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RESEARCH ARTICLE

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Exploring participants' characteristics and self-assessed readiness to conduct clinical trials in general practice – baseline analysis of the RaPHaeL practice-based research network

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ABSTRACT

Background: Primary care is integral to healthcare systems extending beyond traditional illness management to include preventive care, chronic disease management, and health promotion. Practice-based research networks (PBRNs) have emerged as essential infrastructures for conducting clinical research in primary care. This study explores the establishment of the 'Research-Practices Halle-Leipzig' (RaPHaeL) PBRN in Germany, evaluating the characteristics and research readiness of participating practices.

Methods: A cross-sectional survey (MORNING II) was conducted among all general practitioners (GPs) joining the RaPHaeL PBRN, assessing socio-demographic characteristics, practice infrastructure, and research readiness. After a descriptive analysis, we compared data with a previous study (MORNING) to examine potential differences between PBRN participants and non-participants. We developed a research readiness score (RRS) to quantify practices' ability to perform clinical research subtasks.

Results: The response rate was 97.1% and our participants were often male, involved in undergraduate education, generally interested in research or had previous research experiences. However, they differed widely in age and size, staff structure, and patient demographics of their practices. Initially, around two-thirds of the practices were not sufficiently prepared to conduct clinical trials (self-assessed feasibility of relevant subtasks). If further research and documentation tasks are required, patient recruitment estimations are lower than for patient identification and information.

Conclusion: This study highlights the variability in research readiness among GP practices and shows the need for targeted training. By systematically assessing and enhancing research capabilities of participating GPs, PBRNs can facilitate high-quality clinical research in primary care to improve patient outcomes and healthcare delivery.

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Introduction

Primary care serves as the cornerstone of healthcare delivery, offering comprehensive, continuous, and coordinated services to individuals across their lifespan [1,2]. In recent decades, the role of primary care has evolved beyond traditional illness management to preventive care, the management of multiple chronic conditions, and health promotion as well [3,4]. As primary care gains increasing prominence in healthcare systems worldwide, the imperative to obtain evidence from high-quality research within this setting becomes even more pressing [5]. However, especially conducting clinical research in primary care presents a distinct set of challenges, ranging from recruitment and retention of participants and trial sites, to data collection and implementation of findings into routine practice [6].

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Practice-based research networks (PBRNs) play an essential role in facilitating clinical research in primary care [7,8]. These networks, consisting of primary care practices and collaborating researchers, offer a rich infrastructure for studies to reflect the real-world complexities of patient care. PBRNs can bridge the gap between clinical practice and research by providing access to diverse patient populations, facilitating data collection, and fostering partnerships between clinicians and researchers [9–11]. For more than fifty years [12,13] PBRNs have been established all over the world, serving as the formal framework for long-term research collaborations of otherwise largely isolated and independently operating primary care practices [12,14].

As number of PBRNs in primary care increase their individual scope has diversified significantly [4]. Nevertheless, the majority of PBRN research activities remain focused on observational or routine data studies for delivery of care and quality improvement [12,15,16]. While clinical research in primary care holds promise for improving patient outcomes, enhancing healthcare delivery, and informing evidence-based practice, only a limited number of PBRN successfully implemented clinical trials in primary care [6].

Especially in Germany, clinical trials performed outside PBRNs are scarce [9] as there is no tradition of clinical research PBRNs and due to high formal barriers and prerequisites to conducting clinical research [6,11]. The Research-Practices Halle-Leipzig (RaPHaeL) were established in southern Saxony-Anhalt and northern Saxony [17] in 2020 as part of the nation-wide funding plan for regional PBRNs by the German Federal Ministry of Education and Research (BMBF). All practices within the RapHaeL network were mandated to complete a twelve-hour Good Clinical Practice (GCP) investigator training course, in line with the recommendations of and accredited by the German Medical Association. As a mandatory part of the course, a final exam has to be passed. In addition, optional clinical research training is available for non-physician staff. Before establishment of RapHaeL, we conducted our first study to investigate the general interest and long-term willingness to participate in a research practice network among GPs in the respective areas (13).

This initial study demonstrated a significant willingness to join a research practice network, even among individuals lacking prior experience in clinical research. However, practices preferred topics that were driven by practical needs, enabling GPs to participate in trials with a reasonable and predictable time investment, while also ensuring they had access to a dependable contact at the university. The purpose of this second study was to characterize the GP practices taking part in the RaPHaeL PBRN and to analyse how they differ from non-participating practices. Additionally, we wanted to explore their personal interest and participation willingness for different topics and study types to include them in the networks research. Finally, we wanted to study initial perceptions on feasibility of different clinical study tasks, on deferability to the practice team (research readiness at baseline) and recruitment potential referring to a specific clinical study vignette.

