Effectiveness of Four Early Intervention Programs in Europe: How do the Results Inform Program Development and Dissemination?

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ABSTRACT

Home visiting is a promising strategy in the US, but effects of European program adaptations are mixed. This discussion paper derived from an international symposium and describes the policy context in that four specific, systemically evaluated European programs from France, Germany, Italy, and Switzerland are implemented. The programs are briefly outlined and similarities and differences in their theoretical background, target groups, and their contents and methods used to achieve their aims are highlighted. The instruments chosen to monitor quality of program implementation, to assess program effectiveness, and issues of data analyses are considered comparatively. Possible explanations for differing results are discussed and implications for further program development towards more integrated and tailored strategies are derived.

Keywords: Early prevention, Home visitation, Effectiveness, Policy background

INTRODUCTION

Meta-analyses and systematic reviews report significant but small positive effects on parenting skills and young children's cognitive and behavioral development [1-4], with the Nurse-Family Partnership (NFP) program [5] as the most outstanding approach. Yet, adaptations of different programs in Europe lead to mixed results [6,7].

This discussion paper evolved from a symposium held at the 15th World Congress of WAIMH aiming at a comprehensive look at prominent, currently running or recently finished home-visiting programs in Europe. In order to shed light on possible reasons for the variety of program effectiveness, the present paper compares four programs from different European countries that are accompanied by systematic research. More specifically, similarities and differences in (1) policy and theoretical background, (2) program aims, outcomes and study designs, and (3) their results are considered. Beyond methodological explanations for diverse results, the differences in political contexts, issues of implementation quality and the specificity of the prevention program are described in more detail.

SIMILARITIES AND DIFFERENCES IN POLITICAL BACKGROUND IN EUROPE

Policies and debates at the EU level are defined by a concern about child poverty and vulnerability and by the commitment to improve family wellbeing and parenting-related services. The EU Council's key initiative concerning parenting and education was the adoption of the Recommendation Rec that supports positive parenting. In accordance with Heckman et al. [8], the positive parenting approach seeks to break the cycle of social disadvantage.

In 2013 [9] 20.5% of US children lived in poverty compared to nearly 18% in Italy, around 11% in France, 10% in Germany and 7% in Switzerland. Over the last two decades, government policy regarding family based services has increased throughout Europe.

In France, after the law reforming child protection was passed in 2007, "the predominant type of intervention decided is open-settings (in-home) family support" [10]. In Italy, EU's recommendations have been reflected in the passage of several important laws (L.149/2001; L.285/1997; L.328/2000; L.154/2001). In the federalist system of Switzerland, the Swiss Commission for UNESCO promoted the widespread Guiding framework of Early Child Education and Care [11]. Compared to the US, the French, the Italian and the German health and social care systems are far more generous and offer lower thresholds for socio-economic disadvantaged families, such as universal health care, unemployment insurance and family benefits per child [12,13]. In France, Italy and Germany, mothers have direct access to mother and child protection services free of charge from the beginning of pregnancy until their child's third birthday in Germany, and until their child's sixth birthday in France including home-visiting by midwives or nurses, or family benefits provided by local government. Health indicators reveal higher rates of teenage pregnancy in the US. Still, recent French and German population based surveys have indicated strong health inequalities between children from different socio-economic strata [14].

To overcome the prevention dilemma and health inequalities, the CAPEDP (*Compétences parentales et Attachement dans la Petite Enfance: Diminution des risques lies aux troubles de santé mentale et Promotion de la résilience* - Parental Skills and Attachment in Early Childhood: reducing mental health risks and promoting resilience [12], was implemented in France. The Pro Kind program [15,16] is one of ten early intervention programs that were implemented as part of the initiative of the German Federal Government in the responsibility of the National Centre of Early Intervention (NZFH).

