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Effectiveness of the International Child Development Programme: Results from a randomized controlled trial

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Abstract

This study aimed to evaluate the effectiveness of the International Child Development Programme (ICDP), a group-based parenting programme used internationally and implemented nationally in Norway. We used a cluster randomized controlled trial in which 81 groups were randomly assigned to either the intervention or waitlist control condition after the baseline data collection. A total of 590 parents completed at least one of three questionnaires (administrated before and after ICDP and 4 months after completing the intervention). Primary outcomes included parental self-efficacy, parental emotion sensitivity and positive involvement with their child. Secondary outcomes included parents' perceptions of their relationship with the child, child-rearing conflicts and the child's psychosocial health. We found significant effects favouring the intervention arm following the intervention and at follow-up on two primary outcomes (parental self-efficacy and emotion sensitivity). For the secondary outcomes, we found a significant reduction in child-rearing conflict at the 4-month follow-up, increased closeness to the child, reduced child internalizing difficulties and increased prosocial behaviour immediately following the intervention. However, ICDP seems to have limited effects on parent-reported changes in children. We conclude that ICDP as a universal preventive programme offered to parents in groups can be effective in strengthening parental self-efficacy and improving parental emotion sensitivity.

KEYWORDS
child development, community intervention, group intervention, parent–child relationship, parenting programme, RCT

1 | INTRODUCTION

1.1 | Background

Having positive relationships with close caregivers nurtures children's physical, emotional and social development, and the interaction between the parent and their child is of significance importance (Gottman et al., 1996; Sroufe, 2005). Poor parental care, however, is a risk factor for negative development in children, such as challenges with emotion regulation and behavioural problems (Campbell et al., 2000; Gottman et al., 1996; Perry et al., 2020). A new guideline from the World Health Organization (WHO, 2020) recommends

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interventions that support responsive caregiving and early learning to promote a healthy childhood development. Parental guidance programmes, in which parents can learn new skills and strengthen their existing parenting abilities, are one way to support parents in their parenting roles. Across the various parenting programmes, group-based programmes are widespread. Group interventions can be cost-effective compared to interventions provided at an individual level (Davies et al., 2016, 2018; El-Sheikh et al., 2013; Furlong et al., 2012; Nystrand et al., 2019). Randomized controlled trials (RCTs) have shown that parenting programmes can be effective in improving parental self-efficacy (Miller & Harrison, 2015; Ulfsdotter et al., 2014) and enhance parent emotion socialization practices (Havighurst et al., 2022). Parental self-efficacy refers to parent's confidence in their abilities to engage in general parental behaviour, which is expected in a parental role (Jones & Prinz, 2005).

A systematic review of 48 studies on behavioural, cognitive–behavioural and multimodal parenting programmes reported that interventions designed to support parents in their parenthood have a positive effect on parental psychosocial health (Barlow et al., 2014). A more recent systematic review showed that interventions for parents of young children that promote responsive care and learning opportunities have significant effects on positive child development (Prado et al., 2019). Another recent review that examined the impact of 14 different parenting programmes showed positive changes in both parenting and child behaviour outcomes after participating in the programmes (Branco et al., 2021). Other systematic reviews have shown that parenting programmes improve emotional and behavioural adjustment in children as well as the psychosocial well-being of parents (Barlow et al., 2016; Barlow & Coren, 2017).

Specific components demonstrated to be effective in facilitating these improvements depend on the content of the specific programme. However, a meta-analysis that compared 26 recurring parenting techniques identified in parenting programmes found that positive reinforcement and nonviolent discipline seem to be key components in reducing disruptive child behaviour (Leijten et al., 2019). The meta-analysis also showed that universal programmes and selective preventive programmes were less effective than indicated prevention and treatment programmes. Another meta-analysis showed that components associated with large effects from parenting programmes were teaching emotional communication skills, teaching parenting consistency and requiring parents to practice new skills during parents' training sessions (Wyatt Kaminski et al., 2008). In the literature on parenting programmes, there are also indications of delayed effects on children, so-called 'sleeper effects' (van Aar et al., 2017). Despite increased evidence on the effects of parenting programmes, there is still a need for more studies examining the long-term effectiveness of group-based parenting programmes (Barlow et al., 2016; Barlow & Coren, 2017) and more studies using more rigorous methodological designs such as RCT design with long-term follow-up (Branco et al., 2021).

This study investigated the effects of the group-based parental guidance programme, the International Child Development Programme (ICDP), in Norway. The study was initiated by the Norwegian Directorate for Children, Youth and Family Affairs (Bufdir). ICDP was developed in Norway in the 1980s and is currently being used in more than 50 countries worldwide. In Norway, ICDP parental groups are provided by the government as a universal, free-of-charge and voluntary intervention offered to parents of children aged 0–18 years (Hundeide & Armstrong, 2011). The groups are led by trained and certified facilitators, and they are often put together based on the age of the children. ICDP was initially designed to target younger children. The programme has, however, been adapted and used for parents of adolescents and other specific groups. Compared to other parenting programmes, such as Triple P and Incredible Years, which aim at reducing behavioural difficulties in children, the aim of ICDP is to strengthen the conditions for children's upbringing and development, to support and empower parents in their mastering of parenthood through supporting their intrinsic caring competence and to enhance and enrich the relationship between the caregivers and their children (Wesseltoft-Rao et al., 2017). The programme is thus based on the assumption that maldevelopment in children can be prevented indirectly by supporting parents in creating a safe, stable and nurturing environment (Bufdir, 2016). Positive changes in the child's behaviour and in the parent–child relationship are expected to occur when parents change their parenting styles and their way of interacting with and understanding the child. This improved interaction and communication between parents and their children, and improvement in mastering the parental role, is assumed to contribute to increased parental self-efficacy.

Previous research examining the effectiveness of ICDP reports promising results. Using a quasi-experimental design, Sherr et al. (2014) reported improved parental attitudes and child-rearing skills immediately after completing ICDP in a community sample of parents in Norway. Another study, using the same sample and design but with 6- to 12-month follow-up assessment (Skar et al., 2015), showed a trend towards improved parental self-efficacy and less child difficulties 6 months after participating in ICDP. However, the effect sizes in the two above-mentioned studies were small. ICDP seems to produce effects in diverse contexts with a variety of groups of parents, including mothers with ethnic minority background (Skar, von Tetzchner, et al., 2014a) and fathers in prison (Skar, von Tetzchner, et al., 2014b). The impact of ICDP has also been investigated in low- and middle-income countries, reporting positive effects, including a reduction in parents' use of violence (Skar et al., 2017), improvement in caregiver skills, parental self-efficacy and parental mental health, as well as in children's psychosocial functioning and development (Abarashi et al., 2014; Dybdahl, 2001; González-Fernández et al., 2020; Skar, Sherr, et al., 2014). In these studies, the effect sizes are not reported, with the exception of Skar, Sherr, et al. (2014), who showed small to moderate effects. In general, universal programmes are more likely to have small to moderate effects, but they can still be valuable and important at the population level (e.g. Greenberg & Abenavoli, 2017; Tanner-Smith et al., 2018).

