



Does training promote the acquisition of knowledge and its practical application?

A study of health professionals using the example of an infant nutrition training seminar

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Abstract

In the case of low-threshold support initiatives for parents and families aimed at ensuring a healthy start in life, it is essential that the health professionals disseminating health advice through via their close contact and trusting relationship with parents and families are suitably qualified. Using the example of a training seminar for health professionals on the topic of infant nutrition, it was demonstrated that training results in a high increase in knowledge and that the content has a good level of applicability to everyday practice. Effects on the target group of parents/families still need to be investigated. The participation of physicians—a key group—needs to be increased in future through targeted measures.

Keywords: training, health professionals, evaluation, infant nutrition

Introduction and research question

According to data (2014–2017) from the KiGGS study (German Health Interview and Examination Survey for Children and Adolescents), 15% of children and adolescents in Germany are either overweight or obese [1]. Prevalence of these conditions therefore remains at a persistently high level, highlighting the need for action. Consequently, interventions aimed at promoting a healthy lifestyle need to be implemented at the earliest possible stage [2, 3]. Looking at the issue from a life course perspective, the course for many aspects of later health is often set during the highly sensitive life phases of pregnancy, infancy, and early childhood [4, 5].

Unfortunately, there is a wide variety of information available about how to ensure a healthy lifestyle during pregnancy and early childhood and much of it is contradictory or of dubious quality. Health-promotion initiatives often fail to reach families with a low socio-economic status or from an immigrant background, even though these are often the very families in particular need of support [6, 7].

The “*Gesund ins Leben*” (“Healthy Start”) network aims to remedy this. The network focuses on establishing consistent, science-based recommendations for nutrition and exercise in pregnancy, infancy, and early childhood across Germany [8–10]. The recommendations are supported by the professional associations for obstetricians, pediatricians, and midwives. The young families are accessed via health and social care professionals with special training in the dissemination of health advice (hereinafter referred to as “health professionals”). These are mainly physicians (from the fields of pediatrics, gynecology and obstetrics) and midwives, but they also include medical assistants, pediatric nurses, early-years educators, nutritionists, family care specialists, teachers,

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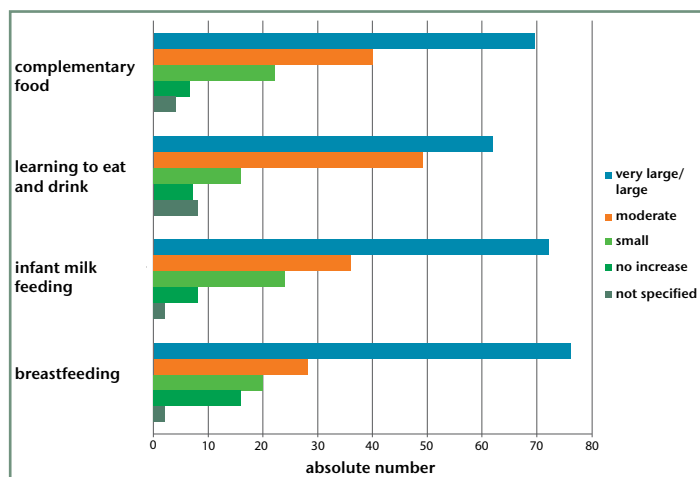


Fig. 1: Subjectively-assessed increase in knowledge with regard to individual training topics (question: “How would you rate your increase in knowledge in the following areas?”), 2012 (n = 142)

social workers, and other professional groups who are in close contact with parents/families and have a trusting relationship with them.

This low-threshold approach combined with the use of health professionals to disseminate information is intended to ensure that hard-to-reach groups can benefit from health advice by receiving it at the same time as legally required screening examinations or other types of consultation. The health professionals that disseminate the information can learn about the recommendations through specific training that is offered to them as a way to qualify for this role.

To date, it is not clear (I) whether such training actually leads to an increase in knowledge and understanding among the professionals undergoing it and (II) whether the professionals who undergo the training actually apply what they learn to their everyday work in practice. This article presents the results of an evaluation investigating these questions using an infant nutrition training seminar as an example.

Methodology

On-site survey

This one-day training seminar on infant nutrition has been running since 2012. It is run by instructors¹ who have been suitably trained with regard to the content, as well as methodology and didactics. It is also continuously evaluated. For this purpose, at the end of the training, the participants were given an evaluation questionnaire (to allow them to subjectively assess their increase in knowledge and the potential for the training content to be applied to their everyday work). A before-and-after knowledge test was performed to record objective increase in knowledge (anonymous testing using a personal four-digit code). The test comprised 10 questions on all four topic areas (breastfeeding, infant milk feeding, complementary food, and learning to eat and drink). The maximum score was 42 points for answering all of the questions correctly.

The questionnaires were filled out on site (paper and pencil method). Participants who only completed the before-and-after knowledge test

or to whom no before-and-after knowledge test data could be allocated were excluded from the evaluation.

