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# POPS: a school-based prevention programme for eating disorders

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**Abstract**

*Background:* Disordered eating is a significant social and economic issue in Western societies. Weight and shape concerns are highly prevalent during adolescence and an alarming percentage of adolescents already show disturbed eating patterns. Sociocultural factors like the beauty ideal promoted by media and social agents are among the main reasons for this trend. Prevention programs which focus on established protective and risk factors are needed to counteract problematic developments as early as possible.

*Aim:* Within this paper we want to describe the development and the contents of a structured school-based eating disorder prevention program for adolescents.

*Subject and Methods:* The POPS-Program (POtsdam Prevention at Schools) is an interactive multisession program and encompasses nine lessons for pupils and one meeting with the parents. The program is based on current research on risk and protective factors for eating disorders with an emphasis on sociocultural factors. It is designed to enhance resources based on the life-skills-approach. We included for instance lessons to enhance healthy eating and exercise habits and to reduce unhealthy dieting, to build up resistance through media literacy and strategies to react to social pressure. To further enhance life-skills we integrated the impartation of problem-solving techniques and coping strategies which are potential protective factors not only in relation to eating disorders but also other diseases. In contrast to most existing programs, psychoeducation on eating disorders is not part of the POPS-program for pupils but part of the information session for the parents.

*Conclusion:* POPS is a theory-based, structured prevention program that can be implemented by teachers as part of regular lessons.

**Key words:** adolescence – school-based prevention – eating disorders – sociocultural factors – life- skills- approach

## Introduction

Eating disorders are discussed in the mass media more and more often. The discussions address questions such as “How thin can a model be?” or “Do media representations make more people develop eating disorders?”. Despite the prevalence of eating disorder topics in the media, we must not forget that this is a secret disease that often remains unrecognised and that those affected by it only talk about it years later. As a rule, the treatment of severe eating disorders is very difficult. A low degree of disease acceptance, repeated discontinuation of therapy, the many physical health risks associated with the disease which are sometimes life-threatening make eating disorders one of the psychological disorders the most difficult to treat. Mortality rates are extremely high. Preventive concepts that can halt the development of an eating disorder and thus lower incidence rates are needed urgently. Below, we will briefly describe the phenomenology of eating disorders and their aetiology. We will then discuss adolescence as a particularly critical phase for the development of eating disorders and present the latest figures on their prevalence. Finally, we will introduce the development and the design of the structured, school-based prevention program POPS.

## Eating disorders: phenomenology and aetiology

Eating disorders are serious mental illnesses which are also associated with many secondary medical complications. Eating disorders are generally classified into three main types, anorexia nervosa (AN), bulimia nervosa (BN) and, recently, so-called binge eating disorder (BED). Typical for all eating disorders is that they go hand in hand with pathological eating patterns and that food, or the avoidance of it, becomes the main focus for those affected. Furthermore, for one’s own self-esteem, weight and figure play a central role. AN is the best-known eating disorder, but also the one that is the least widespread. According to DSM-IV-TR (American Psychiatric Association 2000) AN is defined as self-induced weight loss, which causes sufferers to become underweight and is associated with an intense fear of gaining weight. People suffering from BN, on the other hand, tend to be of normal weight; it is mainly characterised by bouts of intense hunger, with the feared weight gain being counteracted using compensatory measures (e.g. vomiting or laxative abuse). In the case of binge eating disorder, a form of eating disorder which is listed in the DSM-IV-TR under research criteria, this weight-regulating behaviour is not present, which means that sufferers are often overweight.

The prevalence of full- syndrome eating disorders in the general population is 0.3 to 1 % for anorexia nervosa (AN) as well as bulimia nervosa (BN). The prevalence for binge eating

disorder (BED) is slightly higher with around 2- 3% (Hoek 2006; Hoek and van Hoeken 2003). It is mainly girls affected by eating disorders (Rosen and the Committee on Adolescence 2010). That said, according to recent estimates 5 to 15% of cases of AN and BN, and 40% of BED cases affect boys (Muise et al. 2003). However, substantially more prevalent than full- syndrome eating disorders are so- called 'sub- threshold' or 'partial disorders', which can be seen as a precursor of eating disorders (Charmay-Weber et al. 2005; Rosen and the Committee on Adolescence 2010). Hence a number of epidemiological studies illustrate that about 30% of girls and about 15- 20% of boys show disordered eating behaviour such as dieting or loss of control while eating (e.g. Aschenbrenner et al. 2004; Dominé et al. 2009; Hautala et al. 2008, Herpertz-Dahlmann et al. 2008; Jones et al. 2001; Neumark-Sztainer and Hannan 2000; Neumark-Sztainer et al. 2002).

The typical age of the first manifestation of eating disorders is in early adolescence (Hoek 2006) – recently however it has been shown first signs of disordered eating behaviour (as well as manifest eating disorders) appear among increasingly younger ages (Rosen and the Committee on Adolescence 2010). While eating disorders have traditionally been associated with lower than average body weights, recent research shows the broad spread of disordered eating among overweight children (e.g. Herpertz-Dahlmann et al. 2008; Neumark-Sztainer et al. 2002).

Eating disorders can have considerable consequences for physical and mental health as well as increased mortality rates (Berkman et al. 2007; Hoek 2006; Rosen and the Committee on Adolescence 2010). In the long- term, high relapse rates can be observed (Berkman et al. 2007). Eating disorders cause high costs (Simon et al. 2005; Striegel-Moore et al. 2008) and are considered to be difficult to treat (Berkman et al. 2006; Keel and Haedt 2008; Wilson et al. 2007) All these data emphasize the importance of the early prevention of eating disorders - prevention which takes into account the situation of boys and younger age-classes as well.

