Received: 22 June 2021 | Revised: 7 October 2021 | Accepted: 9 October 2021

DOI: 10.1111/phn.13002

PHN PUBLIC HEALTH NURSING WILEY

FOCUS ON RESEARCH METHODS

Reflections on a complex intervention targeting healthy eating in young children

Bettina Holmberg Fagerlund PhD, PHN, RN[1,2]

[1] Faculty of Health Studies, VID Specialized University, Oslo, Norway

[2] Department of Nursing and Health Promotion, Oslo Metropolitan University, Oslo, Norway

Correspondence
Bettina Holmberg Fagerlund PhD, PHN, RN, Faculty of Health Studies, VID Specialized University, P.O. Box 184 Vinderen, Oslo N-0319, Norway.
Email: bettina.fagerlund@vid.no

Abstract

In this article, the author offers her experiences of conducting a public health nursing intervention based on the use of the Medical Research Council framework for complex interventions. This article provides examples aimed at helping and inspiring others who might be interested in conducting a complex intervention study. The intervention focused on counseling about food and feeding practices provided by public health nurses in a sample of child health centers in Norway 2015–2018. Aspects of food and nutrition are central to public health nurses' counseling at the child health center, and they experience challenges when counseling on these themes. This article offers an approach to handling the complexity of public health nursing interventions on counseling among families. The topics presented on planning and performing an intervention and the related challenges might have relevance for public health nursing in several countries.

KEYWORDS
child, child health services, counseling, food, intervention, nursing, nutrition, public health nursing

1 | INTRODUCTION

This article focuses on my personal experience of conducting a complex public health nursing intervention based on the use of a communication tool about diet to promote healthy eating in young children (Holmberg Fagerlund, 2020). The study was part of a doctoral education program. A complex intervention framework constituted a structure for planning and performing the current intervention (Craig et al., 2008; Medical Research Council, 2008). The intervention focused on public health nurses' counseling about food and feeding practices in child health centers in Norway 2015–2018 (Holmberg Fagerlund, 2020). In the *development phase*, an evidence base was identified, the intervention tool was developed, and questionnaires to be used for data collection were revised. In a *feasibility testing phase*, images were adapted for use in the intervention tool. *Evaluation* comprised assessment at baseline and endpoint of the intervention. *Monitoring of the implementation* was investigating the experience of twelve parents who had participated in the intervention municipalities (Holmberg Fagerlund, 2020). This article describes the thinking and working process involved in using the complex intervention framework. Further, it presents reflections on challenges that arose during the intervention process and suggestions on how to overcome them. I believe this can serve as an example or inspiration to others planning to conduct a complex intervention in public health nursing practice.

2 | BACKGROUND FOR THE INTERVENTION

Several factors characterize the organization and funding/financing of health care in the Nordic countries (Denmark, Norway, Sweden, Finland and Iceland, as well as Faroe Islands, Greenland, and Åland) (Nordic Co-operation, 2021). As welfare states they aim to provide

easy and equal access to adequate health care for their entire populations (Lyttkens et al., 2016). The Nordic countries have a governance structure for health policy, where regions and municipalities are responsible for public health and health services (Diderichsen, 2018). Moreover, public health is regulated by law (Fosse & Helgesen, 2018). However, there exists no common Nordic political approach to public health and these countries' public health care program contain contradictory policies and ideological statements with differences. For instance, the emphasis on individual behavior versus choice, living conditions, and political responsibility varies among the Nordic countries (Vallgårda, 2011). Historically, these countries have a common view of a redistribution by means of universal welfare policies as a vital mechanism to improve the situation of vulnerable groups and level the social gradient (Povlsen et al., 2014). In this context, *equity* remains central in terms of universality, accessibility and affordability of resources to improve the underlying conditions for health in the public health care systems (White, 2015). To establish equity as a strong concern and a core value in health promotion, it is important to be aware of how policies can contribute to reducing social health differences (Povlsen et al., 2014). Laws and regulations are fundamental in promoting universal health care. Norway emphasizes the principle of universal access to health care services and the good health of the population is regarded as a national security responsibility (Leirbakk et al., 2019).

