

The development, implementation and evaluation of an integrated overweight prevention approach for pre-schoolers

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The aim of this dissertation was the development, implementation, and evaluation of the intervention approach SuperFIT. SuperFIT is a comprehensive, integrated intervention approach to promote healthy energy balance-related behaviour in 2-4-year-old children (pre-schoolers). It addresses both physical activity and nutrition behaviour of pre-schoolers in the early care and education (ECE) setting and home setting. In addition, SuperFIT takes into account different types of environments, particularly, the physical environment (what is available), the sociocultural environment (the people in the environment), and the political environment (what rules, regulations, and policies are in place). SuperFIT was developed using a mutual adaptation approach: both top-down and bottom-up processes were used. A local sports foundation, a childcare organization, and health promotion experts worked together to develop SuperFIT. Continuously, co-creation was sought with the target population, for example, through co-creation sessions or interviews.

For the current project, SuperFIT was implemented in twelve preschools in low socio-economic communities in Sittard-Geleen in the south of the Netherlands. Several intervention activities were implemented such as training and coaching of preschool staff, delivery of fruit and vegetables at preschool, and family play sessions. Changes occurred in the preschool setting during the implementation of SuperFIT, particularly in the sociocultural environment. An increased awareness was seen among preschool teachers regarding their role in healthy energy balance-related behaviours of young children, as well as positive changes in the nutrition- and physical activity-related practices of the preschool teachers. More time was spent actively at the preschools. Pre-schoolers who also took part in the family-based component were more physically active and less sedentary on preschool days compared to the control group. However, for overall weekly physical activity, all pre-schoolers were more active over time and no differences were seen between pre-schoolers participating in SuperFIT and the control group. Further, no changes were seen in BMI-z score. The implementation of SuperFIT in the preschool setting was influenced by many factors that were related to the intervention (e.g., applicability in current practice), the preschool teachers (e.g., attitude towards the program) and the preschool context (e.g., group composition). Time strongly influenced implementation and integration of SuperFIT within practice. Sufficient duration of implementation is thus very important for the success of intervention programs. The SuperFIT approach aims to align the preschool and home setting in order to support healthy energy balance-related behaviours of pre-schoolers. This alignment remains a challenge, in particular due to the difficulty of involving parents in intervention activities.

This dissertation has both scientific and societal value and the lessons learned within SuperFIT may help future researchers and intervention developers.

Scientific impact

The SuperFIT approach explicitly aimed to align the ECE and home settings with regard to healthy nutrition and physical activity. Therefore, intervention activities aimed to reach similar goals in both settings. Measurements performed in order to evaluate changes were also aligned between the settings. For example, child behaviour, changes in the physical environment and social environment (nutrition- and physical activity related practices) were measured in similar ways. Most outcomes in the home setting were measured through the parents (questionnaires or dietary recall). A mutual adaptation approach was adopted in the development of SuperFIT. Top-down theory-based knowledge was combined with bottom-up needs. The program was adapted to the local context to support intervention applicability and sustainability. As a result, no prefab one-size-fits-all intervention was developed, but the intervention was adapted to the local needs and possibilities as much as possible. Such an approach is still relatively new in intervention development, particularly in the ECE setting. Within SuperFIT we learned that not all methods (e.g., interviews and co-creation sessions) we used to ensure the bottom-up processes were experienced as such by preschool teachers. Future initiatives should aim to explore other methods to ensure bottom-up engagement or ways to make sure bottom-up involvement is experienced as such. An important factor may be allowing time to get to know and understand each other (in Dutch “suddertijd”). In the case of SuperFIT, this may have been too limited, which may have resulted in less commitment of particularly the preschool staff to SuperFIT.

