

Project title

Promoting mental health in young children – a dialogue-based approach in kindergartens (PRO-DIALOG).

Summary

There is an unambiguous call for early interventions at the municipal level for children at risk of developing mental health problems. However, there is a surprisingly absence of socially valid methods for detecting children in need of early support.

The aim of the project is to establish the properties of such a novel method; Dialogue Based Early Detection (DBED). We will study its properties as a mental health screener, how well it is adapted in an ordinary kindergarten context and whether it affects activation of interventions for mental health concerns and children's future mental health.

The novel aspect of DBED is the systematic assessment of the child's development and well-being by the kindergarten teacher and his/her parents, and the subsequent dialogue that aims to explore and converge their understanding of the child and conclude whether there is a need for further assessment or supportive actions.

Parents of approximately 300 children in 20 different kindergartens aged 3-4 years will be invited to participate for the three last years before school start and follow-up the next two years. The kindergartens will be randomized to an implementation group or a control group. Parents' socio-demographic characteristics and data from parent-teacher meetings, initiated interventions, user satisfaction, parental stress, and child mental health will be collected biannually, as well as tape recordings from interviews about user experiences of parents and teachers.

The project employs interdisciplinary approaches as to professionals (mental health professionals versus educationalists) and research methods (qualitative versus quantitative).

The most critical challenges of the project will be participation rate of the invited parents in addition to attrition due to the time pressures in a busy workday in the kindergartens, and willingness of the control parents to complete the repeated questionnaires. Appropriate measures are made to take those risks into account.

1. Excellence

1.1 State of the art, knowledge needs and project objectives

"It takes a village to raise a child" is a proverb that means that an entire community of people must provide for and interact positively with children for those children to experience and grow in a safe and healthy environment (3). The ambition of the PRO-DIALOG project is to bring together different actors (parents, kindergarten teachers, child related services, and different research fields and methods) and resources to establish missing knowledge as to promoting child mental health. However, our ambition goes beyond a scientific goal by homing empowerment of parents in their communication with educationalists, and by addressing the void between the educational and health sectors.

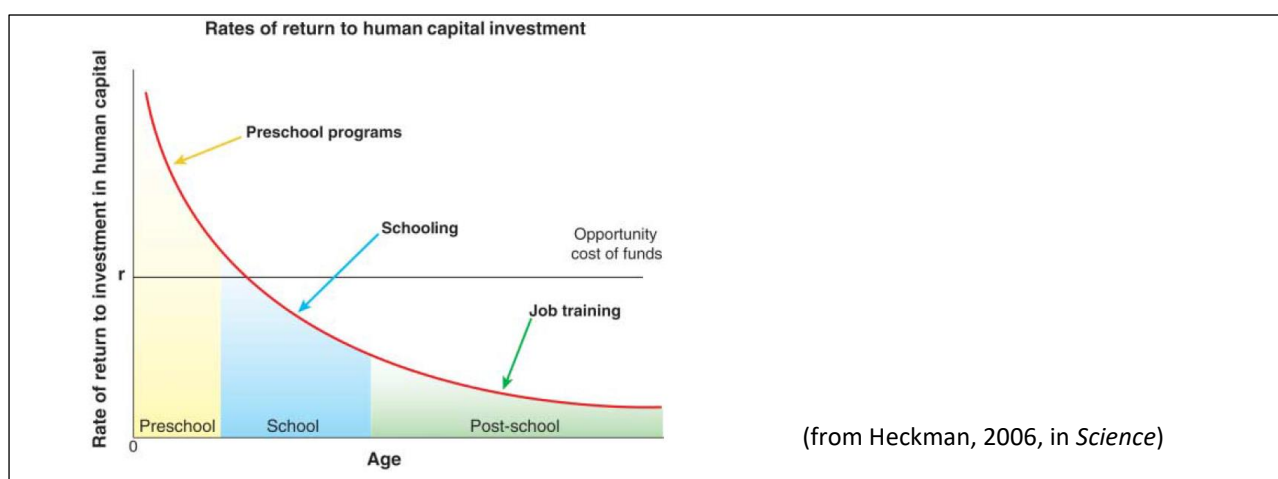
The public burden of youth mental health