In Norway and other Nordic countries, the child health center is a legally regulated institution offering freely available preventive health care and health promotion adapted to the needs for preschool children and their families in the municipalities. It is accessible to everyone irrespective of social standing or background (Glavin et al., 2014; Hakulinen-Viitanen et al., 2014; Norwegian Directorate of Health, 2020; Swedish Child Health Services, 2019). The Norwegian authorities' guidelines for child health centers emphasize that the services provided by public health nurses should be customized to the needs of the service users (Norwegian Directorate of Health, 2020). The professional title *public health nurse* has a variety of denominations in different countries in Europe. Public health nurses have been active in Europe since the late 19th century and central to reducing inequalities in health status. They were among the first health professionals to provide access to basic health services in the communities where they served (Edgecombe & World Health Organization, 2001). Despite different governmental systems in, for instance, the USA and Norway, many values and beliefs among public health nurses are the same in these countries (Glavin et al., 2014). Examples of such values are focusing on the health of entire populations and reflecting community priorities and needs (Glavin et al., 2014).

3 | THE CHILD HEALTH CENTER AS THE CONTEXT FOR THE INTERVENTION

Almost all parents in Norway attend the 14 regular encounters at the child health center with the public health nurse from birth until start of school, although they are not mandatory (Statistics Norway, 2020). This suggests that the child health center fulfils its intention of being universal and people loyally supporting it. There are several central topics during these encounters, for instance child motor and psychosocial development, physical growth, breastfeeding, nutrition, vaccination, language development, dental health, the parental role, and the parent living together and interacting with their child (Norwegian Directorate of Health, 2020). Food and feeding practices among families with under school-aged children are thematized in most consultations at the child health center in Norway and other countries (Arden, 2010; Holmberg Fagerlund et al., 2016; Ilmonen et al., 2012; Kader et al., 2015; Olds, 2006; Redsell et al., 2013). Findings in previous studies indicate that public health nurses often find it demanding to counsel parents about these themes and particularly to adapt their counseling to the needs of today's families (Holmberg Fagerlund et al., 2016; Ilmonen et al., 2012; Magnusson et al., 2012). Counseling should be proportionate to the needs of the child and family. *Proportionate universalism* refers to targeting or tailoring of services, policies or programs required because of different needs among families (Marmot, 2014; The Marmot Review, 2010). Accordingly, one should not confuse the "impartiality" of counseling because of universalism regarding uniformity and "equality of treatment" with "sameness of counseling" (Carey & McLoughlin, 2016). Such sameness of counseling emerged in the findings of a focus group study among public health nurses. These nurses disclosed that they rarely enquired about families' food culture or parents' knowledge so that they could adjust their counseling strategy about food and feeding practices at the child health center (Holmberg Fagerlund et al., 2016).

The current complex intervention was aimed at a healthy diet for children aged 2 years and younger. A literature review found few previous studies focused on nutrition counseling in a preventive healthcare setting similar to the current intervention (Holmberg Fagerlund et al., 2017). To counteract sameness of counseling, as mentioned, this intervention was developed to allocate the quantity of resources flexibly to reflect different needs. Moreover, the intervention was developed to be sustainable, meaning that it should require no additional resources or time commitment of the public health nurses on a daily basis.

4 | THE COMPONENTS OF THE INTERVENTION AND THE COMPLEX INTERVENTION FRAMEWORK

Interventions might be defined as complex either because of characteristics of the intervention itself, including many aspects, or because the intervention is seen to be much more than the sum of its parts (Richards, 2015a). Table 1 presents an outline for the components of the current intervention as related to elements in the complex intervention framework. Thus, as Table 1 shows, the current intervention was characterized by many interacting components targeting the development, feasibility testing, evaluation, and implementation of an intervention tool in counseling about food and feeding practices among families with different needs. Delivering it required a great number of behaviors among public health nurses over a wide geographical area. Great flexibility was permitted and indeed necessary when delivering the intervention, to tailor it in accordance with any family's needs. All

TABLE 1 Components of the intervention related to relevant elements in the complex intervention framework (Medical Research Council, 2008)

The MRC framework for complex interventions	Development	Feasibility	Evaluation	Implementation