In Switzerland, childcare around the time of birth is also very well developed, especially when compared internationally. Pediatricians, maternal consultants and educational counselors work regionally nationwide. Shortfalls in supply exist for socially disadvantaged families, especially immigrants. According to estimations of the children's hospital in Zurich, approximately 70% utilize early medical health check-ups [17]. Also maternal consultants reach about 70% of all mothers with universal prevention in the first months after birth. In fact, roughly 30% of all families are not reached at all in early childhood resulting in a supply gap between the child's first to fourth year of live before entering kindergarten in Switzerland. To prevent child maltreatment and abuse, the Child and Adult Protection Civil Service was institutionalized in Switzerland in 2013 but it is strongly restricted to extreme degrees of endangerment. Early prevention of developmental problems needs lower threshold prevention programs like evidence-based home visiting programs as the ZEPPELIN 0-3 [17]. Planned follow-ups in the Pro Kind and the ZEPPELIN 0-3 studies will show the extent to which possible effects help to improve and retain starting chances at school.

In Italy, the relationship between legal action and effective measures on the part of the child protection system is not entirely clear. The problem in this particular country is not the absence of legislation, but rather the absence of measures implementing them. In 2005, the federalist reform assigned social policies to the exclusive competence of regional and local authorities. The lack of resources, a bureaucratic culture, different standards of professional training and differences in local needs and requirements have produced a miscellaneous context that, despite areas of excellence, is characterized by gaps and inequities. In the effort to respond to this situation and to comply with EU recommendations, in collaboration with the University of Padua, since 2011 the Italian Ministry of Welfare set out to implement an innovative intervention strategy to prevent out-of-home child placement and to test approaches to strengthen families in the effort to reduce child neglect, the P.I.P.P.I program [18].

The aforementioned similarities and differences in political background between the four European countries France, Germany, Switzerland and Italy under consideration in this paper are summarized in **Table 1**, first line.

Table 1. Overview of similarities and differences in political and theoretical background.

	CAPEDP (France)	Pro Kind (Germany)	ZEPPELIN 0-3 (Switzerland)	P.I.P.P.I (Italy)
Policy	Families have free access to extensive, comprehensive and longstanding social and health care systems Prevention dilemma: Lower utilization rates in high-risk families	Families have free access to extensive, comprehensive and longstanding social and health care systems. Prevention dilemma: lower utilization rates in high-risk families	Network of early intervention and education (medical, psychological professionals) Usage of community service infrastructure to reach high-risk families	Infant mental health is a public health priority, but: P.I.P.P.I. fills a vacuum between high-intensity intervention (e.g. child danger) and little or no intervention which are not high risk
Theory	Attachment theory Self-efficacy theory Human ecological systems theory NFP-program	Attachment theory Self-efficacy theory Human ecological systems theory NFP-program	Bio-ecological model of human development Self-efficacy theory Concept of parental sensitivity/ responsivity PAT-program	Focus on Human ecological systems theory → complexity and diversity of a family's and child's world

SIMILARITIES AND DIFFERENCES OF THE FOUR HOME VISITING APPROACHES IN THEORETICAL BACKGROUND, CENTRAL AIMS, STUDY DESIGN AND RESULTS

NFP-Inspired Programs in Europe: CAPEDP and Pro Kind

The French home visiting program CAPEDP and the German home visiting program Pro Kind are both inspired by the NFP program [5]. Accordingly, they are based on theories of self-efficacy [19], attachment [20] and human ecology [21].They are aiming to enhance maternal and child's health, child development, maternal life-course, as well as at the reduction of the risk for child abuse and neglect. The visits were structured by guidelines that provide the home visitors with teaching materials and topics to discuss across the different domains. While Pro Kind translated and adjusted the NFP's manual, CAPEDP designed its own manual inspired by Weatherston's work on home-visiting and reflective supervision, the Florida State Partners for a Healthy Baby Home Visiting Curriculum, and the Steps Towards Effective Enjoyable Parenting (STEEP) attachment-based program [22]. The Pro Kind program included a special curriculum to foster quality of parent-child-interactions and child development, the module PIPE [23].

In contrast to NFP, home visitors are specially trained and regularly supervised psychologists in the CAPEDP program. In the Pro Kind program, specially trained midwives and social workers conducted home visits instead of registered nurses. The accompanying research was conducted in both countries as prospective, multi-center RCT trials with two parallel arms comparing the intervention with usual care.

