Identification of child mental health problems in primary care: an interdisciplinary approach

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Chapter 7

Collaboration between general practitioners and preventive youth health physicians: room for improvement

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Abstract

Background: General practitioners (GPs) and preventive youth healthcare physicians (PYHPs) each have specific roles and expertise within Dutch primary child healthcare. GPs are responsible for curative care, whereas PYHPs perform regular check-ups to monitor a child's healthy development. Better interprofessional collaboration would improve the identification and treatment of health problems.

Aim: To investigate how GPs and PYHPs experience their collaboration and to analyse the factors involved.

Methods: Fourteen GPs and eleven PYHPs were interviewed in a semi-structured manner. Important themes related to collaboration were identified using thematic analysis within the 'Framework method'.

Results: The frequency of contacts between GPs and PYHPs varied from weekly to biannually. Most participants failed to meet important conditions for good collaboration that are known from literature. Not all GPs were aware of the tasks and competencies of PYHPs, and GPs were less likely to have joint agreements/guidelines than PYHPs. Both parties experienced little support for collaboration from their own organizations or municipalities. Exchange of information mainly took place in case of a medical emergency or on request, and both reported inconsistent accessibility of the other party. Better exchange of information was considered essential to improving interprofessional collaboration.

Discussion: Current collaboration between GPs and PYHPs is suboptimal. Key improvements include knowledge of respective tasks and competencies, building trust, information exchange and organizational/municipal support. These insights should help to formalize and improve interprofessional collaboration in Dutch primary healthcare for children but can also be valuable to improve quality of care in other settings.

Introduction

In the Netherlands, general practitioners (GPs) and preventive youth healthcare physicians (PYHPs) are the key professional groups involved in primary healthcare for children. GPs and PYHPs each have their own specific knowledge and tasks within the Dutch healthcare system. They each have different information on the health and illnesses of children and their families and gather this information at different times and for different reasons. This means that their roles are potentially complementary(1).

A GP mainly sees children with specific health complaints, and most children and adolescents visit their GP once a year on average. GPs often have a longstanding relationship with their patients. They generally provide care to the child, parents and other family members, and therefore have a good overview of the child and its environment(2, 3). In the Netherlands, a PYHP sees 80-90% of all children aged 0 to 19 during periodical preventive health check-ups(4, 5). The goal of these check-ups is to prevent disease, promote health and allow early detection of health risks, disease, and developmental problems in the physical, psychological, social and cognitive domains(6).

In recent years, recommendations were made by several professional associations, including the Dutch College of GPs (NHG), the National General Practice Association (LHV) and Dutch Preventive Youth Health Care Physicians (AJN), to promote mutual collaboration between GPs and PYHPs. One of these recommendations was to plan an annual or biannual meeting to discuss working arrangements and to evaluate collaboration(1, 7).

Additionally, national primary care collaboration agreement documents (LESA's), based on existing NHG and AJN guidelines, were developed for specific topics such as cardiac defects and child abuse(8, 9). Municipalities, GPs and PYHPs also participated in local meetings to develop collaborative agreements in the context of the Youth Healthcare Transition 2015 (Transitie Jeugdzorg) and changes in legislation regarding direct referral from preventive youth healthcare to secondary care(10, 11). During the Youth Healthcare Transition in 2015, the responsibility for providing youth healthcare was transferred from the government to the municipalities.

In this study we investigated how the collaboration between GPs and PYHPs progressed since the Youth Healthcare Transition and which factors affected this collaboration. We also made an inventory of physician's needs regarding collaboration and where they see room for improvement.

Methods

Research design

Within this qualitative study using semi-structured interviews, we investigated the collaboration between GPs and PYHPs and how each party experienced the collaboration. Collaboration was defined as any form of mutual contact. We applied the 'consolidated criteria for reporting qualitative research' (COREQ; Supplement Table 1)(12).

Participants

GPs from the Leiden and The Hague regions in the Netherlands were invited to participate by mail, followed by a telephone call. PYHPs from the organizations 'Jong Florence' The Hague (preventive youth healthcare 0-4 years), Community Health Service (GGD) 'Haaglanden' (preventive youth healthcare 4-19 years, The Hague area) and 'GGD Hollands Midden' (preventive youth healthcare 0-19 years, Leiden area) were approached by key figures within these organizations. We also placed an advert explaining the study in the in-house magazine of the 'GGD Hollands Midden'. Using 'purposive sampling', a heterogeneous group of physicians was selected based on age, sex, practice type, practice location and type of neighbourhood. Data saturation (when interviews no longer yielded new relevant information) determined the sample size.

