PALME: a preventive parental training program for single mothers with preschool aged children

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Abstract

Aim: Single mothers are exposed to various psychosocial risks. They suffer more frequently from chronic diseases, depression and elevated stress levels. These risk factors have an impact also on their children, who display more frequently adaptation or behaviour problems. Thus, it was aimed to develop an efficient parental training program designed for the needs and problems of single mothers and their preschool aged children. The concept of PALME is based on attachment theory and psychodynamic-interactional approaches. The 20 weekly sessions of the program are manualised and follow a modular structure. It is guided by a couple (f/m) of trained kindergarten teachers.

Subjects and Methods: The efficacy of the program was evaluated within a randomised controlled trial. 61 complete data sets were analysed within a variance analytic model (group x time) pre and post treatment. Dependent variables for the mothers were psychological symptom load (SCL-90-R, BSS), well-being (SF-12), emotional competences (SEE), and problem behaviour (SDQ) for the children.

Results: It could be shown that maternal psychological symptom load and depression were reduced by the training, while maternal well-being and emotional competences were enhanced. Dependent from the intervention the children showed a tendency towards reduced problem behaviour.

Conclusion: The PALME program is suited for the prevention of maternal depression and for enhancing emotional competences of single mothers. Because of its benefits, low costs, easy implementation and good acceptance by the mothers it was implemented as regular help offer in many German communities.

Key words: single mothers • prevention • parental training program • maternal depression • child behaviour • PALME

Theoretical background

Numerous studies have demonstrated that single mothers suffer from a clearly worse socioeconomic status (Helfferich et al. 2003; Musick und Mare 2006; Spencer 2005; Franz 2005), but also from heightened mental stress levels and more often from depressive disorders than partnered mothers (Ringback Weitoft et al. 2000; Franz et al. 2003; Cairney et al. 2003; Wang 2004; Loxton et al. 2006). In general, maternal depression can impair the parental perception of the children's needs and the empathy for the children's actual emotional state and thus restrain the infant development (Luoma et al. 2001; McLearn et al. 2006). For this reason the statistically heightened depression of single mothers constitutes a risk factor also for the development of the child, especially if compensatory influences are missing. For children of single parent families an impaired social development, increased risks for psychological disorders and an impaired school achievement were reported (Hetherington et al. 1985; Chase-Lansdale et al. 1995; McLanahan 1999; Sadowski et al. 1999; Lipman et al. 2002; Gilman et al. 2003; Ringback Weitoft et al. 2003; Franz et al. 2003; Franz 2005; Hagen and Kurth 2007).

The PALME program

PALME[1] is a structured manualised preventive group intervention for psychosocial impaired single mothers with preschool aged children (3-6 years) developed by an interdisciplinary team of physicians, psychologists and educators. A PALME group consists of 12 up to 14 mothers and two trained group leaders (m/f) who have a moderating and demonstrating function. Based on attachment theory and psychodynamic-interactional approaches the program focuses on the strengthening of intuitive parental competences like empathy and the sensitive perception of the child's needs. Further it aims at the evolvement of social skills in dealing with own partnership conflicts and parental responsibility.

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[1] PALME = **Pa**rental training for **L**one **M**others guided by **E**ducators (www.palme-elterntraining.de)

Central aims of PALME

One of the central goals of PALME is the *reduction of maternal depression* to enable the mothers to empathise with the child's feelings and to mirror them in their responsive facial behaviour. The differentiating perception and empathic reflection of the child's feelings are fundamental requirements for the emotional development of the child. By the *consolidation of these intuitive parental functions* the *mother-child-relationship should be stabilised*. In addition to this focus on emotional processes PALME also includes concrete behavioural topics contributing to an effective stress managment. Because of the commonly existing conflicts of single mothers with their separated partners which often involve also the children, PALME aims at the *separation of the parental responsibility and couple conflicts*. Further goals of the program are to *treat self-esteem problems and feelings of guilt*, to *detect unconscious delegations to the chil*d (e.g. parentification) and to *practice social competences*.

Structure of the PALME-program

The PALME-program consists of twenty group sessions (90 minutes each), which are structured by four consecutive modules with different topics. The modules comprise four to six group sessions. The first session of PALME is reserved for warming up and clarifying rules and questions, the last session for retrospection, reflection and saying good-bye.

In the following section the contents and aims of the modules are described. The tables 1-4 provide a detailed overview of the particular modules.

Modul I: Emotion-focused self-perception of the mother

The first module focuses on the emotional self-awareness of the participants. It is based on the assumption that it is easier to empathise with the experience and needs of other persons if one is able to perceive different own emotional states. In the course of the module the mothers engage in their role demands, the perception, differentiation and articulation of their own feelings, but also in their self-esteem and their personal strengths and weaknesses based on their biographical backgrounds.

[please insert table 1 here]

Modul II: Empathy and perspective taking to the emotional experience and the developmental needs of the child

In the second module the mothers deal with the different needs of their children, most notably with their need for attachment/security and exploration/encouragement. The mothers learn about the importance of basic affects in the interpersonal regulation of these needs and how to assist the emotional exchange and development of the child. Sensitive listening and acting are exercised as basic empathic competences.

[please insert table 2 here]

Modul III: Perception of the family situation

In the third module the situation of the family system is considered. The importance of the father in general, the relationship to their own fathers of the mothers, the contact to the father of the child and the separation experience are picked out as central themes. In this module also the separation of the couple's conflict and the parental responsibility is a central issue.

[please insert table 3 here]

Modul IV: Goal-oriented development of social skills in the daily routine

The fourth module is more related to concrete behaviour than the other modules. It aims at the acquisition of behaviour patterns that help to prevent stress overload. The participants learn how to handle stress and conflict situations, also exercises to strengthen the ability to enjoy are carried out.

[please insert table 4 here]

Structure of a PALME session

Besides this modular structure of the program the individual sessions have a fixed course of action. Every session starts with a short input, wherein the participants report about their emotional state and their past week. Subsequently the

participants are instructed to conduct several exercises related to the theme of the session. These exercises are carried out individually, as couples, as working teams, or as group all together. Thereby a variety of methods is used, e.g. brainstorming, group dynamic role plays, guided imaginations in relaxation and sensomotor exercises. All group dynamic exercises or role plays aim at the empathic perspective taking and identification of the mothers with the needs of their children by activating and mobilising authentic emotions within the interactional group process. For some exercises especially designed didactic material exists like playing cards or worksheets to enrich the exercises and reduce the expended effort for the group leaders. At the end of each session the mothers get a leaflet with theoretical information about the topic as reminder and to enable them to rework the session. In addition, the mothers are instructed to perform exercises at home independently. These exercises serve to deepen the contents of the antecedent group session and to experience them practically. Most of these weekly exercises are arranged to support mothers and their children doing something together in cooperation and to intensify the contact between mother and child. In the next group session the experiences of the mothers with the mother-child exercises are discussed.