Although ICDP is widely disseminated and used in Norway and other countries, its effect has never[1] been rigorously evaluated with

an RCT design in a high-income country. The two previous studies of ICDP that used an RCT design were conducted on $n = 40$ participants in Iran (Abarashi et al., 2014) and $n = 176$ participants in Colombia (Skar et al., 2017),

2 | OBJECTIVES

The overarching objective of the present study was to gain knowledge about the effect of the universal ICDP parenting programme in Norway using an RCT design that included three measurement points, validated instruments and a larger study sample than previously used. More specifically, we aimed to examine changes in the parents, the parent–child relationship and the child. We postulated the following hypotheses.

Compared to a waitlist control arm, we expected that the intervention arm would show

1. significant improvement in parental outcomes (i.e. self-efficacy, parents' reactions to children's emotions and more positive involvement with the child) from baseline (t1) to follow-up immediately after the intervention (t2) and 4 months after the completion of the intervention (t3);
2. significant improvement in parent–child relationships (i.e. more closeness, fewer conflicts and increased parental agreements on child rearing) from baseline (t1) to follow-up (t2 and t3); and
3. significant improvement in child well-being (i.e. decrease in internalizing and externalizing problems and an increase in prosocial behaviour and quality of life) from baseline (t1) to follow-up (t2 and t3).

3 | METHODS

3.1 | Recruitment and participants

The ICDP groups were recruited from all across Norway during the period from January 2017 until October 2020, and data were collected until May 2021. Several rounds of recruitment were required to reach the designated sample size. The recruitment process involved four steps: (i) To make the intervention as standardized as possible, Bufdir and the Norwegian Institute of Public Health (NIPH) invited all certified ICDP facilitators in Norway to participate in a 2-day refresher training, educating them in the updated ICDP facilitator manual. Altogether, Bufdir and NIPH arranged 27 of these training sessions between 2016 and 2019, with a total of 411 facilitators participating. The facilitators then received information about the study and were encouraged to register for the trial. Thus, the sessions were both an opportunity for the facilitators to get updated ICDP training and an arena for recruitment to the study. (ii) NIPH contacted the facilitators who had participated in the training and provided them with detailed information about the practical arrangements of the trial. (iii) The ICDP facilitators who agreed to participate in the study recruited parents through their workplaces (e.g. kindergartens, schools and child health clinics). The facilitators were instructed to recruit parents to their groups in the same manner as they normally would, resulting in a natural variance between the groups in terms of socioeconomic background. The facilitators were encouraged to compose groups of eight participants, as advised in the ICDP manual (or at least a group of five in cases of serious challenges with their group recruitment).[2] In addition, the facilitators were to inform the potentially participating parents about the study: that signing up for the ICDP group implied agreeing to participate in the study and the random assignment of being either an active intervention or a waitlist control arm, that the study was voluntary and that all data would be anonymized. The parents were informed that they would be offered participation in an ICDP group after the 6-month trial period if they were allocated to the waitlist group. In some of the families, both the mother and the father participated in the study. (iv) Groups with participating parents who met the study's eligibility criteria (see below) were registered by the ICDP facilitators in an electronic database developed and operated by the Norwegian Centre for Research Data (NSD).

The study's eligibility criteria were that parents (i) signed up for the universal version of ICDP, (ii) had at least one child aged 0–18 years, (iii) were sufficiently proficient in Norwegian to be able to participate in the group sessions without an interpreter and to answer the questionnaires (in Norwegian) without assistance, (iv) did not have participation imposed by County Social Welfare Board initiated by Child Protection Services and (v) had not received the ICDP intervention prior to the trial. The parents were allowed to receive other health services during the period of the trial, except for other parental guidance interventions. For the facilitators, at least one of them had to have participated in one of the refresher training sessions prior to the trial. A total of 84 groups registered to the study after being assessed for eligibility and received the first questionnaire at timepoint 1 (t1); three of the groups were withdrawn from the study by the facilitators prior to randomization. Thus, 81 groups were randomly assigned to either the intervention or control arm. When responding to the questionnaires, if the parents in the groups had more than one child, they were asked to relate their answers to the child they first had in mind when signing up for the programme. If they had no specific child in mind, the instructions were to choose their oldest child. All groups (except for one that was led by one facilitator) were led by two facilitators, as advised in the ICDP manual. During the study period, six of the facilitators participated in two groups.

In the trial, 38 groups were randomly allocated to the intervention arm, and 43 groups were allocated to the control arm. Thus, the study population included in the intention-to-treat analysis was 590 parents with 494 children clustered in 81 groups. The response rates at t1, t2 and t3 were 89%, 74% and 69%, respectively, for the intervention arm and 88%, 77% and 77%, respectively, for the control arm. The flowchart for the study design and the inclusion of groups and participants is shown in Figure 1.