The present evaluation is based on the training carried out in 2012. Since this was the year that the training was offered for the first time, the analysis made it possible to quickly draw conclusions regarding the content, the didactic concept, and the general organization of the training and, if necessary, to adapt the curriculum and/or the procedure to the needs of the target group.

Online follow-up survey

In 2016, all participants of the training seminars up to the end of 2015 were asked about the extent to which the training content was applicable to their everyday work. This was done by means of an online survey (including a reminder e-mail). After some general questions, the participants were asked whether they use the training content to provide advice to families/parents as part of their everyday work. Those who answered this screening question in the affirmative were then asked in detail about practical aspects of the applicability of the training to their everyday work. The focus at this point was not on checking their knowledge.

The questionnaires mostly took the form of closed questions with rating scales – open questions were used less frequently. The evaluation of the results presented here was purely descriptive, using frequency counts.

Results

On-site survey

In 2012, nine training seminars on infant nutrition were held with a total of 202 participants. A total of 142 participants completed the evaluation questionnaire and 136 completed the before-and-after knowledge test. Pediatric nurses (21%), nutritionists (15%), and midwives (11%) were the professional groups most frequently represented among the participants, followed by family care specialists (10%) and medical assistants (6%). Notably,

¹ For the topic of breastfeeding and infant milk nutrition: health professionals with additional qualifications as breastfeeding and lactation advisors (IBCLC certification); for the topics of complementary food and learning to eat and drink: Dietitians, ecotrophologists, and nutritionists with additional qualifications in the corresponding subject areas

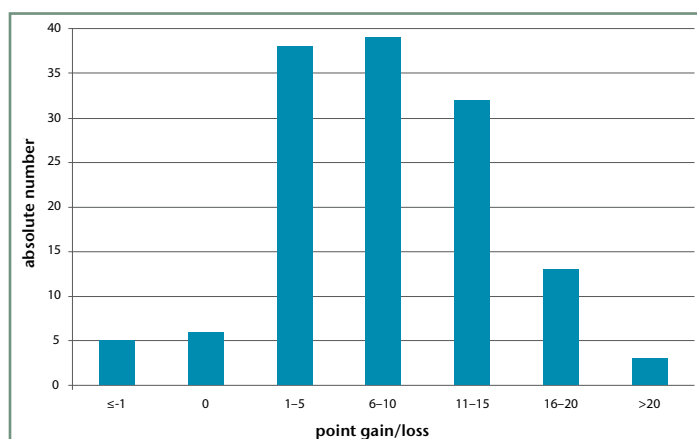


Fig. 2: Individual point gain/loss in the before-and-after knowledge test, 2012 (n = 136)

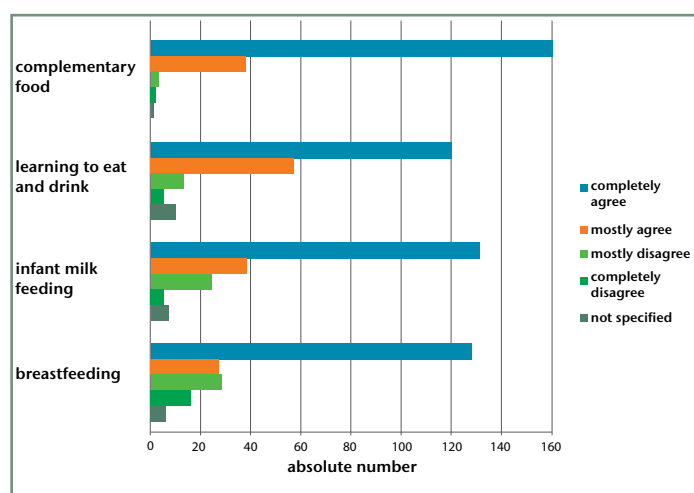


Fig. 3: Training topics on which parents/families are given advice (statement: "Please indicate which topics from the training seminar "Nutrition of infants" you advise families/parents on"), 2016 (n = 205)

physicians were rare among the participants (pediatricians: 3%). With regard to the subjectively evaluated increase in knowledge, there were hardly any differences between the contents of the training seminars. Approximately half of all participants estimated their increase in knowledge to be large or very large (♦ Figure 1). The results of the before-and-after knowledge test also clearly demonstrated the increase in knowledge among the participants (♦ Figure 2). In addition, the majority of participants rated the training as very helpful for their everyday work (65%; four-point scale from very helpful to not helpful at all). In terms of the transferability of what was learned to everyday working life, 58% of participants rated this as very likely (five-point scale from very likely to not likely at all).