The PALME manual

To ensure adherence, and a constant high quality of the PALME group sessions and to facilitate the work of the group leaders the PALME program was published as a detailed manual (Franz 2009). Thereby, the group leaders get information about the theoretical background, the course of action and the exact organisation of each PALME session. The procedure of each exercise is described in detail to the point of concrete phrasing proposals. Nonetheless, the group leaders may adapt the program to the needs of the participants by shortening or skipping exercises, e.g. if a recent conflict rules the attention of a mother. After finishing a first version of the manual the program was tested and evaluated under naturalistic conditions in a randomised controlled trial (Franz et al. 2009; Franz et al. 2010).

Training of the group leaders

The PALME groups are intended to be conducted by a male and a female kindergarten teacher. This couple is an essential feature of the PALME groups,

because it helps the participating mothers, who mostly suffer from a recent partnership separation conflict, to get corrective experiences concerning their view of men and parental resp. couple relationship. Interested kindergarten teachers or other professionals like social workers, therapists are getting to be qualified during a training course of three days for guiding PALME groups. In this training course basic knowledge about leading groups and theoretical knowledge about attachment, developmental psychology and emotional development are taught. The course participants practice individual group sessions on the basis of the manual and exercise moderation techniques practically. Self-awareness exercises focussing on own internalized parental models sensitize the training participants for potentially challenging group situations. The group leaders have a moderating and demonstrating function and serve as a non-normative model for social learning and conflict management.

Implementation and evaluation of PALME

Method

After pilot-testing of the PALME concept in the university context it was implemented and evaluated within a randomised, controlled trial in two German cities. For implementation within the communal setting, steering committees consisting of members of the youth welfare office and the research team were established. Information sessions for directors and employees of day care centres were organised. This should enable the employees to present PALME in their institutions and to address potential participants confidentially and personally in order to make it easier for the mothers to take part. In addition, interested educators were obtained as PALME group leaders. To reach single mothers and motivate them to take part in PALME, information material like flyers and posters were presented in the cooperating day care centres. Furthermore information packs including a registration form and screening questionnaires to inquire actual burdens and risk factors were allocated by the educators in the day care facilities. Concurrently media reports advert to PALME.

Sample recruitment

By this procedure in both cities 127 single mothers could be interested for a participation in the study. They were screened of fulfilling the participation criteria. These were: biological mothers of preschool children aged 3-6 years, single mothers (separated from the biological father, new partnership possible), sufficient German language skills and a medium degree of psychosocial impairment. This criterion was fulfilled when mothers reached cut off values at least in one subscale of the *Hospital Anxiety and Depression Scale* (Hermann-Lingen et al. 2005). Mothers with an ICD-diagnosis of an addictive disorder, a serious personality disorder or another serious psychiatric disorder (surveyed with the *Structured Clinical Interview for DSM-IV*, Wittchen et al. 1997) were presumed to be unqualified for group participation and therefore excluded. In this case it was insured that these mothers could get qualified medical and psychological help from local clinical departments. Eighty-eight mothers met the participation criteria and were allocated by random to the intervention group (IG, N=47) and the waiting control group (CG, N=41, this group received the PALME intervention after ending of the study). The first data collection of social and psychological measures took place before intervention (t1); subsequently the mothers of IG attended once a week the 20 PALME sessions over a period of six months. Immediately after ending of the PALME groups there was a second data collection (t2). Figure 1 gives an overview of the study course.

[please insert figure 1 here]

Instruments

At t1 and t2 all participating mothers answered a detailed half-structured interview about their demographic features, biography, actual living conditions and health status. The psychometric data were collected by several standardized and proven questionnaires.

Psychological/psychosomatic stress (SCL-90-R)

The subjective impairment by physical and psychological symptoms were measured by the Symptom-Checklist-90-revised (Derogatis 1977; German version

of Franke 2002) The questionnaire consists of 90 items, which are divided into 9 scales. In addition, three global parameters can be calculated. The Global Severity Index (GSI) indicates the averaged mental stress related to all 90 items. In the female population GSI-values >= 0.80 suggest a considerable psychological stress, GSI-values >= 1.58 indicate a high up to very high psychological impairment. The internal consistencies (Cronbach´s Alpha) for the 9 scales computed in a representative sample of N=2141 varied between .75 and .97. In this study, the internal consistency for the depression scale ranged from .88 to .90, the internal consistency for the GSI was .97.

Psychological well-being (SF-12)

The short form of the SF-36 Health Survey (Bullinger and Kirchberger 1998) is designed to record the health-related quality of life. It comprises 12 items and the dimensions "physical health" and "psychological health", which latter we used. In the female population the mean value for "psychological health" is 51.3, only 25% display values ≤ 46.18. The mean value for the physical health is 47.93, values ≤ 42.10 (25. percentile) indicate a bad physical health. The subscale "psychological health" has internal consistency values between .79 and .81 in this investigation.

Psychogenic impairment (BSS)

The Impairment-Severity-Score (German version BSS; Schepank 1995) is an expert rating procedure for the physical, psychological and social impairment for the last seven days caused by psychogenic disorders[2]. The total score based on the three subscales varies between 0 and 12 points, a score > 4 is the threshold for case definition. The ratings were done by two trained graduate psychologists based on a clinical interview. The interrater reliability ranged between .89 and .99 for the total score.

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[2] i.e. neurotic spectrum disorders caused and triggered predominantly by psychosocial factors and emotional conflicts like anxiety, depressive, somatoform, or personality disorders, addictions or psychoreactive maladaptation to stressful life events.

Emotional competences (SEE)

The 42 items of the Scales on the Experience of Emotions (German version SEE, Behr and Becker 2004) measure an individual's style of experiencing, appraising and handling own subjective feelings. The questionnaire is structured into 7 subscales. Two scales were especially relevant in this study: "acceptance of own emotions" and "experience of emotional overflow". Scores< 19 (T=41) on the scale "acceptance of the own emotions" are classified as below average, scores > 25 (T=60) on the scale "experience of emotional overflow" are above average. In a sample of N=772 good up to very good internal consistency scores of .70 up to .86 could be obtained. In this study internal consistencies between .79 and .88 were computed for the both scales.

Child behaviour (SDQ)

Behavioural problems of the children were measured by the Strengths and Difficulties Questionnaire (SDQ, German version of Klasen et al. 2000). It consists of 25 items, which are divided into five subscales: "hyperactivity", "emotional problems", "problems in the interaction with peers", "behavioural problems" and "prosocial behaviour". The scores of the four problem subscales are aggregated into a "total problem score". The ratings were done by kindergarten teachers of the children (not the PALME group leaders). Total problem scores >=13 are viewed as marginal noticeable, scores > 16 as noticeable. The internal consistency for the total problem score determined in a representative sample of N=990 children and adolescents aged between 6 and 16 years was .82. In this investigation the internal consistencies ranged between .76 and .82.

Data analysis and statistics

The efficacy of the parental training program was investigated by computing models of univariate analyses of variance with repeated measures formed by the between subject factor group (IG, CG) and the within subject factor time (t1, t2). The PALME program was regarded to be effective when there was a significant group x time interaction effect in favour of the intervention group. In this case the differences between mean values over the time within each group were tested by computing inner group contrasts. Before starting the intervention possible initial

differences between both groups concerning the outcome variables were tested by multivariate and - in a second step - univariate analyses of variance for significance. If significant, the differences between IG and CG were adjusted by computing an analysis of covariance with the values at t1 as covariate. Frequency differences or differences of ordinal scaled data were investigated by chi square test, Fisher´s Exact test and Mann-Whitney-U-test. All data analyses were computed using SPSS (Statistical Package for Social Science 15.0, SPSS Inc.). As level of significance an error probability of p (α) < .05 (one-tailed) was defined.

