Implementing process-guided methods in nutrition counselling and dietetic therapy – What does current practice look like?

Results of a descriptive pilot study

Maren Peuker, Katharina Lachmann, Laura Hoffmann, Talitha Wiegand, Hendrik Siebert, Kathrin Kohlenberg-Müller

Abstract

This study investigates the extent to which process-guided methods are applied in Germany, taking into consideration the structural context of nutrition counselling and dietetic therapy (NCDT).

A questionnaire with 92 questions was developed to survey nutrition professionals online. 95 responses were included in the evaluation. Closed questions were evaluated quantitatively, and open questions were evaluated qualitatively.

Almost half of the participants (48.4%) had already been using process-guided methods. The majority of respondents collected the data from the four categories of Dietetic Assessment: Client History 95.8%, Diet History 94.7%, Behavioral-Environmental 92.6%, Clinical Status 63.2%. 83.2% of participants made dietetic diagnoses, and at least 90% set goals, measures to be taken and monitoring parameters. 73.3% said they carried out an evaluation.

Process-guided methods are not yet widely applied and should be promoted further. Research on transfer into practice has the potential to identify discrepancies between theory and practice, from which it may be possible to derive tailor-made solutions.

Keywords: nutrition counselling, dietetic therapy, process model, process-guided methods, Dietetic Care Process

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Corresponding author
Prof. Dr. Kathrin Kohlenberg-Müller
Hochschule Fulda – University of Applied Sciences
Fachbereich Oecotrophologie
Leipziger Straße 123, 36037 Fulda
kathrin.kohlenberg-mueller@oe.hs-fulda.de

Introduction

Overweight and obesity affect 54% of all adults in Germany. This is a major risk factor for diet-related diseases that pose major challenges to the health system [1]. Nutrition counselling and dietetic therapy (NCDT) can help prevent and treat these diseases [2].

It is recommended to use a process-guided model to ensure high-quality NCDT [2]. The reasons for this recommendation are that it facilitates: a standardized approach, structured dietetic interventions [2], more predictable dietetic outcomes and greater transparency [3]. This approach makes it possible to provide evidence of the effectiveness of dietetic interventions [4].

Various process models have been developed for NCDT in Europe and the USA [3], including the *German-Nutrition Care Process* (G-NCP) published by the Verband der Diätassistenten - Deutscher Bundesverband e. V. (German Association of Dietitians) [5] and most recently the *Dietetic Care*

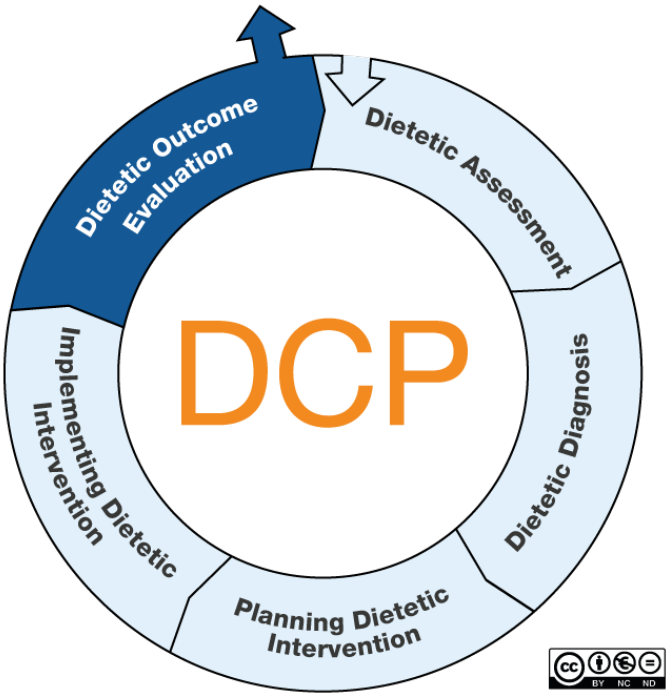

Fig. 1: **The DCP process model [6]**

Process (DCP), developed as part of the EU-funded *Improvement of Education and Competences in Dietetics* (IMPECD) project [6].

The DCP is a harmonized European model for training and professional practice in the area of dietetics. It is made up of five steps: (1) Dietetic Assessment, which falls into the four categories of Client History, Diet History, Behavioral-Environmental, Clinical Status; (2) Dietetic Diagnosis; (3) Planning Dietetic Intervention; (4) Implementing Dietetic Intervention; (5) Dietetic Outcome Evaluation [6, 7] (◆ Figure 1).