Components of the intervention	• *Conducting a literature review.*
	• *Developing the intervention tool* and integrating elements of motivational interviewing. This was based on image material produced in a previous SOMAH project.
	• *Modeling and outcome selection* based on indicators of healthy diet for adults and children.
	• *Upgrading existing food frequency questionnaires* to be used as a basis for data collection.
		• *Adapting the selection and modification of images* and the user's manual for the current study.
		• *Determining sample size* based on literature.
			• *Assessing effectiveness and outcomes of the intervention* in ten municipalities in Norway based on a cluster randomized controlled trial.
			  • *The selection and randomization of municipalities.*
			  • *The guidance of the cooperating public health nurses.*
			  • *Recruiting parents to the intervention and counteracting attrition.*
			  • *The evaluation of the intervention at endpoint.*
				• *Monitoring based on parental experience* of the intervention.

these aspects correspond to the enumerated characteristics of a complex intervention according to Craig et al. (2008). With reference to Table 1, the components and the process of the current intervention are briefly presented as follows.

4.1 | Developing the intervention tool

The intervention tool, a communication tool about diet, made use of image material produced in a previous SOMAH project (Holmberg Fagerlund et al., 2019; The Research Council of Norway, 2013). SOMAH is the Norwegian-language acronym for "**S**amtaler **o**m **ma**t på **h**elsestasjonen" ["Conversation about food at the child health center"] (Garnweidner, 2013). The tool comprised a counseling strategy based on the current official dietary recommendations and principles of motivational interviewing, adapted to the family and the age of the child (Miller & Rollnick, 2013; National Nutrition Council in Norway, 2011). Using this tool was intended to affirm encouragement in a positive way. In line with the principles proposed by Nielsen-Bohlman et al. (2004), the tool was designed to be useful in the context of different food cultures, regardless of health literacy level.

4.2 | Adapting the selection and modification of images

Recently, the importance of needs-identified research and user-involvement has been highlighted. This is relevant to ensure credible and useful outcomes reflecting the issues that matter most to the people who need to use research in their everyday lives (Holmen et al., 2021; James Lind Alliance, 2018). To counteract symbolic or pretended user involvement – tokenism – users should be consciously invited and involved in mutual decisions as equal partners to the researchers, as described by Richards (2015b). Using the guidelines described by Richards (2015a), in the current intervention, five public health nurses representing future users of the intervention tool were involved in feasibility testing of the tool for 3 months in 2014 as described by Holmberg Fagerlund (2020). These public health nurses were aware of the ideas underlying the current complex intervention. They were invited to conduct the feasibility testing with a view to user involvement on an equal footing with the reseacher. Due to their experience, their contribution to testing was of great value in the development of the intervention tool.

4.3 | Upgrading existing food frequency questionnaires, modeling and outcome selection

The predefined primary outcome of the study was the daily intake of vegetables measured as grams of consumed vegetables per child. The study evaluated several secondary outcomes among the children: the percentage of daily energy intake of saturated fatty acids, the child's body mass index (BMI) at the age of 2 years and the proportion of parents reporting a wish to obtain more information about their toddler's diet (Holmberg Fagerlund et al., 2020). Because of these outcome measures of the trial, two revised and updated versions of previously validated age-appropriate semi-quantitative food frequency questionnaires were regarded as appropriate for data collection at baseline and endpoint (Holmberg Fagerlund et al., 2020; Kristiansen et al., 2009; Slattery et al., 2011; Øverby et al., 2009). During data collection, the questionnaires were disseminated to parents by postal mail and the parents answered them on behalf of their child at baseline, just before the 10-month consultation and at endpoint after the 2-year consultation (Holmberg Fagerlund et al., 2020). A software program,

CardiffTeleForm®, was used both to create the semi-quantitative food frequency questionnaires and for scanning the completed questionnaires and converting them to an electronic format later on.