Results

Sample description

Table 5 shows the demographic characteristics of the participating mothers and of the mothers who dropped out of the IG. The values of the 6 mothers who dropped out of the CG are not mentioned because of the small group size. The data analysis revealed only few significant differences between IG and CG concerning the demographic variables: Compared to IG, CG had more mothers who spoke another native language than German. Furthermore, in CG more mothers had a low school graduation and more mothers were primarily dependent from social services. The children of mothers in CG had significantly less frequently contact to their fathers. Despite randomisation there was a significant difference between IG and CG in the psychometric variables: Mothers in CG had higher mean values in the subscale "acceptance of own emotions" of the SEE than mothers of IG (F (1/57) = 6.19; p<0.05). This difference was considered in the data analysis.

Twenty-one mothers (45%) who were assigned to the IG stopped their attendance in the group intervention. Compared to IG, these mothers spoke more frequently another native language than German, had more preschool aged children and a lower school graduation. Regarding the psychometric variables there were no differences between IG and IG-Dropouts (table 6).

[please insert table 5 and table 6 here]

Outcome measures

The results of the data evaluation by repeated measures analyses of variance are listed in table 7. In the following sections the results are presented in detail.

[please insert table 7 here]

Psychological/psychosomatic stress (SCL-90-R)

The values for the psychological/psychosomatic symptom load (GSI) showed a significant group x time interaction effect (F (1/59) = 7.52; p<0.01), that means that the values proceeded differentially over time in IG and CG (figure 2). In IG mean GSI values diminished from 1.01 (SD=0.52) at t1 to 0.52 (SD=0.37) at t2. This change was significant when computing inner group contrasts (F (1/25) = 25.35; p<0.001). In CG, only a slight decrease in GSI-values from 0.81 (SD=0.54) at t1 to 0.66 (SD=0.45) at t2 could be observed which was not significant (F (1/34) = 3.31; n.s.).

[please insert figure 2 here]

Depression (SCL-90-R)

With respect to maternal depression there was a significant group x time interaction effect, too (figure 3, F (1/59) = 6.10; p<0.05). At t1 the mean depression score in IG was in a critical range (1.42, SD=0.79, >T=60), at t2 the mean score was reduced about nearly the half (0.69, SD=0.58; F (1/25) = 18.99; p<0.001). In CG the mean depression value declined only from 1.17 (SD=0.75) at t1 to 0.94 (SD=0.64) at t2, this difference was not significant (F (1/34) = 3.64; n.s.).

[please insert figure 3 here]

Psychological well-being (SF12)

Consistent with the other results the group x time interaction effect for the psychological well-being is significant (F (1/59) = 6.93; p<0.05, figure 4). Before intervention the values of the psychological well-being in both groups were far below the mean of the female population (mean=51). Immediately after the

intervention the value rose significantly in IG from 35.49 (SD=8.65) to 45.82 (SD=9.44; F (1/25) = 19.28; p<0.001). In CG the psychological well-being was found to be not significantly changed at t2 (40.80, SD=10.26) compared to t1 (38.86, SD=10.12; F (1/34) = 0.83; n.s.).

[please insert figure 4 here]

Emotional competence (SEE)

The "acceptance of the own emotions", which indicates the appreciation of the own feelings, evolved differentially in IG and CG over time (figure 5, F (1/57) = 12.46; p<0.01). In IG the mean scores of the acceptance of the own emotions rose significantly from t1=19.54 (SD=4.88) to t2=23.23 (SD=3.49; F (1/25) = 19.71; p<0.001). In CG there were no significant changes over time, at t1 the mean value was 22.64 (SD=4.65), at t2 it was 22.39 (SD=3.98; F (1/32) = 0.11; n.s.). Because mean scores of IG and CG differed significantly at t1 (F (1/56) = 5.56; p<0.05), we also conducted an analysis of covariance with the t1-values as covariate and the group membership as factor and compared the t2-values between both groups. Even after controlling for t1-scores a significant group effect could be found at t2 (F (1/56) = 5.62; p<0.05).

Regarding the scale „experience of emotional overflow", there was a trend for evolving differentially over time in IG and CG (figure 6, F (1/57) = 3.95; p<0.10). In IG the mean scores reduced significantly from t1=21.81 (SD=5.32) to t2=17.35 (SD=4.86; F (1/25) = 9.78; p<0.01). The mean score of CG remained almost the same from t1=20.15 (SD=6.71) to t2=19.06 (SD=6.65; F (1/32) = 1.18; n.s.).

[please insert figure 5 and 6 here]

Psychogenic impairment (BSS)

The maternal psychogenic impairment assessed by expert ratings as sum score for the somatic, psychic, social subscales differed for IG and CG over time, too (figure 7, F (1/59) = 13,24; p<0,01).

In IG the mean total-score for the last seven days declined from 4.50 (SD=1.33) at t1 - representing a considerable impairment - to a mean value of 2.23 (SD=1.92) at t2 (F (1/25) = 30.12; p<0.001; figure 7). The impairment scores in CG did not

change significantly over the measurement points. At t1 the mean value was $M_{t1}=4.37$ (SD=2.09), at t2 it was $M_{t2}=4.17$ (SD=2.55; F (1/34) = 0.27; n.s.).

[please insert figure 7 here]

Behavioural problems of the children (SDQ)

The behavioural problems estimated by the kindergarten teachers in the day care centres (not the trained PALME group leaders) tended to proceed differently in IG and CG over time (figure 8, F (1/35) = 3.07; p<0.10).

The children of mothers in IG showed significantly less behavioural problems at t2 compared with t1 (t1=7.12, SD=5.18 and t2=5.00, SD=4.11; F (1/13) = 7.26; p<0,05). The children of mothers in CG showed no significant changes in their behaviour over time (t1=7.65, SD=4.96, t2=7.57, SD=6.10; F (1/22) = 0.01; n.s.). Unfortunately not all kindergarten teachers returned the questionnaire so that the reported results rely on the analysis of only 37 cases.

[please insert figure 8 here]

Intention-to-treat analysis

As mentioned earlier, a rather high percentage of mothers (N=21, 45%) left the intervention group after a few sessions. To assure that the outcome data were not distorted by this fact, an additional intention-to-treat-analysis (ITT) was computed. For this purpose the data of IG and CG each including dropouts were compared. Thirteen of the 21 dropped-out mothers took part in the second measurement post intervention, 8 mothers were not available. The missing data of these remaining eight mothers were replaced by the Last-Observation-Carried-Forward-method (Streiner, 2002). As can be inferred from table 8, the ITT-analysis confirmed the obtained results substantially. Merely the reduction of emotional overflow and of the behavioural problems of the children could not be validated.

