Health, 2015, 7, 1833-1840
Published Online December 2015 in SciRes. http://www.scirp.org/journal/health
http://dx.doi.org/10.4236/health.2015.714201

Put Yourself in My Shoes: Perspectives of Adolescents about What Makes an Obesity Intervention Effective

Ana Prioste[1], Helena Fonseca[2,3*], Pedro Sousa[4], Pedro Gaspar[4], Rita Francisco[5], Maria do Céu Machado[2,3]

[1]Researcher at PTDC/DTP-PIC/0769/2012 Project, Funded by Fundação para a Ciência e Tecnologia, Lisboa, Portugal
[2]Department of Paediatrics, Hospital de Santa Maria, Lisboa, Portugal
[3]Faculty of Medicine, University of Lisbon, Lisbon, Portugal
[4]Instituto Politécnico de Leiria, Leiria, Portugal
[5]Faculdade de Psicologia, Universidade de Lisboa, Lisboa, Portugal
Email: *helenaregalofonseca@gmail.com

Received 17 August 2015; accepted 28 December 2015; published 31 December 2015

Abstract

Purpose: This study aims to investigate the adolescents' perspectives about 1) the changing process promoted by a weight management program; 2) the factors which may act as facilitators and barriers to obesity management; 3) the strategies that should be included in order to design a successful weight management program. Methods: Data were collected by in-depth interviews and focus group discussions with 16 overweight adolescents, aged 12 - 18 years. Thematic analysis was used for analysing the data. Results: Findings suggest that attributions (internal and external), functions (barriers and facilitators) and perceptual changes (lifestyle and body and mind changes) play distinct roles in the changing process. Interactions recognized as high quality ones, acquisition of new knowledge and competencies and encouragement throughout the process, were identified as facilitators. Negative patterns of interaction, collection of anthropometric data and internal resistances, were identified as barriers. The relevance of developing systemic interventions including family and peers, and the use of Information and Communication Technologies were highlighted. Conclusion: This study aims to contribute for a deeper understanding of the factors and processes behind adherence to weight management. Implications for the design of future more effective strategies and implementation of appropriate interventions are discussed.

Keywords

Adolescence, Overweight, Weight Management, Adherence

*Corresponding author.

How to cite this paper: Prioste, A., Fonseca, H., Sousa, P., Gaspar, P., Francisco, R. and do Céu Machado, M. (2015) Put Yourself in My Shoes: Perspectives of Adolescents about What Makes an Obesity Intervention Effective. *Health*, **7**, 1833-1840. http://dx.doi.org/10.4236/health.2015.714201

1. Introduction

Prevention and treatment of paediatric obesity is a priority [1] given its high prevalence and impact on physical health, psychosocial well-being and quality of life [2]-[5]. International experts agree on the core elements that a paediatric obesity management program should include, namely, behavioural strategies to deal with lifestyle changes [6] [7]. Despite of this, weight management interventions remain relatively ineffective regardless of the format/type of the intervention, *i.e*., focused on the individual and/or family [8] and/or peers [9] [10], and of the use of Information and Communication Technologies (ICT) [11]. Ineffectiveness is mainly due to poor adherence to treatment [12] [13]. The current study was designed to investigate the adolescents' perspectives about the changing process promoted by a weight management program; the factors which may act as facilitators and barriers to obesity management; the strategies that should be included in order to design a successful weight management program.

A potential pathway to achieve the desired adherence to weight management may involve the inclusion of the adolescents themselves, as the most important experts, in the design of the intervention. Research has shown that the interventions aiming at a behavioral change will be more effective if the communication channels preferred by adolescents are used [14]. In line with this, we conducted a qualitative study in order to further explore these topics through adolescents' voices.

We included in this study adolescents followed at the Paediatric Obesity Clinic, Department of Pediatrics, Hospital de Santa Maria, in Lisbon (POC-HSM) either only exposed to the standard intervention or also to the Next.Step program. The standard intervention protocol at the POC-HSM consists of medical, nutritional and physical activity appointments every 3-month. Next.Step program is an ICT, e-therapeutic platform used to complement the medical, nutritional and physical activity appointments. Next.Step includes a set of resources, namely, educational resources (videos, leaflets, menus, weekly tips, access to other links), self monitoring (diet, weight and physical activity records), social support (discussion forums and personalized messages), interactive training modules (self-assessment quizzes), and motivational tools (personal goal planning, treatment progression registry, positive reinforcement) [15]. The platform has the direct support of an interdisciplinary team, including a paediatrician, nutritionist, exercise physiologist and psychologist.