The *Modellprojekt für die diätetische Versorgung im Raum Fulda* (MoDiVe) – a project on transfer from theory to practice by Hochschule Fulda – University of Applied Sciences – focuses on the implementation of process-guided methods in accordance with the DCP in the area of NCDT in East Hesse [8]. The present pilot study was conducted as part of the MoDiVe project. It investigated the extent to which the various models for the use of process-guided methods have been implemented in practice in Germany in order to be able to make targeted and needs-oriented recommendations for action for professionals in the area of NCDT.

Study question

The study question in this descriptive pilot study was: To what extent are process-guided methods already being applied in Germany, taking into consideration the structural context of NCDT?

Methodology

An online questionnaire was developed based on a structured literature search and using the *EvaSys SurveyGrid* [9] software. It consisted of six topic categories with a total of 92 questions, including 11 open questions:

1. Contextual situation, structures and indications
2. Dietetic Assessment
3. Course of further dietetic intervention: Dietetic Diagnosis, Planning and Implementing Dietetic Intervention, Dietetic Outcome Evaluation
4. Structured interdisciplinary cooperation
5. Extent of awareness of process-guided methods
6. Sociodemographic data

Changes were made to the questionnaire based on a pretest. The target group of the online survey were qualified nutrition professionals [2]. Participants were recruited via professional associations and via the e-mail distribution lists of graduates and nutrition professionals of Hochschule Fulda – University of Applied Sciences. Together, the e-mail distribution lists of the professional associations and the Hochschule Fulda – University of Applied Sciences include about 3,500 people. The possibility that some nutrition professionals may have been included in more than one distribution list cannot be ruled out. It was not possible to determine how many nutrition professionals were recruited via announcements by the professional associations on their websites or on Facebook. The survey was carried out in June and July of 2020. The data were analyzed descriptively using *IBM SPSS Statistics* software [10]. Open questions were analyzed using inductive categorization [11].

Results

Description of sample

A total of 96 nutrition professionals took part in the online survey. 95 responses (95.8% of which were from female respondents) were included in the evaluation. 35.8% of the participants were between 51 and 60 years old. This was the largest age group. The smallest age group was the 21–30 years age group (6.3%). 71.9% of participants had a Diplom Ingenieur qualification (equivalent to MEng), 8.3% had a bachelor's degree and 10.4% had a master's degree. 15.6% of participants had some other type of training, some of these at university level. The majority of participants were ecotrophologists (specialists in nutrition, household management and economics) (67.7%). 16.7% were dietitians, 14.6% were nutritionists and 2.0% were from other professional groups. The average number of years of professional experience was 14. 63.3% of participants exercised their profession as their main employment and 36.8% exercised it as a secondary employment. The majority of participants worked in the outpatient sector (92.7%).