While somatic health challenges in general can be measured and diagnosed by objective standards, mental health concerns, especially among young children, are more challenging to define. Strong and sustained expression of fear, sadness or aggressive behavior might be obvious signs. However, problems in playing, relating to other children or adults, eating/drinking, elimination, or sleep, may also be signs of mental health concerns. Nevertheless, during their first years, children may develop very differently and at different pace as part of normal development and show all these signs without having a mental health problem. The crucial question is whether the child has an age adequate level of functioning and shows

satisfactory well-being over time. Classification systems such as International Classification of Diseases (4) or Diagnostic and Statistical Manual of Mental Disorders (5) have definitions that can be used to diagnose mental disorders among children, though the validity of their formal diagnoses are highly questionable (6). When a Norwegian study estimated the prevalence of mental disorders among 4-year-old children as 7.1% (7) that is more an expression of the heavy societal challenge of youth mental health, as the existence of true cases of mental disorders in the population. The major costs of common mental problems among children for both the individual and the society are well known, negatively affecting sick leave, increased mental and physical morbidity, alcohol and substance abuse, crime, relational problems, injuries, suicide, social, peer, and school related problems (8, 9). It has, furthermore, been suggested that childhood mental health is the strongest predictor of adult well-being (10).

Early detection and intervention are important to prevent secondary consequences of mental health problems, and early efforts are assumed to reduce socio-economic costs in the long run (figure 1) (1). Ideally, all children with significant emotional or behavioural problems should be detected and offered adequate developmental support tailored to their individual needs. Such support could be provided by community level agencies or by child and adolescent mental health service (CAMHS), depending on the need, and should ideally be given before starting school to achieve the optimal educational and social gain.

Figure 1: Socio-economic effect of early intervention



Delayed detection and intervention

However, only a minority of children at risk is detected and offered appropriate interventions, younger children less often than older ones (11-14). For the individual child there may be years delay from the appearance of symptoms to interventions for these challenges.

Challenges at the municipal level – early detection and intervention

- In Strategy for good mental health 2017-2022 the former Norwegian government stated that *“Because children do not always realise that they need help, or know how to seek help, it is important that adults that meet and work with children, know what to look for and how to act, both when need of help is suspected or obvious, and act.”* (15).
- Further, in their report *“Mental health work for children and adolescents – an insight report”* (16) the Norwegian Health Directorate summarizes the common features in a suggested general model for follow up of children and adolescents with mental health challenges. One is *“Close cooperation between services in the municipality and access to competence in kindergartens and schools to secure that children, adolescents and families in need of help are intercepted as early as possible and that interventions are initiated before they develop more serious difficulties”*.
- Likewise, in their plan for child health clinics, school health service, mental health service for children and adolescents, and the child welfare agency, 2016-2026 (17), Bergen municipality states that *“It will*

be important to recognize early or ambiguous signals of aberrant development, lack of well-being, or other problems”.

- From January 2022 the Norwegian municipalities are imposed a greater responsibility for mental health promotion and early interventions for children at risk for developing psychosocial impairment through the Child welfare reform (Barnevernsreformen) (18).

However, these public plans and directives give very little guidance as to methods or practical approach for early detection of children at risk for mental health problems.

The kindergarten as arena for detection and first line intervention for children at risk

In Norway most children (> 95%) from the age of one year attend a kindergarten. Law regulates the educational standards in the kindergartens included requirements for competence and staff. Consequently, kindergartens have a high potential for first line intervention for better mental health for children in general. However, established screening programmes for behavioural or emotional problems among children have been criticised by the users, i.e., kindergarten teachers and the parents of the children, for pathologizing natural variation in behaviour and emotional reactions and generate unnecessary worry for healthy children. Hence, we need valid and user-accepted methods to identify children with a worrying development in this age group.

Development of a novel screening approach, Dialogue Based Early Detection.

Searches on the scientific literature and discussions with professionals and academic communities revealed no existing alternative to established screening aimed for early detection of mental health challenges in pre-schoolers (19).

Inspired by Shared decision making (20) and the approach of focusing on caregiver's concern rather than assessment of deviant behaviour or symptoms (i.e., ESSENCE questionnaire (21)) we developed the Dialogue Based Early Detection (DBED) method. DBED is developed, tested, revised, and piloted during the past seven years in close collaboration with parents and kindergarten teachers (2). It is a 3-step method (Figure 2) starting with both parents and kindergarten teacher completing the Early Worry Questionnaire (EWQ) as a preparation for the biannual parent-teacher meeting. EWQ contains 37 questions that systematically maps possible concerns for the individual child's wellbeing and development (Figure 3). When a concern is stated, the respondents are asked to suggest possible causes in the child's ordinary environment (i.e. in the kindergarten or at home). The next step is the parent-teacher meeting where they compare their answers from the EWQ and discuss whether there is a reason for concern or not. In case of consensus of concern, a discussion of possible further actions should be taken (step 3), such as closer observation of the child, simple educational interventions (e.g., play group), or referral to more specific external assessment or services. During feasibility testing (n=153) of the method, DBED was well accepted by parents and teachers (2). Preparation before parent-teacher meetings by completing the EWQ facilitated a more active involvement of the parents in the dialogue. Accordingly, the teachers were more challenged to give guidance to concerned parents (2).