With regard to the family-based component, although the activities were also aimed at spending time as a family with fun activities regarding nutrition and physical activity, the emphasis was still largely on behavioural change, healthy behaviour and health. This may not have been appealing for all families to participate in and a different approach towards parental involvement may be needed. Direct parental involvement, such as attendance at group sessions or even more active participation in development or implementation, is needed to support intervention effectiveness. Nonetheless, the results of SuperFIT show that the combination of the preschool-based and family-based component was essential for intervention effects. This supports the hypothesis of SuperFIT that alignment of the ECE and home settings will result in better intervention effectiveness.

Most of the results of the studies in this dissertation are published in international, scientific journals. Further, the different studies of SuperFIT were presented at (inter)national scientific conferences. SuperFIT has been part of educational modules both in the Bachelor of Health Sciences and the Master of Health Education and Promotion of Maastricht University. SuperFIT was also used as practice-case in the educational program of ECE staff of Vista College Maastricht and the higher vocational education program ‘Communication and Multimedia Design’ of Zuyd Hogeschool.

Societal impact

First of all, SuperFIT had an impact in the preschools that implemented the intervention approach. The children attending these preschools during implementation benefitted from a more and more supportive environment for healthy nutrition and physical activity. The societal impact of SuperFIT is not limited to these twelve preschools.

From the start of the development of SuperFIT, its sustainability was high on the agenda. Spelenderwijs (the adopting childcare organization) formulated an organizational vision regarding healthy childcare. Several managers were trained as 'Healthy Childcare coach', as part of the program 'Healthy Childcare' (Gezonde Kinderopvang) following the implementation of SuperFIT. Further, efforts were taken to disseminate SuperFIT to the remainder of the ECE locations part of Spelenderwijs. Spelenderwijs has 42 preschool locations throughout south Limburg and serve approximately 1200 pre-schoolers.

Ecsplere, the local sports foundation, adopted ownership of the SuperFIT approach. They have committed to continue to develop the SuperFIT approach in collaboration with Maastricht University, in particular the family-based component. They are involved in the dissemination of SuperFIT within Spelenderwijs as well as implementing SuperFIT in other municipalities. Three municipalities are currently implementing the full SuperFIT approach (both preschool-based and family-based component) and two municipalities (of which one is a merger of three former municipalities) are implementing the preschool-based component of SuperFIT. Ecsplere now employs a project leader and a health broker who work on the development and dissemination of SuperFIT. This is enabled with funding provided by local government. An increased awareness on the importance of healthy lifestyle in young children arose over the course of SuperFIT at the local government(s) which supported their willingness to fund SuperFIT. The SuperFIT approach and more general the promotion of a healthy lifestyle in young children is now internalised within Ecsplere and part of their business as usual. A website explaining the SuperFIT approach is available (<https://superfit.ecsplere.nl>) and two short animated movies were developed to support communication. One movie aims to explain the SuperFIT approach for the target groups, i.e., the ECE staff and parents, while the other movie is directed at ECE organizations and municipalities. Currently, efforts are made to register SuperFIT in the national database of recognized interventions ('Loket Gezond Leven') to support accessibility of SuperFIT.

In the local context of SuperFIT, the network of professional organizations involved with healthy nutrition and physical activity was strengthened. New linkages were made, for example, with the initiative 'Jong Leren Eten' (Learning to Eat) and a local greengrocer. Existing linkages were also intensified, such as the collaboration between Spelenderwijs and Ecsplere.

In May 2020, an article on SuperFIT was published in KIDDO, which is the trade journal for ECE staff in the Netherlands. In June 2019, a symposium regarding SuperFIT was organized. The symposium aimed to inform local practice professionals and local governments on the SuperFIT approach, and the results achieved in Sittard-Geleen. Relevant stakeholders such as municipalities, Spelenderwijs, Ecsplora, JOGG, Community Health Service (Dutch: GGD) were invited and attended. SuperFIT was presented at a symposium of the Academic Collaborative Centre for Public Health South Limburg. Professionals in public health from different disciplines attended this symposium.

SuperFIT was one of the first initiatives to support healthy energy balance-related behaviours in the ECE setting in Limburg and part of the first movement towards a healthy preschool in the Netherlands.