4.4 | Assessing effectiveness

The following four sections (A–D) present the content under *Assessing effectiveness and outcomes of the intervention based on a trial*:

A. *The selection and randomization of municipalities*
   Statistics Norway performed the selection of relevant municipalities (n = 139) for the drawings. Statistics Norway also conducted the randomized drawings of the five systematically matched pairs of municipalities. Each matched pair was randomly distributed to the intervention or control group by drawing lots.
B. *The guidance of the cooperating public health nurses*
   Before the implementation of the trial, the researcher visited the cooperating child health centers to prepare and guide the public health nurses regarding their tasks in the trial. The public health nurses learned from a presentation lasting for 1–2 h how they were to inform and register participants in the intervention or control study. They were following the established individual child health center consultations when the child was 10, 12, and 15—18 months old according to the guidelines from the Norwegian Directorate of Health (2004). In intervention municipalities, the preparations of the consultations integrated a demonstration of the use of the intervention tool and the corresponding user's manual. Information about the study outcomes was withheld during these presentations to minimize likely performance bias and expectation bias related to awareness, as described by Polit and Beck (2017). To prevent possible contamination of control municipalities, the public health nurses in the intervention municipalities had to sign an agreement not to use the intervention tool for any purpose other than in the current intervention as described by Holmberg Fagerlund (2020). According to Polit and Beck (2017) and as part of process evaluation, descriptive information about the contents of counseling about food and feeding practices in each consultation in the trial was reported by the public health nurses.
C. *Recruiting parents to the intervention and counteracting attrition*
   All parents in the included municipalities who visited the child health center with their child at the appropriate age, received oral and written information about the ongoing study from their public health nurse. The only exclusion criterion was Norwegian skills insufficient for parents to understand the written information about the study. If parents agreed to participate, they were enrolled in the study at the child's 6-month consultation and until shortly after the 2-year consultation. A semi-quantitative food frequency questionnaire was sent to the parents by postal mail at baseline, just before the 10-month consultation and at the endpoint immediately after the 2-year consultation. Almost all the parents received a telephone call from the researcher at baseline and endpoint to remind them about answering the postal questionnaire on food frequency. Although the parents usually seemed overwhelmingly positive when receiving this reminder by telephone, the response rate dropped to 30% on average at endpoint. Such loss of participants is typical and a major problem in this kind of longitudinal studies according to Polit and Beck (2017).
D. *The evaluation of the intervention at endpoint*
   The study, a two-armed parallel cluster randomized controlled trial, was ongoing in five pairs of municipality clusters. It aimed at investigating *the effect of a communication tool about diet used in public health nurses' consultations with parents* compared with usual consultations concerning the child's diet at 2 years of age (Holmberg Fagerlund et al., 2020). The process evaluation indicated that the public health nurses had delivered the intervention on time and had used appropriate images in the intervention tool (Holmberg Fagerlund, 2020).

In the process of designing and planning the study, it was hypothesized that the children in the intervention municipalities would have a higher intake of vegetables, a lower intake of saturated fat and a lower BMI than those in the control municipalities. However, no effect of the intervention was seen on these outcomes of the study. One statistically significant and clinically relevant result was seen based on the intervention. Parents in the intervention group and thus exposed to the intervention tool were less likely than parents in the control group to report a wish to obtain information about the toddler's diet. The intervention was thus seen to have positively influenced parents' need for information (Holmberg Fagerlund et al., 2020).

4.5 | Implementation - monitoring parental experience of the intervention

Monitoring of the implementation of the intervention was performed through qualitative interviews with twelve parents about their experiences from participating in the study in intervention municipalities. This revealed that the communication tool was often used solely by public health nurses in one-way information giving by presenting images of healthy food choices. The intervention tool might have been used to a greater extent as it was intended, to promote a mutual dialogue about food and feeding practices reflecting the parents' needs for information. In this way, parents who had concerns beyond questions asked by the majority might have experienced optimal support. Some parents reported a lack of this kind of support (Holmberg Fagerlund et al., 2019).