Figure 2: The steps of Dialogue Based Early Detection

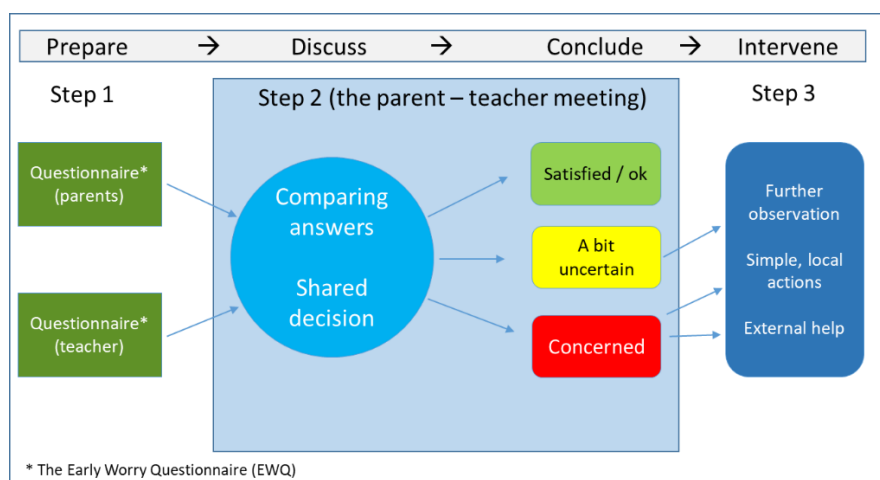


Figure 3: Early worry questionnaire, groups of subjects and example of some items

Groups of subjects	Numbers of items	Tick one option for each of the below points.	Satisfied / ok	A bit uncertain	Concerned
General development and wellbeing	2	EMOTIONAL REACTIONS			
Language and motor development	6	16. To become sad			
Behaviour	9	17. Positive reaction to being soothed			
Emotional reactions	9	18. Shyness			
Physical functions	5	19. Fear			
Other concerns	5	20. Irritability / outbursts of anger			
		21. Reactions to changes in routines			
		22. Reactions to unfamiliar or new situations			
		23. Reactions to touch, light, smell, taste, heat, cold, pain			
		24. Need for validation			

Overall project objectives.

DBED represents a promising method that could assist the parents and kindergarten teachers in discussing possible mental health concerns, causes, and possible interventions. The objective of the project is to validate the method. We aim to examine DBED's

- screening features to detect mental health challenges among young children
- social validity as an everyday tool for kindergarten teachers
- impact on activation of interventions for mental health concerns
- impact on children's future mental health

1.2 Research questions and hypotheses, theoretical approach and methodology

Design

The PRO-DIALOG project has the characteristics of complex intervention research, such as a number of components involved, a wide variety of behaviours targeted, expertise and skills required by those delivering the intervention, and the permitted level of flexibility of the intervention (22). The first two phases of such research (development of an intervention and assessment of feasibility of the intervention and evaluation design) are completed (2). The present application addresses the next two phases, evaluation of the intervention and impactful implementation, which will be combined in a Type 2 hybrid effectiveness-implementation design (23). We will use a mixed-method approach including both quantitative and qualitative methods.

Power analysis

In a complex intervention like this there are multiple research questions, and it is not necessarily established what effect sizes of the different outcomes are meaningful in the present context. However, with the risk of both under- and over-powering some parts of the study, we focused on the difference in SDQ total scores between implementation group (n=100) and control group (n=100). Mplus was used for Monte Carlo simulations assuming the participation of 20 kindergarten (clusters) with 10 participating

subjects within each cluster and a baseline SDQ mean 5.5 (English norm data: 5.7) SD = 5.5 ($\sigma^2_{\text{within}} = 30.25$). The group differences were represented with a predictor of the slope factor in a latent growth curve model. The model assumed normative stability in the controls (mean change = 0.0) and a reduction of -0.8 in the intervention group during the total period. Group sizes were set to be equal. Some between cluster variation was specified in the intercept factor ($\sigma^2_{\text{between}} = 2.0$) to give expected ICC = .05-.06 in the 10 outcome variables. The attrition was assumed to be up to 50%. The number of replications was 1000. To achieve this difference of 0.8 with this number of clusters and subjects, the statistical power for the testing of group difference was found to be 95%.

Study population

20 kindergartens in Øygarden (n=11) and Bergen (n=9) municipalities in Western Norway will be randomized to either implementation of DBED or controls. Parents of children with three years left in kindergarten before school start (aged 3-4) from the same birth cohort (2020) will be invited to participate for a period of 5 years. In the implementation group (n=100) DBED is completed biannually during the three remaining kindergarten years. Information as to mental health symptoms, parental functioning, and service use is collected biannually during the entire project period. In the control group (n=100) only information as to mental health symptoms, parental functioning, and service use is collected biannually during the project period.

