Practice nurse support and task suitability in a general practice : a cross-sectional survey in Belgium

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Abstract

Single-handed general practices and group practices are the two predominant modes of primary care provision across European countries. In Belgium, single-handed practices have been the main form of primary care provision for years, but recently a trend is emerging towards introducing more group practices where a number of primary care physicians collaborate with other health professionals such as primary care nurses. The aim of this study was to measure the current support in general practices, and to gain insight in the general practitioner attitudes towards being supported by a practice nurse. A cross-sectional study was conducted among general practitioners who were currently working in a general practice in Flanders (Belgium). 271 general practitioners filled out an online questionnaire. 30% declared to be supported by a practice nurse. The majority (>80%) of general practitioners showed positive attitudes towards collaboration with practice nurses, however the job profile and ethical framework of practice nurses remain insufficiently clear. Nurses are found most suitable to take on tasks concerning patient education and technical nursing skills. Despite the lack of governmental incentives in Belgium, general practitioners have taken the initiative to employ practice nurses – possibly – based upon an experienced necessity.

Introduction

Within the context of a worldwide rapidly ageing population, it is estimated that between 2015 and 2050, the world's population of over sixty year olds' will nearly double from 12 to 22% (World Health Organization (WHO), 2016). As people age, they are more likely to experience several health conditions at the same time. An increase in the number of chronic patients and multi-morbidity patients leads to more complex care needs (Araujo de Carvalho et al., 2017; Osborn et al., 2015). Care seekers become more demanding and expect health

care to be accessible and of high quality, while health professionals are experiencing increasingly high workloads and are demanding a better work-life balance (Goetz, Musselmann, Szecsenyi, & Joos, 2013; Kacenelenbogen, Offermans, & Roland, 2011). At the same time, financial resources in health care are decreasing (Berwick, Nolan, & Whittington, 2008; Gerkens & Merkur, 2010; Kringos, Boerma, Hutchinson, & Saltman, 2015). To meet the challenges of these demographic and epidemiological shifts, primary health care systems need to be strengthened (OECD/EU, 2016; World Health Organization (WHO), 2016). The organization of primary care can significantly affect care quality and care co-ordination, not only within primary care but also between the different levels of care (OECD/EU, 2016).

Delivering this high-quality person-centered care entails developing new models of shared-care based on multidisciplinary practice and modernizing the role of health professionals to best meet complex health care needs (Nolte, 2014; OECD/EU, 2016). In Belgium, new integrated care models based on multidisciplinary group practice and a horizontal governance model have been developed by primary care physicians since 2016 (Jabaaij & Hingstman, 2007; OECD/EU, 2016).

Currently, single-handed general practices and group practices are the two predominant modes of primary care provision across European countries (Maier, Aiken, & Busse, 2007; OECD/EU, 2016). In Belgium, single-handed practices have been the main form of primary care provision for years, but recently a trend is emerging towards introducing more group practices where a number of primary care physicians collaborate, even with other health professionals such as primary care nurses, psychologists, social workers, etc. Group practices foster collaboration with other health care providers outside the practice, which encourages better care coordination and leads to an improvement in the quality of care (OECD/EU, 2016). As a

consequence of the increasing collaboration in primary care, new health professional roles are evolving, including those among the nursing workforce (Delamaire & Lafortune, 2010).

Primarily, nurses were introduced in primary care practices to substitute for a number of tasks, and therefore, in order to meet a perceived shortage of primary care physicians (Martinez-Gonzalez et al., 2014). Over time, nursing roles and responsibilities have expanded. Practice nurses were able to provide holistic care for patients that was not limited to traditional nursing boundaries (Delamaire & Lafortune, 2010; Newhouse et al., 2011). Nurses have been found to often provide cost effective patient care and equal high-quality chronic patient care compared to primary care physicians, even with higher patient satisfaction (Laurant et al., 2005; Martinez-Gonzalez et al., 2014; OECD/EU, 2016). The evidence on the added value for patients when physicians and nurses collaborate (in primary care), is numerous (Matthys, Remmen, & Van Bogaert, 2017; Tsakitzidis et al., 2016).

Due to these evolving nursing roles, there is a rise in educational programs to train nurses to the required skills and competencies (Lahtinen, Leino-Kilpi, & Salminen, 2014). Many countries are in the process of reforming nursing education and have moved the primary nursing education fully or partially to Bachelor levels (Lahtinen et al., 2014).

Because of the recent nature of the employment of nurses in general practices, such as in Belgium, there is insufficient knowledge of which general practices and/or general practitioners are choosing to be supported by a practice nurse. Also, when general practitioners do choose to collaborate with a practice nurse, it is unclear to what extent they are willing to entrust tasks to the practice nurses.

With this quantitative research we aim to answer the following research questions:

(1) How well are general practitioners (GPs) currently supported in their practice, and what are the attitudes of GPs towards being supported by a practice nurse? (2) To what extent GPs consider practice nurses suitable to perform those tasks in their practice that include the nurses' entire area of expertise?