5 | REFLECTIONS TO BE TAKEN FORWARD

This section presents some challenges that arose during the current intervention and suggestions on how to overcome them. The development stage consisted of designing the intervention from a previous project providing image material and based on the involvement of health personnel, a literature review and the existing evidence base of

healthy foods. Involvement of families was lacking during the development phase. Including families in planning the intervention might have had a positive impact, for instance by accelerating the recruitment process. As described by Richards (2015a), by including participants in the development phase, we might have found out whether people would like to be prepared to be in such a study, and further how they might be identified and approached. Including parents in the development phase might also have resulted an even more appropriate intervention tool, in accordance with the needs of parents, from their point of view. According to the monitoring in the implementation phase, those parents who had concerns beyond those that were most common among their peers often felt disappointed. They often perceived a mismatch between their needs and their experience of the counseling at the child health center (Holmberg Fagerlund et al., 2019). Counseling that only reflects the needs of a majority of parents might be a threat to the universality and equity that health services seek to achieve.

In the current intervention, matching of municipalities based on a systematic match was an essential basis of the evaluation phase in order to assess intervention effectiveness. The selection of the municipalities tended to be time-consuming because some of the municipalities were unwilling to participate in the project and others did not fulfil the requirements of the study protocol or the guidelines for the consultations as specified by the authorities. This resulted in the selection process lasting for almost a year longer than first planned, as described by Holmberg Fagerlund (2020). In retrospect, it might have been faster to carry out this step if the selected municipalities had been contacted before the drawings, to find out which of them were willing to cooperate in the intervention and if they met the inclusion criteria.

To counteract attrition and accelerate recruitment effort, the researcher contacted the leaders of the child health centers monthly by telephone and e-mail. In addition, the researcher paid visits at least twice to the public health nurses in the municipalities to motivate and remind them about the lengthy recruitment process. The researcher perceived this as challenging due to uncertainty about whether these reminders had any impact in speeding up recruitment.

Lastly, in planning an intervention it seems important to carefully consider if it is realistic to carry out all designated phases of a complex intervention as an entity within a certain time frame, for instance within a typical timeline for a doctoral project. Alternatively, the intervention might be carried out succesfully as many smaller sub-projects, that is, several doctoral projects focusing on defined phases of a complex intervention.

6 | FINAL CONSIDERATIONS AND RELEVANCE FOR PUBLIC HEALTH NURSING

It was an advantage to be able to use the complex intervention framework as a structure as described above. The intervention tool was intended as a key feature to achieve tailoring of services in accordance with proportionate universalism in counseling about food and feeding practices. All this was designed to allow for families having different needs. Although the results did not show an effect of the intervention on most of the outcomes, the complex intervention framework provided a structure to evaluate every part of the project. More useful input of the intervention might have emerged if users representing the families or parents had also been included at the stage of planning the intervention. For instance, emphasizing behavioral change as an outcome as described by Abraham et al. (2015) might have strengthened the study related to counseling about food and feeding practices. Based on the study results, the intervention tool turned out to be convenient to use and it seemed to fit very well into the child health center consultations. Moreover, the chosen study design, a cluster randomized controlled trial, provided great strength because causal relationships could be inferred due to this design (Polit & Beck, 2017).

As related to the guidance by Craig et al. (2008), effectiveness of the intervention, except for cost-effectiveness, was assessed. Evaluation of internal validity of outcomes was central when planning and conducting the intervention. Further, prevention of intervention failure was focused on during the implementation and monitored by process evaluation (Moore et al., 2015). Mechanisms of impact and intervention delivery were central during the evaluation of the intervention and when monitoring the implementation of the intervention. Based on this monitoring and the evaluation of the trial, it was seen that in counseling about food and feeding practices the intervention tool was frequently used by the public health nurses. However, this tool was often used solely for information in one direction, showing the images. Most likely parents experienced that their information needs were met in terms of children's diet in general (Holmberg Fagerlund et al., 2019). Thus, a continued focus is warranted on public health nurses' interventions to promote healthy eating by targeting the particular needs of families. The complex intervention framework provides a structure perceived as workable in planning, performing and reporting such interventions in public health nursing practice.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analyzed.

ORCID

Bettina Holmberg Fagerlund PhD, PHN, RN https://orcid.org/0000-0002-0512-5537

REFERENCES

Abraham, C., Denford, S., Smith, J. R., Dean, S., Greaves, C., Lloyd, J., …, Wyatt, K. (2015). Designing interventions to change health-related behaviour. In D. A. Richards & I. R. Hallberg (Eds.), *Complex interventiona in health; An overview of research methods* (pp. 103–110). Oxon: Routledge.