Risks

The main risks of the project will be managed as follows. (I) Failing recruitment: We will have close contact with managers and teachers in the participating kindergartens offering them written and oral information to bring further to the parents, and direct information by participating in meetings with parents. (II) Attrition to follow up / low response rate of the questionnaires: We will make regular visits to the participating kindergartens to remind them of the project and discuss possible challenges. The online data collecting system has a user-friendly design and will generate up to two reminders for each missed questionnaire. It was piloted in four kindergartens during 2022 where weaknesses were identified and rectified.

User involvement

Throughout development and feasibility testing (2) and last year's piloting, end users (parents, teachers, and kindergarten managers) have given valuable feedback and suggestions for improvements. For the planning of the upcoming evaluation and implementation phase we have had numerous meetings during the past year with users (teachers, parents, representatives from Bergen municipality, Eventus kindergartens, the kindergartens of Haukeland University hospital, and Western Norway University of Applied Science [training of kindergarten teachers]). This cooperation with users will continue during the project period by regular meetings and workshops.

The reason for choosing an interdisciplinary approach in this project is that the arena for the intervention (application of Dialogue Based Early Detection) is in the educational sector, while much of the help services for children at risk are in the health or social welfare sectors.

Etics

The project has been approved by the Regional Committee for Medical and Health Research Ethics (REC west), # 151749.

Completing the SDQ questionnaires may cause concern in both teachers and parents of mental health problems of the individual child that they so far have not been paid attention. All participating parents, kindergarten teachers and their managers will be informed about which public services for children in the municipality will be relevant in such cases.

Research question 1: What are the screening features of DBED?

Work Package 1: Establishing the formal features of DBED as a screening instrument (effectiveness)

DBED outcome will be compared to the score of a standard screening tool for mental health of children, the Strengths and Difficulties Questionnaire (SDQ) (24). A total score ≥ 95 percentile of SDQ from either teacher or one of the parents in the sample will indicate a possible clinical case. The case-finding property of DBED will be evaluated by analysing the agreement of possible clinical cases between DBED and SDQ (regression models). We will examine the factor structure of the Early Worry Questionnaire (EWQ) (figure 3) (explorative factor analysis) and the agreement of responses on EWQ between parents and teachers, using agreement measures, such as Cohen's kappa. Finally, we will examine which environmental factors and parent's socio-demographic characteristics influence the different concerns for the children in multi-variate regression analyses.

Research question 2: What is the social validity of DBED?

Work Package 2: Assessing user satisfaction by quantitative measures (implementation)

Following the biannual completion of DBED both parents and kindergarten teachers will be asked to complete questionnaires addressing their satisfaction with the method over time. By comparing scores between the subsequent years, it will be possible to assess whether the method is sustainable. Data will be presented by simple cross-tabulations and bar diagrams using chi-square statistics to test for statistical significance.

Work Package 3: Qualitative exploration of user experiences (year 2024 and 2026) (implementation)

To understand the experiences of the users, and how the usage of DBED affects communication and collaborative relationship between the kindergarten teachers and the parents, multi-modal qualitative research methods will be applied. Workshops and interviews will take place during the first year of accomplishment of DBED and repeated after two years.

four workshops with kindergarten teachers will be arranged for a collaborative reflection on experiences from accomplishment of DBED. The anticipated outcome of the workshops is co-creation of parents- and professionals-sensitive strategies in which the DBED can be interwoven into the practice of communication with parents/caregivers. EX-PED-LAB, which is a participatory and partnership workshop methodology developed at KINDKnow (25), will be used to facilitate and document activities and outcome from the workshops. Three groups of 15 kindergarten teachers (all together 45 teachers) will participate in 4 EX-PED-LAB workshops. The EX-PED-LAB will focus on following aspects: 1) co-creating strategies of implementing DBED; 2) Sharing experiences of implementing DBED (one session focusing on professional and one on parental perspective); 3) improving the DBED for the future practice. Recordings of group work and collaborative reflection and visual materials generated by the workshop participants will be used as research data allowing insight in parental and professional perspective on communication between ECEC and the families.

To get insight in parental experience of DBED 10 parents will be interviewed. Individual or collective semi-structure interviews will be conducted with parents from different kindergartens participating in the projects. The parental experience and their suggestions of improvements will be included in the finalising EX-PED-LAB workshop aiming at improving the DBED.

Research question 3: What is the impact of DBED on activation of interventions for mental health problems?