Accordingly, different emphases in the intervention and the accompanying research were noticed, for example, promoting infant mental health, reducing postnatal maternal depression (PND), and promoting parenting skills in the CAPEDP study; for example, enhancing maternal prenatal health, family functioning, parenting competencies, economic self-sufficiency and child development in the Pro Kind study.

A Closer Look at CAPEDP

The CAPEDP project involved 440 women and their families in Paris and from the inner suburbs from 2006 to 2011. To be eligible for inclusion, women had to be at maximum 26 years of age old, less than 27 weeks pregnant, sufficiently fluent in French, and presenting at least one of three risk factors: low income, low educational level or intending to bring up the child alone. The intervention, which 50% of the included women received (treatment arm) consisted of 44 home visits starting weekly at the third trimester of pregnancy and ending with deceased frequency at the child's second birthday [24]. During the postnatal period (0-3 months) the home visitors were reminded to pay particular attention to symptoms of maternal depression and to use active listening approaches with any mother presenting initial symptoms of depression. After the child's birth psychologists worked with video-feedback using at home daily sequences to enhance mother sensibility and reduce maternal disruptive behavior.

The attrition rate was 17% at three months of child's age and rose constantly up to 63% until the end of the intervention at 24 months with significantly more attrition in the control arm (70.6%) compared to the intervention arm (55.2%). Several variables were associated with attrition early during the program (e.g. previous abortions, attachment insecurity) and later attrition (e.g. control arm, parental loss before the age of 11 years [25].

An independent psychologist team assessed different topics at six different times at inclusion and at 3, 6, 12, 18 and 24 months after birth. Child's mental health, maternal depression and quality of the caring environment were considered as the major mediating variables for infant mental health. Additionally, mother-infant attachment was assessed during home visits. In a subsample of 120 randomized families, attachment style, and disruptive maternal behavior were measured in a laboratory [23].

Taken together, the CAPEDP failed to demonstrate an overall effect on PND. However, post-hoc analyses reveal that the intervention was effective in terms of primary prevention and in subgroups of women without risk factors [12]. Results concerning infant withdrawal at 18 months were similar to those of an intervention that tends to be useful for low-risk families [26]. Nevertheless, the CAPEDP intervention has been proven to be effective in significantly reducing infant disorganization and maternal disruptive behavior in a subsample of 120 families [27]. In the intervention group, the percentage of disorganized attachment was 7.7% compared to 21.2% in the control group. In the intervention group, the percentage of disrupted maternal behavior was 31.7% compared to 51.9% in the control group.

A Closer Look at Pro Kind

From 2006 to 2009, the Pro Kind project enrolled 755 first-time mothers between their 12th and 28th week of pregnancy with economic risk factors (e.g. unemployment, over-indebtedness >5.000 €) and at least one social risk factor (e.g. social isolation, being under age) in urban and rural regions in western and eastern federal states of Germany. The 394 women in the treatment arm of the intervention received regular home visits during pregnancy up to the child's second birthday varying between weekly and monthly home visits. The attrition rate rose constantly up to 50% at 24 months postpartum (346 out of 755 families remained in the study). A younger age, a lower income, and experienced foster care placement at baseline significantly predicted program attrition until 24 months postpartum [15].

Research on the Pro Kind intervention is threefold: besides a bio-psycho-social evaluation (which results are presented here), results from implementation research may inform about the mechanisms leading to effects or to explain why expected effects were not found [16]. The third part of research is the cost-benefit analysis aiming at the assessment of the economic efficiency of the program [28].

Assessments of family environment and maternal competencies were based on self-reports in regular interviews. Child development was assessed with gold standard tests [15]. A follow-up study is currently running at child's primary school age.

Intervention effects (some were marginally significant with p-values between 0.05 and 0.10) were detected in the domains of social support, postnatal stress, parental self-efficacy, knowledge on child rearing and maternal attachment feelings.

Analyses of underlying processes revealed that maternal stress is buffered by social support (that is more dependent on others) in the CG, whereas women in the TG can cope with stress because of their higher levels of parental self-efficacy and therefore with their own resources [29].

In contrast to NFP, intervention effects were not found for partnership satisfaction, number of further children or educational achievement. In the domain of child development, only children of high-risk mothers showed a superior mental development compared to their CG counterparts. No effects were found on child language and social-emotional development [15,16].