Material and methods

Sampling and design

In this cross-sectional study, all physicians working as general practitioners in the German postcode areas 04 (Saxony) and 06 (Saxony-Anhalt) were contacted *via* post in November and December 2020. We contacted 816 GPs according to lists provided by the respective Associations of Statutory Health Insurance Physicians (Kassenärztliche Vereinigung) in October 2020. The GPs received a cover letter, a registration form for the emerging RaPHaeL network with the option of immediate or later participation (vs. no participation), and a questionnaire (MORNING II, see below) addressed only to the 70 GPs (8.6%), who decided to participate in the network. A detailed sampling flowchart is presented in Figure 1. Registration forms and questionnaires could be returned with a postage paid return envelope or by fax. All GPs received a reminder letter after four weeks, containing all documents mentioned before.

MORNING II questionnaire

Referencing this earlier study that investigated general interest in research and participating in research networks among GPs (MORNING study), the questionnaire for participants used in this follow-up study was abbreviated with the acronym MORNING II (Medical Research Or Research Practice Network Interest in General Practice II). In the absence of validated research instruments for our topic, we considered existing literature as we developed the MORNING II questionnaire as an interdisciplinary team consisting of health scientists and GPs. To ensure comprehensibility, suitability, and face-validity, we piloted the questionnaire with three GPs using the Concurrent Think Aloud method. After resulting modifications, the final version contained 22 items with different answer options (single or multiple-choice, free-text) addressing the following topics. Firstly, sociodemographic and job-related

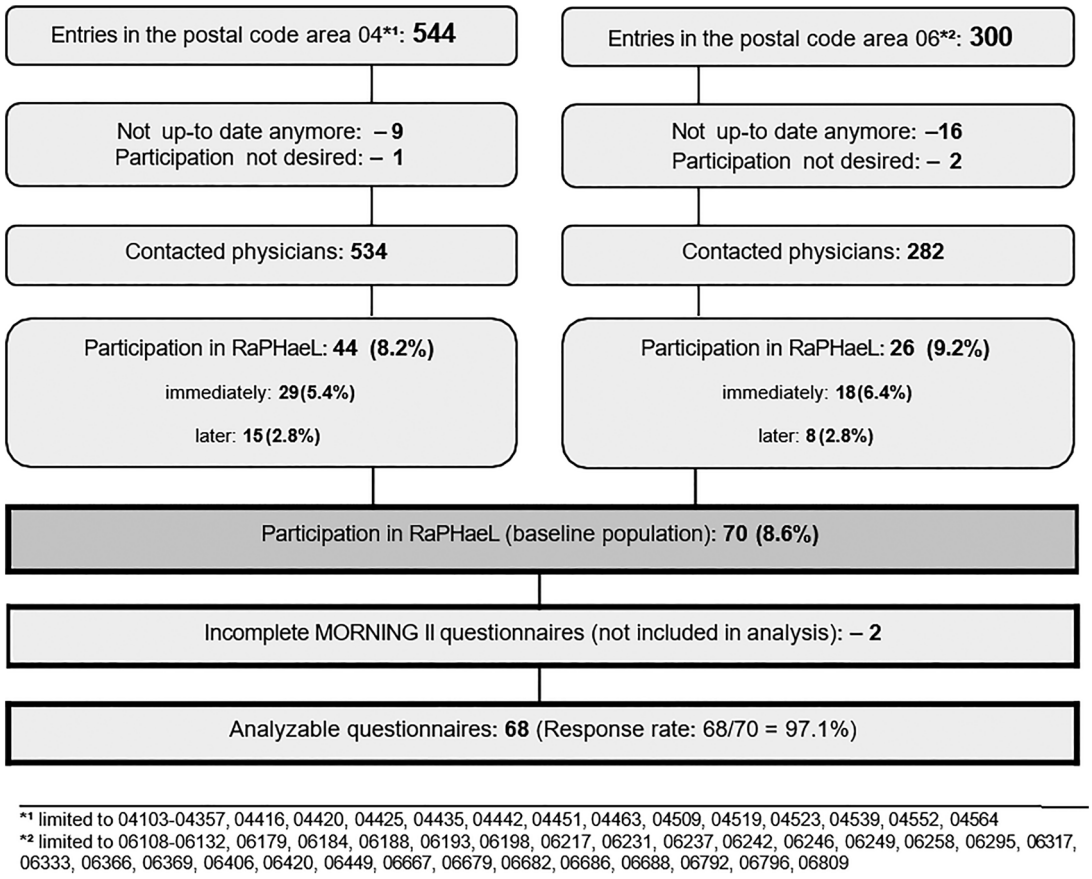

Figure 1. Sampling flowchart.

variables, and preferred communication within the PBRN. Secondly, personal and infra-structural capabilities of GP practices (staff, space, equipment), feasibility and deferability of research tasks within the GP practice and lastly, personal interest in research on specific topics (selection based on Virnau et al. [17]), and readiness to take part in different study types. Based on a specific case vignette describing a study example with defined inclusion criteria (70 years or older, more than five drugs as long-term medication, at least one GP visit per quarter, allowance for the GPs of 100€/patient), participants were also asked to estimate the number of patients they could imagine identifying and informing, or for whom they could imagine researching and documenting data in addition to their daily work routine. A translation of the MORNING II questionnaire is included in ***Supplementary File 1*.**

Matching of MORNING II data with data of a previous study (MORNING)

To investigate and how participating practices differ from non-participating practices, we merged the datasets of MORNING I (general interest in research network participation,[17]) and MORNING II (actual participation in the RaPHaeL network). Thus, we identified subsequent participants in the network retrospectively within the MORNING I data as similar individual questionnaire codes were used in both studies. In order to ensure anonymity, the key file containing the assigned questionnaire codes to addresses of the GPs, was administered separately from the research data, was not accessible to the participating researchers and deleted after all questionnaires had been sent out. The matched dataset analyzed in this study did not allow any personal identification.