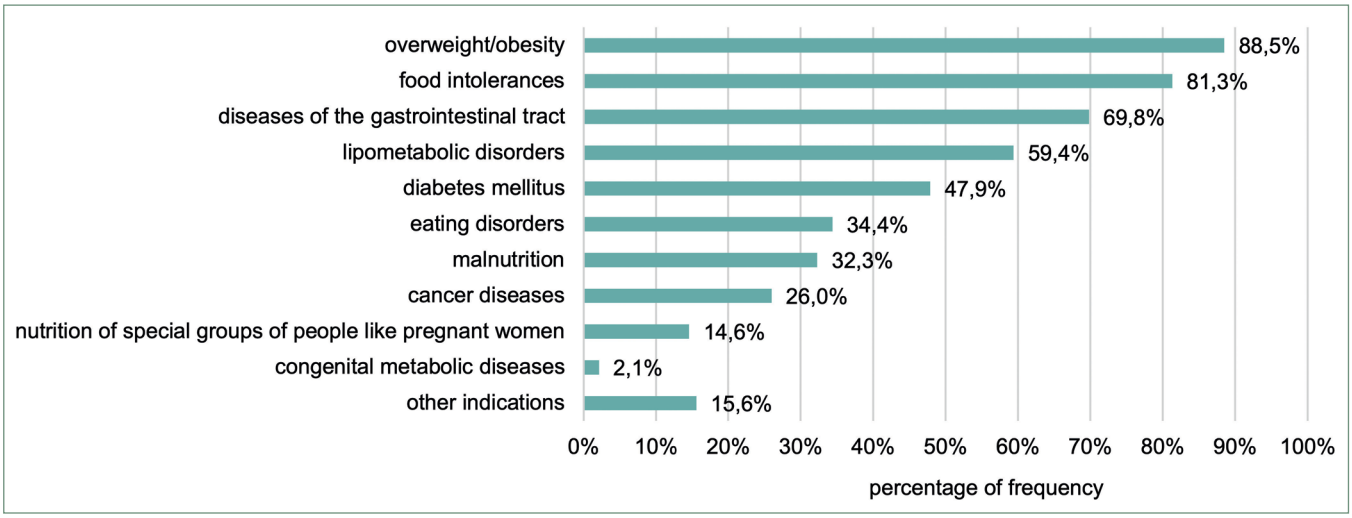

Fig. 2: **Indications for NCDT by frequency** (percentage) (n = 95)
multiple answers possible

The structural context of NCDT

The majority of participants (84.2%) worked in practices alone. 15.8% worked in group practices which involve two or more people. 41.1% offered only individual counselling, 2.1% offered only group counselling and 56.8% offered both types of counselling. Those for whom this was their main employment carried out 17 counselling sessions per week on average. Those for whom this was their secondary employment carried out six counselling sessions per week on average. The number of counselling sessions per client over the course of the dietetic intervention ranged from one to more than ten [4], with five to six sessions being the most common (46.3%). The period between sessions ranged from one to six weeks. The most common gap was four weeks (36.0%). The majority of participants (62.1%) needed between 11 and 30 minutes per counselling session for administrative tasks.

Indications for NCDT

The most common indications for NCDT were overweight/obesity (88.5%), food intolerances (81.3%) and gastrointestinal disorders (69.8%) (◆ Figure 2).

Interdisciplinary cooperation

The majority of participants work in an interdisciplinary manner. Only 6.3% stated they do not work in cooperation with other professional groups. Cooperation occurs most often with physicians (90.6%), followed by psychologists (42.7%), psychotherapists (28.1%), physiotherapists (25.0%), alternative practitioners/non-medical practitioners (16.7%), nurses (15.6%) and osteopaths (6.3%). The reasons for cooperation include obtaining information, such as diagnostic laboratory data (88.5%), and mental stress (49.0%) and physical impairments in clients (39.6%). Almost three-quarters of the participants (73.7%) obtained data from other professional groups, such as medical diagnoses (95.8%), laboratory values (93%) and medication plans (73.2%). Factors that made interdisciplinary cooperation more difficult included limited availability (68.8%), lack of time (67.7%) and communication difficulties (42.7%).

Implementing process-guided methods

Implementing the process steps in the first counselling unit

According to the participants, there were sometimes several steps involved in the first counselling unit. The majority (93.8%) performed a Dietetic Assessment, more than half (68.8%) made a Dietetic Diagnosis, 71.9% planned the dietetic intervention and 16.7% were already carrying out the intervention at this stage. 6.3% said that they performed a Dietetic Outcome Evaluation in the first unit.

Dietetic Assessment

The majority of participants (79.2%) collected or evaluated data before the first counselling session. These data include medical findings and diagnoses (68.8%), laboratory results (63.5%), medical history forms (45.8%) and dietary records (33.3%). About a fifth of participants (20.8%) did not evaluate any data prior to the first unit. Data collection took between 5 and 90 minutes per client, with an average of 32.1 minutes (± 22.0). Documentation was either paper-based (85–95%) and/or digital (31–54%), depending on the Dietetic Assessment category.

The participants recorded data in the following categories in the Dietetic Assessment: Client History (95.8%), Diet History (94.7%), Behavioral-Environmental (92.6%) and Clinical Status (63.2%). All of the nutrition professionals documented the data. ◆ Table 1 shows the methods and/or data sources used to collect data in the Dietetic Assessment.

For the majority of participants (62.1%), performing a comprehensive Dietetic Assessment

was very important, for a quarter (25.3%) it was important, and for 7.4%, it was somewhat important. 3.2% considered implementing this process step not very important and 2.1% considered it not at all important. Participants perceived comprehensive Dietetic Assessment as an opportunity for more accurate goal setting (89.5%), for more accurate Dietetic Diagnosis (66.3%), for an improved overview of monitoring (50.5%) and for an improved overview of outcome parameters (46.3%) (◆ Figure 3).