A limitation of both studies was that, although the home-visiting team had received specific instructions in the manualized intervention, a qualitative analysis of home-visiting case-notes in the CAPDEP showed little evidence of the major theme of PND actually being addressed as a priority [30]. The same holds true for quantitative analyses of time spent on the domain maternal health during pregnancy and parental role, including a special focus with the PIPE curriculum on child development during the first year of child's life in the Pro Kind program. Implementation fidelity in both programs seems to have taken second place with regard to more pressing issues around supporting mothers to resolve social, financial or practical problems.

Another limitation is that the current results on both programs are based largely on self-reports. These as well as process variables of implementation should be complemented by observational methods as more objective indicators of program effects and quality of implementation [15].

ZEPPELIN 0-3 with the Program Parents as Teachers (PAT) in Switzerland

The longitudinal study ZEPPELIN 0-3 applies a German adaptation of the home visiting program "PAT – Parents as Teachers" (PATNC) and aims at interdisciplinary early recognition of jeopardized child development for psychosocial reasons and at strengthening early parental support. Research is theoretically founded in a framework based on the Process-Person-Context-Time (PPCT) model [31]. Thus, parental, child, interactional, and contextual characteristics (e.g., process quality, resource network) represent the core of the concept. It is realized in three study sites located in the canton of Zurich, Switzerland. A trained parent educator (i.e., mostly a pediatric nurse, who is professionally trained and well experienced in parent counseling) visits families regularly at their homes every two or three weeks. Additionally, ZEPPELIN 0-3 offers monthly group meetings.

The target population of ZEPPELIN 0-3 has a low socio-economic status. Migrant families were also explicitly addressed and included if they meet the criteria regarding risk constellation, for example, limited social support, financial distress, unemployment or family difficulties. In 2011, 248 families were recruited and equally randomized to the intervention or control arm. Of those, 38 participants attrited by the fourth measurement time point (child age 3 years) due to moving away, lack of time, illness, or unreported reasons. With an attrition rate smaller than 5% per year, the ZEPPELIN 0-3 is more successful in retention than comparable PAT evaluation studies conducted in the US or in Germany [32].

The effectiveness of the early intervention is rigorously assessed in a longitudinal experimental design. Framework and data material allow for a broad analysis of the proximal processes and of their mid-term and long-term effects including cost-benefit analyses. The primary outcome domains are cognitive, language and social development of the children aged 0 to 3, as well as the parental quality of caregiving. Additionally, the relation of further influencing factors of the program (like intensity), family and context factors (like social network and the use of alternative treatments) on the effects are considered.

Data collection started in 2011 with the baseline assessment when children were between 3 and 4 months old, and continued at 12, 24 and 36 months [17]. Follow-up studies will be conducted at transition to primary (5-9 years) and secondary school (12-13 years).

Preliminary analyses show the greatest impact on measures of child development. However, advantages in language and cognition decreased towards the end of the program. By contrast, differences in behavior increased towards the end of the program. At 36 months, children in the target group showed less problematic behavior and higher scores in effortful control. Finally, PAT positively influenced parent-child interaction.

No intervention effects were found in measures of children's health (e.g. hospitalization, oral health) and in measures of parental attitudes towards their children and parental self-efficacy.

Data quality is affected by the multilingual sample - the translation in the native language (either by intercultural interpreters or the parent) may have led to less accurate measures. Further, the use of self-report limits the validity of the parental outcomes

A second limitation is the lack of assessment of child development at baseline. Despite the use of the rigorous RCT design, it cannot be ruled out that differences between the children in the target and in the control group existed prior to the intervention.

An Intensive Care Program for Vulnerable Families to Prevent Institutionalization - P.I.P.P.I., Italy

The acronym of the Program of Intervention for Prevention of Institutionalization (P.I.P.P.I.) is inspired by the fictional character Pippi Longstocking, a creative and amazingly resilient girl known all over the world. P.I.P.P.I. addresses positive parenting and the holistic development of the child by proposing new ways to respond to problems connected to poor parenting and child neglect [33]. In accordance with the bio-ecology of human development [34], it aims to respond to children's needs with a collective action.