Data collection

The interview topic list was based on determinants derived from literature, that are known to influence (interprofessional) collaboration(13, 14). The topic list was tested beforehand during a test interview. Prior to the interviews, the main topics were e-mailed to the participants in order to increase the interview yield. The interviews were conducted between June and October 2015 and each lasted approximately one hour. There were two interviewers per interview, one of whom mainly observed. Audio recordings of the interviews were made with the permission of the participants.

Data Analysis

The audio recordings of the interviews were transcribed verbatim and thereafter coded by two different members of the project group. We coded deductively, based on the determinants of collaboration known from literature. New codes were inductively obtained when the existing codes did not fit. Ambiguities were discussed in the project group until agreement was reached. Using the 'Framework method'(15), a thematic analysis technique, the most important themes concerning the collaboration were identified from the data and discussed in the project group. Interviewing and analysis took place simultaneously and iteratively. Atlas.Ti version 6.2 was used for the analyses.

Ethical considerations

All participating physicians received written information regarding the study and they all provided written or verbal agreement to participate in this study.

Results

A total of 14 GPs and 11 PYHPs were interviewed. Eight GPs and four PYHPs were based in the Leiden area, other participants were based in or around The Hague (Table 1, Supplement Table 2). 'Lack of time' and 'no collaborations' were given as reasons for non-participation by GPs.

Both the GPs and the PYHPs showed initiative in seeking mutual contact. Most participating GPs commented that their contact with PYHPs was non-existent or only sporadic, ranging from a couple of times a year to once every two to three months. GPs sought contact with PYHPs in case of developmental problems, school problems, difficult family situations or nutritional problems. Most PYHPs reported having contact with a GP once or twice a month. Reasons for contact were a request for information about a child or family regarding both somatic and psychosocial complaints, school absenteeism and referral to specialized care.

PYHPs mentioned that they mostly initiated contact, using a variety of methods (referral letter/e-mail/telephone/face-to-face contact). GPs typically only used a referral letter. In this study, the physicians from smaller municipalities generally seemed to know each other personally and they reported to keep contact with each other. This was not the case in the larger municipalities.

The below themes were indicated as important to collaboration according to the participating physicians. Table 2 shows the reported barriers and facilitators for collaboration. Supplement Table 3 contains statements characterizing the various themes found in the data.

Low educational level and multi-problem families

Certain patient characteristics such as socioeconomic status (SES), ethnicity and the nature of a patient's complaint were alternately cited as affecting or not affecting the collaboration. However, it was regularly indicated that patients with a lower educational level and multi-problem families had more difficulties formulating their needs, resulting in a more pro-active role for the physician, also in terms of collaborations. A patient's opinion regarding collaboration also affected the collaboration.

Table 1. Characteristics of participating physicians per group: general practitioners and preventive youth healthcare physicians

Characteristics physicians		Preventive youth healthcare physician n = 11	General practitioner n = 14
Gender	Male	0	5
	Female	11	9
Age	30-40 years	2	3
	41-50 years	5	6
	51-60 years	3	4
	61-70 years	1	1
Work experience	1-10 years	3	5
	11-20 years	5	6
	21-30 years	1	1
	>30 years	2	2
Location practice	City	8	10
	Village	3	4
Area with low SES	Yes	5	6
	No	3	5
	Mixed	3	3
Type of family practice *	1 GP	Not applicable	8
	2 GPs	Not applicable	4
	Group practice	Not applicable	2
Age of patient	0-4 years old	4	Not applicable
population PYHP	0-12 years old	2	Not applicable
	4-19 years old	5	Not applicable

*According to the definition of the Netherlands Institute for Health Services Research (NIVEL)(16). GP = general practitioner, PYHP = preventive youth healthcare physician, SES = socioeconomic status

Trust, personal acquaintance, and understanding of competencies and shared goals

Trust, personal acquaintance and understanding of respective competencies were all important for the interaction between GPs and PYHPs. GPs did not always have full confidence in the PYHPs and reported to have insufficient knowledge of all PYHP competencies. This was confirmed by the PYHPs. Some GPs expressed doubts about whether PYHPs took adequate action in case of concerns regarding a child. GPs also frequently mentioned that they were uncertain about PYHPs' tasks regarding school-aged children and psychosocial problems. GPs were generally unfamiliar with the LESA's and PYHP guidelines. PYHPs all knew one or more GPs and felt they had a good

understanding of GPs' tasks. However, it was not always clear to them how the GP's knowledge and experience regarding health and developmental problems in children was, or whether a general practice physician-assistant for mental health (POH-GGZ) was available in a practice. PYHPs generally expressed their trust in GPs and that this trust, in addition to mutual respect, was important for the collaboration. Negative feedback or a rejected referral could result in damage to this trust. Most PYHPs and GPs indicated that although shared goals were not often explicitly expressed, they did feel reasonably in agreement regarding the shared goals. Better exchange of information was frequently cited as being important and of added value.