The development of eating disorders can only be examined within a multi-factorial model, which, in addition to individual factors (such as genetically determined biological vulnerability) and stress factors, also takes into consideration sociocultural factors (cf. Jacobi et al. 2004; Polivy and Herman 2002). Furthermore, a distinction should be made between predisposing, triggering and maintaining factors (cf. figure 1). This is of particular relevance for the development of prevention programs, in order to take into account specific risk groups as

well as risk factors. The biological risk factors include female sex and higher weight as well as early onset of puberty, which are largely non-changeable predisposing factors. Twin studies show high concordance for eating disorders; familiar accumulation can be observed. The discussion of sociocultural factors plays an increasingly important role. Eating disorders occur in societies (or groups) where there is a surplus of food – this is regarded as necessary since in these societies the physical ideal of slimness was established. Idealising representations of bodies in the media, which often equate slimness with success and attractiveness, have an extensive influence not to be underestimated. It has been shown repeatedly that the consumption of such media leads, in more and more young people, to dissatisfaction with their own bodies and associated attempts to change them (Cohen 2006; Groesz et al. 2002). The immediate social environment also communicates and reinforces this experienced pressure to be slim (e.g. Agras et al. 2007; Stice et al. 2003). The degree to which this prescribed ideal is then internalised and turned into a personal ideal does not only depend on how powerful this experienced pressure exerted by the media and society is, but also on what people can do to oppose it. High levels of self-esteem and a good repertoire of coping strategies have been shown to be protective factors when dealing with sociocultural influences (e.g. beauty ideal in the media, peer pressure) and dissatisfaction with one's own body and unhealthy eating patterns (e.g. Davison and McCabe 2006; Wade and Lowes 2002).

Please insert Figure 1

As most eating disorders start in adolescence the issues faced by adolescents warrant a more detailed consideration.

## Adolescence as a sensitive phase

Adolescence as a transitional phase from childhood to adulthood and with its associated demands represents a fertile ground for the development of disturbed eating patterns. The developmental tasks that adolescents have to manage include integration into their peer group, search for their own identity, developing stable relationships; dealing with sexuality and preparing for a career. How well adolescents manage these demands mainly depends on their personal (e.g. coping repertoire) and social resources (e.g. support from parents).

One of the relevant developmental tasks in adolescence is the acceptance of their own body. In this phase much attention is paid to physical appearance and physical changes taking

place. Being physically attractive is not just of importance for developing romantic relationships but also for one's own sense of wellbeing. Young girls are faced with a particularly difficult task because the physical changes accompanying puberty remove them further away from the beauty ideal of slimness, while boys tend to get closer to their ideal of a muscular figure. Dissatisfaction with one's own body is considered a risk factor for the development of disturbed eating patterns and eating disorders. According to Aschenbrenner et al. (2004), almost half of all grammar school students are not happy with their weight. More recent studies show that dissatisfaction with their own body does not just affect girls but also boys to an equal extent (Ricciardelli et al. 2000); in the latter case, however, this is more about dissatisfaction with their muscularity. According to an own study (Warschburger 2009) 62.9% of girls of normal weight wanted to be slimmer, while boys of normal weight wanted to have a stronger figure. Only one in three girls in 9$^{th}$ grade was satisfied with her figure. Dissatisfaction with one's own body is often associated with specific weight control measures. Various studies have shown that up to one quarter of boys and almost half of all girls try to lose weight by dieting (e.g. Aschenbrenner et al. 2004; Crowther, Armey, Luce, Dalton and Leahey 2008; Ricciardelli and McCabe 2000; Warschburger 2009), and may even use diuretics, appetite suppressants or laxatives. Such weight reduction measures may lead to disturbed eating patterns or even clinically manifest eating disorders. According to the data of a representative study carried out across Germany (KiGGS, Hölling and Schlack 2007), one in three girls and one in six boys exhibited disordered eating patterns; local studies reported largely similar results (Aschenbrenner et al. 2004; Buddenberg-Fischer and Reed 2001; Warschburger 2009). Although at 1-3%, clinically manifest eating disorders are much rarer, adolescents nonetheless represent the group most at risk (Hoek and van Hoeken 2003). Since disordered eating patterns can develop into clinical eating disorders, it is important and promising to take preventive measures during this stage (Stice and Shaw 2004).

## Foundations of program development

Various meta-analyses (e.g. Stice and Shaw 2004; Fingeret et al. 2006; Stice et al. 2007) provide specific information on how to approach the prevention of eating disorders effectively. Stice et al. (2007) identified in their meta-analysis 51 different eating disorder prevention programs. Most programs have been created for girls aged 14 to 18 years and are small-group interventions. 51% of the programs reduced risk factors (e.g. body dissatisfaction, thin-ideal internalization or dieting) and 29% reduced pathological eating. Stronger intervention effects were observed in selective, interactive, multisession programs that were

solely offered to females and those over age 15. Programs were categorized according to the content area they focused on (psychoeducational; healthy weight; sociocultural influence; body enhancement; self-esteem, dissonance-induction or stress and coping). Programs that contained psychoeducational content had significantly lower effectiveness; incorporation of body acceptance and dissonance was associated with higher effectiveness. It is noteworthy that the 15 programs which produced significant reductions in eating pathology varied enormously, suggesting that multiple methods may be fruitful. In addition to these domain-specific characteristics of effective prevention programs one can rely on the extensive work and experience of prevention in general. Nation et al. (2003) tried to identify the common principles of best prevention practices through a review across four problem areas, which are substance abuse, risky sexual behaviour, school failure, and juvenile violence. They high-light that prevention programs should (cf. also Nation et al. 2003):

- Be **comprehensive**, i.e. include various relevant areas (such as school, peers, society) in order to prevent their influence on the development and maintenance of the problematic behaviour.
- Employ **various didactic methods** in order to create an awareness of the problem, facilitate problem analysis and develop appropriate skills. Recently, interactive programs in particular have been recommended.
- Be **sufficiently extensive**, i.e. not consist of just one meeting.
- Give children and young people the opportunity to **develop positive relationships** with their peers and with adults.
- Start at the **right age range**, so that the effects do not disappear (too early) in the critical phases and so that a pronounced risk behaviour is not already in place (too late).