The collective action to respond to child neglect encompasses (1) home-care intervention, (2) parent groups, (3) family helpers, and (4) cooperation between schools, families and social services. First, during home-visits practitioners spend a minimum of four hours approximately twice a week in order to address their problems and try to modify their behavior. Second, parents are involved in weekly or bi-weekly group activities to enhance reflective practice, and to encourage exchange and interaction between parents. Third, each family is provided with a volunteer support family or family helper whose aim is to offer support in concrete aspects of daily life, and to reinforce goals identified by care planning strategies. Fourth, the educational institution of the child (kindergarten, nursery, or primary school) is invited to be a full member of the multidisciplinary team. Teachers and other involved professionals outline actions (both individualized and classroom based) that will favor a positive school environment where children can learn social and emotional competencies.

The program's first and the second stage addressed in this paper were carried out from 2011 to 2012 and from 2012 to 2013 in ten Italian cities that involved 836 professionals (social workers, psychologists, home care workers, neuropsychiatrists) working in 10 Child Protection Services. Overall, 320 children from 233 families between 0 to 14 years of age were included. Children were eligible if the "team around the child" shared the presence of child neglect problems that could lead to a future placement outside the family. From 2014 to 2015 and 2015 to 2016 the first and second step of scaling up with 82 new cities and approximately 1000 children involved, has begun.

The study used a quasi-experimental pre-post-test design incorporating both quantitative and qualitative assessments (questionnaires and documentation analysis) to compare the families' situation before the intervention (t0) and at its conclusion (t1).

Data collection is conducted through a path named Participative and Transformative Evaluation (P.T.E) [35]. Using the research instruments, participants create learning and negotiation contexts where families and professionals could try to experiment a new balance or make new decisions enabling them to improve the children's development together [36]. Practitioners become co-workers and co-researchers with parents, teachers and other actors in helping to foster positive child developmental pathways. The study utilized a variety of tools to assess baseline situations and problems and post-intervention changes based on the British Framework for the Assessment of Children in Need and their Families [37,38], previous experiences [39] and other international programs [40,41]. The Italian adaptation resulted in a new tool, *The Child's World Questionnaire* (CWQ) whose validation is in progress. It is utilized to conduct a comprehensive assessment of child's conditions and needs, to plan further activities and to document changes over time. Usually, it is depicted as a triangle with the three sides representing the child's developmental needs, parenting capacity and up to 17 family and environmental factors [42].

Final results monitor the program's accountability and highlight any changes in child functioning and his/her world like parenting practices. Encouraging, positive changes between t0 and t1 obtained by the CWQ occur in all three dimensions. In the

dimension Family Competencies, important changes are observable in parents' self-realization and guidance and boundaries. For the Child's Needs dimension, the most important changes involve social skills, identity, self-esteem and social presentation, as well as family and peer relationships. The Environmental Factors with an improvement are support from families, friends, and other people, belonging to and participation in the community, as well as employment and income. The smaller improvement of the factor relationship with school is probably due to an already good baseline value.

Proximal results monitor negotiation processes introduced by P.T.E. Information on proximal results concerning participation experiences of children and parents and the integration of different practitioners was collected in ten focus groups. About 53% of the total text units in the interviews refer to how practitioner's percept involved child and parental experiences of provided services. Of those, 83% report positive experiences, mainly better participation of the families in the care process, higher presence of a trusting relationship between families and services, and appreciation for the tools.

Moreover, data from CWQ and the quantity of activities according to P.I.P.P.I. show that a higher number of activities correspond to a higher score in the CWQ ratings.

One limitation of the study is atypical sampling of children and families since it was linked to the practitioners' recruitment. It is therefore impossible to generalize the results to the population normally referred to the Child Protection System.

The second limitation is the quasi-experimental design. In the first implementation, a control group that followed the mainstream activities offered by Child Protection Services was used. The results demonstrated a significant improvement only for the P.I.P.P.I. group [18]. In the subsequent implementations, it was impossible to apply an RCT due to the need to involve practitioners in the research activities. Starting from the fourth implementation (2015-2016), each of 100 participants in the treatment group is pairing with a member of the non-treated group on the basis of similar observed characteristics (propensity score matching).