Methods

Research design and participants

This cross-sectional study was conducted from November 2016 till April 2017 among GPs who were currently working in a general practice in Flanders (Belgium). A convenience sampling method was used in order to include GPs.

Recruitment

The professional organization of GPs in Flanders 'Domus Medica', (a non-profit organization which represents the interests of general practitioners in Flanders) published an access link to an online survey platform on their website and in their online newsletter (Domus Medica).

Data collection

In order to gain insight in the respondents and their workplace, data were collected on;

- Socio-demographic characteristics of each respondent, including: age, gender, years in practice and work status (4 items, Table 1).
- The characteristics of the practice of each respondent, including: number of general practitioner colleagues, location, number of patients, providing internship, and general practice support (e.g. administrative assistant, partner, practice nurse) (10 items, Tables 1 & 2).

- GP workload experience, including: weekly working hours, workload in comparison to colleagues (less – equal – more), general daily work experience (relaxed – simple – challenging – stressful), the experience of frustration at work (never – rarely – sometimes – often – daily), the experience of time pressure (two statements on experiencing time pressure and the evolution over time of experiencing time pressure – 4-point Likert scale ranging from 'totally disagree' to 'totally agree'), and the frequency of working late (daily – weekly – monthly – never) (7 items, Table 1).
- Support by a practice nurse in the general practice, including: statements on task suitability of a practice nurse (9 statements – 4-point Likert scale ranging from 'totally disagree' to 'totally agree') (Table 5), preference for a nurse education level (no preference – graduated nurse – bachelor degree – postgraduate degree) (Table 1), and general statements on the employment of a practice nurse in a general practice (8 statements – 4-point Likert scale ranging from 'totally disagree' to 'totally agree') (Table 4) (18 items in total). These 8 statements (see Table 4) were derived from reviewing the literature, searching for the extent to which nurses, on an international level, are considered valuable in general practices and which elements, with regard to task delegation to practice nurses, are still under discussion. The eight statements are based on the content of four systematic literature reviews (Martinez-Gonzalez et al., 2014; Martinez-Gonzalez, Rosemann, Tandjung, & Djalali, 2015; Supper et al., 2015; Xyrichis & Lowton, 2008).

Outcome variable

This study takes into account the outcome variable 'task suitability of a practice nurse'. Meaning, the extent to which GPs consider practice nurses suitable to perform a variety of

tasks in their practice. A higher task suitability rate therefore represents a larger degree to which nurses are considered suitable to perform those tasks in a practice, that include their area of expertise. Respondents rated nine statements on task suitability of a practice nurse on a 4-point Likert scale, ranging from 'totally disagree' to 'totally agree' (Table 5). The sum score of these variables was used as a measure of task suitability of a practice nurse (α=0.89, 9 items).

The measurement tool was self-developed and not based on a theoretic framework or a validated measurement tool. A pragmatic approach was chosen, with a focus on the suitability of nurses to perform a variety of tasks in a general practice, according to the GPs. The nine statements were based on the series of tasks that nurses are legally allowed to perform in Belgium (applied to a general practice setting) and on the curriculum of the postgraduate course 'Nurse in a General Practice' at the University of Antwerp (Antwerp University, 2018; Delamaire & Lafortune, 2010; FNBV, 2018; Nolte, 2014). Therefore, these nine statements on task suitability covered the entire area of nurses' expertise (Table 5).

Data analysis

Statistical analyses were carried out in the software package R, version 3.4.2 (R. Core Team, 2017).

We compared the practice and GP characteristics for GPs that did or did not appeal to support by a practice nurse. The continuous variables did not have a normal distribution according to the histogram and QQ-plot, therefore we used the non-parametric Whitney U test for continuous variables and the Chi-square test was applied for categorical variables. A p-value of 0.05 or lower was considered statistically significant.

To test for associations between the categorical variables and the outcome variable, we applied a one-way ANOVA. We tested the null hypothesis that the outcome is equal across all levels of the categorical variables. In case of a significant p-value, differences in outcome exist between the different levels of the variable (Table 6). For the categorical variables with more than two levels, we carried out a post hoc analysis with a Tukey correction for multiple testing (Table 6). All levels of the categorical variables are compared in a pairwise way. Associations between continuous variables and the outcome variable were tested by performing a simple linear regression (Table 6).

Ethical considerations

The ethics committee of Antwerp university hospital provided a positive advice for this study (Supplement 1). Participation in this study was entirely voluntary. GPs were informed about this study on the webpage of 'Domus Medica' (Domus Medica), where the link to the survey was also presented. An informed consent was presented when the respondent decided to participate by clicking the link. The processed data were coded, ensuring the privacy of the respondents and their practices. Finally, the authors report no conflicts of interest.

Results

The present organization of general practices.