[Table 8]

Discussion

As expected the mothers in IG experienced positive changes in their well-being after ending the PALME-groups. The mothers showed lower levels of psychological/psychosomatic symptom load (SCL-90-R, GSI). This improvement is congruent with the psychogenic impairment (BSS) assessed by trained experts who were not aware of the group affiliation of the mothers. The participants also had less depressive symptoms (SCL-90-R, subscale DEP) after the PALME intervention. This is an important result because a long-lasting maternal depression affects the infantile development too and increases children's risk for behavioural problems (Franz and Lensche 2003; Franz et al. 2003; Goodman et al. 2010; Kouros & Garber 2010; Ashman et al. 2008; Foster et al. 2008; Trapolini et al. 2007; Riley et al. 2009). In addition, the mothers in IG reported a better psychological health (SF12) and improved emotional competences (SEE). The kindergarten teachers observed less behavioural problems (SDQ) in the children of IG-mothers. Since the kindergarten teachers were not informed about the group membership of the children's mothers, this trend cannot be explained by the expectancies of the kindergarten teachers. Unfortunately this result is based on the analysis of only 37 cases, so further investigations about this result are considered to be required. Finally, the mothers themselves evaluated the intervention program very positively (mean value 1.7 (SD=0.6) on a five-point Likert-scale with 1= very good and 5 = very bad, data range 1-3), concerning the behaviour of their children and their relationship to them.

This study has also some limitations. The psychosocial impaired single mothers were preselected by means of their HADS-scores so that the sample was not representative for all single mothers. Thus, it is possible that relevant correlations were underestimated and the results cannot be transferred to all single mothers. Other possible threads for the internal validity of the results could be a systematic dropout and different initial outcome scores in IG and CG. Except for the "acceptance of the own emotions" there were no significant differences between the original groups immediately after randomisation, between IG and IG-dropouts and between the resulting IG and CG after dropout. For the SEE subscale "acceptance of own emotions" it could be shown that the group effect at t2 persist even if data were controlled for the different initial values in IG and CG.

Furthermore, most results could be replicated by an ITT analysis including the dropouts. In addition, all mothers who left the IG were rather motivated to participate further on. But mostly due to overload by interfering duties relating to work or caretaking, they were not able to organise it. All mothers regretted explicitly, that they had to withdraw from the PALME-group. Therefore, it is not probable that the positive effect in IG is caused by a selection bias leaving only highly motivated and/or less burdened mothers in IG.

There were some differences in the demographic variables between IG and CG: Among the IG-dropouts, more mothers spoke another native language, had two or more preschool-aged children and/or had a lower school graduation. This fact underlines the statements of the dropped-out mothers, that the timing of the groups was not compatible to their other liabilities. Beyond that it can be assumed, that the mothers had also comprehension difficulties or maybe did not accept the group training program.

PALME is a unique parental training program for single mothers in German-speaking countries, where help offers especially designed for the needs of single mothers were missing until now. PALME is an economic, low-threshold program which is very well accepted by the mothers. Reduction of maternal depression, affect mobilisation and empathic perspective taking of the mothers may be induced by the interactional group dynamic approach of PALME. These factors are also important mediators of the improvement of infantile problem behaviour (Garai et al. 2009; Foster et al. 2008), which also was influenced by PALME in our study. Behavioural and coping aspects or everyday stress management follow in second line. Because of this explicit integration of emotional and interactional group dynamic processes including the biographical background, attachment and behaviour oriented aspects, PALME - with regards to content and concept - exceeds other available parental training programs (e.g. Forgatch & DeGarmo 1999; Wolchik et al. 2000,2002; Lipman & Boyle 2005), which are predominantly or exclusively behaviour centred. Finally the scientific evaluation using a RCT-design demonstrated sustained effects of the program on maternal depression, symptom load, emotional competences and child behaviour.

The authors declare that they have no conflict of interest.

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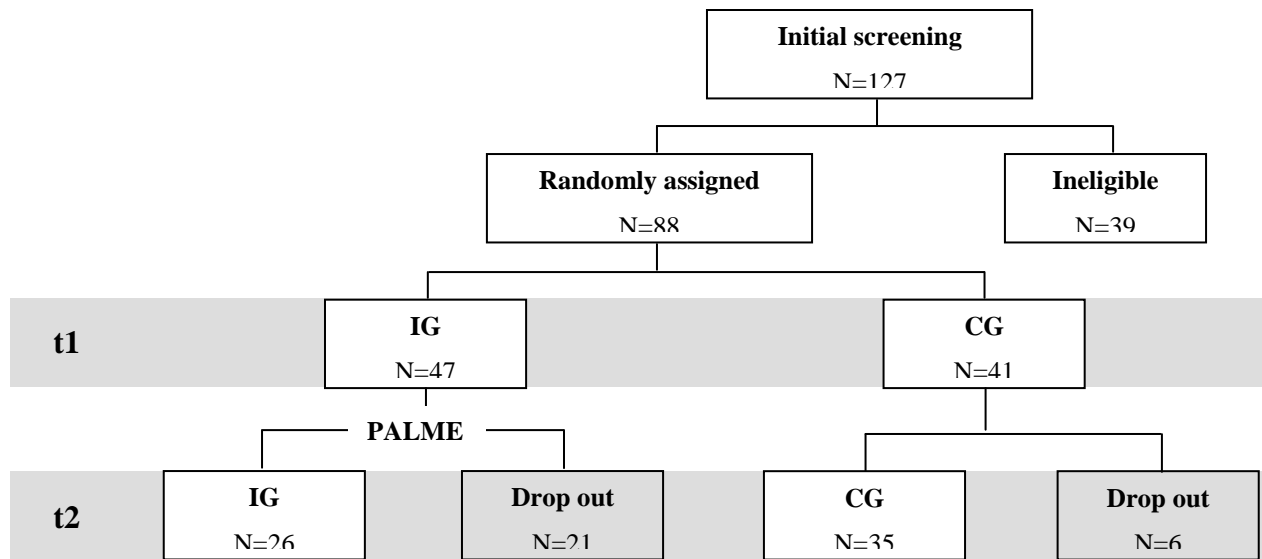
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                          ┌──────────────────────┐
                          │   Initial screening   │
                          │        N=127          │
                          └──────────┬───────────┘
                     ┌───────────────┴─────────────────┐
          ┌──────────────────────┐         ┌──────────────────────┐
          │  Randomly assigned   │         │      Ineligible       │
          │        N=88          │         │        N=39           │
          └──────────┬───────────┘         └──────────────────────┘
          ┌──────────┴──────────────────────────────┐
   ┌─────────────┐                           ┌─────────────┐
t1 │     IG      │                           │     CG      │
   │    N=47     │                           │    N=41     │
   └──────┬──────┘                           └──────┬──────┘
      ┌── PALME ──┐                          ┌───────┴───────┐
 ┌─────────┐ ┌──────────┐              ┌─────────┐ ┌──────────┐
t2│   IG    │ │ Drop out │              │   CG    │ │ Drop out │
 │  N=26   │ │  N=21    │              │  N=35   │ │   N=6    │
 └─────────┘ └──────────┘              └─────────┘ └──────────┘
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Figure 1. Survey of the study course and the sample recruitment
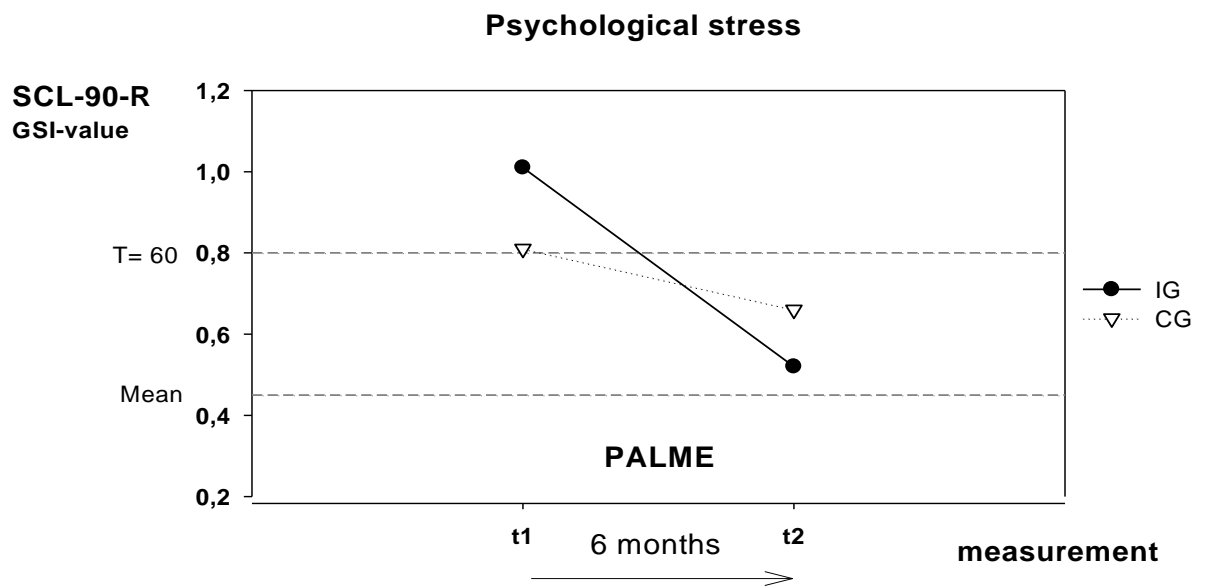
IG = Intervention group, CG = Control group