2. Methodology

2.1. Participants and Data Collection

We obtained a convenience sample of 16 adolescents (9 females and 7 males), aged between 12 and 18 years. Participants were selected from the population of adolescents followed at the POC-HSM, consisting of adolescents with obesity/overweight according to the WHO criteria (BMI $\geq 97^{th}$ percentile and BMI $\geq 85^{th}$ percentile, respectively), between January and April 2015. Eight of them were only exposed to the standard intervention and the other eight were additionally exposed to the e-therapeutic platform.

Participants were selected through purposive sampling, which allowed for the selection of information-rich cases [16] pertinent to overweight management in adolescence. For inclusion in the present study, participants were required to be aged between 12 and 18 and be willing to participate. Exclusion criteria were the presence of severe psychopathology and cognitive impairment.

Prior to the initiation of the study, the study protocol was approved by the Ethics Committee/Institutional Review Board of the Faculty of Medicine, University of Lisbon. Two researchers (a psychologist and a medical doctor) conducted the in-depth interviews and focus group discussions at the POC-HSM. We conducted two focus group discussions and 10 in-depth interviews. Each in-depth interview lasted approximately 15 minutes and each focus group discussion lasted one hour. Interviews were audio recorded and subsequently transcribed by the same researchers who did the interviews. Participants were informed of the nature of the research, the aims of the study and the details of participation and provided their informed consent. They were offered the opportunity to ask further questions about both the nature of the project and the future use of the interview data.

The discussion of the factors influencing overweight management in adolescence were generated by a semi-structured interview scrip using six open-ended questions (e.g., "What do you think can best help adolescents with obesity?; What were the three most important things you learned from the clinical appointments?; Imagine that you were asked to create an intervention to help overweight teens increase their quality of life. How would it be?"). Further questions related with the e-therapeutic platform were only asked to those who were exposed to the Next.Step program (e.g., "What were the three most important things you learned from

Next.Step? What were the three things that you found less helpful in the program?"). At the end of the interview, a questionnaire on socio-demographic information was completed by the participants.

2.2. Data Analysis

Qualitative content analysis was performed by two researchers and a third researcher was consulted whenever doubts persisted, to strengthen the validity of the findings [17]. We used the qualitative data analysis software NVIVO 10 and conducted thematic analysis [18]. The content analysis was coded in three phases: descriptive coding (who are the participants? *i.e.*, focusing on participants' attributes); thematic coding (what are the participants talking about?, *i.e.*, the key themes were identified mainly based on the interview questions); and analytic coding from a bottom-up perspective and with comparisons among codes and transcriptions. These methods allowed for the development of a reflective analysis ("What does this mean? Which ideas and themes are emerging? How are these ideas and themes aggregated or related?"), aiming at an interpretation of the processes, meanings and relationships between concepts and/or ideas.

The relevance of the findings was analyzed based on the number of participants that referred the specific themes, ideas or concepts. When a category was cited by less than 1/4 of participants ($n = 4$), it was considered as of little relevance; when a category was reported by more than 1/4 of participants and less than 1/2 of participants ($4 < n \leq 7$), it was considered as relevant; when a category was cited by more than 1/2 and less than 3/4 of participants ($8 \leq n \leq 11$), it was consider as very relevant; and when a category was reported by more than 3/4 of participants ($n \geq 12$ participants), it was considered as highly relevant.

3. Findings

3.1. How Is the Changing Process Promoted by the Weight Management Program Perceived?

Through the data analysis three main differentiating and highly relevant components of the changing process emerged ($n \geq 12$, following the pre-defined criteria): 1) *perceptual changes*; 2) *functions*; and 3) *attributions*. *Internal and external attributions*, *i.e.*, personal vs. contextual sources of behavioral influence, emerged as subcategories in our data analysis. Participants considered that there was a variety of factors with different *functions* influencing the weight management process, either acting as *facilitators* or *barriers*. **Figure 1** shows the frequency of references obtained by crossing the internal and external attributions with the facilitators and barriers.