Data analysis

We used IBM SPSS Statistics for Windows, Version 27.0 to analyze the data. Single variables frequencies are presented as %(n/n_{valid}). Valid n's slightly vary due to missing values for single items. Continuous variables are presented as mean ± standard deviation (SD), complemented by the median when appropriate. Chi^{2}-test was used for group comparisons with regard to frequencies. Mann Whitney U test was performed to analyze differences in central tendency (after Kolmogorov Smirnoff test indicating absence of normal distribution). Statistical significance was assumed for $p < 0.05$.

Research Readiness Score

In order to enable categorization of research practices according to their current research abilities, we calculated a measure indicating the overall research readiness, which can be monitored in the further course of the project. This 'Research Readiness Score (RRS)' is based on participant's answers to the question: 'A clinical study in the GP practice could include the following work steps. Which work steps could be carried out in your practice?' The following list of eight tasks could be rated 'not implemental', 'rather not implemental', 'rather implemental' and 'fully implemental':

1. Identification of study participants among your own patients according to defined criteria.
2. Patient information before study participation.
3. Obtaining informed consent.
4. Implementation of new treatment concepts/ therapies.
5. Filling out a documentation form.
6. Researching patient data in your own IT system (e.g. current laboratory, diagnoses).
7. Data protection-compliant reporting of participating patients to the university's study team.
8. Tracking disease progression.

To create the score, each item was assigned a value of '0' if the task in question was not implemental or rather not implemental, a value of '1' if it was rather implemental and a value of '2' if it was fully implemental. The final RRS Score consisted of the sum of the assigned values of the eight items and could take values between 0 and 16.

Patient and public involvement

Neither patients nor the public were involved in the study.

Results

Characteristics of RaPHaeL research practice network participants (MORNINGII)

The response rate for the MORNING II questionnaire was 97.1% with 68 out of 70 questionnaires available for analysis (Figure 1). Table 1 presents general socio-demographic and job-related characteristics of the RaPHaeL network participants.

Nearly all practices (95.5%, 64/67) had a workstation with internet access. A separate reception and waiting area to maintain confidentiality existed in 75.0% (51/68) of all practices. There was a wide variety of different practice software systems used, with Medatixx (27.9%, 19/68), CGM Turbomed (14.7%, 10/68) and CGM Medistar (11.8%, 8/68) being the most common. While 98.4% (63/64) of the participants indicated that their practice software had a statistics module, only 70.8% (46/65) were familiar with it. When asked about additional qualifications of members of their practice team, 19.1% (13/68) had attended a course in the past that qualified them to participate as principal investigators in clinical trials (referred to as 'Good Clinical Practice (GCP) qualification'). In addition, 36 members of the non-physician staff in the 70 participating practices had additional qualifications for a variety of additional tasks in everyday practice. Furthermore, in four GPs mentioned the presence of a qualified study nurse and in five the presence of a qualified documentation assistant.

Table 1. Sociodemographic and job-related characteristics of the RaPHaeL network participants based on MORNING II data.

Personal/ practice characteristics	N	%(n/n_{valid})	Min. – Max.	Mean ± SD	Median
Age in years	67		33–75	49.6 ± 9.6, 48	48
Female physicians	68	57.4 (39/68)		–	–
Network participation now (vs. later)	68	66.2 (45/68)		–	–
Number of members of the entire practice team	59		2–9	5.1 ± 1.9	5
Number of physicians with specialist qualification	65		0–4	1.4 ± 0.8	1
Number of physicians in training (residents)	68		0–2	0.4 ± 0.6	0
Number of medical assistants	64		1–7	2.8 ± 1.4	3
Number of medical assistant trainees	68		0–2	0.3 ± 0.6	0
Estimated percentage of patients >65 years in own practice clientele	59		0–80	44.9 ± 16.2	45
Number of patients treated per quarter	68				
< 700		2.9 (2/68)			
700–1000		27.9 (19/68)			
1001–1500		41.2 (28/68)			
> 1500		27.9 (19/68)			

Comparison of RaPHaeL participants and non-participants

As 53 out of 70 GP practices in the RaPHaeL network had participated in the former survey regarding research willingness (MORNING), we could compare between practices that decided to participate and those who did not. Table 2 shows results comparing socio-demographic and job-related characteristics between participating and non-participating GPs (matched data MORNING and MORNING II, see methods section).