Arden, M. A. (2010). Conflicting influences on UK mothers' decisions to introduce solid foods to their infants. *Maternal & Child Nutrition*, *6*(2), 159–173. https://doi.org/10.1111/j.1740-8709.2009.00194.x

Carey, G., & McLoughlin, P. (2016). The powerful pull of policy targeting: Examining residualisation in Australia. *Critical Public Health*, *26*(2), 147–158. https://doi.org/10.1080/09581596.2014.973018

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: The new Medical Research Council guidance. *Bmj (Clinical Research Ed.)*, *337*, a1655. https://doi.org/10.1136/bmj.a1655

Diderichsen, F. (2018). Turning public health research into practice. *Scandinavian Journal of Public Health*, *46*(22_suppl), 3–4. https://doi.org/10.1177/1403494818765687

Edgecombe, G., & World Health Organization (2001). *Public health nursing: past and future: a review of the literature prepared by Gay Edgecombe*. Retrieved: October 4, 2021, from http://apps.who.int/iris/bitstream/handle/10665/108460/E74237.pdf?sequence=1&isAllowed=y

Fosse, E., & Helgesen, M. (2018). *Nordic national policies to increase equity in health*. Paper presented at the 11th European Public Health Conference.

Garnweidner, L. M. (2013). *Promoting a healthy diet in antenatal care: Qualitative studies of barriers to nutrition communication among women of different ethnic backgrounds in the Oslo Area*. (PhD). Oslo: University of Oslo. Retrieved: October 4, 2021, from https://www.duo.uio.no/bitstream/handle/10852/36083/dravhandling-garnweidner.pdf?sequence=1&isAllowed=y

Glavin, K., Schaffer, M. A., Halvorsrud, L., & Kvarme, L. G. (2014). A comparison of the cornerstones of public health nursing in Norway and in the United States. *Public Health Nursing*, *31*(2), 153–166. https://doi.org/10.1111/phn.12082

Hakulinen-Viitanen, T., Kietanen-Peltola, M., Bloigu, A., & Pelkonen, M. (2014). Maternity and child health clinic services and school health care - National follow-up 2012. (Äitiys- ja lastenneuvolatoiminta sekä kouluterveydenhuolto; Valtakunnallinen seuranta 2012). *Report 12/2014*. Retrieved: October 4, 2021, from https://www.julkari.fi/bitstream/handle/10024/116122/URN_ISBN_978-952-302-159-4.pdf?sequence=1&isAllowed=y

Holmberg Fagerlund, B. (2020). *Promoting healthy eating in young children; The use of a communication tool about diet in public health nurses' counselling: A complex intervention study*. (PhD Doctoral thesis). Oslo: Oslo Metropolitan University. Retrieved: October 11, 2021, from https://oda.oslomet.no/handle/10642/8723 (OsloMet avhandling 2020 nr 1)

Holmberg Fagerlund, B., Helseth, S., Andersen, L. F., Småstuen, M. C., & Glavin, K. (2020). The use of a communication tool about diet at the child health centre: A cluster randomized controlled trial. https://doi.org/10.1002/nop2.498

Holmberg Fagerlund, B., Helseth, S., & Glavin, K. (2019). Parental experience of counselling about food and feeding practices at the child health centre: A qualitative study. *Journal of Clinical Nursing*, *28*(9-10), 1653–1663. https://doi.org/10.1111/jocn.14771

Holmberg Fagerlund, B., Helseth, S., Owe, J., & Glavin, K. (2017). Counselling parents on young children's healthy diet: A modified scoping review. *Journal of Clinical Nursing*, *26*(23-24), 4039–4052. https://doi.org/10.1111/jocn.13892

Holmberg Fagerlund, B., Pettersen, K. S., Terragni, L., & Glavin, K. (2016). Counseling immigrant parents about food and feeding practices: Public health nurses' experiences. *Public Health Nursing*, *33*(4), 343–350. https://doi.org/10.1111/phn.12248