Accessibility

Participating physicians had differing experiences in terms of accessibility, and both groups of physicians regularly experienced problems with each other's availability by phone. Only a few physicians who happened to work in the same building reported frequent face-to-face contact, which was felt to facilitate collaboration. E-mail was barely used for consultations, partly because PYHPs were unable to send e-mail messages securely. GPs also frequently mentioned that they had insufficient knowledge of which PYHP was assigned to a specific patient. One physician mentioned a shared patient record system as a possible solution.

Exchange of information

The exchange of information with the aim of 'creating a complete picture' together was considered important and was generally considered a goal of the collaboration. However, it was striking that in practice little information was exchanged and that most contacts were (short) referral letters. Physicians consulted each other regarding individual children in case of a (medical) emergency. Regarding psychosocial problems, GPs rarely collaborated with preventive youth healthcare when these problems were suspected. PYHPs sometimes exchanged information with a GP when psychosocial problems were first identified, but they also often collaborated with schoolteachers or social workers in these instances.

Table 2. Summary of the most important determinants that influence collaboration between GPs and PHYPs, including themes often mentioned by participants

Factor	**Influence**		
	Facilitator	**Barrier**	**Neutral***
Interaction			
Trust	Equivalence Mutual respect Knowledge of respective expertise/ experience	Complaints by patients Negative experiences in communication (referral, feedback) Concerns regarding an adequate approach Lack of expertise/ experience	
Mutual acquaintanceship	Accessibility Work location in proximity Stable team Mutual activities	Unfamiliarity with each other Overlap in catchment areas	
Understand respective competencies	Information exchange Mutual projects	Unfamiliarity with each other's competencies, in general and regarding specific subjects	
Joint activities	Joint project	Lack of time and money	
Shared goals	Feeling aligned Better information exchange important		Shared goals tentatively expressed
Organization			
Accessibility	Work location in proximity Linking patient records	Lack of consultation facilities Seeking contact at unfavourable times (e.g. during outpatient clinics) Unknown which physician takes care of which patient	

Table 2. Continued

Factor	**Influence**		
	Facilitator	**Barrier**	**Neutral***
Leadership	Professional is initiator of a contact regarding an individual child. CJG coordinators and staff PYHPs are sometimes leaders of collaborations. External support that initiates joint meetings	Lack of mutual agreements	
Organizational support	External support that initiates joint meetings	Lack of time and money Lack of policy	
Agreements and guidelines	Familiarity and contact with each other	Unfamiliarity with guidelines	
Structural connectivity	External support Joint meetings Active approach		
System			
Policy of the municipality or government		Lack of municipal policy Low priority for municipality Lack of practice orientation	Changes in governmental policies
Support from government of municipality	External support	Lack of money Lack of support	
Mutual training		No mutual training for interprofessional collaboration	Existing training in an overarching subject

* 'Neutral' also means sometimes regarded as either facilitator or barrier

*Requirement only mentioned by GP, ** Requirement only mentioned by PYHP; CJG = Centre for Youth and Families

Leadership, commitment and organizational support

Both the GPs and the PYHPs indicated that collaboration was primarily instigated by a prior contact with a child or its family. Organizational connectivity and professional leadership that stimulated collaboration within the organization would be supportive, but both were lacking according to many physicians. For example, one GP referred to 'two separate worlds'. GPs experienced little organizational support for collaboration, even the overarching GP organizations offered little support. GPs reported lack of time and reimbursement as factors impeding collaboration in the form of joint activities to strengthen cooperation regarding individual patients. PYHPs indicated that their contract allowed them to dedicate a few hours to collaboration but that this was insufficient. Several times, they mentioned that attending physicians ('stafartsen') and coordinators of the Youth and Family Centre (CJG) were important for their collaboration.

Collaborative agreements and joint activities

In practice, there were few clearly structured collaborative agreements between most GPs and PYHPs. One doctor felt little need for (too many) rules 'from above'. Agreements that were developed during a one-off project were experienced positively, as were joint meetings. Many PYHPs mentioned that they had occasionally participated in a joint meeting. This resulted in closer acquaintance and familiarity with each other's way of working, and therefore in a better collaboration. Physicians from The Hague mentioned the positive influence of 'Lijn 1', a regional organization supporting primary care, which for example organizes joint meetings to improve collaboration.