Based on our data, the changing process promoted by the weight management program is associated to *lifestyle changes*, *body and mind changes*. *Body and mind changes* (e.g., weight, confidence, motivation and self-esteem) were identified as highly relevant to the process ($n = 12$).

> When I lose weight, I have a better self-esteem, I'm more confident and I can have more control over me. (14-year-old-boy)

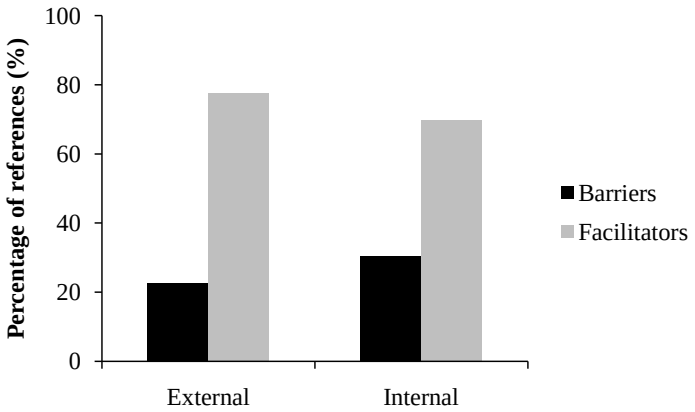

Figure 1. Percentage of references (Y axis) of internal and external attributions regarding facilitators and barriers (X axis).

According to the pre-defined criteria, *lifestyle changes* comprising water and food intake and physical activity, were the changes considered relevant in the process (n = 7).

I started having breakfast. Now, I always have a bottle of water with me and I try to walk more. (18-year-old-girl)

3.2. Which Factors Are Perceived as Facilitators and Barriers in the Weight Management Process?

3.2.1. Facilitators

Three sub-categories of facilitators emerged through the data analysis: *high quality of the interaction*, *acquisition of new competencies* and *encouragement*. *Encouragement* was identified as highly relevant (n = 12) for the weight management process and *high quality of the interaction* and *acquisition of new competencies* were identified as very relevant (n > 8). E*ncouragement* (motivation for and support of the change with positivity and hope), as the most powerful facilitator identified in the weight management process, may come from different sources (e.g., healthcare provider and significant others).

I feel that doctors increase my strength and motivation. (14-year-old-boy)
When I leave the appointments, I think: "I have to do this. It will be good for me". (16-year-old-girl)

A *high quality of the interaction*, *i.e.*, an empathic interaction allowing for feeling understood and able to express their own opinions in a secure setting, was identified by the adolescents as a powerful facilitator both of the therapeutic alliance between the adolescent and the healthcare provider and of the relationship between the adolescent and the peer group (n = 9).

If we want to help somebody, we have to put ourselves in others' shoes. We have to understand his/her problems, we have to understand who she/he is, why she/he isn't able to change. (16-year-old-girl)
Talk, talk about the problems, talk about what we are feeling and thinking, talk about what we like and don't like in ourselves, talk about everything. (12-year-old-girl)

Participants considered that clinical appointments and exposure to informative and interactive instruments (e.g., leaflets, forums, and videos) facilitate the *acquisition of specific contents* regarding healthy lifestyles and the *acquisition of new competencies*, namely *self-regulation*. These factors emerged as having a very relevant (n = 10) facilitator role in the process of weight management.

For example, at home, we no longer cook the soup with so many potatoes as we used to. This is one of the many things that I learned here... These little things are making a huge difference in my life. (14-year-old-girl)

3.2.2. Barriers

We identified three main barriers to weight management—*internal resistances*, *collection of anthropometric data* and *negative patterns of the interactions*—with different levels of relevance, according to the pre-defined criteria.

Participants recognized that one of the main reasons for a non successful weight management was a *negative pattern in the interaction*, specifically, *criticism*, *non encouragement*, and *lack of empathy*. These barriers were identified as having a very relevant impact on the weight management (n = 8) and participants identified an association between them and a lack of willingness. Comments further suggested the importance of significant others in the process, specifically the need for being reinforced by their peers.

It has to do with not being always criticized for what we are and how we are. (12-year-old-girl)
There are people who do not help at all. Instead of helping, they only demean and consequently we feel lack of willing to act. (16-year-old-girl)

Seven adolescents identified themselves, *i.e.*, their *internal resistances*, as the major barrier to the weight management intervention (n = 7), pointing out specific difficulties to manage time and plan objectives, procrastination, and willingness.