Work Package 4: Comparing activation of interventions between implementation group and control group (effectiveness).

During the three kindergarten years teachers will be asked biannually to report whether the child is receiving any kind of specified help/support or is referred to specified assessment or help, and at which

time (unit: month) such interventions were instituted. We will compare the two groups by repeated measurements to reveal possible differences in mean time from inclusion to specific actions taken. Possible differences between the groups as to which interventions are activated will also be calculated (Multi Level [ML], Linear Growth Curve [LGC], Cox regression, Poisson regression). Differences in demographic characteristics between the study groups will be taken into account in the analyses. ML is used for predictions of individual variation within kindergartens and prediction of kindergarten differences.

Research question 4: How does DBED affect the course of mental health in kindergarten children?

Work Package 5: Comparing mental health scores between implementation group and control group throughout the project period (effectiveness).

Parents and teachers in both study groups are requested to complete the SDQ (screening for mental health symptoms) biannually throughout the project period. Hence, the development of the children's mental health symptoms will be followed and possible differences between the study groups will be estimated by ML / LGC analyses of repeated measurements, adjusting for baseline SDQ scores and demographic differences.

1.3 Novelty and ambition

No similar approach for mental health promotion like the Dialogue Based Early Detection is described in the literature. DBED contains several novel elements: (I) The use of the regular parent-teacher-parent to focus on the child's mental health, (II) the systematic and broad spectrum Early Worry Questionnaire (EWQ) developed in cooperation with parents and teachers, and (III) active involvement of the parents in the assessment of their child by completing the same questionnaire (EWQ) as the teacher, thereby empowering their role in the dialogue concerning the development and wellbeing of their child. However, our ambition goes beyond a scientific goal by homing empowerment of parents in their communication with educationalists, and by addressing the void between the educational and health sectors.

2. Impact

2.1 Potential impact of the proposed research

The PRO-DIALOG project will give an incentive to further exploration of the effects of the communication between parents and kindergarten teachers.

By implementation of DBED, the project has a potential for improving competence and practice among teachers in detecting emerging mental health challenges among preschool children in several ways. The method itself involves a dialogue with parents, and the subsequent systematic shared decision-making provides immediate feedback on the validity of the teacher/parent concerns for a particular child. Furthermore, the project is a collaborative effort bringing together educational and mental health fields. At the individual level, it may avoid unnecessary referrals to health and educational services for worried parents as well as improve and enabling appropriate efforts for children at risk, enhancing their chances for a better mental health trajectory.

The feasibility study of the EWQ has already been published (2), and the EWQ is freely available. Likewise, the DBED method, results and publications will all be open access. As research on child mental health is strictly regulated, original data can however not be shared.

In societies with a high coverage of kindergartens (as in Norway), the positive impact on mental health of children in general may be considerable. Interventions targeted toward disadvantaged preschool children have proved to have much higher societal returns than later interventions and we believe our project has the potential for such an impact. Assuming positive results from the evaluation, the method will be promoted in the preschool academic and enterprise sectors, including practical training courses for students and graduated teachers.

The knowledge generated by this project has the potential to increase the awareness of young children's psychosocial needs and initiate support for those children at risk for harmful influence and an adverse development. Hence, the project may support all the following UN sustainable development goals: **3.4** By

2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being. **4.2** By 2030, ensure that all girls and boys have access to quality early childhood development, care, and pre-primary education so that they are ready for primary education. **4.5** By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples, and children in vulnerable situations. **4.a** Build and upgrade education facilities that are child, disability, and gender sensitive and provide safe, non-violent, inclusive, and effective learning environments for all. **5.3** Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation. **16.2** End abuse, exploitation, trafficking, and all forms of violence against and torture of children.

2.2 Measures for communication and exploitation

Dialogue Based Early Detection represents a paradigm shift in the approach for a sustainable promotion of mental health in young children. As such, it deserves broad public attention, and in the PRO-DIALOG project we will prioritize to arrange meeting places for information and dialogue with relevant stakeholders. The approach and outputs of the PRO-DIALOG project will be of interest for a number of audiences and users, such as parents of children in kindergartens; teachers, other staff, managers, and owners of kindergartens; leaders/ administrators of other private and public services for children; local and national politicians; all educational institutions for professionals working with children; researchers in the fields of health promotion, epidemiology, child mental health, health and other services. We will communicate and disseminate through:

Annual review meetings: For teachers and parents from the participating kindergartens (not controls) and administrative representatives from Bergen and Øygarden municipalities for sharing experiences from the accomplishment of the PRO-DIALOG project and presenting and discussing preliminary results (ca 50 participants).

Local conferences 2024 and 2026: For local professionals and administrators of health and other services for children, politicians, and researchers (ca 100 participants).