Municipal and governmental policy and support

Physicians experienced little or no support from the municipality, for example, in the form of time and money for joint meetings. Likewise, many doctors were of the opinion that the policy of municipalities regarding collaboration was not suitable for daily practice. At the time of the interviews, a collaborative agreement regarding youth in The Hague was signed by, among others, GPs and PYHPs. The operationalization of this agreement had yet to take place, but the agreement was experienced positively by physicians in The Hague. The effect of budget cuts associated with the 'Youth Healthcare Transition' (Transitie Jeugdzorg) were mentioned negatively.

Table 3. GP and PYHP needs in the interprofessional collaboration

Suggestions for improvement
Interaction
Improve knowledge regarding competencies of the PYHP
To get to know each other personally
Organization
More active approach for collaboration from PYHP*/GP†
More information exchange
Structural meetings/discussions of patients
Secure e-mail
(Partly) linked patient records
Support: time and money
Work agreements regarding when information exchange/consultation need to take place
To have an overview of all people involved and their contact details
To use multidisciplinary guidelines†
CJG as initiator of collaboration†
Electronic referrals*
Knowing which PYHP takes care of which child
A dedicated GP telephone number for colleagues†
CJG coordinator as leader† or single contact person*

	Citation
	GP12: 'I think that knowing each other personally and knowing what the other person does is very important.'
	PYHP1: 'GPs in general rarely seek direct contact with us.' GP8: 'I don't know any PYHP, you never see them. And they never call.'
	GP2 re psychosocial problems: 'We see the top of the iceberg during consultations. To really have a good view I think it is important to collaborate, to complete the picture together [...] I think in the end you will need other healthcare professionals and the school to complete the picture.' PYHP1: 'In my opinion we don't think about it often enough. Eh, you really need to have it in your system: always call a GP in case of psychosocial things to get info regarding the family.'
	GP13: 'I would really like to have a regular meeting to discuss things.'
	PYHP1: 'So parts of the patient files could be linked or only shared on indication. I don't think everything, because not everything is relevant for a GP.'
	GP1: 'So that there is some alignment between us. I think it would be really great if specific established information is exchanged. And definitely not too much, for instance regarding (a decrease in) school performance, that we are aware of.'
	GP11: 'To have a list with all email addresses of PYHPs and GPs and everybody involved in youth healthcare; email addresses and telephone numbers, that already was a huge improvement.'
	GP10: 'We sometimes receive a note with a request to refer a child to an ophthalmologist. That is a little note [...] A sloppy piece of paper. Whereas we do have the possibility to refer electronically, I can show you.'
	GP1: 'We don't need a whole list of people, a whole structure. Just give us one person.'

Table 3. Contintued

Suggestions for improvement
System
Improve the visibility of preventive youth healthcare
More information re preventive youth healthcare in the GP training program
Support from municipality/government/..
Joint trainings
Policy focused on daily practice
Smaller family practices*

CJG = Centrum for Youth and Families, GP = general practitioner, PYH = preventive youth healthcare, PYHP = preventive youth healthcare physician, * Requirement only reported by general practitioners, ǂ Requirement only reported by preventive youth healthcare physician

Requirements and starting points for collaboration

Most GPs and PYHPs reported a need for more collaboration, including better exchange of information and more mutual contact. The indicated starting points for improvement followed logically from the various factors that influenced the collaboration (Table 3). Most often mentioned by both disciplines was improved exchange of information, for example through adequate working agreements on when physicians should involve each other in specific cases, when feedback should be given. Structured, planned contact moments were also mentioned. PYHPs also wished that GPs had better knowledge about their tasks and competencies, a sentiment shared by most GPs. Better accessibility was also mentioned, and possible solutions included secure e-mail and a shared overview of relevant e-mail addresses and telephone numbers. Furthermore, both groups frequently mentioned the importance of more support for collaboration from the organization and municipality/government, for instance in the form of time and money.

	Citation
	GP9: 'What does a PYHP do? Where do I see him/her? Does he/she work at school? There is way too little information. They are not visible enough. I honestly wouldn't know what they do.'
	GP7 re competencies/task/guidelines preventive youth healthcare: 'That is nice for in the GP vocational training program.'
	GP6: 'We do not have a pot of money for that, no. If I must join a meeting during my clinic, I won't make any money, it costs me money since I can't see any patients. It is not too bad if it is only occasionally, but you have so many meetings, e.g. with the pharmacy and practice assistants. So no, there is not much room.'
	GP5: 'I recently had a meeting with the Ministry of Health, but it is so focused towards civil servants. Problem this, create a protocol that. Daily practice doesn't work like that. That is a problem we face. They have really nice protocols, but those don't always work in daily practice.'
	GP2: 'It is a shame to always talk about money, but my own practice is not growing at all. But my workload is becoming heavier and heavier. In my opinion we need smaller practices because you can't do everything that is expected of you anymore.'