We ourselves are the biggest barrier. (14-year-old-girl)
I have serious difficulties in managing my time. I'm always saying: Tomorrow I will run! Tomorrow I will eat better". And in the next day I go on saying the same. (18-year-old-girl)

The *collection of anthropometric* data was also identified as a barrier for weight management because of the feelings it triggers (e.g., discomfort) (n < 4).

I do not feel comfortable when they measure me and weight me... I've always been short! (14-year-old-girl)

3.3. What Ingredients Should Have a Weight Management Program to Be Successful?

We identified two main categories—*strategies* and *formats*—based on the suggestions mentioned as crucial to develop a successful weight management program. All the comments regarding the strategies and formats are related to the increase of motivation and willingness, suggesting a direct relationship between the success of the weight management and motivation.

3.3.1. Strategies

Half of the participants (n = 8), what is considered very relevant, following the pre-defined criteria, emphasized the key role of the *quality of the interaction* for the success of a weight management program.

We could invite all the overweight adolescents followed here at the clinic and socialize together outside the Hospital. It would be fun: everybody together, talking, everybody having a good time. (18-year-old-girl)

Participants considered *acquisition of specific contents and new competencies* through *modeling* as a relevant strategy (n = 6), specifically suggesting that the inclusion of peer modeling in the intervention would increase the motivation.

I think that you should find new ways of motivating teens to lose weight. May be giving examples of other adolescents who have successfully managed to lose weight would encourage and inspire us. (16-year-old-girl)
I would tend to gather several teens who have lose weight. Then, I would show their trajectory and how they succeeded. If these people have managed, we also can. (15-year-old-boy)
I would further use examples of famous people and people who are inspiring. (17-year-old-girl)

3.3.2. Program Format

Regarding the clinical program format, according to less than half of the participants (n = 6), what is considered relevant, the importance of developing a *systemic and comprehensive intervention*, including the family and the peer group in the program, was pointed out as part of a successful weight management program.

May be I would design a program where we could join teens that could motivate each other and together reach their goal. (…) For example, when my friends invite me to run I go with them. It is always easier to go together than alone. (16-year-old-girl)
I would include parents in the intervention. For example, my stepfather is also obese. Currently, with my mother's help, he is starting eating healthier. He lose a lot of weight. I think it could be good for him to come here and get some support. For example, I could start exercising with him. (13-year-old-boy)

Finally, the inclusion of an *ITC similar to Next. Step* was also identified as a potential relevant part of a successful weight management program (n = 5). The comments pointed out to the relevance of the *interactivity* as a central concept (n = 5) for the ITC and two types of *interactivity* were valued: interactive games and social networks. Participants further highlighted the inclusion of interactive games simulating real life in the ITC directed to weight management.

First, we customize ourselves in the game. Every day we would go to the supermarket, choose the food, go to the gym. Five months later, we would go to the clinic and check our BMI. If we had gained weight, something could happen, for example, we could be hospitalized. It would help to virtually mirror what we do in the real life and anticipate the consequences. (13-year-old-boy)

Furthermore, *social networks* that allow for connection and share of contents among the users were also identified as an important component of ITC directed to weight management.

It could be a mix of Instagram and Facebook, where we could chat, share photos and comment on each other's photos. We could share sports, healthy foods, what we are cooking at home. For example, I would

share pictures of food cooked by myself because sometimes I cook gourmet dinners like grilled meat with fruits. (17-year-old-girl)

Finally, participants stressed the need for presenting contents that may generate *positive emotions* (n = 4) and for presenting the contents in a *clearer*, more *appealing* and *innovative* way in the ICT directed to weight management (n = 5).

4. Discussion

The aim of this study was to explore, through obese adolescents' views, their perceptions of the changing process promoted by weight management; the strategies that should be part of a successful weight management program; and the factors they perceive as either facilitators or barriers to obesity management.