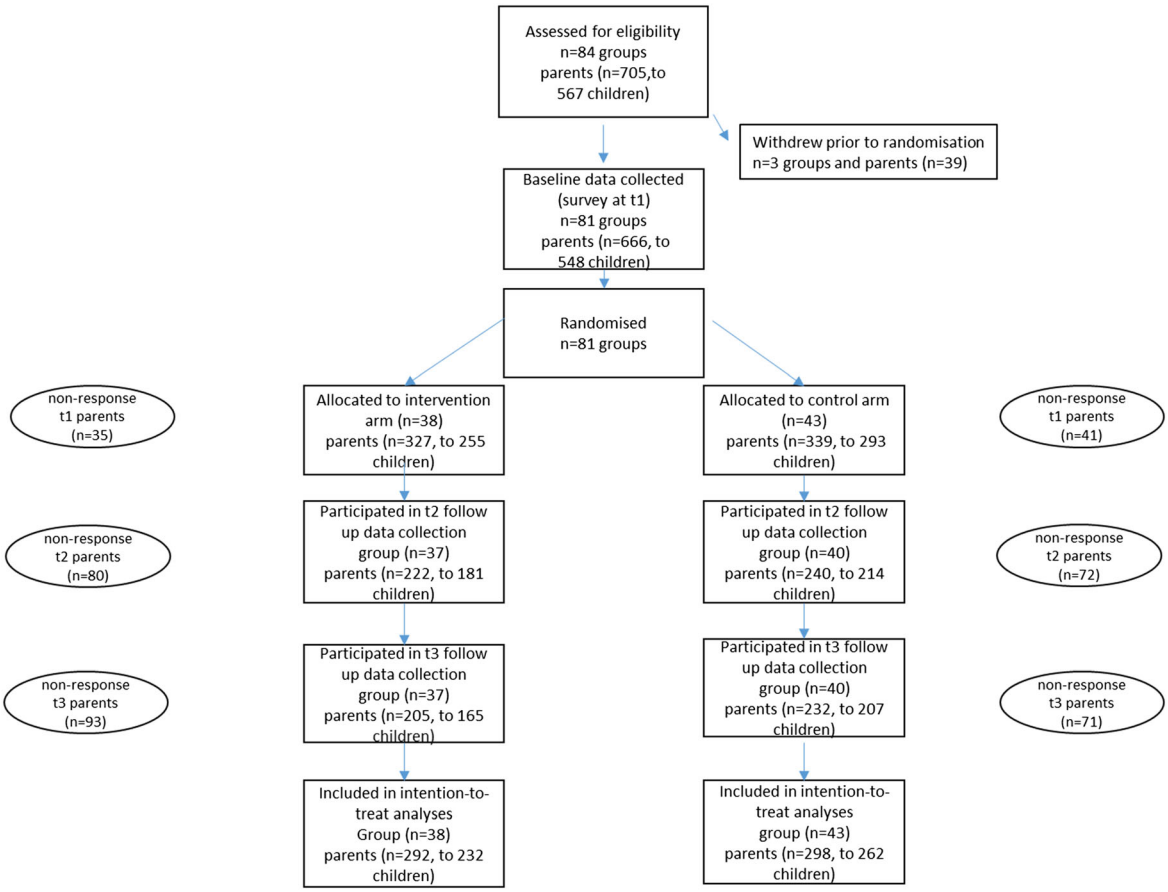

FIGURE 1 Participation flowchart

3.2 | Design and procedure

A cluster randomized trial design with baseline and endline intervention measurements and a 4-month follow-up was conducted in a community setting (Figure 1). The research was conducted and reported in accordance with the requirements of the Consolidated Standards of Reporting Trials (CONSORT) Statement (Schulz et al., 2010). The 81 groups came from 38 different municipalities in Norway and were randomized into either an intervention arm receiving the ICDP intervention or a control arm. The control arm participants were offered participation in ICDP after the data collection ended (i.e. after about 6 months), thus forming a waitlist control arm. The random assignment to a control or intervention arm happened 14 days after the parents had received their first (baseline, t1) questionnaire to allow sufficient time for all questionnaires to be handed in before the randomization. Both group facilitators and parents were masked to their group assignment when they entered the study, as they were assigned automatically to either the intervention or control arm after responding to the first questionnaire (t1). The group randomization of eligible participants was performed automatically by NSD and stratified by two factors – the degree of experience of the facilitators and the size of the municipality – to ensure balance between the conditions. The research team, the facilitators or the participants had no access to influence the randomization process. The NSD database was used for the randomization and administration of the data collection.

In addition to the eligible parents who had signed up for participating in an ICDP group and in the study (705 in total), we also invited caregivers who had a child with a participating parent but who themselves had not signed up to participate in the ICDP group (216 in total) to fill out the questionnaires. For recruiting purposes, during the first 2 years of the data collection period, a small number (five) of the newest iPad models were offered to the participants through drawing lots. To enhance the recruitment process, from January 2019, the parents were provided with a 500 NOK (€50) gift card for each completed questionnaire, and the facilitators received a 1000 NOK (€100) gift card after intervention completion.

After registration in the database, all participants were assigned personal login details to access the baseline questionnaire. Prior to filling out the first questionnaire, the participants electronically received the study's information and consent form, giving them the opportunity to provide the informed consent needed to participate in the study.

All participants received an online questionnaire three times: prior to randomization (t1), right after the intervention was finalized (t2) and 4 months after the completion of the intervention (t3). The parents in the control arm completed questionnaires at t1 and t3 on the same timeline as the intervention arm and received the second questionnaire (t2) 10 weeks after the first questionnaire (t1). The two

arms were similar in terms of parents' age, gender, education, employment status and marital status, but the control arm included parents of a slightly higher number of girls and children with somewhat lower mean age compared to the parents in the intervention arm (Table 1).

TABLE 1 Description of sample, parents and children, measured at baseline (t1)

	Intervention arm	Control arm
Characteristics of the parents (*n*)	292	298
Age (years)	36.92 (7.24)	35.70 (6.52)
Sex		
Female	73.2	77.4
Male	26.7	22.5
Mother born in Norway		
Yes	75.3	68.3
No	13.4	13.0
Unknown	11.3	18.7
Father born in Norway		
Yes	71.8	68.0
No	14.5	19.0
Unknown	13.7	13.0
Educational level		
Upper secondary education and below (%)	37.8	38.6
College/university education (%)	62.2	61.4
Employment status		
Employed	79.7	78.6
Non-employed	20.3	21.4
Married or cohabiting with partner		
Yes	82.6	84.3
No	17.4	17.4
Living together with the child		
All the time (%)	85.4	89.3
Half of the time, or most of the time (%)	12.2	7.9
Less than half of the time (%)	1.4	2.1
No (%)	1	0.7
SCL-5 score		
>2.0 (%)	17	12
Characteristics of the child (*n*)	232	262
Age (years)	6.3 (3.9)	5.2 (3.9)
Sex		
Girl	40	50
Boy	60	50
School child		
Yes	48.9	32.4
No	51.1	67.6

Note: Data are mean (SD) or *n* (%).
Abbreviation: SCL-5, Hopkins Symptom Checklist-5.

3.3 | Ethical considerations

All participants gave informed consent to participate in the study. The Regional Committees of Medical and Health Research Ethics (REK) of Norway considered the study to be outside the scope of the Health Research Act (cf. Section 2 [Ref. No. 2016/1455]). The NSD and the privacy representative from NIPH approved the study. The study is registered with clinicaltrials.gov (number: NCT03040895).

3.4 | Intervention

In Norway, ICDP is implemented by Bufdir and is available free of cost to all parents on a voluntary basis. The programme was originally developed by Norwegian psychology professors Hundeide and Rye (2010) and has since been updated and expanded. ICDP is classified as a psychosocial intervention group-based programme. It is formulated through three dialogues containing eight guidelines for favourable parent–child interaction (see Table S1) and is based on psychological and pedagogical research on child development, attachment, interaction and regulation (Bufdir, 2016). The aim of the programme is to strengthen family conditions for healthy child development by enhancing and enriching the relationship between caregivers and their children through increased sensitivity, competence and confidence of the parents. The groups are led by certified facilitators, and a group usually consists of five to eight caregivers attending eight weekly 2-hour sessions in which they share and reflect on how they interact with their children. The facilitators lead the discussions through the topics of the programme using interactivity, sharing, videos, role-play and home assignments.