## The POPS Program

### Principles of the POPS program

POPS was designed as a multisession primary prevention program for a school setting. Based on the current state of research about risks and protective factors and given the high comorbidity of eating disorders, we took a broader approach encompassing issues such as healthy eating and exercising, coping with stress, self-esteem and body acceptance, peer- and media related pressure about weight (see Goals and contents). The program does not explicitly instruct about eating disorders and associated health risks. Rather, the focus is on

strengthening general life skills and resources, which can also help to avoid dissatisfaction with your own body and unhealthy weight control measures. This is in line with the life-skills approaches (cf. Botvin and Griffin 2004) in the area of primary prevention of substance abuse that successfully combined focused and broader approaches.

We apply an interactive discourse around the topics mentioned above. We use various methods and material (e.g. films, games, group exercises, and worksheets) in order to encourage a process of reflection of one's own attitudes and behaviours. Knowledge acquisition will be supervised and supported by teachers through the use of realistic age- and gender-appropriate example situations or questions about pupils' own experiences. Attractive working material was designed to boost motivation and make the program fun. It is important that pupils can identify with the persons in the examples so the topics are seen as relevant. Pupils therefore also were involved in developing the material (for instance making the video clips). In addition to the working material dealt with during lessons pupils also received information sheets and home exercises to make sure the message is transferred to the adolescents' everyday life.

It has been subject of controversy whether providing direct instruction and information about eating disorders may cause potentially harmful outcomes (e.g. glorification of eating disorders; suggestive information about unhealthy weight control behaviours; see O'Dea 2002). While two older studies reported such harmful effects (Carter et al. 1997; Mann et al. 1997), recent research did not confirm these concerns (see Levine and Smolak 2006; Stice et al. 2007). Nevertheless, programs without psychoeducational content had higher effectiveness (see Stice et al. 2007) and information seems to be unsuitable for promoting changes in behaviour (Jerusalem and Weber 2003). We therefore decided to omit direct information about eating disorders and instead focused on healthy nutrition and exercise habits as well as on fostering body acceptance and adequate coping skills instead. These contents should be equally relevant for all adolescents.

Determining the particular age span and target group is an important issue. While we acknowledge that higher effectiveness was achieved with older adolescents (> 15 years), females and with those already exhibiting disordered eating patterns (see Stice and Shaw 2004; Stice et al. 2007), this isn't the only aspect to be considered when determining the relevant participants. While universal programs and those targeting younger children did

indeed produce fewer results, it should be noticed that they nevertheless achieved significant change, also in relation to eating pathology (see Stice et al. 2007). On the other side, recent studies have shown that progressively younger children exhibit disordered eating behaviour. For example, the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) found only marginally higher scores for disordered eating in older adolescents (14–17 years) compared to younger adolescents (11–13 years) after controlling for sex and weight status (Herpertz-Dahlmann et al. 2008). This is in line with the data from Jones et al. (2001) who reported that 13% of those aged 12–14 years and 16% of those aged 15–18 years had elevated scores for disturbed eating behaviour. These studies underscore that in younger children as well, disordered eating is a relevant subject. Boys should also be considered and involved more in prevention attempts. Many studies document disturbed eating among boys as well, although not in the same extent as among girls (e.g. Dominé et al. 2009; Herpertz-Dahlmann et al. 2008; Neumark-Sztainer et al. 2002). Over the past years, it has been shown that boys are comparable to girls in terms of discontent with their bodies when taking into account muscle dissatisfaction. Risk factors for the development of disordered eating among boys are similar to those found among girls (see Ricciardelli and McCabe 2004). With this background of a constantly increasing spread of disordered eating among younger children and among boys, we decided to focus on the group of 12 to 16 year old boys and girls as they constitute relevant risk groups.

What needs to be weighed up in addition to achieved effects is that universal primary prevention services address a large number of people – lower effectiveness of the programs themselves may be reported, but they affect more people. This is of special interest since socio-cultural factors contribute to the development of eating disorders and disturbed eating behaviour. If we want to prevent the emergence of eating disorders, efforts to change the environment are likely to be critical. In young adolescence, parents and peers are important social agents. Hence, negative comments from classmates are an important source of social pressure and are related to higher degrees of body dissatisfaction (Menzel et al. 2010). In adolescents' everyday life, it is not only peers of the same sex who play a role, but also those of the opposite sex. Boys and girls provide feedback to each other in terms of physical attractiveness; social norms are always determined by both genders. A universal, co-educative approach, taking boys and girls equally into account, can allow for these processes and is more suitable for changing the broader socio-cultural environment (Levine and Smolak 2006; Neumark-Sztainer et al. 2006). In addition, it should be mentioned that several univer-

sal programs were in fact more effective for subgroups of high-risk participants, but no harmful effects were reported for the low-risk subgroups (e.g. Buddeberg et al. 1998; Killen et al. 1993). Dissonance-based programs even reported no difference in effectiveness for high- and low-risk groups (Becker et al. 2005, 2008).

One major consideration while designing the program was to improve its long term integration into everyday life. A sustainable implementation of such a program appears to be possible especially in school context (cf. Budd and Volpe 2006; Fagan and Mihalic 2003, O'Dea and Maloney 2000). While higher effectiveness can be found with professional interventionists delivering such programs (see Stice et al. 2007), a long term realisation of this approach is often impossible for financial reasons. Sustainability can be ensured by including teachers; empirical studies indicate this to be a promising approach given the right training and personal qualities (Piran 2004; Yager and O'Dea 2005).