We have identified three components of the changing process: perceptual changes, attributions (internal and external) and functions (barriers and facilitators). Based on our findings, we can infer how adolescents perceive the process of changing: external facilitators are more obvious than the internal ones, although internal barriers are stronger than external; lifestyle and body and mind changes act both as triggers and products of the change. In fact, similarly to what has already been described by other authors [19], our participants put the locus of control of their change outside them. These findings maybe explained by different perspectives: 1) considering that losing weight takes time, it is possible that adolescents who are overweight tend to protect themselves from constant deception and frustration by making external attributions; 2) lack of self-confidence and self-efficacy [2] [20]. As research has already shown (e.g., [21]-[23]), self-confidence and self-efficacy have a central role in lifestyle modification and weight loss. The lack of empowerment and the internal resistance to change may lead to a need for external encouragement. Moreover, negative patterns of peer interaction and media and societal stereotyping [19] may seriously damage their confidence and self-esteem [20], thus perpetuating the cycle. Furthermore, the fact that perceptual changes are both a trigger and a product of the change reinforces the circularity of this process that urgently needs to be broken at any point.

The findings of the current study point out some indicative factors that may either facilitate or make the weight management process hard. Three powerful facilitators were identified: a high quality of the interactions between the adolescent and both the healthcare provider and the peer group; the acquisition of new competencies; and encouragement. Internal resistance, collection of anthropometric data and negative patterns of the interactions were recognized as barriers for the process. As reported by other authors [19], the quality and patterns of the interactions play a central role in the way how the intervention proceeds with posit1ivity leading to success and negativity to failure. The collection of anthropometric data identified as a barrier may be explained by the tendency to avoid confrontation and deception.

In general, and according to other studies [21], our findings suggest the importance of family and peer support as a crucial ingredient for promotion of a healthy lifestyle. In line with other authors, our data further suggest that interventions in the field of adolescent obesity may benefit from an involvement and inclusion of the family [24]-[26] and peers [9] [10] in the therapeutic process. In fact, research emphasizes the role of the family in the development of obesity [26] [27], suggesting a positive association between family lifestyles and eating behaviours and the presence of parental and paediatric obesity [24] [25]. Moving the focus of the intervention from the individual to the whole family environment may have significant impact.

Our findings regarding the relevance of the ICT in improving adolescents' adherence to weight management corroborate the literature in this field [15] [28]. According to our data it is clear that ICT are a relevant part of the adolescents' lives and routines. Thus, interventions aiming at lifestyle behavioural change may be more effective if they mirror the adolescents' most preferred channels [14], namely, Facebook and Instagram. In fact, research has shown that internet-based obesity intervention programmes present positive clinical and significant results [29] [30].

This study contributes for a deeper understanding of the factors and processes that may promote adherence to weight management. Our findings emphasize the impact of the quality and patterns of interactions, the acquisition of new competencies, the encouragement and the positivity on the success of the weight management. Our results are clinically meaningful suggesting that healthcare providers may play a key role in this process through the use of the identified strategies and instruments. By putting themselves in the adolescents' shoes, they may be more able to understand and anticipate the adolescent's feelings and difficulties (deception, fear of failure), thus becoming more effective.

5. Limitations and Future Studies

Although a qualitative design can provide a complex perspective of the changing processes involved in weight management, what cannot be achieved through quantitative methodologies, this study has several limitations. Among them, the subjectivity inherent to the process of qualitative data analysis, the impossibility of establishing direct causality, and the recruitment sampling technique and the number of participants (small sample) restrict the generalization of the findings. Nevertheless, considering the qualitative design of the current study, instead of a formal generalization, we looked for a transferability of the findings [31]. Future studies should be developed to strengthen the validity of the findings and to further explore the explanations proposed.

Funding Source

This work was funded by Fundação para a Ciência e a Tecnologia (PTDC/DTP-PIC/0769/2012).

Conflict of Interest

The authors declare no conflicts of interest.

References

[1] WHO World Health Organization (2000) Obesity: Preventing and Managing the Global Epidemic. *Technical Report Series No*. 894, World Health Organization, Geneva.