81.1% considered recording Diet History a particularly important part of Dietetic Assessment. 75.8% considered Client History the most important part, 65.3% thought Behavioral-Environmental was the most important part, and 53.7% thought Clinical Status was the most important part.

75.0% of participants stated that they needed tools to aid them in Dietetic Assessment. 54.7% said they would like to have documentation tools, 51.6% said they would like checklists, and 9.5% said they would like training. A quarter of the participants said they did not need any such tools. 44.2% said they would like assistance with Behavioral-Environmental, 41.9% wanted assistance with Clinical Status, 32.6% wanted assistance with Diet History, and 25.6% wanted assistance with Client History.

Implementing the remaining process steps

More than three-quarters (83.2%) said that they made a Dietetic Diagnosis. 46.3% created PASR[1] statements for this purpose. 95.8% identified goals for dietetic intervention and 94.7% set out actions to be taken to address dietetic issues. 90.5% recorded monitoring parameters and said they regularly checked the following parameters: changes in dietary pattern (87.4%), anthropometric data (57.5%), biochemical parameters (42.5%), body composition (39.1%), bodily functions (26.4%), and other parameters (12.6%) such as quality of life or changes in behavior or symptoms.

Almost three-quarters of participants (73.3%) said that they conducted an evaluation. They did this by verbal questioning (63.4%) or a dialogue (62.0%), the recording of selected parameters with a comparison with the baseline data or a before-and-after comparison (60.6%), or other tools (5.6%) such as medical history forms, the analysis of eating habits, or evaluation forms.

[1] These statements refer to specific dietetic problems related to *aetiology* as used in the European project *Improvement of Education and Competences in Dietetics (IMPECD)* with the acronym PASR standing for Problem, Aetiology, Signs and Symptoms, Resources.

1. Client History	
Methods/data sources (with frequency as a percentage)	
medical history forms created by the nutrition professional	93.4
data from physicians	40.7
data from healthcare professionals	12.1
Data collected (with frequency as a percentage)	
age	100.0
sex	97.8
data about family	91.2
living situation	64.8
social context/environment	63.7
background/origin	49.5
2. Diet History	
Methods (with frequency as a percentage)	
medical history forms created by the nutrition professional	60.0
3-day food records	45.6
24-hour dietary recalls	28.9
checklists of foods usually consumed	11.1
Data collected (with frequency as a percentage)	
current food intake	92.3
long-term average food intake	41.8
intake of specific nutrients	34.1
intake of specific nutrients as a percentage of requirements	26.4
energy intake	53.8
energy balance	44.0
fluid intake	92.3
fluid requirements	35.2
dietary pattern	90.1
preferences	83.5
dislikes	75.8
3. Behavioral-Environmental	
Methods (with frequency as a percentage)	
targeted questioning of clients	100.0
physical activity records	23.9
individual questionnaires to be filled out by the client	17.0
Data collected (with frequency as a percentage)	
willingness to change behavior	89.8
physical activity	97.7
food environment	80.7
eating outside the home	81.8
access to foods	73.9
quality of life	69.3
attitudes and values	58.0
demands and expectations of life partners	55.7
access to health-promoting food	42.0
nutrition literacy	21.6
4. Clinical Status	
Methods/data sources (with frequency as a percentage)	
own measurements, such as bioelectrical impedance analysis	63.3
data from physicians	60.0
questioning of clients	56.7
data from healthcare professionals	25.0
Data collected (with frequency as a percentage)	
anthropometric data	75.0
body composition	51.7
biochemical parameters	40.0
bodily functions	11.7

Table 1: **Data sources, methods and collected data in Dietetic Assessment with frequency as a percentage** (n = 95)
multiple answers possible