Using measures that have not undergone a process of scientific validation are a third limitation of the P.I.P.P.I study. But at the same time, these can be considered a special strength since they promote negotiation practices within the Child Protection System and allow more objective assessment of family participation.

Tables 2 and 3 give a brief overlook of similarities and differences between the programs under consideration.

Table 2. Overview of similarities and differences in central aims and study designs.

	CAPEDP (France)	Pro Kind (Germany)	ZEPPELIN 0-3 (Switzerland)	P.I.P.P.I (Italy)
Central Aims	Reduction of PND (3 months, EPDS), Optimization of the quality of home environment (12 months, HOME), Improvement of child mental health (2 years, CBCL 1 S-5)	Improvement of child development (6, 12, 24 months: BSID-II, 24 months: SETK-2, CBCL 1 S-5) Improvement of maternal health, family functioning, parenting competencies, economic self-sufficiency (self-reports)	Improvement of child development (BSID-III, SBE-KT, CBCL 1 S-5), Improvement of parenting practices (HOME, CARE-Index), Improvement of social integration and school success	Prevention of out-of-home placement Support of positive parenting Reduction of child behavioral problems (SDQ) Integrated, multi-dimensional assessment (e.g. CWQ) and shared care plan
Study Design	RCT: Manualized multifocal intervention+usual care, home visiting: Team of psychologists (TG, n=222) vs. usual care (CG, n=218)	RCT: manualized multifocal intervention+usual care, home visiting: midwives and/or social pedagogues (TG, n=394) vs. usual care (CG, n=361)	RCT: manualized home visits from Parents as Teachers (PAT) educators+usual care, monthly group meetings (TG, n=133) vs. usual care (CG, n=118)	Quasi-experimental design (matching): P.I.P.P.I. program with four integrated strategies (TG, n=100) vs. main-stream social services (CG, n=100)

There are more similarities than differences in the theoretical background, but slightly more differences in central aims and approaches to reach these aims. Accordingly, the results are quite mixed, ranging from almost no main effects, but also with interesting subgroup effects on different outcome domains of the NFP-inspired programs CAPEDP (France) and Pro Kind (Germany), to moderate main effects especially on child development in the PAT adaptation ZEPPELIN 0-3 (Switzerland), and to main effects on all domains in the P.I.P.P.I program (Italy), specifically for families with older children and a clearer intervention focus on prevention of institutionalization. The following passages outline the programs in more details that are considered necessary to comprehend differences in results beyond their political background.

Table 3. Overview of similarities and differences in results.

CAPEDP (France)	Pro Kind (Germany)	ZEPPELIN 0-3 (Switzerland)	P.I.P.P.I (Italy)
No overall effectiveness on the prevalence of PND	Significant, but small effects on parental self-efficacy; marginal effects on social support, child rearing, stress, feelings of attachment	Significant small to moderate treatment effects on child language, cognition and behavior	Family and environmental factors (CWQ) improved significantly from t0 to t2 in both groups
But: program effectiveness in subgroups of women with few symptoms and higher educational level; father involvement in child rearing	Program effectiveness in the subgroup of high-risk mothers - more social support over time - infants reach more favorable scores in the MDI (BSID-II)	Significant differences in the home environment favoring the TG (at t1, t2 and t3)	Significant improvements in perceived social support, parenting capacities and child development (SDQ) only in the TFG
	Higher improvements in feelings of attachment when the quality of the helping relationship was enhanced	Better social connections in the TG (e.g. higher utilization rates of (toy) libraries, satisfaction with partner support, more language courses among immigrants)	Higher program intensity corresponds to more favorable outcomes

HOW CAN THE DIFFERENT RESULTS BE EXPLAINED?

Participant Attrition and Focus of Intervention

Enormous efforts to reach and retain participants were undertaken in the CAPEDP, the Pro Kind, and the ZEPPELIN 0-3 project [25,43,44]. All of them have targeted hard-to-reach families with high risks for poor parenting and later child developmental problems. One of the major challenges is to have these families recruited before the child's birth. In fact, these families are not even aware that they may need help with child rearing. Whereas the high, partly selective attrition rates were one of the major limitations in the CAPEDP (63% at 24 months) and Pro Kind (54% at 24 months) program, attrition rates in ZEPPELIN 0-3 (14% at 36 months) and P.I.P.P.I (9% at 18 months) are quite low. The provision of incentives in one project, but not in the other, cannot be an explanation. Although in the CAPEDP study no incentives were given, in the Pro Kind study all participants received reimbursements of their time spent in research issues, but attrition rates look alike.