With regards to the implementation of the program, the participating teachers were intensively trained in the run- up by two graduated psychologists with experiences in teacher training as well as in the therapeutic work with eating disorders. The first part of the training consisted of background knowledge about the topic (symptomatology of eating disorders, prevalence, course and risk factors). Based on this, the keynote and the delivery style of the prevention program (resource-oriented, interactive, discussion of topics without any "finger-wagging") are made clear. The subject matter of every session was discussed in depth by the group and its practical implementation was practised via role plays. Critical situations likely to emerge when realising the program in everyday school life were discussed, and strategies for action planned out. In addition to this two- day training, teachers could contact our hotline during the phase of implementation to talk about emerging problems or obscurities and to ask to consult a psychologist if necessary. In order to ensure a high standard of implementation, the program is available as a manual with fixed schedule, detailed instructions and all the necessary instruction material.

Taken together, the POPS program addresses male and female pupils in grades 7 to 9 (ages between 12 and 16 years), a relevant age group with regard to primary prevention. The program can be employed by trained teachers during regular lessons. The approach is co-educational, since more and more studies indicate that boys are similarly affected by dissatisfaction with their bodies and are at risk of taking measures that adversely affect their

health. The approach is class-based, since school or class itself are often the context in which beauty ideals are established, spread and reinforced (cf. Stice et al. 2003). The issues of social and media pressure are broached to initiate contextual changes (in terms of environmental prevention; e.g. establishing anti-bullying rules; modifying social norms and attitudes) and to improve social resources. In addition, pupils learn about coping strategies to deal with stressful situations. Parents will be directly involved in the program by attending an information evening (delivered by a clinical psychologist), informing them about eating disorders and their warning signs. The most important features of the program are thus:

- **school-based** (higher accessibility),
- performed by **trained teachers (**higher sustainability),
- **focusing on boys and girls** (coeducation),
- **no psychoeducation** about eating disorders for the pupils,
- based on **risk and protective factors** (e.g. dieting, extreme exercise, self-esteem, coping; life-skills approach),
- focus on **sociocultural factors** (e.g. media pressure, social pressure),
- **interactive** (e.g. role playing, group discussions, homework assignments),
- **multisession program** (9 different lessons),
- **Inclusion of important social agents** (see coeducative approach, psychoeducation for parents).

### Goals and contents

The POPS program is designed to:

- strengthen young people's resources and life skills,
- promote a critical examination of society's beauty ideal,
- promote a positive body awareness and
- counteract the development of disturbed eating patterns.

The POPS program consists of 9 units of 45 minutes each for pupils, ideally carried out at a frequency of one to two hours per week as part of regular lessons. The topics are divided into "Healthy diet and wellbeing", "Beauty in magazines & on TV", "Self-image – strengths and weaknesses", "Dealing with stress & problems in a healthy way" and "How to deal with bullying and pressure" (figure 2).

| Figure 2 |
| --- |

Table 1 summarises the contents of the program. The program is structured in a way that knowledge-based and general social topics give pupils access to the general subject matter, which in turn will make it easier for them and prepare them to examine it more detailed in a next step. The subsequent lessons on self-esteem and body, stress and coping with problems and dealing with pressure and bullying increasingly address young people's personal problems or those of the class as a whole and are therefore particularly contentious. There will also be a parents' evening to inform parents about the content and the motivation behind the program, and in order to talk to concerned parents in particular, who believe their child shows signs of disturbed eating patterns, about further treatment options.

| Table 1 |
| --- |

## Summary and outlook

The increasingly widespread dissatisfaction among young people with their own body and the unhealthy methods that they often employ in order to change their body, represents a health problem that must be taken seriously. Furthermore, epidemiological studies show that an increasing number of young people already exhibit disordered subclinical eating patterns. In order to counteract the development of eating disorders and their increasing spread among young people, evidence-based and comprehensive preventive approaches are needed. These approaches should reach as many young people as possible as early as possible and should be implemented in a sustainable way. Primary prevention in a school context can ensure many of these aspects.

In the German-speaking area, a number of school-based primary prevention eating disorder programs are already available, albeit with various contents and objectives. The programs often address older adolescents (e.g. Buddeberg-Fischer and Reed 2001) or are carried out by psychologists on-site (cf. Buddeberg-Fischer and Reed 2001; Dannigkeit et al. 2005). Only Berger et al. (2008) developed a program that directly addresses teachers as trainers. All these programs have a much stronger focus on psychoeducation with regard to the issue of eating disorders and focus less on strengthening young people's personal and social resources. What's more, male adolescents' increasing dissatisfaction with their bodies and the

prevalence of disordered eating patterns among them is paid too little attention to, as these programs generally only involve girls (Berger et al. 2008; Dannigkeit et al. 2007).

The primary prevention program POPS is a school-based, material-based, structured prevention program that can be implemented by teachers as part of regular lessons. The emphasis is not just on minimising risk factors, but also on actively promoting young people's resources for dealing with critical situations. Special attention was paid on promoting young people's general life skills (e.g. problem solving skills, ability to think critically, self-esteem) in a broad and non-specific way. Prevention programs on drug abuse also take this approach, which has been proven to be successful (see Botvin and Griffin 2004). Given the significance of social and media pressure during adolescence, thinking about and dealing with the beauty ideal as portrayed by the media and significant people in young people's environment, represents a significant focus within the program. Over the course of nine interactive meetings, adolescents are encouraged to reflect their own points of view that are often adopted without much thought and to deal with pressure and problems in a healthy way. The program is thus not just relevant for young people who are at greater risk of developing eating disorders; it can also be seen as fruitful for all young people by promoting a critical exploration of the prevalent ideals and promoting general self-esteem.