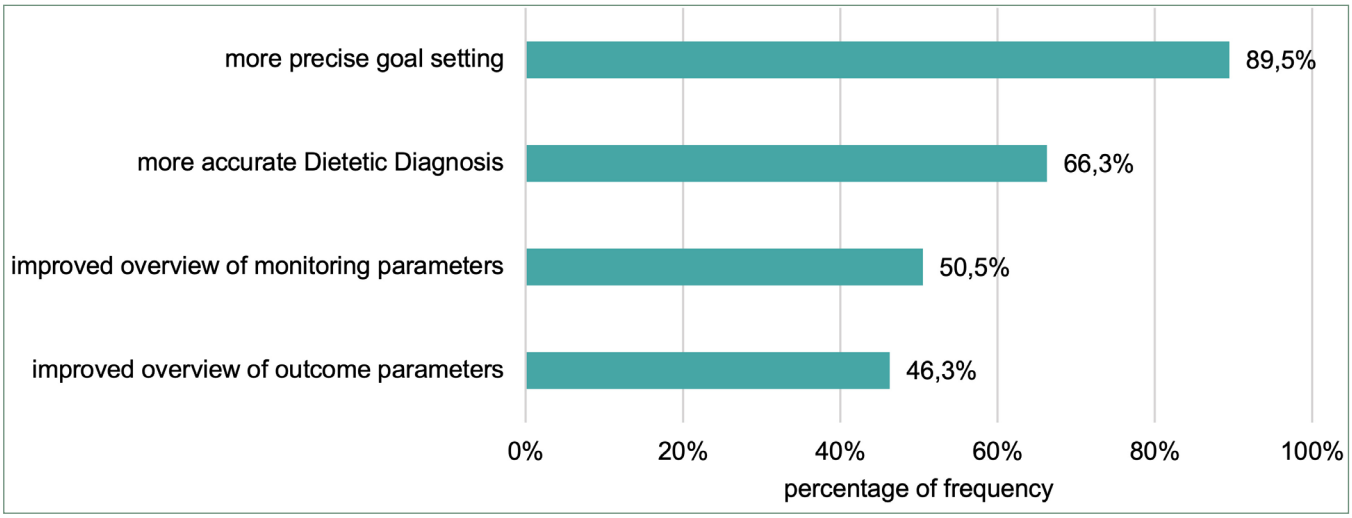

Fig. 3: **Advantages of comprehensive Dietetic Assessment with frequency of mentions as a percentage** (n = 95)
multiple answers possible

Process-guided methods

Almost half of the participants (48.4%) had already been using a process-guided model. Of these 48.4%, 80.0% based their work on the *German-Nutrition Care Process* (G-NCP), 4.3% based it on the *Nutrition Care Process* (NCP) and 2.2% based it on the *Dietetic Care Process* (DCP). 13.0% said that they work according to their own process. Participants familiarized themselves with process-guided methods through continuing education and training (51.1%), professional journals (36.2%), manuals and books (36.2%), the internet (27.7%), conferences (19.1%), and online seminars (14.9%). For the remaining 51.6% who had not yet learned about any science-based process model, the reasons given for this were limited knowledge and few opportunities for continuing education and training in this area (34.7%), the amount of time required (26.6%), lack of a need for it (16.3%), use of their own process model/working with a process model in a broad sense (14.3 %), that the models could not be sufficiently customized (8.2%), the amount of work required to become familiar with the models (4.1%) and lack of motivation to change (2.0%). Almost half of the participants (47.4%, n = 95) rated process-guided methods as either very important or important. 26.3% considered them somewhat important (◆ Figure 4).

Advantages of process-guided methods in practice

The 48.4% of participants who had already used process-guided methods considered the advantages to be that they led to a structured way of working (85.1%), that the effectiveness of the dietetic intervention was recorded and demon-