Holmen, H., Riiser, K., Løyland, B., Sandbekken, I. H., Almendingen, K., Andenæs, R., Bjørnnes A. K., Fagerlund B. H., Früh E. A., Helseth S., Kvarme L. G., Leegaard M., Misvær N., Pallesen S., Rasalingam A., Ravn I., Ribu L., Rostad H. M., B., … Grov, E. K. (2021). Students' top 10 priorities of research uncertainties on students' sleep: A pragmatic James Lind Alliance approach. *BMJ Open*, *11*(1), e043697. https://doi.org/10.1136/bmjopen-2020-043697

Ilmonen, J., Isolauri, E., & Laitinen, K. (2012). Nutrition education and counselling practices in mother and child health clinics: Study amongst nurses.(Report). *Journal of Clinical Nursing*, *21*, 2985. https://doi.org/10.1111/j.1365-2702.2012.04232.x

James Lind Alliance (2018). JLA Guidebook. Retrieved: October 4, 2021, from https://www.jla.nihr.ac.uk/jla-guidebook/

Kader, M., Sundblom, E., & Elinder, L. S. (2015). Effectiveness of universal parental support interventions addressing children's dietary habits, physical activity and bodyweight: A systematic review. *Preventive Medicine*, *77*, 52–67. https://doi.org/10.1016/j.ypmed.2015.05.005

Kristiansen, A. L., Andersen, L. F., & Lande, B. (2009). *Småbarnskost- 2 år : landsomfattende kostholdsundersøkelse blant 2 år gamle barn: Småbarnskost 2007*. Retrieved: October 4, 2021, from https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/702/Smabarnskost-2007-landsomfattende-kostholdsundersokelse-blant-2-ar-gamle-barn-IS-1731.pdf

Leirbakk, M. J., Magnus, J. H., Torper, J., & Zeanah, P. (2019). Look to Norway: Serving new families and infants in a multiethnic population. *Infant Mental Health Journal*, *40*(5), 659–672. https://doi.org/10.1002/imhj.21804

Lyttkens, C. H., Christiansen, T., Häkkinen, U., Kaarboe, O., Sutton, M., & Welander, A. (2016). The core of the Nordic health care system is not empty. *Nordic Journal of Health Economics*, *4*(1), 7–27. https://doi.org/10.5617/njhe.2848

Magnusson, M. B., Kjellgren, K. I., & Winkvist, A. (2012). Enabling overweight children to improve their food and exercise habits - school nurses' counselling in multilingual settings.(Report). *Journal of Clinical Nursing*, 2452. https://doi.org/10.1111/j.1365-2702.2012.04113.x

Marmot, M. (2014). Commentary: Mental health and public health. *International Journal of Epidemiology*, *43*(2), 293–296. https://doi.org/10.1093/ije/dyu054

Medical Research Council (2008). Developing and Evaluating Complex Interventions: new guidance. Retrieved: October 4, 2021, from https://mrc.ukri.org/documents/pdf/developing-and-evaluating-complex-interventions/

Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change* (3rd ed.). New York: Guilford Publications.

Moore, G., Audrey, S., Barker, M., Bond, L., Bonell, C., Tinati, T.,…, Baird, J. (2015). Process evaluation of complex interventions; A summary of Medical Research Council guidance. In D. A. Richards & I. R. Hallberg (Eds.), *Complex interventions in health; An overview of research methods* (pp. 222–231). Oxon: Routledge.

National Nutrition Council in Norway (2011). *Kostråd for å fremme folkehelsen og forebygge kroniske sykdommer : Metodologi og vitenskapelig kunnskapsgrunnlag*. Oslo: Norwegian Directorate of Health

Nielsen-Bohlman, L., Panzer, A. M., & Kindig, D. A. (Eds.). (2004). *Health literacy: A prescription to end confusion*. Washington, D.C: National Academies Press.