3.5 | Measures

At baseline (t1), parents answered an online questionnaire with questions about the child's gender and age, country of birth, the parents' gender and age, marital status, employment status, education and financial strains, as well as information on parental mental health assessed with the measure 'Hopkins Symptom Checklist-5 (SCL-5)' (Strand et al., 2003). Fidelity was measured by a short questionnaire that the facilitators filled out after each group session. In this questionnaire, the facilitator reported on one to any of the eight topics described in the ICDP manual covered in the current session. We summarized these questionnaires after the programme ended. If the facilitators had addressed all eight topics in the manual, we considered that the programme had been delivered as intended. This is in line with common recommendations on how fidelity should be measured (Hogue et al., 1996).

For the trial, there were three primary and four secondary outcomes. Our first primary outcome was a change in parenting self-efficacy, measured with 'Tool to Measure Parenting Self-Efficacy (TOPSE)'. The instrument consists of 48 statements divided into eight subscales. Each scale represents a distinct dimension of parenting:

emotion and affection; play and enjoyment; empathy and understanding, control, discipline and setting boundaries; and pressure, self-acceptance, learning and knowledge. The parents indicated how much they agreed with each statement by responding to a scale from 0 (*completely disagree*) to 10 (*completely agree*). All the items were summed to create a total score in the scale range of 0–480, with higher scores indicating higher parenting self-efficacy. The total TOPSE scale has shown high validity and test–retest reliability (Kendall & Bloomfield, 2005). In the current study, the total scale alpha was 0.94 at baseline.

The second primary outcome was parents' reactions to their children's emotions. For preschool children, we measured this using (i) the 'Coping with Toddlers'/Children's Negative Emotions Scale (CTNES)', and for school-aged children, we measured this using (ii) the 'Coping with Children's Negative Emotions Scale (CCNES)'. The scale consists of 12 hypothetical situations describing parental behaviour and their possible responses to different situations. We included 5 of the 12 situations (the same items used in the Norwegian Mother, Father and Child Cohort Study [MoBa]; NIPH, 2021), in which each situation has seven responses with scores from 1 (*very unlikely*) to 7 (*very likely*). The scale includes six subscales to reflect the specific types of parenting that parents tend to use in these situations (expressive encouragement, emotion-focused reactions, problem-focused reactions, punitive reactions, minimizing reactions and distress reactions). In the current study, the punitive and minimizing reactions subscale items were summed to measure emotion-dismissing behaviour (scale range: 10–70), while the expressive encouragement and problem-focused reactions subscales were summed to measure emotion-coaching behaviour (scale range: 10–70), following recommendations from earlier studies (Havighurst et al., 2022). Lower scores indicate less emotion-dismissing behaviour, and higher scores indicate more emotion-coaching behaviour. The CTNES and CCNES have demonstrated validity and test–retest reliability (Fabes et al., 2002; Spinrad et al., 2007). In the current study, Cronbach's alphas at baseline were 0.72 for emotion-dismissing behaviour and 0.77 for emotion-coaching behaviour.

The third primary outcome was positive involvement with children, measured with six items from the subscale *positive involvement with children* from the Alabama Parenting Questionnaire (APQ). The APQ is a 42-item scale with scores from 1 (*never*) to 5 (*always*) (scale range: 5–50), with higher scores indicating a higher level of positive involvement with children. The APQ was developed by Frick (1991) to assess parenting practices. It measures five dimensions of parenting and has shown high validity and test–retest reliability (Dadds et al., 2003; Frick et al., 1999). In the current study, the alpha of the six items was 0.81 at baseline.

There were four secondary outcomes for the trial. The first secondary outcome was perceptions of parents' relationship with their child, measured with the Child–Parent Relationship Scale (CPRS) (Pianta, 1992). We used a short version of the scale, which has 15 items. CPRS has shown high validity and test–retest reliability (Ulutas & Kanak, 2016). The items were rated on a 5-point scale from 1 (*definitely does not apply*) to 5 (*definitely applies*). From these items, the conflict ($\alpha = 0.83$ at baseline) and closeness ($\alpha = 0.82$ at baseline) subscales were derived. Possible scores for the two subscales: 8–40, with lower scores indicating a lower level of conflict and higher scores indicating a higher level of closeness.

The second secondary outcome, child-rearing conflicts, was measured with a six-item version of the Parent Problem Checklist (PPC) developed by Dadds and Powell (1991). The scale measures parents' ability to cooperate and to act as a team in performing executive parenting functions within the family. The scale describes the extent to which a problem occurs using scores from 1 (*not at all*) to 5 (*very much*) (scale range: 0–24), with lower scores indicating a lower level of child-rearing conflicts. The scale has shown good reliability (Stallman et al., 2009). The alpha in the current study was 0.89 at baseline.

The third secondary outcome, child and adolescent psychological symptoms, was measured with the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997). The SDQ consists of 25 items rated from 1 (*not true*) to 3 (*certainly true*). The items form five subscales (emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial), with five items in each. The scale for emotional problems and peer problems is combined to an internalizing score (scale range: 0–20), and the scale for behavioural problems and hyperactivity and attention problems to an externalizing score (scale range: 0–20), with high scores indicating a higher level of difficulties (Goodman et al., 2010). We also used the prosocial scale to measure prosocial behaviour in the child. Internal consistency in the current study was $\alpha = 0.71$ for internalizing difficulties and $\alpha = 0.74$ for externalizing difficulties, and $\alpha = 0.72$ for prosocial behaviour at baseline.

Health-Related Quality of Life (HRQoL) in Children and Adolescents (KINDL-R) is a generic instrument developed by Ravens-Sieberer and Bullinger (1998) to measure health-related quality of life. We used the parents' version of the Kiddy-KINDL-R and the age 4- to 7-year and 8- to 16-year forms. The questionnaire includes 24 items that are answered on a 5-point scale from 1 (*never*) to 5 (*always*) with a scale range of 24–120, with higher scores indicating better HRQoL. The instrument consists of six subscales (physical well-being, emotional well-being, self-esteem, family, friends and school). Although KINDL-R has shown high validity on most subscales, some subscales have shown low validity; therefore, scholars have recommended using the total scale (Jozefiak & Reinfjell, 2012). The parents' version of the Kiddy-KINDL has proven useful in the assessment of HRQoL in preschool and school children, showing adequate internal consistency, with Cronbach's alpha values ranging from 0.75 to 0.94 (Helseth & Lund, 2005; Jozefiak et al., 2008; Orgilés et al., 2018; Villalonga et al., 2012). In the current study, the total scale alpha was 0.94 at baseline.

4 | STATISTICAL ANALYSES

An a priori power analysis was conducted to estimate the required sample size. We used MacLennan's sample size calculator for cluster

randomized trials (Campbell et al., 2000). We found that 78 groups randomized on a 1:1 ratio with an average of five participants per group (390 participants in total) would be sufficient to obtain significance at the $P < 0.05$ level with effect sizes ≥0.30, intraclass correlations 0.03 and power 0.80. Thus, the power of the study was considered satisfactory.