Figure 2. Psychological/psychosomatic symptom load (GSI) in IG and CG over time, N=61

The mean value in the female population is 0.45, values $\geq$ 0.8 (T=60) indicate a serious stress which increases the risk of psychological disorders.
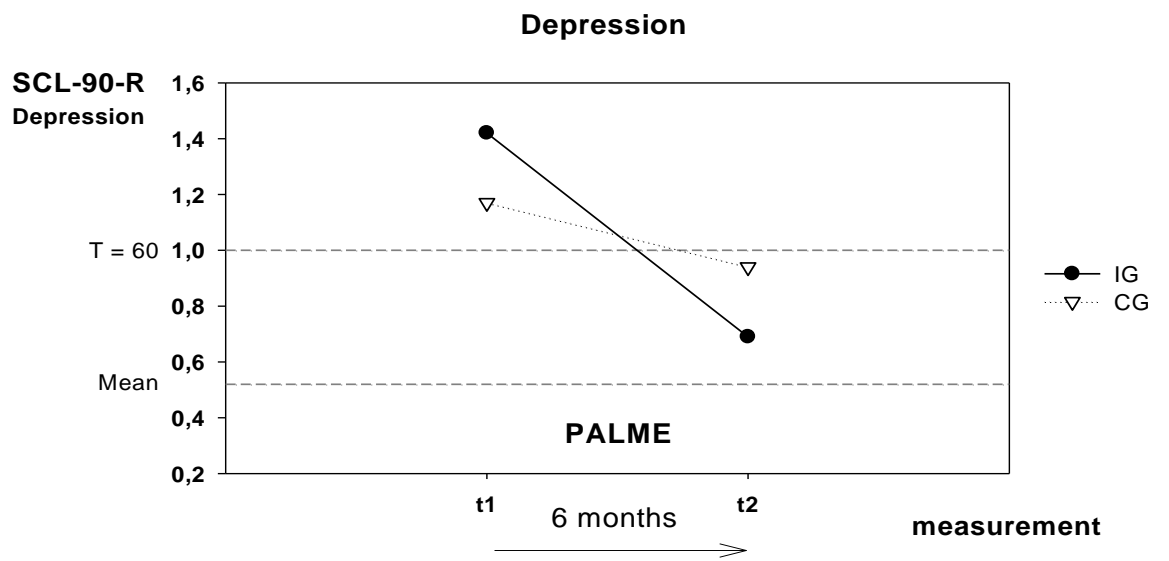
Figure 3. Depression in IG and CG over time, N=61

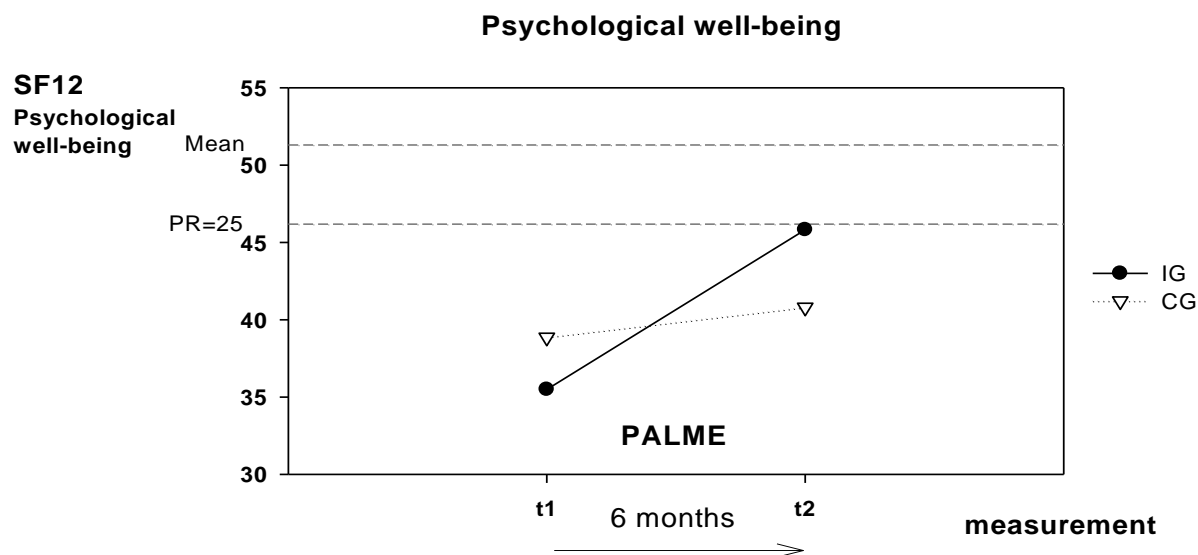The mean score of the female population is 0.52, values ≥ 1.0 (T=60) indicate a considerable depression.

Figure 4: Psychological well-being in IG and CG over time, N=61

The mean value in the female population is 51, less than a quarter have a value of 46 (25th percentile) or beneath.