Table 2. Socio-demographics and job-related characteristics (matched sample II) – comparison between signed up and not signed up for Raphael RN.

Variable	All %(n/n_{valid})*	Signed up for Raphael RN %(n/n_{valid})*	Not signed up for Raphael RN %(n/n_{valid})*	p
Female	69.0% (227/329)	56.9% (29/51)	71.2% (198/278)	**0.042**
Age in years (mean ± SD, median)	52.2 ± 10.5, 52	50.8 ± 10.2, 50	52.4 ± 10.5, 52	0.341
Interested in medical research (vs. not)	57.1% (180/315)	84.9% (45/53)	51.5% (135/262)	**<0.001**
Interested in RPN participation (vs. not)	33.9% (108/319)	61.5% (32/52)	28.5% (76/267)	**<0.001**
Specialist for General Practice (vs. others)	72.4% (231/319)	68.0% (34/50)	73.2% (197/269)	0.447
Additional specialty title (vs. none)	13.3% (43/323)	16.0% (8/50)	12.8% (35/273)	0.543
Years being a GP (mean ± SD, median)	16.2 ± 12.2, 12	13.6 ± 10.2, 11	16.7 ± 12.4, 14	0.164
Training undergraduates (vs. not)	30.7% (99/ 323)	54.0% (27/50)	26.4% (72/273)	**<0.001**
Self-employed (vs. employed)	77.1% (225/292)	80.9% (38/47)	76.3% (187/245)	0.499
Catchment area of the practice: city (vs. town/ rural area)	61.7% (190/308)	62.7% (32/51)	61.5% (158/257)	0.865
Medical documentation: electronically (vs. paper-based)	88.1% (290/329)	88.7% (47/53)	88.0% (243/276)	0.896
Experiences with research (vs. none)	57.1% (192/336)	69.8% (37/53)	54.8% (155/283)	**0.042**
Work satisfaction: very or rather satisfied (vs. rather or very dissatisfied)	90.0% (298/331)	90.4% (47/52)	90.0% (251/279)	0.926
Economic satisfaction: very or rather satisfied (vs. rather or very dissatisfied)	86.7% (288/332)	80.8% (42/52)	87.9% (246/280)	0.166

*Unless otherwise indicated.

Willingness to participate in different study types

The results on study types that GPs and their practice team would be willing to participate in, are shown in Figure 2. The vast majority of respondents would participate in surveys and/or routine data analyses, but only 56.4% (31/68) could imagine participating in non-pharmaceutical intervention studies and 41.2% (26/68) drug intervention studies.

Research interests and communication preferences among the network participants

The preferences of GPs in the network in conducting research across various areas are illustrated in Supplementary File 2. Participants could indicate their interest in multiple topics. The most frequently selected topics were polypharmacy, chronic diseases, drug safety and adverse drug reactions. Conversely, the least frequently mentioned topics were emergencies, patient education, addiction and drug abuse.

When asked about preferred communication channels with other research practices within the network (multiple responses allowed), most practices wanted to use established formats like GP quality circles (57.4%, 39/68) or further education events (54.4%, 37/68). Meetings of individual practices with similar research interests (45.6%, 31/68) and a themed chat function for individual practices *via* a network homepage (41.2%, 20/68) were more often preferred than a general chat room for all practices (29.4%, 28/68) or regular meetings of all network practices (29.4%, 20/68).

Current feasibility of different study tasks and deferability to the practice team

We asked participants to what extent tasks considered essential for clinical trials are currently implemental in their practice if they could be delegated to the practice team. The majority of GPs rated these tasks as rather or fully implemental, but rated delegation of the same tasks to medical assistants less so. For detailed results see Figure 3.

Research Readiness Score (RRS)

To enable categorization of research practices according to their current research abilities, we calculated the RRS based on the GPs assessment of feasibility of different study tasks in practice (see method section, fully implementable = 2, rather implementable = 1, rather not or not implementable = 0). The RRS could take values between 0 and 16 and the average RRS for the whole sample was 10.1 ± 3.9. For detailed results, see Figure 4. While slightly more than one third of the practices stated good initial research readiness scores with values of >=12, the majority of the participating practices still needed training in this area.

Patient recruitment in GP practices for future studies

The willingness to recruit for studies depends on the type of study and the research question. Therefore, we presented a study vignette in the questionnaire, which described the following inclusion criteria: (a) Age:

