of the process toward a healthy lifestyle and adolescents are frequently seen without parents, professionals consider it important to keep parents involved. Despite changing child-parent relationships, professionals in this study maintain to point out to parents their responsibilities and the influence of their behaviour. These results are in line with a similar study on the perspectives of healthcare professionals providing integrated care and support according the Dutch national model and working with children and/or adolescents. This study identified involved parents as perceived facilitators and parents who do not take responsibility as a perceived barrier (de Pooter et al., 2022) Moreover, many studies in other contexts have shown the importance of parental support for adolescents in adopting a healthy lifestyle and managing weight (Bean et al., 2020; Cardel et al., 2020; Khan et al., 2020). Notably, the integrated care trajectory for adolescents relies more on participation of the child than on that of parents, as is the case in younger children. However, the findings presented here indicate that professionals maintain, irrespective of the child's age, to invest in parental involvement and address challenging family dynamics. Consequently, providing integrated care for adolescents may require more time compared to that for younger children, as was noted by one CP in this study.

The study's findings indicate that professionals recognize the influence of changing social environments of adolescents and the accompanying peer pressure. This supports prior findings by Koetsier et al., (2023) where focus groups of healthcare professionals identified this as a relevant psychosocial factor within Dutch integrated care, predominantly for children aged 12 years and older. This current study shows that professionals typically analyse social environments and suggest options for healthier behaviours within the social norms experienced by the adolescent. The adolescents' need for intervention strategies to deal with peer pressure has previously been reported (Gellar et al., 2012).
A notable observation in the current study is that while professionals use a consistent approach to address the influence of the physical social environment, the influence of digital environments and use of social media was interpreted and addressed in various ways. These findings could indicate that

professionals may not be fully aware of the role and influence social media plays in adolescents' lives. This might be an important gap to acknowledge, as the negative influences of the digital environment on adolescents' psychosocial factors (e.g., negative body image) and lifestyle factors (e.g., eating behaviour) are extensive (Bragg et al., 2021; Chung et al., 2021; McLean et al., 2019). More importantly, the majority of adolescents seek health-related information online but often lack the ability to properly evaluate this information (Colditz et al., 2018; Holmberg et al., 2019). Therefore, professionals must be more aware on how the digital environment influences the process toward a healthy lifestyle when providing integrated care and support to adolescents.

It is important to note that collaboration among involved professionals is essential during integrated care. This study's findings show professionals' recognition of its importance, particularly in delivering care and support to adolescents. However, findings also indicate that alignment and communication between involved professionals are not always perceived as optimal. This finding is supported by a study by de Laat et al. (2022), which explored the experiences of parents and children (aged 10-12) with the role of the youth healthcare nurse as the CP in the integrated care approach. This study showed that parents do not always experience intensive collaboration between involved professionals. Participants in the current study linked suboptimal alignment to negative experiences of adolescents with healthcare providers. Negative experiences with healthcare providers during integrated care and support for overweight and obesity have been previously reported (De Laat et al., 2022; de Pooter et al., 2022) It is important to note that these experiences are a known barrier to adolescents' participation in weight management interventions (Jones et al., 2019; Smith et al., 2014). As previously stated, attrition rates are higher among adolescents compared to younger children (Danieles et al., 2021; Zeller et al., 2004). Therefore, better communication and alignment between involved professionals are particularly important for this age group to reduce negative experiences and improve participation and adherence to the trajectory of integrated care.

Strengths and Limitations

An important strength of this study is that professionals with various professions participated, creating a representative reflection of the practice of integrated care trajectory where various professionals are involved. This supports the conformability of the findings within the context of the Dutch national model. Moreover, all participants had ample experience working with both adolescents and younger children, making them well-equipped to identify what is necessary specifically for adolescents. Four study participants were also part of the learning community, which can have affected the findings. Although these meetings could have influenced their individual perspectives, they also allowed them to reflect on this topic prior to the interviews, providing more in-depth data. Study limitations include the absence of professionals from the social domain among the participants, resulting in a lack of representation of their perspective. Additionally, the study lacked perspectives from younger professionals, as participants were aged 40-64 years. This may have influenced the findings, particularly regarding the theme ''Understanding the world experienced by adolescents'', due to the age gap between adolescents and the study participants. Furthermore, due to a small sample size, data saturation was not reached for most themes thereby compromising the dependability of the study (Frambach, 2013).