We believe it is very important to provide teachers with in-depth training, since the interactive, coeducational approach places significant demands on the trainer. The procedure will be detailed in a comprehensive manual that includes specific examples on how to present the individual units (e.g. creation of gender- homogenous subgroups, provision of gender- specific educational material). In addition an accompanying telephone hotline for teachers has been set up to help them in critical situations (e.g. young people making fun of an exercise; avoiding of discussions of personal problems in order to remain “cool”).

These critical situations reflect on the other hand the sociocultural norms pupils have to deal with in day-to-day school life: How do they treat each other? Is bullying part of the every-day- life in school? Do you have to respect certain clothing standards to be part of the group? In order to achieve a long- term change, these norms and attitudes as well as how these students interact with each other have to be changed. Within the framework of a co-educative, universal approach, these aspects can be dealt with in the actual context. Boys as well as girls contribute to the establishment of these different norms. It seems for example

not very promising to only change the girls‘ behaviour in relation to comments about weight, while boys are still making negative comments.

The pursuit of a universal approach has also been discussed critically, referring to the risk of iatrogenic effects and a demotivation of high- risk adolescents in cases where other members of a group fail to understand their problems or show little interest in the topic. Plus, students who don't show disordered eating are possibly poorly motivated to deal with the topic. Nevertheless, Becker et al. (2005) report a survey according to which adolescents argued for mandatory participation of all students in the program. Maybe fear of stigmatization and exclusion plays a role when only subgroups are included. The POPS- Program disclaims explicit placement of background knowledge about eating disorders in class. It focuses in contrast generally on healthy eating and exercise behaviour, body image and media competence as well as on the increase of protective factors for different kinds of disorders (such as problem solving competences, coping with stress, social competence and self- esteem). These contents should be appealing for all adolescents.

For an assessment of the effectiveness of the program, a comprehensive evaluation of the approach is essential. The POPS program is currently being evaluated as part of a large-scale study using a randomised controlled trial (RCT) in four grammar schools and two comprehensive schools. This is a valid effectiveness study, since the program was provided by teachers under ecologically-valid conditions. There was huge interest in participation in a study about the prevention of eating disorders, especially among grammar schools. As mentioned, the teachers who mostly volunteered as trainers were themselves trained intensively. More than 1,000 pupils participated in the study. Not only short term (3-months follow- up), but also long term effects were analysed. Disturbed eating behaviour and body dissatisfaction as well as coping strategies, self- esteem and class norms were taken into account as outcome variables. Qualitative interviews with teachers and pupils will provide information about problems with the implementation and about possible program modifications.

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## References

Agras WS, Bryson S, Hammer LD, Kraemer HC (2007) Childhood risk factors for thin body preoccupation and social pressure to be thin. J Am Acad Child Adolesc Psychiatry 46:171-178

American Psychiatric Association (2000) Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR). APA, Washington.

Aschenbrenner K, Aschenbrenner F, Kirchmann H, Strauß B (2004) Störungen des Essverhaltens bei Gymnasiasten und Studenten. Psychotherap, Psychosom, Med Psychol 54:1-13

Aschenbrenner K, Kirchmann H, Strauß B (2004) Störungen des Essverhaltens bei Gymnasiasten und Studenten. Psychother Psych Med 54:1-13

Becker CB, Bull S, Schaumberg K, Cauble A, Franco A (2008) Effectiveness of peer-led eating disorders prevention: A replication trial. J Consult Clin Psychol 76:347-354

Becker CB, Smith LM, Ciao AC (2005) Reducing eating disorder risk factors in sorority members: A randomized trial. Behavior Therapy 36:245-253

Berger U, Ziegler P, Strauß B (2008) PriMa für Barbie: Evaluation eines Programms zur Primärprävention von Magersucht bei Mädchen ab der 6. Klasse. Z Psychosom Med Psychother 54:32-45

Berkman ND, Lohr KN, Bulik CM (2007) Outcomes of eating disorders: a systematic review of the literature. Int J Eat Disord 40:293-309

Berkman ND, Bulik CM, Brownley KA, Lohr KN, Sedway JA, Rooks A, Gartlehner G (2006) Management of Eating Disorders. Evid Rep Technol Assess 135:1-166

Botvin GJ, Griffin KW (2004) Life Skills Training: Empirical findings and future directions. J Prim Prev 25:211-232

Budd GM, Volpe SL (2006) School-based obesity prevention: Research, challenges, and recommendations. J Sch Health 76:485-495

Buddeberg-Fischer B, Reed V (2001) Prevention of disturbed eating behavior: An intervention program in Swiss high school classes. Eat Disord 9:109-124

Carter JC, Stewart DA, Dunn VJ, Fairburn CG (1997) Primary prevention of eating disorders: Might it do more harm than good?. Int J Eat Disord 22:167–172

Chamay-Weber B, Narring F, Michaud P (2005) Partial eating disorders among adolescents: a review. J Adolesc Health 37:417–427

Cohen SB (2006) Media exposure and the subsequent effects on body dissatisfaction, disordered eating, and drive for Thinness: A review of the current research. Mind Matters. Wesleyan J Psych 1:57-71

Crowther JH, Armey M, Luce KH, Dalton GR, Leahey T (2008) The point prevalence of bulimic disorders from 1990 to 2004. Int J Eat Disord 91:491-497

Dannigkeit N, Köster G, Tuschen-Caffier B (2005) Ist primäre Prävention von Essstörungen langfristig wirksam? Ergebnisse zur Evaluation eines Trainingsprogramms an Schulen. Zeitschrift für Gesundheitspsychologie 13:79-91.