We initially used an intention-to-treat approach. Data from all parents who had answered at least one questionnaire and had been randomized into either the intervention or control arm were included in the statistical analysis. We then analysed only parents who had attended ≥4 group meetings. The cut-off of more than four sessions indicates that the included parents had completed at least half of the ICDP intervention and could thus be assumed to have been affected by the intervention. We also included caregivers who did not participate in the group sessions in a separate analysis (results not shown).

We used linear mixed models (LMEs) to estimate the effect of the ICDP intervention on primary and secondary outcomes. The data included repeated measures for each person (person time) and can therefore be considered multilevel, implying that the error terms were correlated within individuals. Furthermore, the error terms may also be correlated across individuals who attended the same ICDP group and across parents living together. Thus, a four-level structure arose with the observation time clustered within individuals, individuals clustered within ICDP groups and individuals clustered within the same household. In estimating the treatment effect in an RCT, it is recommended that an adjustment be made for the baseline value of the outcome variable. According to Twisk et al. (2018), excluding the treatment variable and including the interaction term between time and treatment in the model will ensure a proper adjustment.

The Twisk model can be written as

$$yt = \beta 0 + \beta 1 time1 + \beta 2 time2 + \beta 3 time1 \times X + \beta 4 time2 \times X$$

The model includes time ($\beta 1 time1 + \beta 2 time2$) and the interaction term between time and treatment ($\beta 3 time1 \times X + \beta 4 time2 \times X$). The model adjusts for potential differences between the intervention arm and control arm in the outcome variable at baseline.

Between-group effect sizes (Cohen's *d*) were determined by calculating the mean difference in the estimated change in the outcome variable from baseline to follow-up and then dividing the results by the pooled SD at baseline.

We used full information maximum likelihood (ML) to handle missing data. This indicates that the missing data were handled within the analysis model, and all available information was used to estimate the model. ML provides unbiased estimates under the assumption that the data are missing at random, which might be partly met by the inclusion of baseline scores in the model (Enders, 2010). We used *estat icc after xtmixed* in Stata to estimate the intraclass correlations. Stata Version 15.1 (StataCorp, College Station, TX, USA) was used to conduct all analyses. To evaluate statistical significance, a significance level of 0.05 was used.

5 | RESULTS

The parents' mean ages at baseline were 36.9 and 35.7 years in the intervention and control arms, respectively (Table 1). More than 70% of the participants were women, and almost 90% lived with their children on a regular basis. Most of the parents in the sample were employed (nearly 80% in both groups), around 60% had a university degree and more than 80% were married or cohabiting. In the intervention arm, 17% reported an SCL-5 score >2.0, and the corresponding number for the control arm was 12%. The children's mean age in the intervention and control arms was 6.3 and 5.2 years, respectively, with more school children in the intervention arm (48.9%) compared to the control arm (32.4%). In the intervention arm, 60% of the children were boys, while the corresponding number in the control arm was 50%. Overall, the intervention and control arms were similar in terms of demographic characteristics. Baseline characteristics are shown in Table 1. All the facilitators in the intervention arm reported through the self-reporting fidelity measure that they had addressed all eight topics described in the manual during the ICDP group meetings.

The primary analyses examined the effectiveness of ICDP on parental outcomes (i.e. self-efficacy, parents' reactions to children's emotions and positive involvement with children). The results for measures with TOPSE showed that participants in the intervention arm reported a significantly greater improvement in parenting self-efficacy scores from baseline (mean score 379.2 [SD 55.7]) to first follow-up (397.8 [51.4]) and to second follow-up (396.5 [52.6]) compared with those in the control arm (from 390.7 [46.3] to 393.1 [45.7] and to 394.4 [48.0]). The estimated mean difference at the first follow-up was 12.51 (95% confidence interval [CI] 7.5 to 17.5; Cohen's *d* 0.25; $P < 0.001$), and the corresponding values for the second follow-up were 11.53 (95% CI 6.3 to 16.7; Cohen's *d* 0.23; $P < 0.001$) (Table 2).

Similarly, participants in the intervention arm reported a significantly greater reduction in emotion-dismissing behaviour from baseline (mean score 29.9 [SD 11.4] to second follow-up 28.7 [11.5]) compared with those in the control arm (from 32.9 [10.1] to 31.9 [10.7]). The estimated mean difference at the second follow-up was −1.54 (95% CI −2.7 to −0.3); Cohen's *d* 0.14; $P < 0.05$. There were no significant between-condition differences in changes at the first follow-up. Moreover, participants in the intervention arm reported a significantly higher improvement in emotion-coaching behaviour from baseline (mean score 54.1 [SD 7.9]) to first follow-up (55.2 [8.3]) and to second follow-up (55.8 [7.9]) compared with those in the control arm (from 52.9 [7.5] to 53.5 [8.0] and to 53.3 [7.6]). The estimated mean difference at the first follow-up was 1.05 (95% CI 0.04 to 2.0; Cohen's *d* 0.14; $P < 0.05$), and the corresponding numbers for the second follow-up were 1.59 (95% CI 0.36 to 2.6; Cohen's *d* 0.20; $P < 0.05$) (see Table 2). There were no statistically significant between-condition differences in terms of positive involvement with the child. The results from the additional sensitivity analyses that included only participants who participated in ≥4 meetings are presented in the last column of Table 2. The results for this subgroup confirmed the findings for the whole group of study participants.

TABLE 2 Descriptions of primary outcome variables: Means and standard deviations by treatment condition and time, and results from intention-to treat mixed-effect model

	Intervention arm		Control arm		Intervention effect (intention-to-treat)			Intervention effect (participated ≥4 group meetings)		
Primary outcomes	***n***	**Mean (SD)**	***n***	**Mean (SD)**	**Est. (95% CI)**	**Cohen's *d***	***P***	**Est. (95% CI)**	**Cohen's *d***	***P***
APQ-positive involvement										
t1	284	26.2 (2.7)	288	26.5 (2.7)						
t2	222	26.5 (2.6)	230	26.7 (2.6)	0.15 (−0.2 to 0.5)	0.06	0.426	0.02 (−0.3 to 0.3)	0.00	0.935
t3	206	26.6 (2.6)	222	26.6 (2.6)	0.34 (−0.0 to 0.7)	0.13	0.070	0.30 (−0.08 to 0.7)	0.11	0.124
TOPSE – total scale										
t1	286	379.2 (55.7)	291	390.7 (46.3)						
t2	226	397.8 (51.4)	240	393.1 (45.7)	**12.51 (7.5 to 17.5)**	**0.25**	<0.001	**13.63 (8.2 to 18.9)**	0.27	<0.001
t3	210	396.5 (52.6)	232	394.4 (48.0)	**11.53 (6.3 to 16.7)**	**0.23**	<0.001	**14.57 (9.0 to 20.0)**	0.28	<0.001
CCNES/CTNES										
Emotion-dismissing behaviour										
t1	281	29.9 (11.4)	278	32.9 (10.1)						
t2	220	28.7 (11.5)	230	31.9 (10.7)	−0.98 (−2.1 to 0.2)	−0.09	0.106	−0.96 (−2.2 to 0.3)	−0.01	0.140
t3	204	28.1 (11.7)	222	31.7 (11.0)	**−1.54 (−2.7 to −0.3)**	**−0.14**	<0.05	**−1.48 (−2.7 to −0.1)**	0.14	<0.05
Emotion-coaching behaviour										
t1	282	54.1 (7.9)	280	52.9 (7.5)						
t2	219	55.2 (8.3)	227	53.5 (8.0)	**1.05 (0.04 to 2.0)**	**0.14**	<0.05	**1.20 (0.1 to 2.3)**	0.16	<0.05
t3	205	55.8 (7.9)	218	53.3 (7.6)	**1.59 (0.6 to 2.6)**	**0.20**	<0.05	**1.84 (0.7 to 2.9)**	0.23	<0.05

Note: Significant results in bold type.