Acceptance of the own emotions
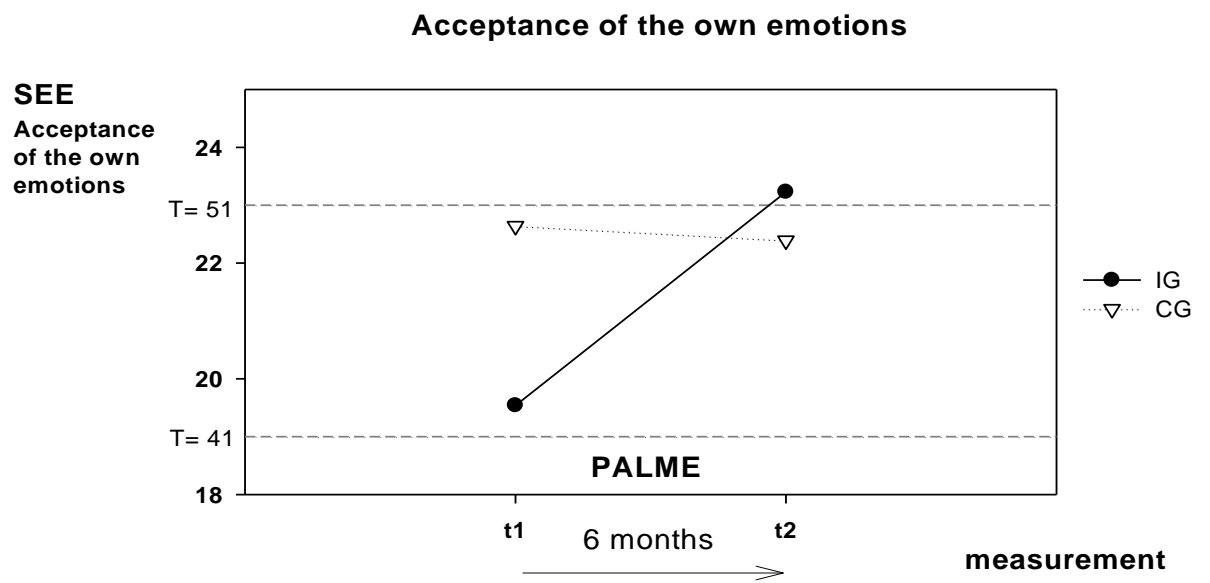
Figure 5: Acceptance of the own emotions in IG and CG over time, N=59

The mean value in the population is 21.9. Values less than 19 (T=41) are considered to be below average.

Experience of emotional overflow
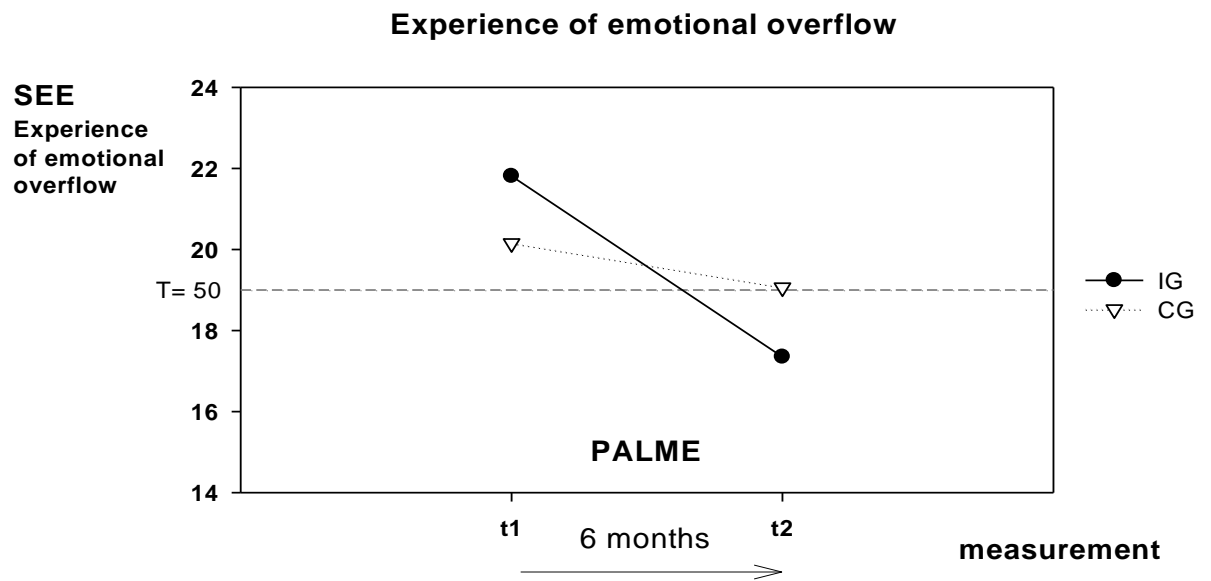
Figure 6: Experience of emotional overflow in IG and CG over time, N=59

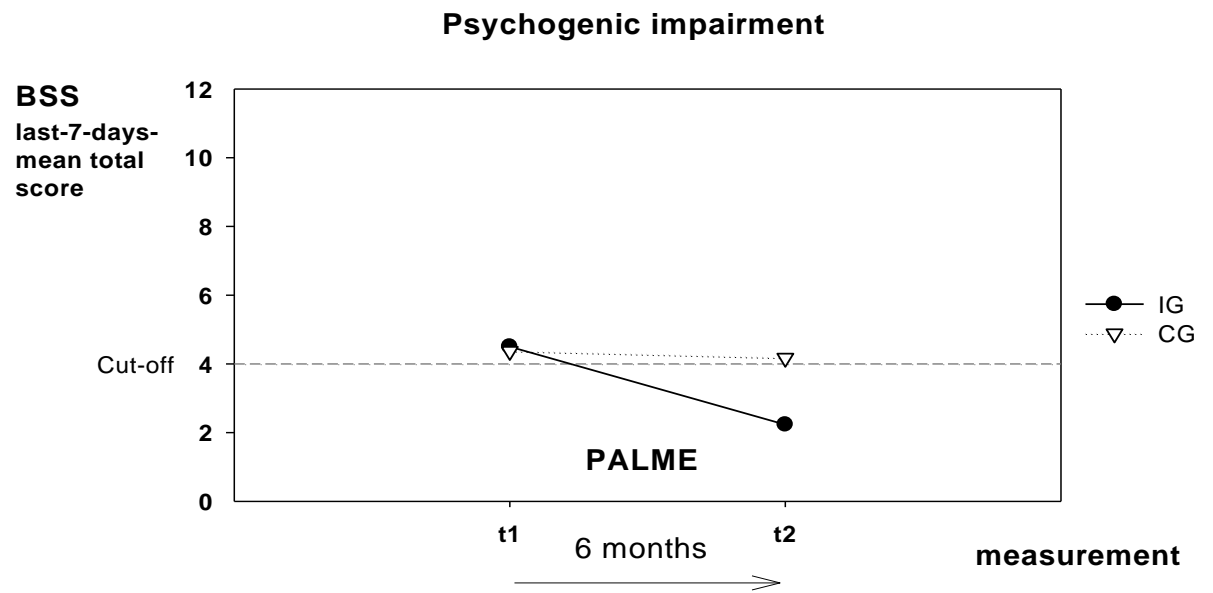The mean value in the population adds up to 20.9 (M). Values over 25 (T=60) suggest a surpassing emotional burden.