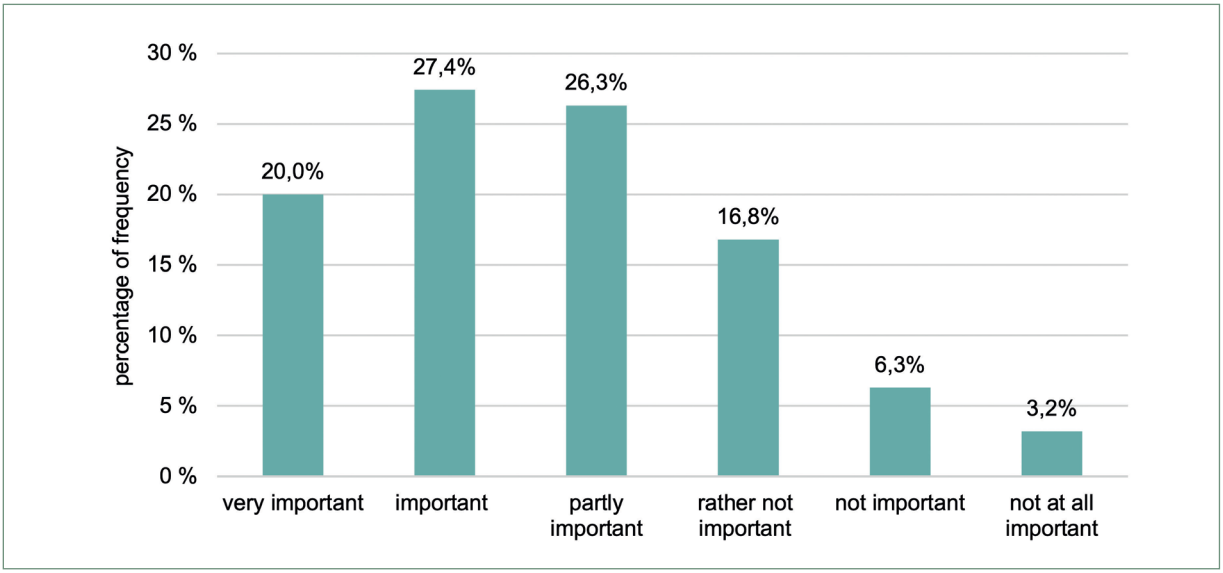

Fig. 4: **Importance of process-guided methods with frequency as a percentage** (n = 95)

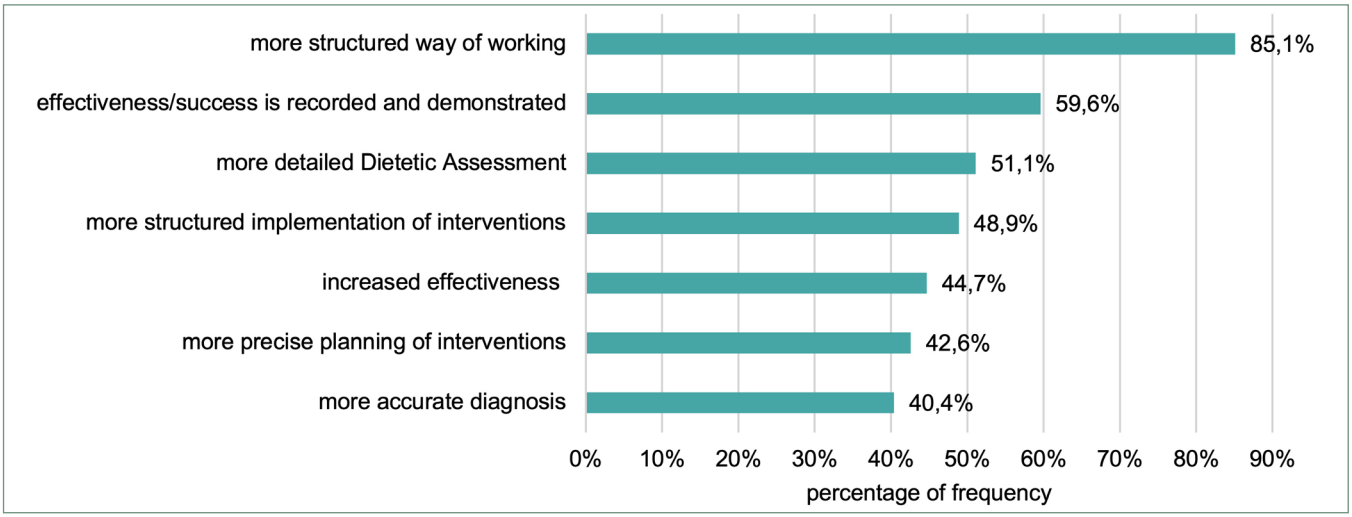

Fig. 5: **Advantages of process-guided methods with frequency as a percentage** (n = 47)
multiple answers possible

strated (59.6%), and that a detailed Dietetic Assessment was carried out (51.1%) (◆ Figure 5).
22.1% of participants rated the benefits of process-guided methods in terms of quality of care as very high and 2.1% rated them as very low. 27.4% rated the benefits in terms of the professionalization of NCDT as very high and 2.1% rated them as very low (◆ Figure 6).