Abbreviations: APQ, Alabama Parenting Questionnaire; CCNES, Coping with Children's Negative Emotions Scale; CI, confidence interval; CTNES, Coping with Toddlers'/Children's Negative Emotions Scale; TOPSE, Tool to Measure Parenting Self-Efficacy.

Secondary analyses examined the effects of ICDP on the parent–child relationship (i.e. closeness and conflict with the child and child-rearing conflict) and child outcomes (i.e. internalizing and externalizing problems, prosocial behaviour and quality of life) (see Table 3). Significant between-condition differences were found in inter-parental conflict over child-rearing issues (PPC) and closeness to the child (CPRC). Compared with the participants in the control arm, the intervention group showed a significantly greater reduction in PPC scores at the second follow-up; the estimated mean difference was −0.79 (95% CI −1.5 to −0.9; Cohen's *d* −0.16; $P < 0.05$). Similarly, parents in the intervention arm reported a significantly greater improvement in closeness to the child on the basis of CPRC scores compared to the control arm at the first follow-up; the estimated mean difference was 0.64 (95% CI 0.2 to 1.1; Cohen's *d* 0.16; $P < 0.05$).

Lastly, the results for internalizing difficulties and prosocial behaviour in children revealed a significant treatment effect at the first follow-up. Compared with the participants in the control arm, the intervention arm showed a significantly greater reduction in internalizing difficulties. The estimated mean difference was −0.51 (95% CI −0.93 to −0.06; Cohen's *d* −0.16; $P < 0.05$). For improvement in prosocial behaviour, the estimated mean differences were 0.34 (95% CI 0.06 to 0.62; Cohen's *d* 0.16; $P < 0.05$). No significant between-condition differences from baseline to follow-up were found for externalizing behaviour and quality of life.

The intraclass correlation coefficient (ICC) within the groups for the primary and secondary outcomes can be found in Table S2. The ICC values ranged from 0.02 to 0.27 for the primary outcomes and from 0.00 to 0.15 for the secondary outcomes (Model 1). After adjusting for children's age, parental age, parental sex and parental education, the ICC values decreased (Model 2). However, as the intervention effect estimates in the adjusted model were comparable to the intervention effect estimates in the unadjusted model, we decided to present the unadjusted results in Tables 2 and 3. No clear patterns of differences in baseline characteristics between those who were lost to follow-up and those who remained in the study were observed (see Table S3). Information on the number of participants lost to follow-up at the cluster level (i.e. group level) for the intervention and control arms can be found in Table S4.

6 | DISCUSSION

To date, this study is the largest RCT to examine the effectiveness of the widely used parenting programme ICDP in a community-based sample of parents and the first RCT study of ICDP carried out in a high-income country. It is also the first large RCT to investigate the effects of ICDP by examining parent-reported changes in the parents, the parent–child relationship and the child. In this study, we evaluated whether ICDP led to self-reported improvements in parent self-efficacy and emotional sensitivity, strengthening of the parent–child relationship and improvement in children's psychosocial health. The results are based on parent reports with measurements at baseline (t1), immediately following the intervention (t2) and 4 months after completion of the intervention (t3).

Overall, the results of our study show that ICDP appears to have a significant positive effect on the first two domains of outcomes: the parents and the relationship between the parents and the children. Compared with parents in the control arm, parents in the intervention arm reported improved self-efficacy in their role as parents and improved parental emotional sensitivity. Positive changes were found both immediately following the intervention (t2) and at the 4-month follow-up (t3). These results imply that the programme had effects on the primary aim of ICDP by strengthening self-confidence in the caregiver and improving sensitive emotional communication between parents and the child. According to a systematic review by Fang et al. (2021), parental self-efficacy is linked to a variety of factors that might support healthy child development, including parental factors such as parental stress, mental well-being, marital quality, perceived social support and child temperament. Furthermore, parents can play a vital role in children's emotional development through their own emotional expressions and by being sensitive to the child's emotions, needs, behaviour and cues (Hajal & Paley, 2020). By improving parental emotional sensitivity, parents might be better at understanding their child and providing appropriate care following ICDP.

Compared with the control arm and relative to baseline, the parents in the intervention arm stated that they felt closer to their child immediately after completing the programme, and they reported fewer conflicts regarding child rearing at the 4-month follow-up. Couple conflict has a negative impact on a child's development; hence, a decrease in parental conflict might have the potential to decrease stress and family conflict in the short run and increase the child's future abilities for constructive problem solving (Holt et al., 2021; Tan et al., 2018; Zemp et al., 2016). We found no differences in change between the intervention arm and the control arm in terms of positive involvement with the child or level of conflict between parents and children.

Our results are comparable with findings from previous studies in Norway that evaluated ICDP using quasi-experimental designs, reporting positive changes in favour of the intervention arm on parental outcomes, such as parenting strategies, child management and activity with the child (Sherr et al., 2014; Skar et al., 2015). RCT studies and quasi-experimental studies that have evaluated ICDP outside Norway have also found positive effects on parental outcomes, such as improvement in parenting strategies, strengthened relationships between parents and children, improved mental health in parents and increased parental self-efficacy (Abarashi et al., 2014; Dybdahl, 2001; González-Fernández et al., 2020; Skar et al., 2017, 2019; Skar, Sherr, et al., 2014). This is supported in a review study of parenting programmes by Barlow and Coren (2017), who found that parental guidance programmes in general had a positive effect on parents' psychosocial functioning. However, none of the existing studies on ICDP have been conducted with robust effect evaluation designs in a high-income country.