Psychogenic impairment

Figure 7: Psychological impairment in IG and CG over time, N=61

A mean score of 4-5 indicates a considerable dysfunction of clinical significance, values ≥ 6 allude to a pronounced, fairly impairing disease.
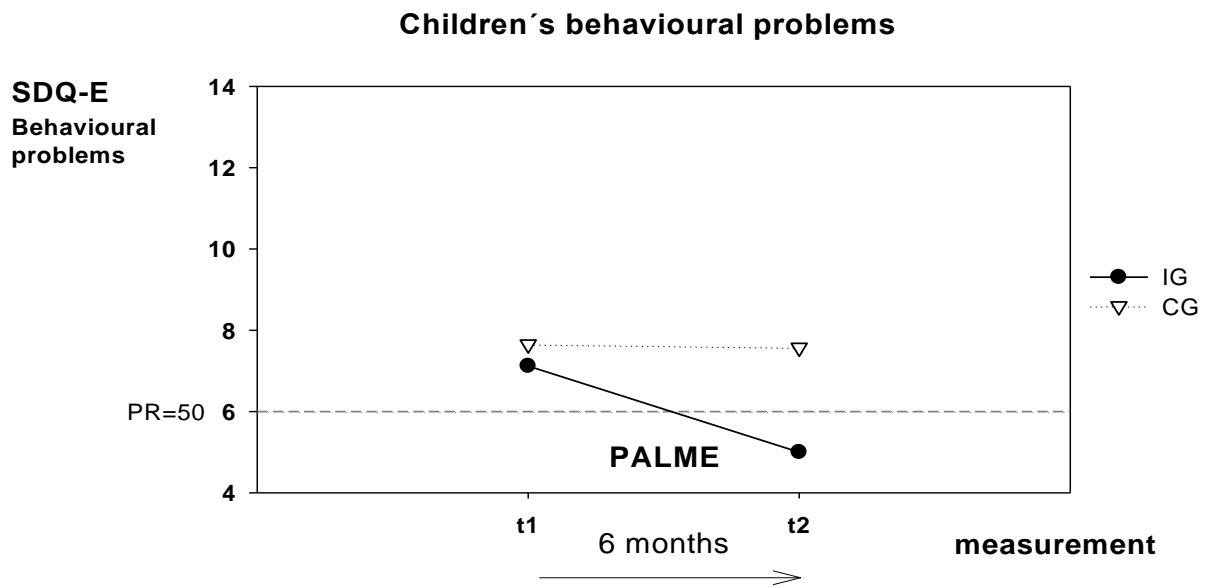
Children´s behavioural problems

Figure 8: Behavioral problems of the children assessed by kindergarten teachers, N=37

The 5th percentile is about 6 meaning that an equal number of cases have values below or above this value. Less than a quarter of the normal population have values ≥ 11 (77th percentile).

Table1. Module I: Emotion-focused self-perception of the mother

	Topic	**Central Questions**	**Aims**
1	Introduction and getting acquainted with each other	• What is PALME? • What should I expect from PALME?	• introducing oneself and getting acquainted with each other • constitution of realistic expectancies • clarifying questions
2	Meaning and risks of social roles	• What are the role expectancies that are directed to me? • Who should I be? • How do I notice the expectancies of others? How do I feel about that?	• identification and denomination of role attributions and expectancies • facilitation of self-perception
3	Perception, differentiation and articulation of the own feelings – approaching one-self	• What is an emotion? • How do I recognize what I am feeling? • Who I want to be?	• recognition and observance of physical emotional expressions • perception, differentiation and articulation of the own feelings • feeling and describing one-self
4	Self-esteem and self-confidence	• What are my strengths? • How can I esteem myself? • How can I feel valuably?	• restoring self-esteem • recognition and stabilisation of the own self-esteem
5	Negative self-perception, self-devaluation and self-damage	• How can I detect and name negative feelings? • Which consequences have negative feelings for me? • What are my real weaknesses?	• realistic recognition of own weaknesses • recognition of exaggerated negative feelings • recognition and reduction of excessive self-reproaches

Abbreviations: BS= brain storming, TW= team work, M= meditation, SE= single exercise, RP=

role play, GL= group leaders, GE= group exercise, CE= couple exercise, G= group, D=

discussion, CI= couple interview

Table 2. Module II: Empathy in the emotional experience and the developmental needs of the child

	Topic	Central Questions	Aims
6	Fundamental needs of a child	• What are my child's needs? • What does my child need and whereby do I recognize that?	• perception and comprehension of the child's needs (attachment and exploration) • understanding the importance of a secure attachment • comprehension of the different needs of girls and boys
7	Children and emotions	• What are my child's feelings? • What does my child feel and whereby do I recognize that?	• perception and comprehension of the child's feelings • perception and comprehension of the different feelings of girls and boys
8	Empathic listening	• How do I listen to my child in an empathic manner? • How do I talk to my child?	• getting the ability to communicate with children in an appropriate manner • learning to listen in an empathic manner
9	Empathic acting	• What is an empathic interaction with my child? • How do I act in an empathic manner?	• learning to act in an empathic manner

Table 3. Module III: Perception of the family situation

	Topic	Central Questions	Aims
10	The importance of the father	• Why does my child need its father? • What is my own father image like? How is the linkage between the relationship to my father and my image of men? • What image of men do I convey to my child?	• recognition of the importance of the father for the child's development • perception and acceptance of the different gender-related needs of girls and boys with regard to the father • recognition of the importance of the own father image for the image of men
11	Separation and the time after	• How did my separation proceed? • How do I feel today in view of my separation? • How can I help myself in course of the separation process?	• discussion of the own separation process • perception of the separation-related feelings • finding support and using it for handling the separation consequences
12	Couple conflicts and the parental responsibility	• How can I distinguish between parental responsibility and conflicts with my partner? • How can I satisfy the needs and wishes of my child concerning both parents in the daily routine? • Who do I want to be?	• separation of parental responsibility and partner conflict • realisation of the shared parental responsibility • identification of the child with both parents
13	The possibility of a new relationship	• What is my attitude concerning a relationship? • Whereby do I know that a partner is "Mr Right" for me? • What endangers a relationship?	• recognition of different attitudes to relationship-related themes • clarifying of expectations and wishes with regard to a relationship
14	Meaning and constitution of rituals in the daily family routine	• Why are rituals meaningful in the daily routine? • Which rituals exist actually?	• learning of the conjoint configuration of rituals • extension of the ritual repertoire

Table 4. Module IV: Goal-oriented development of social skills in the daily routine