Discussion

This study shows that important factors and conditions for collaboration between general practitioners (GPs) and preventive youth healthcare physicians (PYHPs) are suboptimal for the majority of participants. Most GPs and PYHPs recognize a need for better collaboration and especially an improved exchange of information. The collaboration between GPs and PYHPs seemed better when physicians had more frequent joint meetings or projects, knew each other and each other's competencies better and had more frequent contact.

This study provides in-depth insight into how these two groups of medical specialists experience collaboration. By using a semi-structured approach based on literature-derived factors that influence collaboration, the broadest possible view of the collaboration between GPs and PYHPs was presented. The method of selection of participants may have led to the inclusion of participants with greater affinity for and more experience of collaboration. Unfortunately, no comparison was possible with the non-respondents. Compared with the national GP registry, this study involved more women, more middle-aged GPs and fewer GPs aged 60 years or over. As is typical of the GP population in the Leiden and The Hague regions, participating GPs more often worked alone in their own practice, compared to working in a group practice. The participating GPs also worked relatively more frequently within a low social economic status population(16).

Despite recommendations from professional associations urging improved collaboration (2008), collaboration does not appear optimal and still largely depends on individual initiatives. Given the complementary roles of GPs and PYHPs, collaboration is important for the continuity of care for children and their families(1). The issues in need of improvement mentioned in our study, such as a better exchange of information, greater mutual familiarity and a better understanding of respective competencies, are in line with the barriers and facilitators of interprofessional collaboration found in earlier international research(17, 18).

Important facilitating factors for collaboration were frequent consultation, further information exchange and improved understanding amongst GPs regarding the role of PYHPs in the care for 4–19-year-olds. Given the need for improvement highlighted by this study, existing recommendations such as a (semi-) annual consultation regarding working agreements and evaluation of collaboration(1) appear insufficient. The improvement of collaboration calls for a more proactive approach at all levels: among physicians, organizations and at the municipal level.

In this study, most contacts between GPs and PYHPs was with (short) referral letters. In case of a medical emergency regarding individual children, both groups reported that in those cases personal (telephone) contact was not a problem. In order to make optimal use of the knowledge and expertise of both professions, information exchange on a structural basis would be desirable, for example by sharing elements from the respective patient records, instead of ad hoc in case of emergency. However, solutions will also have to be developed to tackle commonly mentioned barriers such as lack of time, money and organizational support. Initiatives developed by local authoritative figures are known to promote interprofessional collaboration(13). In addition, we are aware that not every situation or every patient is comparable, as our study illustrates that collaborations are more likely in the case of vulnerable families. The wishes of an individual patient regarding cooperation also influence a possible collaboration.

This study took place during the first year of the youth care transformation. The community meetings for care providers, including GPs and PYHPs, that were organized in this context were received positively. The frequently mentioned need for better insight into each other's way of working and the need for working agreements on accessibility and information exchange were discussed during these meetings. As the transformation may have had positive consequences for the collaboration between GPs and PYHPs, this study should be repeated in the future.

In conclusion, this study provided insight regarding possible starting points for improvements in the collaboration between GPs and PYHPs. Information exchange was seen as the main goal of collaboration by both professions. Improved information exchange, better personal acquaintance, a better understanding of respective competencies and additional organizational support are important aspects in this light.

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Supplementary Files

Supplement Table 1. Consolidated criteria for reporting qualitative studies (COREQ)(15)

1.	Interviewer: we used two trained interviewers per interview (LS-NK, LS-MK of MK-NK), of whom one mainly observed.
2.	Credentials: please see title page.
3.	Occupation: at the time of the study LS and MK were master students in medicine at Leiden University Medical Centre (LUMC). They conducted this study as part of a scientific internship. NK was a family practice trainee and PhD candidate at the LUMC. MC and FB were senior researchers at the Department of Public Health and Primary Care of the LUMC. MN was general practitioner and head of the Department of Public Health and Primary Care of the LUMC. JW was preventive youth healthcare physician and senior researcher at the Department of Public Health and Primary Care of the LUMC.
4.	Gender: LS, MK, NK, FL and MC are female; JW and MN are male.
5.	Experience and training: MC and FB are experienced qualitative researchers. NK, MK and LS were trained by MC; interviewing is part of the medical training program.
6.	Relationship established: prior to study commencement, there was no relationship between the interviewers and the participants. LS, MK and NK only had contact with the participants when making appointments and during the interview itself.
7.	The participants were aware of the aim of this study. They were also aware of the background of the interviewers: title and affiliation. Regarding NK, they knew that she was a PhD candidate and studied the identification of psychosocial problems in children.
8.	Interviewer characteristics: see 2 and 7, no additional characteristics were reported.
9.	Methodological orientation and theory: using the 'Framework method' , a thematic analysis technique, we identified the main themes in the data(15).
10.	Sampling: we used a 'purposive sampling' approach, please see method section of the article.
11.	Method of approach: please see method section of the article.
12.	Sample size: 25 physicians (14 GPs and 11 PYHPs) participated in this study.
13.	Non-participation: We invited 65 GPs to participate in this study via mail. Of the 20 respondents, 11 were willing to participate. We telephoned 34 of the non-responders, after which another three GPs were willing to participate. The PYHPs were approached via key figures in the organization; there were no non-responders. As reasons not to participate GPs mentioned lack of time, no collaborations and recent practice takeover (professional network not yet established).
14.	Setting: the interviews took place at the offices of the participants in all but two cases where participants preferred to be interviewed at the LUMC.
15.	Presence of non-participants: during the interviews only the participant and the two interviewers were present.
16.	Description of the sample: see result section of the article and table 1 and supplement 2.