National conference 2027: For national stakeholders, such as professionals and administrators of national institutions responsible for children's health, education, and welfare, national politicians, and researchers (ca 200 participants).

Publications: In peer reviewed international journals in the fields of mental health, education, and health promotion. We will also present the main results in national and international lay scientific journals, such as The Conversation.

Presentations in scientific meetings: In national and international scientific conferences in the field of mental health, education, and health promotion (ca 3 attendances each year).

Project home page: Under the domain of Helse Bergen with updated information about the PRO-DIALOG project, including FAQ for participants and managers of the participating kindergartens with an interactive function where participants can ask questions and give comments or other feedback.

Media: Will be invited to the local and national conferences, and be notified when new results have been published in scientific journals.

Education institutions: The educational institution for kindergarten teachers in Bergen (Western Norway University of Applied Science) would, as a partner in the PRO-DIALOG project, be a natural starting point for curriculum development.

3. Implementation

3.1 Project manager and project group

Project manager: Ingvar Bjelland created the idea of DBED and has led the development of it (2). He has had the leading role in developing the PRO-DIALOG project. He has initiated and maintained the contact with the Research Unit for Health Surveys, the Western Norway University of Applied Science, and the

administrators of kindergartens in Øygarden municipality and Eventus kindergartens and the Department of kindergarten authority in Bergen municipality. He obtained approval for the project from the Regional Committee for Medical and Health Research Ethics (REC west) and is the main author of the present proposal to the Norwegian Research Council. As the chief medical officer in the child and adolescent mental health services in Helse Bergen he has extensive experience in leading clinical mental health projects.

Additional members of the core project group: Professor Maj-Britt Posserud and professor Gro Janne Wergeland have both been involved in the development of the PRO-DIALOG project contributing with their complementary fields of expertise in research and clinical work (Posserud neurodevelopmental disorders, Wergeland emotional disorders and intervention research).

Additional members of the extended project group: Associate professor Alicja R. Sadownik has a long experience with qualitative studies in the field of pre-school education. She is a special educationalist with experience from kindergartens, which will be a key complementary competence.

As a statistician, associate professor Rolf Gjestad has contributed to the design and analytical methodology of the project and will be an associated member of the project group. Kindergarten teacher Lisbeth Farestveit has many years of experience in a municipal kindergarten and has participated in the development of DBED. Ida Vermeer is a mother of three children who attended one of the hospital kindergartens and participated in the development of DBED.

International project group: Professor Christopher Gillberg is a nestor in international child and adolescent mental health research with an exceptional broad experience from both epidemiological and clinical studies. Professor Phil Wilson has many years of experience in community studies addressing child mental health, including use of the Strengths and Difficulties Questionnaire (SDQ) in the whole population. Professor Carmela Miniscalco has been engaged in research addressing different kinds of learning disabilities and other neurodevelopmental challenges. Associate professor Višnjić-Jevtić has conducted a number of national and international research in the field of early childhood education.

3.2 Project organisation and management

Project plan

Tasks	2023	2024				2025				2026				2027		
	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
T1. Recruitment of participants																
T2. Accomplishing DBED ^a																
T3. Biannual collection of data from teachers (SDQ ^b and initiated interventions)																
T4. Biannual collection of data from parents (SDQ ^b and PSS ^c)																
T5. Biannual collection of data from user satisfaction questionnaires																
T6. Qualitative approach /interviews																
T7. Data processing and analysing																
T8. Processing of manuscripts																
T9. Annual review meetings																
T10. Local conferences																
T11. National conference																