Davison TE, McCabe MP (2006) Adolescent body image and psychosocial functioning. J Soc Psychol 146:15-30

Dominé F, Berchtold A, Akré Ch, Michaud PA, Suris JC (2009) Disordered Eating Behaviors: What About Boys?. J Adolesc Health 44:111–117

Fagan AA, Mihalic S (2003) Strategies for enhancing the adoption of school-based prevention programs: Lessons learned from the blueprints for violence prevention replications of the Life Skills Training program. J Community Psychol 31:235-253

Fingeret MC, Warren CS, Cepeda-Benito A, Gleaves DH (2006) Eating disorder prevention research: A meta analysis. Eat Disord 14:191-213

Groesz LM, Levine MP, Murnen SK (2002) The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. Int J Eat Disord 31:1-16

Hautala, LA, Junnila, J, Helenius, H, Väänänen, AM, Liuksila, PR, Räihä, H, Välimäki, M, Saarijärvi, S (2008) Towards understanding gender differences in disordered eating among adolescents. J Clin Nurs 17:1803–1813

Herpertz-Dahlmann B, Wille N, Hölling H, Vloet TD, Ravens-Sieberer U (2008) Disordered eating behaviour and attitudes, associated psychopathology and health-related quality of life: results of the BELLA study. Eur Child Adolesc Psychiatry 1:82-91

Hoek HW, van Hoeken D (2003) Review of the prevalence and incidence of eating disorders. Int J Eating Disord 34:383-396

Hoek, HW (2006) Incidence, prevalence and mortality of anorexia nervosa and other eating disorders. Curr Opin Psychiatry 19:389-94

Hölling H, Schlack R (2007) Essstörungen im Kindes- und Jugendalter. Erste Ergebnisse aus dem Kinder- und Jugendgesundheitssurvey (KiGGS). Bundesgesundheitsbl-Gesundheitsforsch- Gesundheitsschutz 50:794-799

Jacobi C, de Zwaan M, Hayward C, Kraemer HC, Agras SW (2004) Coming to terms with risk factors for eating disorders: Application of risk terminology and suggestions for a general taxonomy. Psychol Bull 130:19-65

Jerusalem M, Weber H (2003) Psychologische Gesundheitsförderung – Diagnostik und Prävention. Hogrefe, Göttingen.

Jones JM, Bennett S, Olmsted MP, Lawson ML, Rodin G (2001) Disordered eating attitudes and behaviours in teenaged girls: a school-based study. CMAJ 165:547-52

Keel PK, Haedt A (2008) Evidence-based psychosocial treatments for eating problems and eating disorders. J Clin Child Adolesc Psychol 37:39-61

Killen JD, Taylor CB. Hammer LD, Litt I, Wilson DM, Rich T, Hayward C, Simmonds B (1993) An attempt to modify unhealthy eating attitudes and weight regulation practices of young adolescent girls. Int J Eat Disord 13:369-384

Levine MP, Smolak L (2006) The prevention of eating problems and eating disorders. Theory, research, and practice. Lawrence Erlbaum Associates Publisher, Mahwah.

Mann T, Nolen-Hoeksema S, Huang K, Burgard D, Wright A, Hanson K (1997) Are two interventions worse than none? Joint primary and secondary prevention of eating disorders in college females. Health Psychol 16:215-25

Menzel, JE, Schaefer LM, Burke NL, Mayhew LL, Brannick MT, Thompson JK (2010) Appearance-related teasing, body dissatisfaction, and disordered eating: A meta-analysis. Body Image 7:261-270

Muise AM, Stein DG, Arbess G (2003) Eating disorders in adolescent boys: Areview of the adolescent and young adult literature. J Adolesc Health 33:427–35

Nation M, Crusto C, Wandersman A, Kumpfer K L, Seybolt D, Morrissey-Kane E, Davino K (2003) What works in prevention. Principles of effective prevention programs. Am Psychol 58:49-456

Neumark-Sztainer D, Hannan PJ (2000) Weight-Related Behaviors Among Adolescent Girls and Boys. Results From a National Survey. Arch Pediatr Adolesc Med 154:569-577

Neumark-Sztainer D, Story M, Hannan PJ, Perry CL, Irving LM (2002) Weight-Related Concerns and Behaviors Among Overweight and Nonoverweight Adolescents. Implications for Preventing Weight-Related Disorders. Arch Pediatr Adolesc Med 156:171-178

O'Dea J (2000) School-based interventions to prevent eating problems: First do not harm. Eat Disord 8:123-130

O'Dea J (2002) Can body image education programs be harmful to adolescent females?. Eat Disord 10:1-13

O´Dea J, Meloney D (2000) Preventing eating and body image problems in children and adolescents using the health promoting schools framework. J Sch Health 70:18-21

Piran N (2004) Prevention series - Teachers: On "being" (rather than "doing") prevention. Eat Disord 12:1-9

Polivy J, Herman CP (2002) Causes of eating disorders. Annu Rev Psychol 53:187-213

Ricciardelli LA, McCabe MP (2004) A biopsychosocial model of disordered eating and the pursuit of muscularity in adolescent boys. Psychol Bull 130:179–205

Ricciardelli LA, McCabe MP, Banfield S (2000) Sociocultural influences on body image and body change methods. J Adol Health 26:3-4

Rosen DS and American Academy of Pediatrics Committee on Adolescence (2010) Identification and Management of Eating Disorders in Children and Adolescents. Pediatrics 126:1240 – 1253

Simon J, Schmidt U, Pilling S (2005) The health service use and cost of eating disorders. Psychol Med 35:1543-51

Stice E, Maxfield J, Wells T (2003) Adverse effects of social pressure to be thin on young women: An experimental investigation of the effect of 'fat talk'. Int J Eat Disord 34:108-117