Supplement Table 1. Continued

17.	Interview guide: we used a topic list based on the framework for interprofessional collaboration mentioned in the article. Before the interview, we emailed the main topics of the interview to the participants in order to increase the output. We had one test interview. Since this interview was of good quality, we included this interview in our analysis.
18.	Repeat interviews: no interviews were repeated.
19.	Audio/visual recordings: we made an audio recording of each interview with permission of the participants.
20.	Field notes: in some cases relevant field notes were made during the interviews.
21.	Duration: the interviews approximately lasted one hour.
22.	Data saturation: data saturation was established and determined the sample size.
23.	Transcripts returned: the transcripts of the interviews were not returned to the participants for comments or corrections.
24.	Number of data coders: half of the interviews were coded by both LS and NK/MK or by MK and NK. The other half of the interviews were coded by LS or MK, and these codings were checked by NK or MC.
25.	Description of the coding tree: see result section of the article. In case of interest one can send a request to the authors.
26.	Derivation of themes: the main themes were derived from the data by NK and MC and discussed in the project group.
27.	Software: we used Atlas.Ti version 6.2 to manage the data.
28.	Participant checking: the participants had the possibility to give feedback on the manuscript.
29.	Quotations: relevant quotations were presented in the tables of the article, together with the participant number.
30.	Consistency data and findings: there was consistency between the presented data and the findings.
31.	And 32. Clarity of the major and minor themes: the major and minor themes are presented in the article as determinants and themes. They are reported in the text and depicted in table 3 and figure 1. We presented typical quotations as well as contrasting quotations.

Supplement Table 2. Characteristics of participating physicians

Participant	Gender	Age (years)	Work experience (year)	Practice location	Area with low SES population (yes/no/mixed population)	Type of family practice/ age of patient population PYHP
GP 1	F	41-50	1-10	City	Yes	Practice with 2 GPs
GP 2	F	51-60	11-20	City	Yes	Practice with 1 GP
GP 3	F	31-40	1-10	City	Mixed	Practice with 1 GP
GP 4	M	51-60	21-30	City	Yes	Group practice
GP 5	F	31-40	1-10	City	Yes	Practice with 1 GP
GP 6	F	41-50	11-20	City	Yes	Practice with 1 GP
GP 7	F	41-50	11-20	City	Mixed	Practice with 2 GPs
GP 8	M	51-60	>30	City	Yes	Practice with 2 GPs
GP 9	M	41-50	1-10	City	Mixed	Practice with 1 GP
GP 10	M	51-60	11-20	City	No	Practice with 1 GP
GP 11	F	31-40	1-10	Village	No	Practice with 2 GPs
GP 12	F	41-50	11-20	Village	No	Practice with 1 GP
GP 13	F	41-50	11-20	Village	No	Group practice
GP 14	M	>60	>30	Village	No	Practice with 1 GP
PYHP 1	F	51-60	1-10	City	Yes	0-4 years old
PYHP 2	F	31-40	11-20	City	Yes	4-19 years old
PYHP 3	F	>60	>30	City	Mixed	0-4 years old
PYHP 4	F	31-40	11-20	City	Yes	4-19 years old
PYHP 5	F	41-50	1-10	City	Mixed	4-19 years old
PYHP 6	F	51-60	>30	City	Mixed	0-4 years old
PYHP 7	F	41-50	11-20	City	Yes	4-19 years old
PYHP 8	F	51-60	11-20	Village	No	0-12 years old
PYHP 9	F	41-50	11-20	City	Yes	4-19 years old
PYHP 10	F	41-50	21-30	Village	No	0-12 years old
PYHP 11	F	41-50	1-10	Village	No	0-4 years old