[2] Fonseca, H., Matos, M.G., Guerra, A. and Pedro, J.G. (2009) Are Overweight and Obese Adolescents Different from Their Peers? *International Journal of Pediatric Obesity*, **4**, 166-174. http://dx.doi.org/10.1080/17477160802464495

[3] Keating, C.L., Moodie, M.L. and Swinburn, B.A. (2011) The Health-Related Quality of Life of Overweight and Obese Adolescents—A Study Measuring Body Mass Index and Adolescent-Reported Perceptions. *International Journal of Pediatric Obesity*, **6**, 434-441. http://dx.doi.org/10.3109/17477166.2011.590197

[4] MacDonell, K., Ellis, D., Naar-King, S. and Cunningham, P. (2010) Predictors of Home-Based Obesity Treatment Efficacy for African American Youth Karen. *Children's Health Care*, **39**, 1-14. http://dx.doi.org/10.1080/02739610903455087

[5] Phillips, B.A., Gaudette, S., McCracken, A., Razzaq, S., Sutton, K., Speed, L., *et al*. (2012) Psychosocial Functioning in Children and Adolescents with Extreme Obesity. *Journal of Clinical Psychology in Medical Settings*, **19**, 277-284. http://dx.doi.org/10.1007/s10880-011-9293-9

[6] Waters, E., de Silva-Sanigorski, A., Hall, B.J., Brown, T., Campbell, K.J., Gao, Y., *et al*. (2011) Interventions for Preventing Obesity in Children. *Cochrane Database of Systematic Reviews*, **7**, Article ID: CD001871. http://dx.doi.org/10.1002/14651858.cd001871.pub3

[7] WHO (2006) European Charter on Counteracting Obesity. Report, Istanbul.

[8] Sacher, P.M., Koltourou, M., Chadwick, P.M., Cole, T.J., Lawson, M.S., Lucas, A. and Singhal, A. (2010) Randomized Controlled Trial of the MEND Program: A Family-Based Community Intervention for Childhood Obesity. *Childhood Obesity*, **18**, S62-S66. http://dx.doi.org/10.1038/oby.2009.433

[9] Fonseca, H., Falcato, L., Carvalho, G.F., Martins, S. and Palmeira, A.L. (2015) The TOP Program: Treatment of Pediatric Obesity. *Journal of Adolescent Health*, **56**, S106-S107. http://dx.doi.org/10.1016/j.jadohealth.2014.10.213

[10] Lopes, V.P., Gabbard, C. and Rodrigues, L.P. (2013) Physical Activity in Adolescents: Examing Influence of the Best Friend Dyad. *Journal of Adolescent Health*, **52**, 752-756. http://dx.doi.org/10.1016/j.jadohealth.2012.12.004

[11] Sousa, P., Fonseca, H., Gaspar, P. and Gaspar, F. (2015) Controlled Trial of an Internet-Based Intervention for Overweight Teens (Next.Step): Effectiveness Analysis. *European Journal of Pediatrics*, **174**, 1143-1157. http://dx.doi.org/10.1007/s00431-015-2502-z

[12] Reinehr, T., Widhalm, K., l'Allemand, D., Wiegand, S., Wabitsch, M., Holl, R.W., *et al.* (2009) Two-Year Follow-Up in 21,784 Overweight Children and Adolescents with Lifestyle Intervention. *Obesity*, **17**, 1196-1199. http://dx.doi.org/10.1038/oby.2009.17

[13] Sarwer, D.B. and Dilks, R.J. (2001) Invited Commentary: Childhood and Adolescent Obesity: Psychological and Behavioural Issues in Weight Loss Treatment. *Journal of Youth and Adolescence*, **41**, 98-104. http://dx.doi.org/10.1007/s10964-011-9677-z

[14] Ahern, D., Phalen, J., Le, L. and Goldman, R. (2007) Childhood Obesity Prevention and Reduction: Role of eHealth. Health e-Technologies Initiative, Boston.

[15] Sousa, P., Fonseca, H., Gaspar, P. and Gaspar, F. (2013) Internet-Based Intervention Programme for Obese Adoles-

cents and Their Families (Next.Step): Research Protocol of a Controlled Trial. *Journal of Advanced Nursing*, **70**, 904-914. http://dx.doi.org/10.1111/jan.12245

[16] Patton, M.Q. (1990) Qualitative Evaluation and Research Methods. Sage, Thousand Oaks.

[17] Richards, L. (2009) Handling Qualitative Data: A Practical Guide. 2nd Edition, Sage Publications, Inc., London.