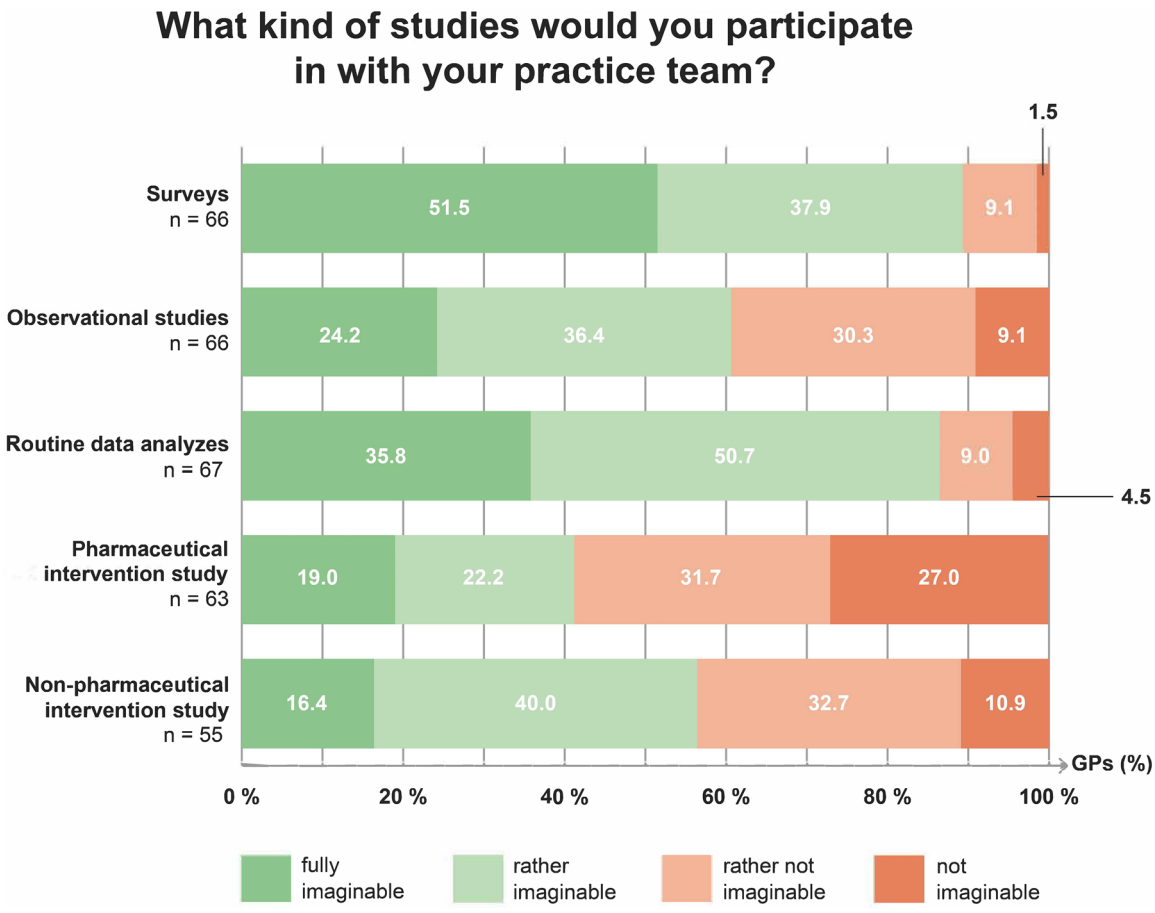

Figure 2. Current research readiness of the participants of the RaPHaeL network.

70 years or older, (b) more than five drugs as long-term medication, and (c) at least one GP visit per quarter. In addition, we assumed an expense allowance of EUR 100 per included patient. Based on their current perceptions, participating GPs were asked to estimate the number of patients they could identify and inform in their practice for the described study (case vignette above). Only a few practices (3.0%) could not imagine identifying any patients, nearly one-third of practices reported being able to identify 10 (29.9% of practices) or 20 patients (25.4% of practices) in their practice and finally recruitment of 30 patients was estimated by 17.9% of practices, and 9.0% would be willing to recruit 40 patients. Identifying more than 40 patients according to the criteria could be imagined by 14.9% of the surveyed practices.

If the GPs stated that they were able to identify and inform patients for the fictitious study (case vignette), they were then asked to what extent they could imagine further researching and documenting on these patients in addition to their everyday work. Few (4.6%) could not imagine that at all. About one third (38.5%) estimated to do it for 10 patients and 27.7% for 20 patients, 13.8% for 30 patients, 7.7% for 40 patients and another 7.7% for more than 40 patients. GPs were divided into two groups to summarize GPs' assessments of the patients they believe they can (A) identify and inform and (B) research and document further: GPs with lower (0–20 patients) and higher (30–>40 patients) estimates of their recruitment potential. For the task of (A) identifying and informing patients, 58.2% of the GPs indicated lower and 41.8% higher recruitment potential. When we included (B) additional research and documentation, 70.8% of the GPs indicated lower and 29.2% higher recruitment potential.

Finally, GPs with lower and higher estimates of their recruitment potential were compared in terms of the calculated Research Readiness Score (RRS). GPs who indicated a higher recruitment potential showed a significantly higher RRS (low recruitment potential: mean RRS = 9.1±3.7, high recruitment potential 11.4±3.8; p=0.031).