GP = General practitioner, PYHP = preventive youth healthcare physicians

Supplement Table 3. Summary of the most important determinants influencing collaboration between GPs and PYHPs, with the most often reported themes

Determinant	Theme	Physician*	Description
Determinants related to the interaction			
Trust	Equality/ mutual respect	PYHP	Mutual respect important for collaboration
	Expertise/ experience	B	-Trust in each other's expertise/ experience present
		GP	-GP has no trust in PYHP
	Familiarity	B	More familiarity, more trust
	Patient complaints	GP	Negative patient experiences regarding a doctor influences trust and way of working
	Negative experience: referrals/ feedback	B	Negative experience harms trust. Feedback is missing.
	Concerns as to adequate approach	GP	Some GPs have concerns as to whether PYHPs approach things adequately
Personal acquaintance	Accessibility	B	Contact details and personal acquaintance are facilitators.
	Unfamiliarity with each other	B	Unfamiliarity with each other and each other's competencies are barriers
	Work location in the proximity	B	Working in the same building is facilitating
	Permanent team	B	Permanent team, knowing each other well, is facilitating
	Non-overlapping catchment area	GP	Discrepancy catchment area GP and PYHP, e.g. different neighborhoods resulting in less familiarity
	Joint activities	B	If there are joint meetings/projects, they are experienced positively.
Knowledge of respective competencies	Unfamiliarity expertise	B	Unfamiliarity of GPs regarding the expertise of PYHPs
	Unfamiliarity expertise specific subject	GP	-Unfamiliarity regarding the expertise of re psychosocial problems, school-aged children
		PYHP	-Unfamiliarity whether GP has expertise with children or mental health

	Quotation
	PYHP10: 'That you appreciate each other; what the other person does and is able to do. That is important, it is a prerequisite.'
	GP2: 'I have a lot of trust in the doctors; they've been here much longer than me. So they know the neighborhood and are very experienced.' GP9: 'Yes, in my opinion, in all honesty, I don't consider them to be of high quality.'
	GP13: 'There are people that say: I don't ever want to go back there. You'll take note of that. If you hear that from 2 different people, you'll take that into account and you'll filter those people out, absolutely.'
	PYHP10: 'Of course it is a shame that you receive a referral letter corrected in red because is 'so-called' wrong. That doesn't affect your relationship in a good way. It makes you hesitant about referring to that person again or to even consult that person. You will just not bother.'
	GP1: 'You may wonder how something will turn out. It doesn't always go well and then you notice that sometimes the urgency is not felt by some doctors.'
	PYHP6: 'I think it's always an advantage to have a familiar face together with an email address and telephone number, so that you always have them available for possible use.'
	PYHP1: 'The bottleneck is not so much trust, but unfamiliarity with each other and each other's way of working, and yes indeed someone's face.'
	GP2: '..that we can just walk over to each other to quickly discuss something, that is much easier.'
	GP3: 'It is always difficult, with multiple neighborhoods and schools, to know every PYHP in a town; that is not always possible.'
	PYHP8: 'Together with the CJG, JFTs and GPs, we have set up an ADHD pilot; from that moment collaboration went really well.'
	GP10: 'For children aged 4-19 years, to me it is unclear what PYHPs have to offer. The purpose of well-baby clinics is clear to me.' PYHP1: 'Maybe I underestimate their competencies regarding children. ...and what I don't really know is whether they have a practice assistant for mental health who can also do something for my patients. That's something I currently miss.'

Supplement Table 3. Continued

Determinant	Theme	Physician*	Description
	Joint activities	B	Both have more insight regarding each other's competencies
	Information exchange	B	Better information exchange is important for better care
Joint activities	Lack of time and money	GP	No time/money for joint meetings is a barrier to joint meetings
	Joint project	B	A joint project facilitates personal familiarity and collaboration
Determinants of the organization:			
Accessibility	Lack of meeting facilities	PYHP	When meeting facilities are lacking (e.g. special telephone number for colleagues)
		GP	GP is less easily accessible
		B	Dedicated point of contact works well Overview of contact details works well
	Work location in proximity	B	Shared work location: easier to pop in to each other's office
	Linking patient files	GP	Facilitates collaboration
	Time of contact	B	Often seeking contact during inconvenient hours (during patient visits/ day off)
	Unknown which PHYP is responsible for care of a child	GP	Unclear which PYHP you need to contact regarding a specific child is a barrier
Leadership	In individual patient contact	B	-Professional is lead contact regarding a specific child
	Present in organization	B	-CJG coordinator mentioned as initiator of meetings
		PYHP	-Staff PYHP mentioned as bridge to other professionals
		B	-Sometime there is a leading GP
		PYHP	-Lack of agreement, PYHP needs to figure it out herself
	Present in municipality	B	'Lijn 1' supports and organizes joint meetings