Although child development was one of the intervention's specific objectives in CAPEDP and Pro Kind, too, the home visitors did not spend the prescribed amount of time with this domain. This may be one reason why effects on child development were not achieved or only achieved in subgroups, whereas the ZEPPELIN 0-3 with its clearer focus on child development is more effective. The same holds true for the P.I.P.P.I program, but there are many differences in comparison to the other programs. First, the case manager refers families to the program if he/she considers children at risk for out-of-home placement. Second, the program is designed for families with children in a later age range (0-14 years), so the motivation to participate and stay in the program may be higher, because the families are well aware of their problems. Third, the program is very focused on prevention of institutionalization. Last but not least, instead of choosing the gold standard research design, the RCT, a participative evaluation approach was favored.

Research Instruments

From the more detailed program descriptions it is obvious that there are more similarities than differences between the programs. The researchers used mostly gold standard instruments to assess child development, parental competencies in the interaction, and home environment. It could be discussed whether those instruments are sensitive enough to changes in child development, but the effects of the ZEPPELIN 0-3 proved at least the BSID, the SBE-KT and the CBCL 1½-5 to fulfill this criterion. Perhaps one limitation of the ZEPPELIN project is that baseline data on child development are missing. In fact, it cannot be excluded that the children in the treatment and control arm differed even before the intervention started.

Exceptional and outstanding is the P.I.P.P.I with its integrated and multi-dimensional assessment. The choice of instruments currently in the validation process may be seen as a limitation, but also as strength because it allows participatory evaluation.

Data Analyses

A closer look at the strategies of data analyses again reveals more similarities than differences, for example, both programs with high attrition, CAPEDP and Pro Kind, try to cope for it by using multiple imputations. Traditional analyses dominate in all programs under consideration what might lead to underestimations of effects. The Pro Kind study tried to meet this critique and calculated Generalized Estimating Equations (GEE), an iterative procedure for the analysis of longitudinal outcome data using a quasi-likelihood approach [45]. In GEE, a working correlation structure is chosen to correct for dependency of observation, that is, within-subject correlations. A further advantage of GEE is that all available data are included in the analysis (no list wise deletion

of cases). Although this analysis strategy may be considered more appropriate, it changed results only slightly in comparison to traditional analyses like repeated-measurement ANOVAs.

Context, Quality of Implementation and Specificity of the Intervention

Besides methodological considerations it seems to make sense, to take context, quality of implementation and the specificity of the intervention into account [46]. First, it seems that the more generous and enhanced the health and social care systems the more difficult it is to prove program efficiency and efficacy. The implementation of gold standard RCT designs is limited, because in the European countries, real control groups are hardly available since treatment as usual implies always some preventive and interventional efforts. As a consequence, the CAPEDP, the Pro Kind program, ZEPPELIN 0-3 assess effects of treatment plus usual care in comparison to usual care only. Again, the P.I.P.P.I. program is the exception: although infant mental health is a public health priority in Italy, P.I.P.P.I. fills a vacuum between high-intensity intervention (e.g. child endangerment) and little or no intervention. Above, P.I.P.P.I. decided against the RCT design and used a quasi-experimental design with propensity score matching as second best choice to favor participative evaluation. Perhaps this is the more promising research strategy in the European context.

Second, program fidelity is the key to effectiveness. Quality analyses of home visiting case notes showed little evidence of prioritizing PND in the CAPEDP; the PIPE curriculum was implemented only in 14% of all home visits of Pro Kind. In contrast to this, there are high implementation rates of PAT in the ZEPPELIN 0-3. In the P.I.P.P.I. program, higher program intensity corresponds to more favorable outcomes. In Pro Kind there was little evidence that the quality of the helping relationship between mother and home visitor increased intervention effects, but program intensity did not. Furthermore, the existence and utilization of a high-functioning network of Early Intervention and Education seems to be important. Although such a network is without a doubt existing in France and Germany, its utilization has to be significantly improved, for example, in the Pro Kind program, only 18% of all children in need for early developmental advancement in the treatment group received it, compared to 12% of all children in need for it in the control group.