Discussion

Summary of the main findings

Our study describes the characteristics and self-assessed research readiness of GPs joining a newly established

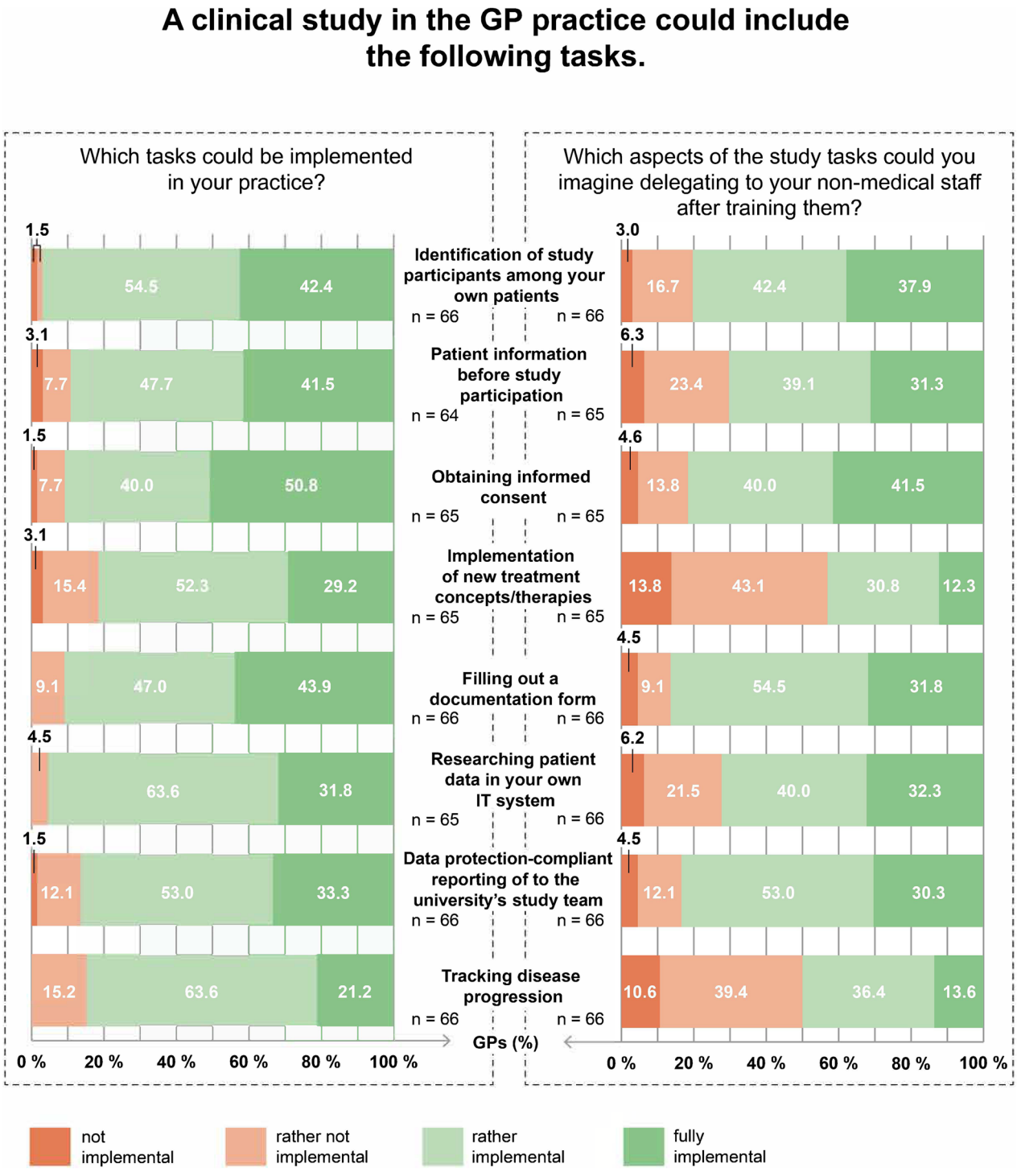

Figure 3. Current feasibility of different study tasks and deferability to the practice team.

PBRN. In comparison to non-participants, PBRN participants were often male, more often involved in undergraduate education and generally more interested in research and often with more previous research experience. PBRN participants could envision conducting studies based on surveys and routine data analyses rather than complex observational or intervention studies. Two-thirds of the participating practices self-assessed that they were not sufficiently prepared to conduct clinical trials. While GPs considered many subtasks as potentially delegable to non-medical practice staff after appropriate training, they saw implementing new treatments and follow-up of disease progression as physician's task. With reference to a model study vignette, GPs assessed the patient recruitment potential in their practice as lower if further