Challenges in implementing process-guided methods

When asked whether general working conditions and context stand in the way of process-guided methods, 65.2% of the participants who have not yet used process-guided methods (51.6%) answered yes, while 34.8% answered no. Challenges identified included a lack of time (66.0%), lack of knowledge required to implement a process model (27.7%), lack of funding (17.0%), lack of continuing education and training opportunities (10.6%), lack of equipment (10.6%), client expectations (6.4%), and lack of space (4.3%). Based on the open question about challenges in implementing process-guided methods, nine categories were established: time required (41.7%), applicability and implementation in practice (lack of flexibility) (28.6%), no knowledge of process models (15.9%), cost issues (7.4%), changes to daily work routines (4.2%), documentation (4.2%), and lack of knowledge (6.3%).

Discussion

This descriptive pilot study provides insights into current NCDT practice in Germany, particularly in single-person outpatient practices. Consistent with another survey [12], the three most common indications for NCDT were overweight/obesity, food intolerances, and gastrointestinal diseases, but not diet-related diseases such as cardiovascular disease or diabetes. This raises questions about the importance of NCDT and the structural quality of the treatment of these diseases.
The key factors affecting interdisciplinary cooperation, which plays a central role in the transfer of data on clinical status, are lack of availability (68.8%) and lack of time (67.7%).
There is a need to further promote understanding of process-guided methods, which are characterized by greater structuring, standardization [2] and transparency [3] of workflow steps, as well as clearer verifiability of results [4]. 48.4% of those surveyed have taken steps towards implementing these methods.
However, those who have not yet implemented a process-guided method do in fact implement some process steps in practice, according to their own statements. The majority said that they record data for each of the four categories of the Dietetic Assessment. In terms of the Dietetic Assessment, 81.1% ranked the category of Diet History as the most important. This creates an important foundation for further process steps – especially the Dietetic Diagnosis [13]. Some aspects of Behavioral-Environmental should be given even greater consideration to allow for a more personalized approach to clients [14]. The majority of participants (83.2%) said that they made a Dietetic Diagnosis, but only 46.3% formulated PASR statements for this purpose. The practical applicability of PASR statements needs to be further investigated due to their high complexity [13]. Planning Dietetic Intervention is comprehensive in almost all cases. At least 90% of participants set targets and define measures to be taken and monitoring parameters to be recorded. Almost three-quarters of participants (73.3%) said they conducted a Dietetic Outcome Evaluation to assess the efficacy of NCDT. The question of how exactly process-guided methods are applied remains to be answered. Almost 70% of participants said that they carry out the first three steps of the process in the first counselling session. It has to be assumed here that the full scope of the individual process steps as recommended in models is not implemented in practice and that a compromise between theory and practice has to be made.
Data is collected using a wide range of tools, most of which are specially designed medical history forms. This makes cross-practice