^a Dialogue Based Early Detection

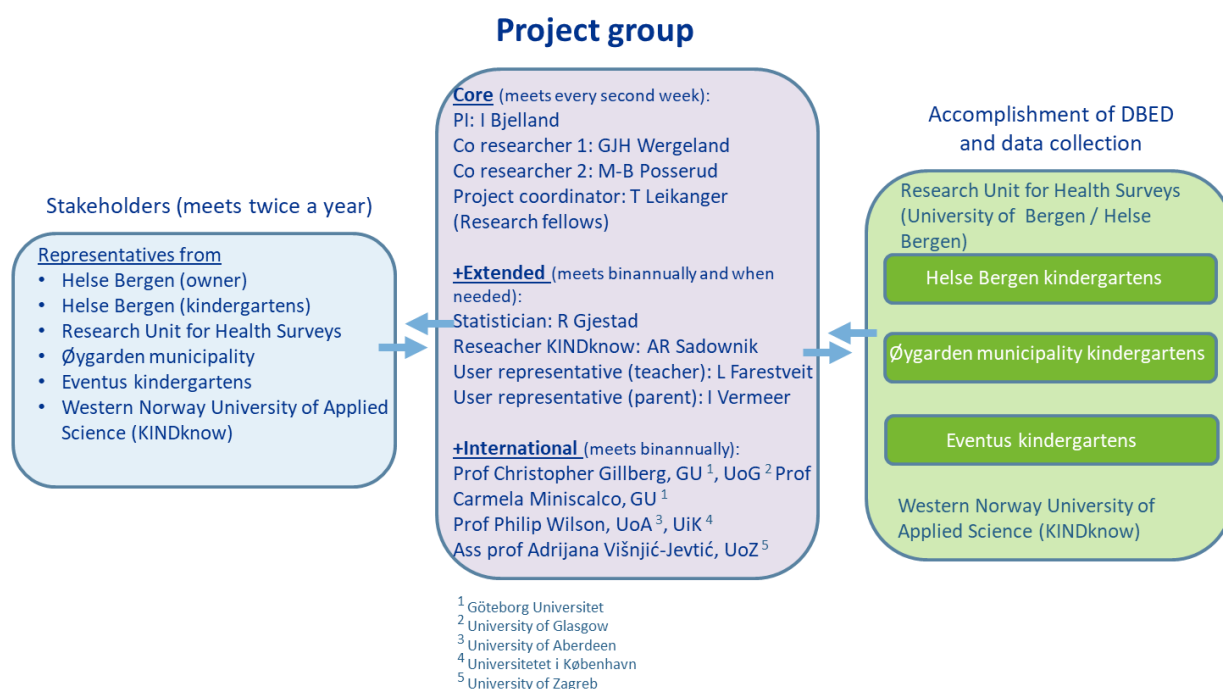
^b Strengths and Difficulties Questionnaire

^c Parental Stress Scale

Allocation of tasks

- The project manager (Ingvar Bjelland): Daily follow up with the project coordinator and the research fellow in addition to coordinating and arranging the project group meetings and meetings of the stakeholder group. Leads the process of data processing and preparation of manuscripts.
- Co-researcher 1 and 2 (Maj-Britt Posserud and Gro Janne Wergeland): Contribute with their expertise in the project group meetings, supervise the research fellow and participate in the data processing and preparation of manuscripts.
- The project coordinator (chief engineer Trine Leikanger from Research Unit for Health Surveys): Responsible for the data collection and daily contact with the kindergartens.
- Research fellow: Assists the project coordinator in the data collection and building of the data base. Participates in the analysis of data and preparation of manuscripts.
- Statistician (Rolf Gjestad): Gives supervision to the project manager, Maj-Britt Posserud, Gro Janne Wergeland, and the research fellow in running the statistical analyses.
- The user representatives: Mainly participate in project group meetings contributing to discussions of current project issues.
- The international participants: Contribute to the scientific discussions in biannual meetings (one digital and one physical in Bergen) and the writing of publications from the study.
- All members of the project group will be engaged in all the work packages, except WP 3, which will mainly be managed by Alicja R. Sadownik in collaboration with the project manager.

Figure 4: Organization and management structure



Partners

University of Bergen: Administration of infrastructure as to flow of digital questionnaires. Storing data.

Western Norway University of Applied Science: Accomplishment of the qualitative part of the project.

Eventus kindergartens: Recruitment of participating parents from five kindergartens. Accomplishment of DBED and data collection throughout three years. Participation in annual review meetings and local conferences.

Øygarden municipality: Recruitment of participating parents from 11 kindergartens. Accomplishment of DBED and data collection throughout three years. Participation in annual review meetings and local conferences.

Stakeholder/user involvement

Except University of Bergen all stakeholders and users involved in the planning and running of the project will also be end users of the results. This is described in section 2.2.