Nordic Co-operation (2021). Facts about Nordic countries. Retrieved: October 4, 2021, from https://www.norden.org/en/information/facts-about-nordic-countries

Norwegian Directorate of Health (2004). [Guidelines on health promotion and disease prevention in the child health centres and school health services in the municipalities]. Retrieved October 4, 2021, from https://www.regjeringen.no/globalassets/upload/hod/dokumenter20fha/is-1154_2619a.pdf

Norwegian Directorate of Health (2020). [National professional guidelines for the health promotion and disease prevention in child health centres, school health services and health centres for young people] Nasjonal faglig retningslinje for det helsefremmende og forebyggende arbeidet i helsestasjon, skolehelsetjeneste og helsestasjon for ungdom. Retrieved October 4, 2021, from https://helsedirektoratet.no/Retningslinjer/Helsestasjons-%20og%20skolehelsetjenesten.pdf

Olds, D. L. (2006). The nurse-family partnership: An evidence-based preventive intervention. *Infant Mental Health Journal*, *27*(1), 5–25. https://doi.org/10.1002/imhj.20077

Polit, D. F., & Beck, C. T. (2017). *Nursing Research : Generating and assessing evidence for nursing practice* (10th ed.). Philadelphia: Wolters Kluwer.

Povlsen, L., Eklund Karlsson, L., Regber, S., Sandstig, G., & Fosse, E. (2014). Are equity aspects communicated in Nordic public health documents? *Scandinavian Journal of Public Health*, *42*(3), 235–241. https://doi.org/10.1177/1403494813520358

Redsell, S. A., Swift, J. A., Nathan, D., Siriwardena, A. N., Atkinson, P., & Glazebrook, C. (2013). UK health visitors' role in identifying and intervening with infants at risk of developing obesity. *Maternal & Child Nutrition*, *9*(3), 396–408. https://doi.org/10.1111/j.1740-8709.2012.00427.x

Richards, D. A. (2015a). The complex interventions framework. In D. A. Richards & I. R. Hallberg (Eds.), *Complex interventions in health; An overview of research methods* (pp. 1–15). Oxon: Routledge.

Richards, D. A. (2015b). The critical importance of patient and public involvement for research into complex interventions. In D. A. Richards & I. R. Hallberg (Ed.), *Complex interventions in health; An overview of research methods* (pp. 46–50). Oxon: Routledge.

Slattery, E. L., Voelker, C. C. J., Nussenbaum, B., Rich, J. T., Paniello, R. C., & Neely, J. G. (2011). A practical guide to surveys and questionnaires. *Otolaryngology–Head and Neck Surgery*, *144*(6), 831–837. https://doi.org/10.1177/0194599811399724

Statistics Norway. (2020). Municipal health care service; 11993: Activity at health centres, by health examinations (M) 2015–2019. Retrieved: October 4, 2021, from https://www.ssb.no/en/statbank/table/11993/

Swedish Child Health Services. (2019). Information about the child health services in Sweden. Retrieved: October 4, 2021, from https://www.rikshandboken-bhv.se/metoder-riktlinjer/informationsmaterial/swedish-child-health-services/

The Marmot Review. (2010). Retrieved: October 4, 2021, from http://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review/fair-society-healthy-lives-exec-summary-pdf.pdf

The Research Council of Norway (2013). Prosjektkatalog 2002–2015: FoU-satsning Strategiske høgskoleprosjekter - SHP [Strategic Projects - University Colleges (SHP)]. In. Oslo: Norges forskningsråd [The Research Council of Norway].

Vallgårda, S. (2011). Addressing individual behaviours and living conditions: Four Nordic public health policies. *Scandinavian Journal of Public Health*, *39*(6 Suppl), 6–10. https://doi.org/10.1177/1403494810378922

White, F. (2015). Primary health care and public health: Foundations of universal health systems. *Medical Principles and Practice*, *24*(2), 103–116. https://doi.org/10.1159/000370197

Øverby, N. C., Kristiansen, A. L., Andersen, L. F., & Lande, B. (2009). *Spedkost 12 måneder; Landsomfattende kostholdsundersøkelse blant 12 måneder gamle barn; Spedkost 2006–2007*. In Helsedirektoratet (Ed.), (IS-1635 ed.). Retrieved: October 4, 2021, from https://helsedirektoratet.no/publikasjoner/spedkost-12-maneder-landsomfattende-kostholdsundersokelse

How to cite this article: Holmberg Fagerlund, B. (2021). Reflections on a complex intervention targeting healthy eating in young children. *Public Health Nursing*, 1–7. https://doi.org/10.1111/phn.13002