Regarding the study's third outcome, the effects on children (as reported by parents), our results indicated little or no effect of the

TABLE 3 Descriptions of secondary outcome variables: Means and standard deviations by treatment condition and time, and results from intention-to treat mixed-effect model

	Intervention arm		Control arm		Intervention effect (intention-to-treat)			Intervention effect (participated ≥4 group meetings)		
Secondary outcomes	***n***	**Mean (SD)**	***n***	**Mean (SD)**	**Est. (95% CI)**	**Cohen's *d***	***P***	**Est. (95% CI)**	**Cohen's *d***	***P***
PPC										
t1	258	7.1 (5.2)	270	6.8 (4.8)						
t2	201	6.5 (4.8)	213	6.5 (4.7)	−0.21 (−0.9 to 0.5)	−0.04	0.55	−0.27 (−1 to 0.5)	−0.05	0.46
t3	189	5.85 (4.7)	206	6.5 (4.9)	**−0.79 (−1.5 to −0.09)**	**−0.16**	<0.05	**−0.79 (−1.5 to 0.0)**	−0.15	<0.05
CPRC – closeness										
t1	287	28.6 (4.1)	283	29.3 (4.1)						
t2	223	29.5 (3.5)	231	29.4 (4.0)	**0.64 (0.2 to 1.1)**	**0.16**	<0.05	**0.60 (0.10 to 1.1)**	0.14	<0.05
t3	206	29.4 (3.9)	225	29.7 (4.0)	0.43 (−0.0 to 0.9)	0.12	0.07	0.35 (−0.15 to 0.9)	0.08	0.17
CPRC – conflict										
t1	285	19.7 (5.6)	283	18.9 (5.2)						
t2	223	18.3 (5.1)	229	18.5 (5.4)	−0.64 (−1.3 to 0.03)	−0.12	0.06	**−0.70 (−1.4 to 0.0)**	−0.12	0.05
t3	205	18.4 (5.6)	222	18.1 (5.3)	−0.53 (−1.2 to 0.2)	−0.10	0.16	−0.63 (−1.4 to 0.1)	−0.06	0.89
SDQ – internalizing difficulties										
t1	279	4.4 (3.7)	281	3.6 (2.8)						
t2	220	3.7 (3.3)	221	3.6 (2.9)	**−0.51 (−0.9 to −0.06)**	**−0.16**	<0.05	−0.37 (−0.9 to 0.1)	−0.11	0.12
t3	204	3.9 (3.2)	218	3.1 (2.7)	−0.23 (−0.7 to 0.2)	−0.00	0.31	−0.07 (−0.6 to 0.4)	−0.02	0.76
SDQ – externalizing difficulties										
t1	277	7.3 (3.1)	281	6.7 (3.3)						
t2	220	6.4 (2.9)	220	6.5 (3.1)	−0.37 (−0.8 to 0.03)	−0.12	0.07	−0.28 (−0.7 to 0.2)	−0.08	0.20
t3	203	6.2 (2.6)	216	6.1 (3.1)	−0.19 (−0.6 to 0.2)	−0.06	0.37	−0.09 (−0.5 to 0.3)	−0.02	0.66
SDQ – prosocial behaviour										
t1	283	7.3 (1.9)	282	7.3 (2.1)						
t2	220	7.7 (1.8)	221	7.4 (2.1)	**0.34 (0.06 to 0.62)**	**0.17**	<0.05	**0.32 (0.0 to 0.6)**	0.16	<0.05
t3	203	7.7 (2.0)	216	7.6 (2.0)	0.22 (−0.0 to 0.5)	0.11	0.13	**0.34 (0.0 to 0.6)**	0.17	<0.05
KINDL – total scale										
t1	280	94.2 (10.9)	282	96.6 (9.6)						
t2	219	96.5 (10.0)	225	97.4 (10.2)	0.67 (−0.7 to 2.0)	0.06	0.32	0.49 (−0.9 to 1.9)	0.05	0.50
t3	203	96.7 (10.9)	219	97.7 (9.9)	0.97 (−0.4 to 2.4)	0.09	0.16	1.14 (−0.3 to 2.6)	0.11	0.12

Note: Significant results in bold type.

Abbreviations: CI, confidence interval; SDQ, Strengths and Difficulties Questionnaire.

intervention. We found that the results for internalizing difficulties and prosocial behaviour in children revealed a significant intervention effect at the first follow-up. However, the 4-month follow-up was not significant. Moreover, we found no differences in changes between the two arms on children's externalizing difficulties or quality of life between baseline and follow-up. Previous quasi-experimental studies that have evaluated ICDP and analysed outcomes in children (Sherr et al., 2014) also showed little impact on child outcomes. However, one study reported a significant change in favour of the intervention arm on the impact of difficulties in the child's life (SDQ impact score) at the 6-month follow-up. Similar results were reported in another study (Skar et al., 2015) that examined the long-term (6–12 months) effects of ICDP. The study showed a trend towards fewer child difficulties after 6 months; however, the sample was small and not randomized. The absence of an effect found on the children's outcomes in the present study does not necessarily imply that the programme did not have positive effects on the children. Rather, it may reflect that changes in children's outcomes would have been captured better by measuring the impact of children's difficulties on their lives. It is also possible that the child's behaviour (which is related to personality and neuropsychological functions, as well as experiences, relationships and contexts) did not change as a result of ICDP participation among their caregivers. Perhaps a change could have occurred through the parent's perception of their child, for example, that the parents have become more accepting or better able to cope with the child's challenges. As such, it might be that direct changes in child behaviour and well-being might require more time to manifest than the data in the current study allow us to investigate. Future studies should investigate this further. A systematic review (Barlow et al., 2016) concluded that parental guidance programmes appear to have a positive effect on children's emotional difficulties and behavioural problems in the short term, but the authors of the study emphasized that more research is needed to gain further knowledge about the possible long-term effects of these programmes.

The effects on parents and on the relationship between parents and children found in our study are within the range typically found in previous studies (i.e. small to moderate effect sizes) (Barlow et al., 2014; Havighurst et al., 2022; Miller & Harrison, 2015; Stattin et al., 2015; Ulfsdotter et al., 2014), whereas effects regarding change in the children are in the lower end compared with what has been reported in previous studies. However, the reported effect sizes vary among different parenting programmes. Universal prevention programmes are often less effective compared to indicated prevention and treatment programmes; however, behaviour-based programmes are more effective than attachment-focused programme (Leijten et al., 2019; Mouton et al., 2018; Stattin et al., 2015). Similar to our study, Leijten et al. (2019, p. 185) found a small effect of a universal parenting programme on child behaviour. Stattin et al. (2015) found small effect sizes for attachment-focused programmes on child behaviour. Some differences between these studies complicate comparisons (Blower et al., 2019). Notably, there is substantial variation in the reported effect sizes. This may be due to differences in the intervention itself, in the outcome measures or in the use of statistical techniques for data analyses. Moreover, the interventions were carried out in various contexts. Some of these studies were conducted in clinical settings and on clinical populations, which are expected to exhibit stronger effects than community-based samples. There are also considerable contextual, economic and geographic variations between the existing studies of ICDP. Whereas some studies were conducted in countries that are ranked highest in the world in terms of wealth and safety, other studies were conducted in poor areas of low-income countries and in the context of present or recent military and civil conflicts.