Stice E, Shaw H (2004) Eating disorder prevention programs: A meta-analytic review. Psychol Bull 130:206-227

Stice E, Shaw H, Marti CN (2007) A meta-analytic review of eating disorder prevention programs: Encouraging Findings. Ann Rev Clin Psychol 3:233-257

Striegel-Moore RH, DeBar L, Wilson GT, Dickerson J, Rosselli F, Perrin N, Lynch F, Kraemer HC (2008) Health services use in eating disorders. Psychol Med 38:1465–1474

Wade TD, Lowes J (2002) Variables associated with disturbed eating habits and overvalued ideas about the personal implications of body shape and weight in a female adolescent population. Int J Eat Disord 32:39-45

Warschburger P (2009) Körperunzufriedenheit und gestörtes Essverhalten bei Jugendlichen. Praxis Klinische Verhaltensmedizin und Rehabilitation 85:152-158

Wilson GT, Grilo CM, Vitousek KM (2007) Psychological treatment of eating disorders. Am Psych 62:199-216

Yager Z, O'Dea JA (2005) The role of teachers and other educators in the prevention of eating disorders and child obesity. Eat Disord 13:261-278

Figure 1: Multifactorial aetiological model

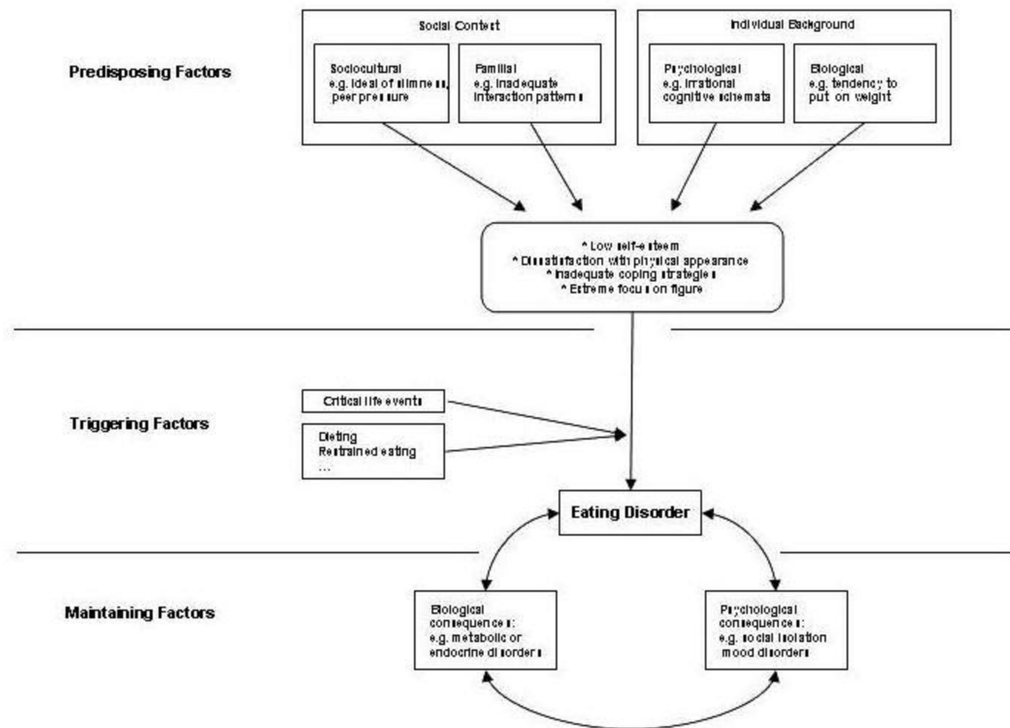

Figure 2: Subject areas of the POPS program

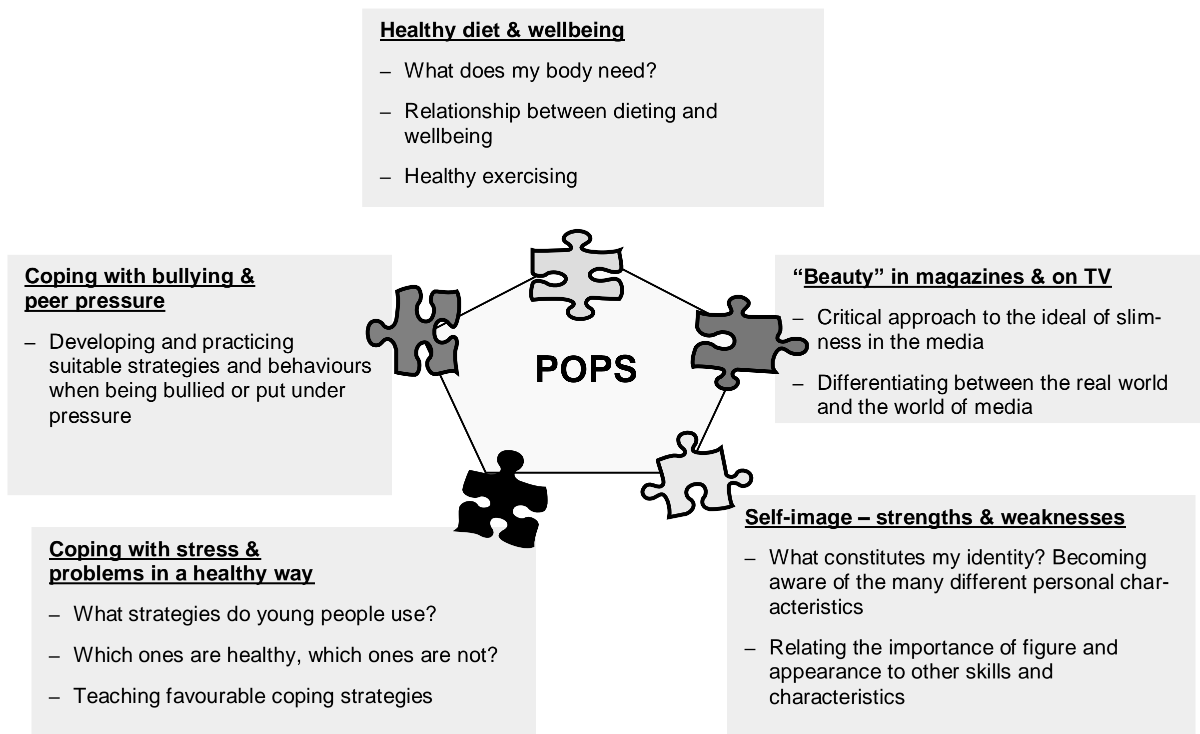

Table 1: Overview of the lessons and approaches of the POPS program

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| **Session 1:** | **Good food, bad food?** (Healthy diet & wellbeing)<br>In addition to imparting knowledge and practical tips on healthy diet in a vivid and playful way (short interview with a nutrition expert), this session debunks the prevalent myths about nutrition and diet through information and group discussion. Pupils will be encouraged to think about their own dietary and exercise habits and plan and try out new behaviours. Self-observation sheets support this process and homework will be given to help establishing healthy eating and exercise patterns. |
| **Session 2:** | **They can't fool us!** (Beauty in magazines & on TV)<br>The focus of the second session is on beauty ideals in the media and their effects. This was designed to promote a critical examination of media images and to enable pupils to distinguish between reality and the world of media. Adolescents will be asked to think about how they themselves are influenced by the media and are given information about how realistic photos are (using a photo shoot as an example). Using specific exercises, adolescents are asked to judge how close to reality the characters in their favourite TV show are. Gender- related ideals for boys and girls are outlined. |
| **Session 3:** | **Beauty is..?!** (What is really beautiful)<br>Session 3 resumes the previous session and deals with the comparison between media beauty and everyday beauty Thus, the main difference between "standard media beauty" and "everyday variety" is clarified. Based on photographs, pupils discuss in gender-homogenous groups about what beauty constitutes. Next, boys and girls exchange their ideas about beauty standards, which will often reveal very different individual ideas. Finally, pupils will use working material to find out the significance of beauty in their everyday life (e.g. with regard to friendships). |
| **Session 4:** | **I like myself, I don't like myself…** (self-esteem & body – strengths & weaknesses)<br>Thinking about oneself, one's own strengths as well as weaknesses is the focus of this session. The aim is to not just recognise those characteristics, but to accept |

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|  | them, too. Furthermore, the connection between being satisfied with one's own appearance and current mood is made clear. In a final exercise, pupils are told to give each other positive feedback. |