[18] Braun, V. and Clarke, V. (2006) Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, **3**, 77-101. http://dx.doi.org/10.1191/1478088706qp063oa

[19] Murtagh, J., Dixey, R. and Rudolf, M. (2006) A Qualitative Investigation into the Three Levels and Barriers to Weight Loss in Children: Opinions of Obese Children. *Archives of Disease in Childhood*, **91**, 920-923. http://dx.doi.org/10.1136/adc.2005.085712

[20] Pierce, J.W. and Wardle, J. (1997) Cause and Effect Beliefs and Self-Esteem of Overweight Children. *Journal of Child Psychology and Psychiatry*, **38**, 645-650. http://dx.doi.org/10.1111/j.1469-7610.1997.tb01691.x

[21] Amiri, P., Ghofranipour, F., Ahmadi, F., Montazeri, A., Jalali-Farahani, S. and Rastegarpour, A. (2011) Barriers to a Health Lifestyle among Obese Adolescents: A Qualitative Study from Iran. *International Journal of Public Health*, **56**, 181-189. http://dx.doi.org/10.1007/s00038-010-0119-6

[22] Roach, J.B., Yadrick, M.K., Johnson, J.T., Boudreaux, L.J., Forsythe, W.A. and Billon, W. (2003) Using Self-Efficacy to Predict Weight Loss among Young Adults. *Journal of the American Dietetic Association*, **103**, 1357-1359. http://dx.doi.org/10.1016/S0002-8223(03)01072-1

[23] Story, M.T., Neumark-Stzainer, D.R., Sherwood, N.E., Holt, K., Sofka, D., Trowbridge, F.L. and Barlow, S. (2002) Management of Child and Adolescent Obesity: Attitudes, Barriers, Skills, and Training Needs among Health Care Professionals. *Pediatrics*, **110**, 210-214.

[24] Saelens, B.E., Lozano, P. and Scholz, K. (2013) A Randomized Clinical Trial Comparing Delivery of Behavior Pediatric Obesity Treatment Using Standard and Enhanced Motivational Approaches. *Journal of Pediatric Psychology*, **38**, 954-964. http://dx.doi.org/10.1093/jpepsy/jst054

[25] Kitzmann, K.M. and Beech, B.M. (2006) Family-Based Interventions for Pediatric Obesity: Methodological and Conceptual Challenges from Family Psychology. *Journal of Family Psychology*, **20**, 175-189. http://dx.doi.org/10.1037/0893-3200.20.2.175

[26] Wrotniak, B.H., Epstein, L.H., Paluch, R.A. and Roemmich, J.N. (2004) Parent Weight Change as a Predictor of Child Weight Change in Family-Based Behavioral Obesity Treatment. *Archives of Pediatrics and Adolescent Medicine*, **158**, 342-347. http://dx.doi.org/10.1001/archpedi.158.4.342

[27] Hood, M.Y., Moore, L.L., Sundarajan Ramamurti, A., Singer, M., Cupples, L.A. and Ellison, R.C. (2000) Parental Eating Attitudes and the Development of Obesity in Children. The Framingham Children's Study. *International Journal of Obesity*, **24**, 1319-1325. http://dx.doi.org/10.1038/sj.ijo.0801396

[28] Smith, K.L., Straker, L.M., McManus, A. and Fenner, A.A. (2014) Barriers and Enablers for Participation in Healthy Lifestyle Programs by Adolescents Who Are Overweight: A Qualitative Study of the Opinions of Adolescents, Their Parents and Community Stakeholders. *BMC Pediatrics*, **14**, 53. http://dx.doi.org/10.1186/1471-2431-14-53

[29] An, J.Y., Hayman, L.L., Park, Y.S., Dusaj, T.K. and Ayres, C.G. (2009) Web-Based Weight Management Programs for Children and Adolescents: A Systematic Review of Randomized Controlled Trial Studies. *Advances in Nursing Science*, **32**, 222-240. http://dx.doi.org/10.1097/ANS.0b013e3181b0d6ef

[30] Hamel, L.M. and Robbins, L.B. (2013) Computer- and Web-Based Interventions to Promote Healthy Eating among Children and Adolescents: A Systematic Review. *Journal of Advanced Nursing*, **69**, 16-30. http://dx.doi.org/10.1111/j.1365-2648.2012.06086.x

[31] Tracy, S.J. (2013) Qualitative Research Methods. Wiley-Black Well, West Sussex.