Practical Implications and Recommendations for Future Research

The study's findings regarding what is additionally necessary when providing integrated care and support for adolescents are specific to the context of the Dutch national model, as they concern locally availability of resources and organizational aspects. However, most results of this study are also relevant to other contexts of weight management for adolescents, as they involve general strategies used by healthcare professionals to address psychosocial factors.

Based on the results of this study several recommendations can be made in order to improve tailoring of the integrated care approach for adolescents. Firstly, given that several professionals expressed their desire for a digital tool to address several aspects of integrated care and support for adolescents, the implementation of a mobile health (mHealth) application is highly recommended. mHealth tools have been proven successful in improving health behaviours and are positively perceived by adolescents (Benavides et al., 2021; Frontini et al., 2020). Various mobile apps that promote a healthy lifestyle are developed (Dute et al., 2016; Tully et al., 2020). However, such mHealth app should be customized to the process of integrated care and support. For instance, in addition to monitoring lifestyle behaviours and accessing reliable health information on weight-related topics, it should enable adolescents and parents to communicate digitally with their care providers and fill in questionnaires on background information. Moreover, the tool should provide visibility of the agreements made with the CP, enhancing the recognition of responsibilities for both the adolescent and if required the parents. It should also facilitate communication among involved professionals, providing a clear insight into who is involved and doing what, in order to improve collaboration and alignment.

Secondly, it is recommended to organise meetings among professionals. It is important to acknowledge the CPs desire for training and knowledge exchange. Thus regular meetings among CPs working with adolescents should be organized in order to learn from each other and expand their knowledge. These meetings should also incorporate training on topics such as social media use, as this study indicates a potential knowledge gap among professionals in this area. Additionally, motivational interviewing should be included, as professionals reported feeling inadequately skilled and expressed the need for repeated training. Notably, that motivational interviewing during weight management for adolescents has been shown to enhance quality of life (Freira et al., 2019). Moreover, interprofessional education has been proven to be an accelerator for collaboration and delivery of integrated care (Bookey-Bassett et al., 2022). Thus, local interprofessional education for professionals involved in integrated care from both the healthcare and social domains should be implemented.

Lastly, it is recommended to provide conversation materials specifically tailored for the 12-18 age group to professionals, as the results show that many professionals do not find the current materials suitable for adolescents. If not available, materials can be co-created by adolescents and professionals, as described by Kebbe et al. (2020). Additionally, some professionals in this study highlighted the necessity for interventions specifically designed for adolescents, particularly in sports and resilience. Although such interventions are scarce in the Netherlands, they are available (RIVM, n.d.). Therefore, it is recommended to be attentive to local implementation of these intervention or the connection with local networks of integrated care.

Future research should focus on exploring other perspectives. In addition to professionals from the social domain working within the Dutch integrated care approach, it is also vital to gather experiences and views from adolescents receiving integrated care for overweight or obesity to better understand their needs and evaluate the alignment of current practices. Lastly, it would be interesting to investigate

the potential knowledge gap among professionals regarding the digital environments used by adolescents.

Conclusion

This study has identified the need for suitable materials, tools and interventions as well as organizational adjustments, and improved collaboration among professionals to effectively tailor integrated care for overweight and obesity to adolescents. Professionals providing integrated care and support for adolescents address psychosocial factors by focussing more on accessible contact moments, analysing and shifting weight perception and motivation, and striving to understand adolescents' world experiences. Additionally, professionals empower adolescents to take ownership of the process while addressing challenging family dynamics.