	Topic	Central Questions	Aims
15	Handling of rules in the family everyday life	• What is the intention of rules? • How do I introduce new rules? • How do I accomplish the permanent maintaining of rules?	• introduction of new rules • creating an awareness of the difficulties in the handling of rules • working out possible solutions
16	Conflicts	• Which conflicts do I have? • How can I handle intense feelings like anger and rage? • Which possibilities to solve conflicts exist?	• acquisition and expansion of possibilities to solve conflicts in the daily routine • handling of strong feelings like anger and rage
17	Social skills and conflicts	• What are social skills? • What characterises confident behaviour in conflict situations? • What can I do to appear self-confidently?	• learning to differentiate between confident behaviour and unconfident and aggressive behaviour • acquaintance of social skills and enhancement of self-confidence • enlargement of the behaviour repertoire and of the scope of

			action
18	Handling and reduction of stress	• What is stress? What are the three layers of stress • In what situations do I feel stressed? • Which stress-enhancing attitudes do I have? • In doing what do I relax? • What are my personal stress areas?	• recognition of stress trigger • modification of stress-enhancing attitudes • learning to relax
19	Enjoyment and well-being	• What does enjoyment and well-being mean for me? • How can I give myself a treat in the daily routine?	• development of the ability to enjoy • communication of enjoyment rules • training of the senses
20	Retrospection and farewell	• How can I say farewell? • What was important for me and what do I want to pick up? • How do I evaluate the experiences in retrospect	• Saying farewell according to the situation • building intentions

Table 5. Demographic characteristics of intervention group (IG), control group (CG) and Dropouts

(DO) at t1

Feature	Specification	IG (N=26)		CG (N=35)		Test fo...
		n	%	n	%	IG
Age	M (SD)	36.6 (5.3)		36.1 (6.0)		F (1/59)
Native language German	yes	26	100	30	85.7	Fisher´s
	no	0	0	5	14.3	
Nationality	German	26	100	32	91.4	Fisher´s
	not German	0	0	3	8.6	
Number of children	M (SD)	1.9 (1.2)		1.7 (0.8)		F (1/59)
Number of children in preschool age (< 6 years)	M (SD)	0.81 (0.40)		0.97 (0.51)		F(1/59)
Family status	unmarried	9	34.6	12	34.3	χ^2(df=2)
	separated	11	42.3	8	22.9	
	divorced	6	23.1	15	42.9	
Established relationship	yes	6	23.1	8	22.9	χ^2(df=1)
	no	20	76.9	27	77.1	
School graduation	max. secondary school qualification	2	7.7	13	37.1	Z=-2.97
	secondary school certificate	9	34.6	13	37.1	
	higher education qualification	15	57.7	9	25.7	
Professional education	none	2	7.7	8	22.9	Z=-0.91
	traineeship	22	84.6	22	62.9	
	technical college/university	2	7.7	4	11.5	
Occupation	yes	16	61.5	16	45.7	χ^2(df=1)
	no	10	38.5	19	54.3	
Household net income	Euro, M (SD) total	1555 (458)		1383 (352)		F (1/58)
	Euro, M (SD) each person	606 (201)		546 (133)		F (1/58)
Primary income source	own income/fortune	13	50.0	13	37.1	χ^2(df=2)
	social welfare benefits	6	23.1	19	54.3	
	alimentation	7	26.9	3	8.6	
Child contact to father	never	5	19.2	11	31.4	Z=-2.37
	< 1x per month	3	11.5	8	22.9	
	at least 1x / months	8	30.8	13	37.1	
	at least 1x / week	10	38.5	3	8.6	

Table 6: Psychological characteristics of intervention group (IG), control group (CG) and
Dropouts (DO) at t1

| Measure | Instrument | IG (N=26) | | CG (N=35) | | Test fo... |
		M	SD	M	SD	
Psychic/psychosomatic strain	SCL-90-R (GSI)	1.01	0.52	0.75	0.53	F (1/56)
Depression	SCL-90-R (DEP)	1.42	0.79	1.11	0.76	F (1/56)
Psychological well-being	SF12	35.49	8.65	40.10	9.54	F (1/56)
Acceptance of own emotions	SEE	19.54	4.88	22.50	4.66	F (1/56)
Experience of emotional overflow	SEE	21.81	5.32	19.91	6.66	F (1/56)
Psychogenic impairment	BSS (sum score)	4.46	1.38	4.41	1.91	F (1/49)
Behavioural problems (children)	SDQ (sum score)	8.33	5.13	7.24	4.60	F (1/26)

M=mean, SD= standard deviation

Table 7. Mean values (MW), standard deviations (SD) and statistical test values (ANOVA) for the
psychological variables in the intervention group (IG, N=26) and control group (CG, N=35)

Measure		t1		t2		
		IG	**CG**	**IG**	**CG**	
		M (SD)	**M** (SD)	**M** (SD)	**M** (SD)	
Psychic/psychosomatic strain	SCL-90-R, GSI	**1.01** (0.52)	**0.81** (0.54)	**0.52** (0.37)	**0.66** (0.45)	
Depression	SCL-90-R	**1.42** (0.79)	**1.17** (0.75)	**0.69** (0.58)	**0.94** (0.64)	
Psychological well-being	SF12	**35.49** (8.65)	**38.86** (10.12)	**45.82** (9.44)	**40.80** (10.26)	
Acceptance of own emotions	SEE	**19.54** (4.88)	**22.64** (4.65)	**23.23** (3.49)	**22.39** (3.98)	
Experience of emotional overflow	SEE	**21.81** (5.32)	**20.15** (6.71)	**17.35** (4.86)	**19.06** (6.65)	
Psychogenic impairment	BSS	**4.50** (1.33)	**4.37** (2.09)	**2.23** (1.92)	**4.17** (2.55)	
Behavioural problems children	SDQ $N_{IG}=14$; $N_{CG}=23$	**7.12** (5.18)	**7.65** (4.96)	**5.00** (4.11)	**7.57** (6.10)	

Table 8. Results of the intention-to-treat-analysis. Mean values (MW), standard deviations (SD) and statistical test values (ANOVA) for the psychological measures in the original intervention group (IG incl. Dropouts, N=47) and the original control group (CG incl. Dropouts, N=41)

Measure		t1		t2	
		IG	CG	IG	CG
		M (SD)	M (SD)	M (SD)	M (SD)
Psychic/psychosomatic load	SCL-90-R, GSI	**0.94** 0.52	**0.83** 0.54	**0.56** 0.41	**0.71** 0.47
Depression	SCL-90-R	**1.33** 0.71	**1.16** 0.72	**0.78** 0.60	**0.96** 0.63
Psychological well-being	SF12	**34.38** 8.42	**38.69** 10.03	**44.03** 10.11	**40.35** 10.20
Acceptance of own emotions	SEE $N_{CG}=40$	**20.53** 4.66	**22.60** 4.38	**23.26** 3.68	**22.40** 3.80
Experience of emotional overflow	SEE $N_{CG}=40$	**21.02** 5.53	**20.73** 6.52	**17.83** 5.14	**19.83** 6.56
Psychogenic impairment	BSS	**4.51** 1.54	**4.37** 2.06	**3.17** 2.26	**4.20** 2.46
Behavioural problems children	SDQ $N_{IG}=25$; $N_{CG}=27$	**7.17** 5.17	**7.95** 5.07	**5.72** 4.41	**7.88** 6.04