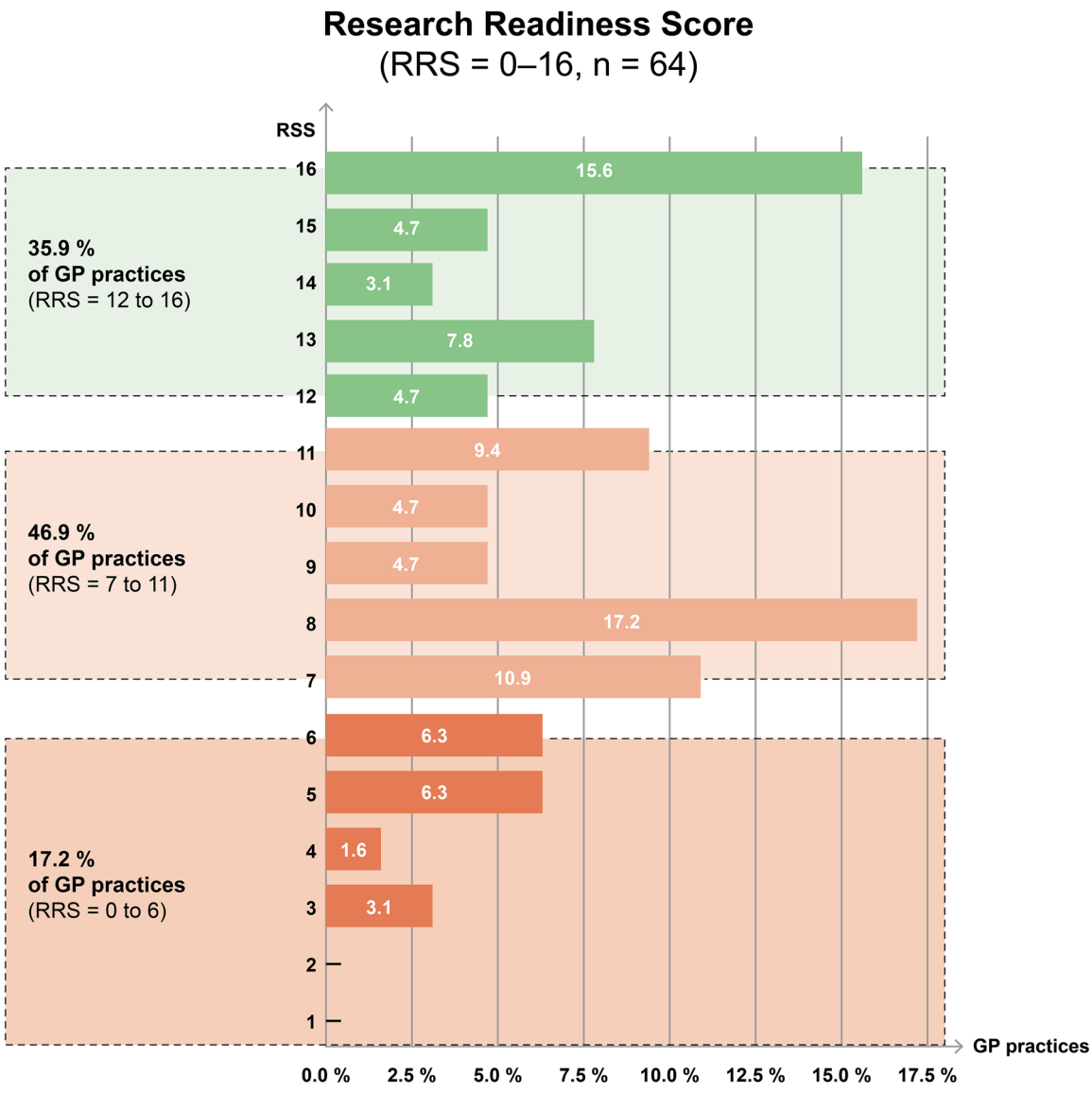

Figure 4. Frequencies Research Readiness Score (RRS). Score ranges RRS_{min}=0 to RRS_{max}=16.

research and documentation tasks were required than just patient identification and information.

Literature comparison

At the start of our new PBRN in 2020, only one in five of the participants had received formal training to participate as an investigator in clinical trials but more than two-thirds reported some prior research experience. Given the need for both resources and methodological, interpersonal, and organizational competences, as well as the relatively low number of clinical trials in the German primary care setting [9], our findings highlights the necessity of fostering formal training to enhance research capacity [18–20]. Only one in three respondents of our questionnaire felt able to implement typical subtasks of clinical research at the beginning of the network formation.

This, not only underlines the ongoing need for formal research training [21], but also demonstrates the potential to motivate practices without prior research experience to collaborate in PBRN despite the extensive effort associated with the mandatory GCP training. Since 2022, practices can no longer participate in interventional studies without first obtaining GCP certification [22]. Therefore, the research-ready concept for the RapHaeL PBRN requires all practices to have GCP certification. In our sample two out of five participants who had expressed no interest in participating in a PBRN in a previous study (MORNING) [17] subsequently decided to join. Thus, it proves to be worthwhile to inquire multiple times as research interests and personal priorities or organizational aspects are likely to change over time [23–25].

Participants of the RaPHaeL PBRN were highly heterogeneous regarding age, practice size, staff structure, workload, patient age distribution, and practice electronic health record (EHR) systems. In contrast to previous studies [26–28], PBRN participants in our analysis did not differ significantly socio-demographically or in terms of professional and economic satisfaction from other participants. However, in line with previous findings [29], practices involved in academic teaching or having prior experience with research were significantly more likely to join our PBRN. Although our cross-sectional study design does not allow causal interpretations, this may indicate that incorporating research training into both medical studies and continuing medical education could contribute to increase the research willingness of primary care practices in the future [30,31].