Third, multifocal interventions, like CAPEDP and Pro Kind, seem to be limited in their effectiveness on specific outcomes, like PND and child development. The more tailored interventions like ZEPPELIN and P.I.P.P.I. better address specific problems and needs of the families living under socially disadvantaged conditions. For example, the ZEPPELIN 0-3 is very focused on improvement of parent-child-interactions and highly specific to reach its highest effects on child development. The P.I.P.P.I. program is very focused on preventing institutionalization, and successfully subordinates all other actions to reach this goal. Perhaps that in France and Germany, instead of implementing programs with specific teams it would be more useful to train nurses, educators and midwives already working in public health services about specific topics as attachment theory and self-efficacy theory. This professionalization for screening and addressing to specialized teams should improve results on specific topics like maternal depression or child behavior. Moreover, the acceptance of interventions by families may be better if they are embedded within regular child care services (as intended in the P.I.P.P.I.) instead of having on-top interventions which are seen as more effortful and time-consuming.

Above higher effectiveness, a more specific intervention strategy even seems to lead to higher retention rates, because the clearer the focus, the better the participants can be informed, and disappointed program expectations may be prevented.

IMPLICATIONS FOR FURTHER PROGRAM DEVELOPMENT AND PROGRAM DISSEMINATION

There is a clear need for strong involvement of families in the intervention and research process, because high rates of attrition and low levels of family involvement lead to reduced effectiveness. Even in the more effective programs, ZEPPELIN 0-3 and P.I.P.P.I, father involvement is not specifically addressed and may therefore be a target as for many early intervention programs [47,48].

Additionally, high levels of professionalization, supervision, and resources are important. Effective and efficient work in Early Intervention and Education requires high levels of proficiency and reflective competencies. Lots of resources are needed for careful documentation of the intervention process and further planning of the intervention, what is a problem in times of austerity when workloads in child care services typically increase.

Last but not least, there is a need for government support and cooperation at all levels. Policy systems in most countries operate in silos, so inter-service cooperation is often hindered by the simple fact that the different silos are unable to see their responsibility for a certain problem or even the responsibility to work at the same problem with others. In the P.I.P.P.I. program, inter-service cooperation between different agencies and practitioners with different professional and institutional affiliations is realized by a consequent focus on participation. This might be difficult to achieve, but may be one key to effectiveness [47,49,50].

CONCLUSION

The results of this discussion paper may inform policy how to develop programs or invest in existing programs in the field of early intervention that produce substantial benefits for vulnerable children, their families and society. The four home visiting

programs outlined and discussed in this paper are implemented in diverse political contexts. They are partly different, partly similar in their strategies of intervention, but have all the same overarching aim of breaking the cycle of social disadvantage. From all countries under consideration, Italy has the highest poverty rate, but the most effective program. One may come to the simple conclusion that the more generous and enhanced the health and social care system, the more difficult it is to prove program efficiency and efficacy. But Switzerland with the lowest poverty rate has the program with most specific effects on child development. In fact, direct comparisons of the four programs show a multilayered picture.

It seems to be a good strategy to invest in programs that fill a gap in social services, like the P.I.P.P.I program does in Italy. The other three programs offer on-top services and at least two programs, CAPDEP in France and Pro Kind in Germany, have to struggle with high attrition rates. Parental problem awareness, e.g. considering the risk of out-of-home placement of the child or child behavioral problems, seems to facilitate the acquisition of participants in prevention programs and leads to diminished attrition. Further, the use of participative evaluation strategies gives better insights in program quality and fidelity. Knowledge about the quality during the implementation process allows tailoring the intervention better to the needs of the participants. It is well documented in the home visiting literature that programs addressing family's needs have higher rates of retention [51]. Above, a specialized intervention focusing on child development, like the ZEPPELIN 0-3 in Switzerland is more effective than an intervention trying to achieve many aims in different domains, even if amongst them improved child development is a key outcome.

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