References

1. Heckman JJ. Skill formation and the economics of investing in disadvantaged children. *Science*. 2006;312(5782):1900-2.
2. Bjelland I, Posserud MB, Wergeland GJ. Dialogue Based Early Detection-Development of a Novel Approach for Detection of Mental Health Problems Among Children in Daycare Centers. *Front Psychiatry*. 2022;13:696531.
3. Wikipedia. It takes a village: Wikipedia; 2021 [Available from: https://en.wikipedia.org/wiki/It_takes_a_village.
4. World Health Organization. ICD-11. International Classification of Diseases 11th Revision. 2023 [Available from: <https://icd.who.int/en>.
5. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition Text Revision. Washington, DC: American Psychiatric Association; 2022.
6. Jablensky A. Psychiatric classifications: validity and utility. *World Psychiatry*. 2016;15(1):26-31.
7. Wichstrom L, Berg-Nielsen TS, Angold A, Egger HL, Solheim E, Sveen TH. Prevalence of psychiatric disorders in preschoolers. *Journal of child psychology and psychiatry, and allied disciplines*. 2012;53(6):695-705.
8. Faraone SV, Banaschewski T, Coghill D, Zheng Y, Biederman J, Bellgrove MA, et al. The World Federation of ADHD International Consensus Statement: 208 Evidence-based conclusions about the disorder. *Neurosci Biobehav Rev*. 2021;128:789-818.
9. Yang X, Fang Y, Chen H, Zhang T, Yin X, Man J, et al. Global, regional and national burden of anxiety disorders from 1990 to 2019: results from the Global Burden of Disease Study 2019. *Epidemiology and psychiatric sciences*. 2021;30:e36.
10. Layard R, Clark AE, Cornaglia F, Powdthavee N, Vernoit J. What Predicts a Successful Life? A Life-Course Model of Well-Being. *Econ J (London)*. 2014;124(580):F720-F38.
11. Georgiades K, Duncan L, Wang L, Comeau J, Boyle MH. Six-Month Prevalence of Mental Disorders and Service Contacts among Children and Youth in Ontario: Evidence from the 2014 Ontario Child Health Study. *Canadian journal of psychiatry / Revue canadienne de psychiatrie*. 2019;64(4):246-55.
12. Kataoka SH, Zhang L, Wells KB. Unmet Need for Mental Health Care Among U.S. Children: Variation by Ethnicity and Insurance Status. 2002;159(9):1548-55.
13. Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. *Dialogues in clinical neuroscience*. 2009;11(1):7-20.
14. Rocha TB, Graeff-Martins AS, Kieling C, Rohde LA. Provision of mental healthcare for children and adolescents: a worldwide view. *Current opinion in psychiatry*. 2015;28(4):330-5.
15. Regjeringen. Mestre hele livet. Regjeringens strategi for god psykisk helse (2017–2022). Oslo: Helse- og omsorgsdepartementet; 2017 [updated 31.01.23. Available from: https://www.regjeringen.no/contentassets/f53f98fa3d3e476b84b6e36438f5f7af/strategi_for_god_psykisk-helse_250817.pdf.
16. Helsedirektoratet. Psykisk helsearbeid for barn og unge - en innsiktsrapport Oslo: Helsedirektoratet; 2021 [Available from: <https://www.helsedirektoratet.no/rapporter/psykisk-helsearbeid-for-barn-og-unge>.
17. Bergen kommune. Bergens barn - byens fremtid Bergen: Bergen municipality; 2020 [Available from: <https://www.bergen.kommune.no/omkommunen/planer-i-kommunen/informasjon-om-enkeltplaner/byradsavd-for-barnevern-og-sosiale-tjenester/bergens-barn-byens-fremtid>.
18. Barne-, ungdoms- og familiedirektoratet. Barnevernsreformen - en oppvekstreform. Oslo: The Norwegian Directorate for Children, Youth and Family Affairs; 2022 [Available from: <https://www.bufdir.no/fagstotte/barnevern-oppvekst/barnevernsreformen/>.
19. Charach A, Mohammadzadeh F, Belanger SA, Easson A, Lipman EL, McLennan JD, et al. Identification of Preschool Children with Mental Health Problems in Primary Care: Systematic Review and Meta-analysis. *J Can Acad Child Adolesc Psychiatry*. 2020;29(2):76-105.
20. Coulter A, Collins A. Making shared decision-making a reality: no decision about me, without me London: The King's Fund 2011 [Available from: <https://www.kingsfund.org.uk/publications/making-shared-decision-making-reality>.
21. Gillberg C. ESSENCE-Q 2012 [Available from: <http://gnc.gu.se/english/research/essence--early-symptomatic-syndromes-eliciting-neurodevelopmental-clinical-examinations/-essence-q--questionnaire->.

22. Skivington K, Matthews L, Simpson SA, Craig P, Baird J, Blazeby JM, et al. A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *BMJ*. 2021;374:n2061.
23. Landes SJ, McBain SA, Curran GM. Reprint of: An introduction to effectiveness-implementation hybrid designs. *Psychiatry Res*. 2020;283:112630.
24. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *Journal of child psychology and psychiatry, and allied disciplines*. 1997;38(5):581-6.
25. Ødegaard EE, Oen M, Birkeland J. Success of and Barriers to Workshop Methodology: Experiences from Exploration and Pedagogical Innovation Laboratories (EX-PED-LAB). In: Wallerstedt C, Brooks E, Ødegaard EE, Pramling N, editors. *Methodology for Research with Early Childhood Education and Care Professionals International Perspectives on Early Childhood Education and Development*. 38: Springer Cham; 2023. p. 57-82.