	Quotation
	PYHP10: 'GPs I spoke to were very surprised that I do this and that; that they can refer children to me for this and that.'
	GP4:'What I find very important is that we can complement each other's knowledge. I think that that is a real advantage.'
	H10: 'When you are invited to a meeting, it takes an hour; that is too much, we don't have time for that. We are too busy.'
	GP2: '.. we've just done a project, then you really hear what they do. You get to know each other pretty well and that makes it easier to consult each other.'
	PYHP7: 'Yes, it would be easier if you, for instance, had a dedicated telephone line after 4pm for colleagues.' GP5: 'We've received an overview of PYHPs, with their catchment areas and telephone numbers. Now we pick up the phone to consult each other more easily.'
	GP10: 'You notice that it is difficult when people who work on different islands have to contact each other. One of the big problems is that we have so much data and we don't share that data. Whereas there are easy solutions, e.g. web-based sharing of information regarding a child.'
	PYHP4: 'The assistant says: 'he is seeing patients at the moment, he will call you back' that happens often, and they never call you back. Or they call back when you are out of office.'
	GP5: '..I call for a specific patient, they then need to look the specific doctor up in the system, they really have to look and then they don't know where to find that doctor. That's really inconvenient.'
	GP3: 'The manager of the CJG takes an active position and organizes meetings.'
	GP3: 'I think mainly my colleague (name) is a leading figure.'

Supplement Table 3. Continued

Determinant	Theme	Physician*	Description
Organizational support	Lack of time and money	B	PYHPs mentioned a few hours available for collaboration but this is not enough. GPs mention lack of support
	Lack of policy	B PYHP	No policy that facilitates collaboration; budget cuts are barriers
	External support	B	'Lijn 1' organizes joint meetings
Agreements/ guidelines	Familiarity/ contact	B	-Facilitates collaboration -Specific agreements or project worked well
	Unfamiliarity with guidelines	B	GPs are more often not aware of joint guidelines
Structural connectivity	External support	B	Support by the convenant and 'Lijn 1' are positive
	Joint meetings	B	Stimulate connectivity, to meet each other is important
	Active approach	PYHP	Active role of CJG (in organizing meetings) coordinator is stimulating
Determinants related to the system:			
Policy government/ municipal	Lack of municipal policy	B	Lack of a clear policy from municipalities
	Low priority for municipal	PYHP	It seems that collaboration is not important to municipalities
	Lack of practice orientation	B	Lack of a practice-oriented policy is a barrier
	Changes to government policies	B PYHP	Budget cuts have a negative effect. PYHP has a more active role in the new law; this is expected to facilitate collaboration
Support government/ municipal	Lack of money	B GP B	Lack of money mainly reported as barrier. Also reported as not the main problem. GPs are not reimbursed for meetings. Budget cuts are a barrier
	Lack of support	B	Lack of support from municipality is an often-reported barrier
	External support	B	'Lijn 1' supports and organizes meetings

Quotation
GP3: 'No, we don't get money for meetings, it is charity and that is strange.'
PYHP10: 'The organization has no real policy on collaboration.'
GP4: 'We made agreements regarding overweight children that work really well. We should continue this really.'
PYHP4: 'Yes, the positivity is there. How the initiative works out, well, we need to see. But the first steps are there and that is positive.'
GP1: 'First you need to grow towards each other.'
GP2: 'In my opinion, there is no policy. I haven't noticed anything. I've never heard something about it from the municipality. Yes, I received some emails regarding institutions they collaborated with, but that doesn't work for me.'
GP11: 'The municipality really has an impossible task. They now need to manage all youth and mental healthcare for half the money without any experience. They don't have expertise.. that is impossible, of course.'
PYHP5: 'New law…many services are coordinated from the CJG. We are more for prevention and guidance towards appropriate care. I think this improves collaboration.'
GP13: 'I think that the money isn't the biggest problem, but the time and motivation, those are the key problems.'
GP5: 'Financial resources .. 'Lijn 1' also takes care of that.'

Supplement Table 3. Continued

Determinant	Theme	Physician*	Description
Joint training	Lack: subject collaboration	B	Specific training regarding collaboration does not exist
	Existing: training in an overarching subject	B	There are subject training courses both professions could attend

B = both GPs and PYHPs YFT = Youth Family Team, CJG= Center for Youth and Family, ADHD = attention deficit and hyperactivity disorder, Lijn 1 = independent organization that supports primary care

Quotation
PYHP10: 'You meet each other there accidentally, talking about a specific case for instance. But those training courses are not aimed at collaboration.'