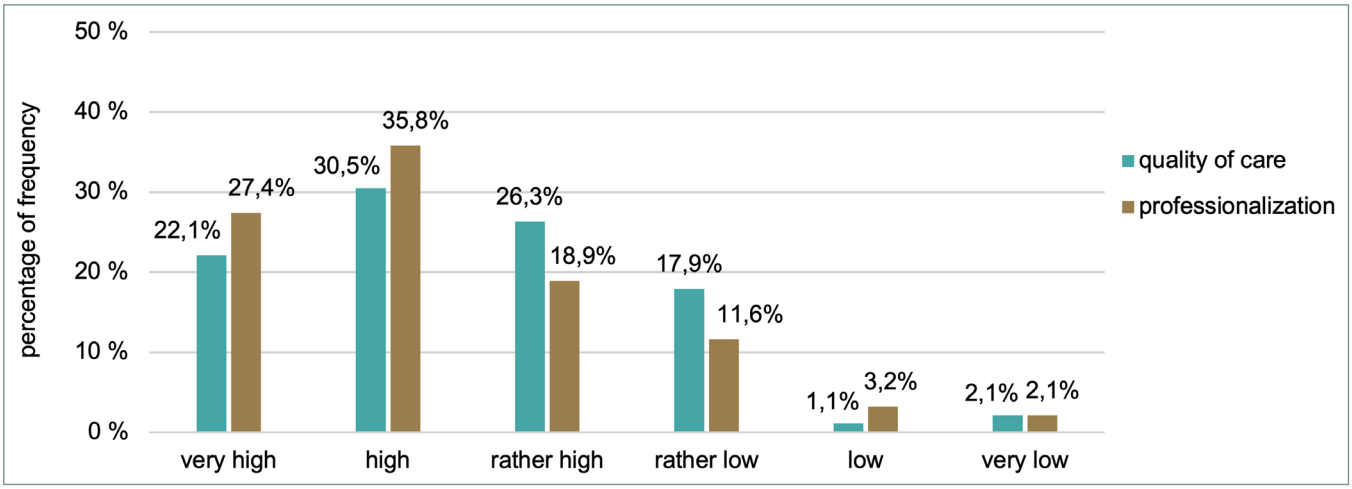

Fig. 6: **Benefits of process-guided methods in terms of quality of care and professionalization of NCDT with frequency as a percentage** (n = 95) multiple answers possible
NCDT = nutrition counselling and dietetic therapy

comparability and aggregate evaluation for healthcare research questions more difficult. Overall, participants attribute high importance to Dietetic Assessment because, among other things, it allows for more precise goal setting. The participants would like to have practical instructions, especially for the implementation of the Dietetic Assessment, and most frequently for Behavioral-Environmental (44.2%). It is clear that digitalization needs to be progressed further, since the documentation of Dietetic Assessment, for example, is predominantly paper-based at present (85–95%). Furthermore, the structural context surrounding NCDT can make it difficult to apply process-guided methods, for example, there may be a lack of time (66.0%), lack of knowledge (27.7%), or issues with billing for services (17.0%).

General recommendations for action in implementing process-guided methods

The results of this pilot study can be used to derive general recommendations for action to promote and facilitate the use of process-guided methods in NCDT (◆ Figure 7):

Improving the structural context and conditions

Basic billing procedures in NCDT in particular need to be adapted for use with process-guided methods. Usually, for the most frequently mentioned indications, only the time taken for the actual consultation is reimbursed; administrative activities such as documentation are not included [15].

Developing and provisioning standardized, validated and practical tools

Standardized, validated and practical tools – especially documentation tools – may help to support the implementation of process-guided methods. These tools make it possible to collect data on dietetic interventions, evaluate them in an aggregated form, and compare them. This is a crucial step in providing evidence of the effectiveness of NCDT.

Providing training opportunities that meet professionals' needs

Providing further education and training opportunities for nutrition professionals that meet their needs has the potential to enhance skills in process-guided methods and to facilitate the sharing of experience.

Improving interface management

Improving data transfer – for example, from physicians to nutrition professionals – can be achieved through the use of "transfer forms". This would contribute to addressing some of the challenges of interdisciplinary cooperation thus improving it.

Recommendations for action in implementing process-guided methods
1. Improving the structural context and conditions
2. Developing and provisioning standardized, validated and practical tools
3. Providing training opportunities that meet professionals' needs
4. Improving interface management

Fig. 7: **General recommendations for action in implementing process-guided methods**

Limitations

The method of recruiting through professional associations was chosen in order to reach the largest possible number of nutrition professionals. Due to the low response rate, the study cannot be considered representative. The results mainly provide data from outpatient practices. The majority of participants were nutrition professionals with academic credentials. It is possible that nutrition professionals who have already learned about or been involved with process-guided methods self-selected as participants. Although data collection was anonymous, the results could be confounded by social desirability factors.

Conclusion

The results of this descriptive pilot study show that process-guided methods are currently not applied across the board in NCDT. High-quality professional education and training in these methods must be further promoted in order to increase the quality of care in dietetics. More emphasis should be placed on the importance of process-guided NCDT for all nutrition-related diseases, and the range of indications for NCDT should be broadened accordingly. Research on transfer from theory into practice has great potential in terms of further investigating the discrepancy between theory and practice in the implementation of process-guided methods and providing tailored solutions for NCDT.

Conflict of Interest
The authors declare no conflict of interest.

M. Sc. Maren Peuker[1]
M. Sc. Katharina Lachmann[1]
M. Sc. Laura Hoffmann[1]
M. Sc. Talitha Wiegand[1]
M. Sc. Hendrik Siebert[2]
Prof. Dr. Kathrin Kohlenberg-Müller[1]
[1] Hochschule Fulda – University of Applied Sciences
Fachbereich Oecotrophologie
Modellprojekt für die diätetische Versorgung im Raum Fulda (MoDiVe)
[2] Hochschule Fulda – University of Applied Sciences
Fachbereich Gesundheitswissenschaften

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