In accordance with previous studies [9,12,14,16,19], at the beginning of our new PBRN, the participating GPs favored participation in observational studies, surveys and routine data analysis and were less likely to consider participating in more complex intervention studies. Training and experience with clinical research in the further course of our PBRN could change these assessments and preferences. A follow-up analysis will be necessary in order to determine whether and how the intended shift towards clinical research can be achieved. Since building research capacity on an individual practice level is likely to be reflected in a change in the research readiness score, we have calculated based on the perceived implementation of subtasks of clinical research, this score may also serve as a numerical progress assessment in our PBRN.

The most frequently mentioned barriers to participation in research include administrative complexity and a lack of personnel or time resources [17,32,33]. Accordingly, the implementation of new interventions and time-consuming disease progression monitoring were rated as the least feasible aspects of clinical research. Presumably, due to the lack of research experience, the respondents also rated these aspects as least delegable to non-physician practice staff.

Overall, participants expected many aspects of clinical research fully or partially feasible already. Furthermore, there is also a high willingness to delegate study-related tasks to non-physician staff, emphasizing the importance of involving the entire practice team [7]. Our assessments of the feasibility to delegate individual subtasks of clinical research are only general estimates, as they are likely to vary substantially depending on the complexity of specific studies.

The most popular research topics in the network were polypharmacy and chronic diseases. These choices possibly were influenced by the specific study vignette proposed in one part of our questionnaire or pre-information about the pilot study planned in our PBRN (addressing polypharmacy). However, our previous study on German GPs' general willingness to participate in research showed the same research interests (13).

Patient recruitment capacity for clinical trials

Based on the case vignette presented in our questionnaire (70 years or older, more than five drugs as long-term medication, at least one GP visit per quarter, allowance for the GPs of 100€/patient), about 40% of GPs joining our PBRN estimated a recruitment potential of 30 or more patients. If further research and documentation tasks were required in addition to patient identification and information, the estimate sank to only one-third. This finding suggests that involving more practices with a smaller number of patients per trial site seems preferable for clinical trials in general practice. The recruitment potential presented here is an estimate lacking concrete experience. The literature shows that obstacles, such as difficulties in scheduling appointments, can obstruct recruitment, whereas a strong existing doctor-patient relationship can facilitate it [34]. A consecutive comparison of the GPs' self-estimated recruitment potential with their actual performance in the PBRN pilot study is ongoing and the results will help to validate the participants' estimates.

Strengths and limitations

This study adds new insights on establishing networks for clinical research in general practice. By combining the data from two surveys (MORNING II and MORNING), we were able to compare and to characterize practices participating in PBRN and practices that did not. Furthermore, this paper presents a pragmatic proposal for a systematic assessment of site-feasibility and research readiness of practices regarding specific clinical research subtasks. The suggested score may be suitable for longitudinal evaluation. However, we limited ourselves to key aspects of the currently applicable EU regulations for clinical trials when designing the Research Readiness Score. A comparison with internationally established concepts would have been insightful, but it was not conducted due to space limitations and the lack of transferability to the setting under investigation.

The high response rate supports the validity of the results.

Generally, many statements are self-assessments on feasibility or intentions such as the recruitment potential of patients assuming a specific study vignette. This may have influenced questionnaire responses such as the evaluation of interest in specific research topics. In this study, we conducted a general assessment of individual GPs' current perceptions regarding the feasibility and deferability of various clinical research tasks. In-vivo conditions, the study design, time requirements, practice organization, personnel resources and other factors will influence the actual research capacity significantly [35,36]. Taking into account that only few participants in our PBRN had prior qualification and experience related to clinical research, the accuracy of their estimates should be interpreted with caution. This may limit the generalizability of some of our results.

Conclusion

This study highlights the heterogeneity in research readiness among GP practices initially joining a PBRN and underscores the need for targeted training and support from experienced researchers and academic institutions. There is a particular lack of formal qualification for conducting clinical research. Since non-physician practice staff plays an important role in carrying out research as GPs delegate for specific tasks, formal training should be offered to the entire practice team. Despite very different previous qualifications and experience of GP practices regarding clinical research, a significant number can be motivated to join a PBRN and even practices without any prior experience reported the possibility of implementation of clinical research tasks in their day-to-day practice. However, at the start of our PBRN, participants were more likely to imagine conducting studies based on surveys and routine data analyses than observational or intervention studies. This may change over time as qualifications and experiences with clinical research improve. The research readiness score based on GPs' estimates regarding the implementation of different subtasks in clinical research in their practice might be suitable to monitor respective changes. This needs to be examined in future studies.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical approval

According to the regulations of the ethics committee of the University of Halle-Wittenberg, an explicit ethical approval for the survey was not necessary as the questionnaire collected anonymized data. We informed participants with a formal cover letter explaining the background of our research, and the anonymized and statistically aggregated analysis of all. Participation in the study was voluntary. We interpreted completing and returning the questionnaire as informed consent to take part in our study.

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