Although we found positive effects of the ICDP intervention on the parents and the relationship between the parents and children, the effects were small. Thus, we must emphasize that major effects should not be expected from a universal preventive programme, such as ICDP, offered to the general population. As ICDP is offered regardless of the situation of the families and children or the level of risk, many of the children of the parents who receive ICDP will be in good psychosocial health when their parents enter the study. Moreover, many of the participants included in this study were skilful and resourceful middle-class parents. Thus, it can be difficult to find isolated effects of a programme that will strengthen an aspect that, in the first place, may be satisfactory. Still, small positive effects in individuals may be important at the societal level because the programme reaches many families (Greenberg & Abenavoli, 2017; Major et al., 2011; Tanner-Smith et al., 2018).

Another relevant, although uncertain, aspect is the theoretical possibility that effects on children may become visible only over time. One study highlighted that there are indications of delayed effects or so-called sleeper effects in parenting programmes on children's outcomes in the sense that the positive effect of the intervention on child behaviour may need more time to materialize as the children are not directly targeted (van Aar et al., 2017). ICDP is primarily focused on supporting and strengthening parental competence and improving the relationship between parents and their children, which, in principle, might contribute to positive psychosocial development in children at a later stage. If the change first takes place through parental support, and then changes parental behaviour, a positive effect in the children might appear after a while or manifest itself as children are *not* developing potential difficulties later. For example, parents may need time to implement their new parenting skills, and children might need time to get used to the new forms of parenting and, therefore, not change their behaviour immediately (van Aar et al., 2017). This potentially taps into the debate on the complexity of how to measure and quantify preventative measures, as some might argue that such an investigation should require a more long-term design. As ICDP is intended to be a long-term preventative measure, it is important to note that there are limits to our long-term evidence, as the study's latest measurement point is 4 months post-intervention. This highlights that when measuring preventative measures such as ICDP, even rigorous designs, such as RCTs, could ideally be supplemented by other methodological approaches and more long-term inquiries. However, we should not ignore the possibility that the ICDP intervention may, in fact, not impact these somewhat more distant – but highly relevant –

outcomes in children. This calls for more research to evaluate the potential delayed effects of parenting programmes.

This study has important strengths, such as the use of an RCT design, which is considered the gold standard for effectiveness research. It is large in terms of sample size, which makes it possible to detect even small effects of the intervention. We have used a rich set of measures that makes it possible to shed light on a variety of changes in outcomes in both parents and children and in the relationship between the parents and their children. Furthermore, we used validated self-report questionnaires on all outcome measures. We applied a double follow-up of measurements, enabling analyses examining the effect of the programme immediately after completion of the intervention and 4 months after completion of the intervention. Moreover, several sensitivity analyses supported the robustness of the results. We carried out analyses that included all participants, only participants who participated in four or more meetings or only caregivers who did not attend the intervention (results not shown). The results of these analyses are consistent, indicating that the results of this study are robust. Lastly, the study was conducted in close collaboration with practitioners in their usual professional contexts and not in an 'artificial' context. This supports the external validity of our findings and the transfer of value to real-world practices and contexts.

Despite the study's many strengths, there are also weaknesses and challenges. In the present study, full blinding was not achievable, as is often the case in intervention studies. Recruitment and attrition challenges are also common in RCT studies. A factor that hampered recruitment in the present study was a cross-country low level of ICDP groups arranged because of a national administrative reorganization and decentralization process. Another factor that hindered recruitment was the outbreak of the COVID-19 pandemic, which affected the last 6 months of the recruitment period. To recruit the planned number of participants in this study, we had to extend the data collection period. Further, we used monetary gift cards to improve recruitment to the study.

Although we managed to recruit the number of respondents we aimed for, higher participation rates would have further improved the statistical power of the analysis and provided better opportunities to analyse subgroups based on the characteristics of both parents and children. In addition to attrition, another weakness of the study that hampered statistical power was the notion that the observed intraclass correlations (ICCs) for several of the outcome measures were higher than assumed in the power calculation. This may increase the risk of type 2 errors and is an additional reason why we should interpret the results with caution. This also applies to statistically significant results, because lower statistical power also reduces the probability that a statistically significant result reflects a true effect. Another challenge in this study was the length of the questionnaire. Comprehensive questionnaires take a lot of time to fill out and may reduce willingness to answer. However, attrition is quite common in this type of study, and the number of non-respondents in the current study was as expected for this group of participants. We tried to circumvent this weakness by using robust methods to adjust for missing respondents (Shin et al., 2017). Moreover, we observed no clear patterns of differences in baseline characteristics between those who were lost to follow-up and those who remained in the study (see Table S3).

All the facilitators in the intervention arm reported that they had gone through all eight topics described in the ICDP manual during the intervention, which might indicate high intervention implementation fidelity. Although self-reported fidelity measures are widely used in the literature (Gagnon & Garst, 2016), it serves as a limitation, as objective measures of fidelity might have differed from the self-reports. However, objective fidelity measures entail a more resource-intensive approach than the frames of this study allowed (Gagnon & Garst, 2016). Further studies should include more robust other-reported fidelity measures, such as observations, to distinguish variation.

Finally, the study used only subjective outcome measures, and we have only parent-reported data. Previous studies have suggested that there may be discrepancies between parents and children when reporting on a child's behaviour and difficulties (Bein et al., 2015). Thus, it would have been a strength to have reports from the children themselves (Barry et al., 2008). However, many of the children in this study were quite young, making self-reporting unrealistic. Nevertheless, it would have strengthened the analyses if the study also included reports from other caregivers close to the child, such as kindergarten employees, as well as more objective assessments.

7 | CONCLUSION

Our findings provide scientific support that ICDP, as a universal preventive programme offered to parents in groups, can be effective in strengthening parental self-efficacy and improving parental emotion sensitivity. ICDP seems to have a limited effect on the children, as reported by the parents. We found some positive changes in terms of internalizing difficulties and prosocial behaviour in the children. However, these effects were very small and should therefore be interpreted with caution. Although we found promising results in this study, it is also important to emphasize that we need more effect evaluations, including follow-up at a later measurement time, to allow for drawing conclusions with a higher degree of certainty on the long-term effectiveness of the programme. Furthermore, it would be useful to conduct studies examining the effect of the programme as a selective intervention in various groups, including high-risk groups. Lastly, there is a need for hybrid effectiveness–implementation studies with dual testing of parent, child and family outcomes and focus on implementation strategies to gain knowledge relevant to policy-makers about how the programme could be effectively implemented to achieve societal-level impact.

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CONFLICTS OF INTEREST

No potential conflict of interest was reported by the authors.

DATA AVAILABILITY STATEMENT

The data that support the findings of the ICDP study are not openly available because of the Norwegian legislations about sensitive research data.

ENDNOTES

[1] Based on a literature search conducted 13 April 2021.

[2] The mean ICDP group size in the present study was 7.

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