| **Session 5:** | **Stay cool!** (Coping with stress & problems in a healthy way– 1)<br>Session 5 deals with the origin of stress and how to deal with it. Based on the stress coping model of Lazarus, stories and comics are used to introduce the topic and typical stressful situations. Ineffective coping patterns are presented. Pupils are encouraged to identify their own stress triggers and examine their coping strategies with regard to their adequacy. As part of this process, the relationship between stress and eating patterns is examined. The aim is to not only reflect critically their current coping strategies in stressful situations, but also to find out about new and appropriate strategies and to give them a try in everyday life. |
| **Session 6:** | **Problems? – No problem for me!** (Coping with stress & problems in a healthy way – 2)<br>Once adolescents have become acquainted with the various coping strategies, they will now learn about pursuing a structured approach in problem situations. Using working material and discussions in small groups, the general approach will be developed with the help of examples that portray the typical problems young people experience (e.g. stress with the parents because of a new friend). Special emphasis is again placed on generating many different problem solving strategies and on their evaluation. In order to increase transfer to everyday life pupils are encouraged as homework assignment to think about their own personal problems and possible solutions. |
| **Session 7:** | **Bullying? – Not here!** (Coping with social pressure & bullying– 1)<br>Social pressure within the group plays an important role in the establishment of unhealthy eating and exercise patterns. A positive atmosphere in the class constitutes an important resource in this regard. Video clips (e.g. 'fat talk' among girls; social exclusion among boys; negative comments from parents) are designed to rouse the adolescents' awareness of this topic. The idea is to critically examine within the group the motives of the "perpetrators" as well as the consequences for their "victims". The goal here is to jointly formulate a binding set of rules designed to prevent and if necessary bypass bullying in their class. |

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| **Session 8:** | **Bullying? – Not with me!** (Coping with social pressure & bullying – 2)<br>In addition to a more environmental-focused preventive approach, it is also important to reinforce the young people's individual resources when coping with bullying and pressure exerted by others. Video clips will present various ways of dealing with such stressful situations, which will then be assessed by the pupils about their appropriateness. Adolescents will practise self-confident and non-aggressive ways of dealing with bullying in role-play situations. |
| **Session 9:** | **Everything comes to an end…** (end of the program)<br>During the fourth session, to strengthen their self-esteem, pupils were asked to design an "advert for themselves" as part of a competition. These posters are now put up and the pupils will choose the three best designs. To recapitulate the acquired new knowledge, two teams will compete in a quiz covering the main topics of the POPS program. |
| **Parents' meeting** | The parents' evening provides specific information about eating disorders. The symptoms and aetiology of eating disorders are explained briefly; the detrimental effects of negative comments about the child's weight are explained. In the next step the parents discuss what they can do if they suspect that their child suffers from an eating disorder. Parents are also given contact addresses for counselling and psychotherapeutic intervention services. |

**POPS – A school-based prevention program for eating disorders**

**Short title:** Prevention of eating disorders

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