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Appendix A: Consolidated criteria for reporting qualitative research (COREQ)
32- item checklist (Tong et al., 2007)

No. Item	Guide questions/description	Reported on page #
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	# 6
2. Credentials	What were the researcher's credentials? *e.g., PhD, MD*	# 5
3. Occupation	What was their occupation at the time of the study?	# 5
4. Gender	Was the researcher male or female?	# 5
5. Experience and training	What experience or training did the researcher have?	# 6
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	# 6
7. Participant knowledge of the interviewer	What did the participants know about the researcher? *e.g., personal goals, reasons for doing the research*	# 7
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? *e.g., Bias, assumptions, reasons, and interests in the research topic*	# 5
Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g., grounded theory, discourse analysis, ethnography, phenomenology, content analysis*	# 5
Participant selection		
10. Sampling	How were participants selected? *e.g., purposive, convenience, consecutive, snowball*	# 6
11. Method of approach	How were participants approached? *e.g., face-to-face, telephone, mail, email*	# 6
12. Sample size	How many participants were in the study?	# 6
13. Non-participation	How many people refused to participate or dropped out? Reasons?	# 6
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	# 6
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	# 6
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	# 8
Data collection		

17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	6, App. B
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	# 5
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	# 6
20. Field notes	Were field notes made during and/or after the interview or focus group?	# 6
21. Duration	What was the duration of the interviews or focus group?	# 6
22. Data saturation	Was data saturation discussed?	# 7
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	# 6
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	# 7
25. Description of the coding tree	Did authors provide a description of the coding tree?	App. C.
26. Derivation of themes	Were themes identified in advance or derived from the data?	# 7
27. Software	What software, if applicable, was used to manage the data?	# 7
28. Participant checking	Did participants provide feedback on the findings?	# 7
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified*? e.g. participant number*	Results
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Discussion
31. Clarity of major themes	Were major themes clearly presented in the findings?	Discussion
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Discussion

Appendix B: Overview of Interview guide semi-structured interviews

Topics	Main questions	Subtopics
Introduction	*What is your role and in what way do you come into contact with adolescents within the KnGG approach?*	Attitude towards working with adolescents Important topics adolescents during child to healthier weight
Autonomy	*How do you handle the fact that adolescents like to make their own decisions?*	Presence parents during consultation Parental responsibility/role Utilization or desires for tools/resource/referral, as support
Relatedness	*If there are parental problems, to what extent do you take those into account during the care process of an adolescent, and is that different from younger children?*	Parental support Other supportive relationships
	Where do you pay attention to when discussing body weight with adolescents?	Building relationship with adolescents Utilization or wishes for conversation tools
	How do you deal with the changes in social environment of adolescents?	Digital social environment
Competence	*What, according to you, is needed for adolescents to feel more competent in dealing with challenges related to their weight/lifestyle/behavioral changes?*	Needed competencies
Closing	*Is there anything else you would like to add that has not been discussed yet?*	

Appendix C: Coding tree

	Themes	Axial codes
1.	Creating Approachable Contact Moments and Communication with Adolescents	Accessible communication with adolescent Effective communication with adolescent Trustful relationship with professional
2.	Changing Weight Perception and Motivation in Adolescents	Weight perception Norm-reality gap Realistic subgoals Focus on lifestyle Consequences of having overweight Motivation interviewing
3.	Understanding the World Experienced by Adolescents	Peer pressure Peers support Physical environment Social media and influencers
4.	Empowering Ownership of Drafting a Plan	Passive attitude Adolescents needs Shared decision making Empowering the adolescent Self-directiveness
5.	Handling Challenges in Family Dynamics	Family dynamics Parental responsibility Parental problems Parental engagement Help professional in supportive relations
6.	Need for Suitable Materials, Tools and Interventions	Tangible family tools Suitable interventions Suitable resources Suitable materials Resilience Digital tool
7.	Need for Organisational Adjustments and Better Collaboration	Outside own expertise Collaboration and alignment Referral adolescents Negative experiences with healthcare provider Feeling of loneliness professional