Online follow-up survey

The link to the follow-up survey carried out in 2016 was sent to 924 people, and 246 of these took part in the online survey (response rate: 27%). In the follow-up survey, by far the most frequently represented groups among the participants were once again midwives (31%), nutritionists (20%), and pediatric nurses

(19%), followed by social workers (7%). Pediatricians were once again rare among the participants (<2%). 205 persons answered the question about providing advice to families/parents using content from the training in the affirmative (41 persons answered in the negative; for the majority of these, this was because they did not come into contact with parents/families in their everyday working lives). The users of the training primarily give advice on the subject of complementary food – 97% of the participants completely or mostly agreed that they did this (♦ Figure 3).

In the other questions about evaluation of the training content and its applicability to everyday work, the majority of the participants gave positive feedback (♦ Table 1). In response to the open question about barriers to the application of the training content to everyday work, many of the participants mentioned a lack of time in their working day. They also mentioned that adapting to the individual situation of each young family requires flexibility and makes it more difficult to apply what has been learned. Differences in the recommendations provided, especially between those provided by physicians and non-physicians, were frequently mentioned as an obstacle to application.

Discussion

The evaluation of the 2012 training seminar on infant nutrition demonstrates by way of example that training leads to a high increase in knowledge among health professionals. A follow-up survey in 2016 also showed that the training content had a good level of applicability to the everyday work of the health professionals. The results indicate that training health professionals in a specialist qualification in the field of infant nutrition appears to be successful.

Systematically and continuously involving health professionals is considered essential in this area, especially in the context of low-threshold health promotion initiatives [11–13]. According to Tian et al. [14], qualification measures should always be evaluated according to the following: 1. satisfaction with the training, 2. change in knowledge and attitude among the health professionals taking part, 3. changes in the behavior of the health professionals taking part, and 4. improvement in the health status of the pa-



	Completely agree N (%)	Mostly agree N (%)	Mostly disagree N (%)	Completely disagree N (%)	Not specified N (%)	Total N (%)
The content of the training has become an integral part of my everyday work.	105 (51.2)	75 (36.6)	14 (6.8)	0	11 (5.4)	205 (100)
I am convinced of the benefit of the training.	131 (63.9)	61 (29.8)	6 (2.9)	0	7 (3.4)	205 (100)
It is possible to apply the training content in practical terms.	132 (64.4)	64 (31.2)	2 (1.0)	0	7 (3.4)	205 (100)
In my view, the practical application of the training content was successful. (positive effects on families/parents)	103 (50.3)	72 (35.1)	7 (3.4)	0	23 (11.2)	205 (100)
The training met my expectations.	114 (55.6)	75 (36.6)	7 (3.4)	1 (0.5)	8 (3.9)	205 (100)

Tab. 1: Evaluation of the training by participants with regard to its applicability to everyday work, 2016 (n = 205)

tients. While the evaluation presented here provides information on points 1–3, the question of the effects on parents/families has not yet been answered. Interventional studies to test such effects would be helpful.

Furthermore, it should be ensured that wherever possible, such qualification measures reach all relevant professional groups who have the potential to spread health advice due to being in close contact with the target group. This would ensure that consistent recommendations are disseminated as widely as possible. Physicians – a key group – were hardly represented among participants in the training on infant nutrition. To date, the number of participating physicians remains in the mid double-digit range (out of a total of about 3,000 participants). The next steps required to meet the needs of different participants in terms of the information they require and the advice they need to give in practice are to tailor the training content to their needs and take a more targeted approach, including incentives. Dividing the participants into groups of (I) professionals with no previous knowledge of the subject, (II) professionals with previous knowledge, and (III) relevant physicians and specialist physicians (especially specialists in paediatrics, gynecology and obstetrics, and nutritional medicine) could be useful in this regard. Such a professional-group-specific concept is planned for the network's training on the topic of "Breastfeeding and the Promotion of Breastfeeding" (*"Stillen und Stillförderung"*) – the curriculum for the basic training already exists, but has not yet been implemented as a training course.

Limitations

This study has certain methodological limitations. Firstly, the possibility that the types of professional groups involved had an effect cannot be ruled out. About a third of the participants in the follow-up survey were midwives. This means it may not be possible to draw conclusions about other occupational groups from these results. It was not possible to stratify by profession due to the low number of instances in certain strata of the rating scales.

Secondly, the high proportion of training participants who applied the training content (205 versus 41) suggests there may be selection effects at play. The likelihood of participation in a voluntary survey increases with increasing interest in the subject of the survey. In this case, those who applied the training content in practice were more likely to take part in the survey than those who did not. This has the potential to lead to distortions in the results and to overestimation of results. Finally, the possibility that social desirability factors affected response behavior cannot be ruled out.

Conclusion

Despite the methodological limitations, the results of the evaluation show that the content learned in the training is useful to health professionals and they are able to apply it in practice. In order to ensure that the quality of the training remains high, when the recommendations are updated every five years, the training content is also updated to reflect current scientific knowledge. The continuous evaluation of the training via evaluation questionnaires also helps to tailor the organisation of the training and how it is run to the needs of the participating health professionals.



Conflict of Interest

The authors declare no conflict of interest.

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