A total of 271 GPs filled out the online questionnaire. This number represents 3% of all general practitioners in Belgium and 9.7% of all Domus Medica members (Domus Medica). 54.2% of the respondents were female, on average 44 years old (SD= 13.10) and had on average 17 years (SD=13.10) of work experience. The majority of the respondents (79%) worked in a general practice with over 1500 patients, and in a group practice with a maximum of five GP colleagues (65%). 62% of the GPs declared to be supported by an administrative

assistant, 17% by a spouse or partner, and one out of three GPs was supported by a practice nurse. Sixteen GPs declared to be supported by another type of support in the practice; eight by a psychologist, five by a dietitian, another five by a social worker, and one by a home care nurse. Table 2 summarizes some more detailed information on the support in the general practices.

Regarding the experienced workload, 45% of the respondents worked late on a weekly basis, and almost 50% declared to often (weekly) experience frustration at work. One out of four experienced the daily work as stressful. More detailed information can be found in Table 1.

Table 1: Socio-demographic characteristics of GPs and general practices. (N=271)

Characteristics GPs		
	n	%
Sex **Female**	 147	 54.2
Age **Years**	Mean (range) 44.3 (26-84)	
Age categories (years) **26-35** **36-45** **46-55** **56-65** **66-75** **76-85**	 96 49 54 59 12 1	 35.4 18.1 19.9 21.8 4.4 0.4
Seniority **Years**	Mean (SD) 17.2(13.10)	
Working hours **< 20 hours/week** **20 – 40 hours/week** **> 40 hours/week**	 11 65 195	 4.1 24.0 72.0
Work status **Independent, accredited and conventioned.** **In paid employment, accredited and conventioned.** **Independent, accredited and not conventioned.**	 188 48 35	 69.4 17.7 12.9
Frustration at work **Rarely** **Sometimes/monthly**	 17 80	 6.3 29.5

Often/weekly	135	49.8
Always/daily	39	14.4
Work experience		
Relaxed	22	8.1
Simple	12	4.4
Challenging	168	62.0
Stressful	69	25.5
Working late		
Never	15	5.5
Daily	95	35.1
Weekly	121	44.6
Monthly	40	14.8
Work regime (in comparison to colleagues)		
Less	65	24.0
Equal	167	61.6
More	39	14.4
Characteristics general practices		
	n	%
Number of patients		
<500	4	1.5
500-1000	19	7.0
1001-1500	35	12.9
>1500	213	78.6
Location		
Rural area	153	56.5
City	118	43.5
General practitioner colleagues	Mean (SD)	
Number	3 (2.18)	
Solo practice	59	21.8
Group practice to 5 GPs	177	65.3
Group practice > 5 GPs	35	12.9
Student internships		
None	66	24.4
Medicine	66	24.4
HAIO	49	18.1
Medicine and HAIO	90	33.2
Support in the practice		
Administrative assistant	168	62.0
Spouse/partner	47	17.3
Practice nurse	82	30.3
Other	16	5.9
None	52	19.2
Preference nurse education*	24	8.9

No nurse	78	28.8
No preference	7	2.6
HBO5 degree	11	4.1
Bachelor degree	151	55.7
Postgraduate degree		

Table 1 presents the (socio-demographic) characteristics of the GPs and their practices.
GPs: General practitioners
HAIO: General practitioner trainee
* There are different nurse education levels in Belgium: HBO5 is a three year course, the bachelor level is a four year course, and the postgraduate level is the bachelor level plus a one year course with the specific aim to train practice nurses.

Table 2: Support in general practices (N=271)

Type of support	Number of general practitioners n (%)	Amount of support in the general practice n (%)		Weekly hours of support n (%)	
Administrative assistant	168 (62.0)	1 2 >2	81 (29.9) 45 (16.6) 42 (15.5)	<20 hours 20-40 hours >40 hours	24 (8.9) 102 (37.6) 42 (15.5)
Practice nurse	82 (30.3)	1 2 >2	48 (17.7) 15 (5.5) 19 (7.0)	<20 hours 20-40 hours >40 hours	34 (12.5) 36 (13.3) 12 (4.4)
Spouse/partner	47 (17.3)	1 2 >2	44 (16.2) 3 (1.1) -	<20 hours 20-40 hours >40 hours	33 (12.2) 12 (4.4) 2 (0.7)
Other support	73 (26.9)	1 2 >2	40 (14.8) 12 (4.4) 21 (7.7)	<20 hours 20-40 hours >40 hours	40 (14.8) 24 (8.9) 9 (3.3)

Table 2 presents from left to right: Different types of support in the practices, the number of GPs appealing to the different types of support, the number people supporting the practice for each type of support with the number of GPs for each amount, and finally the weekly hours of support for each type of support, with the number of GPs for each group of working hours.

Comparison characteristics with or without support by practice nurses.

Table 3 presents the significant socio demographic differences between GPs and general practices that do (n=82) or do not (n=189) appeal to support by practice nurses. Practices without support were more often found in rural areas compared to practices with support (60.8% vs 46.3%, p=0.027). The majority of practices with support were large (>1500 patients) in comparison with the practices without support. Practices with support were more often

group practices with more than five general practitioners. Also, the preference for a practice nurse education level differed significantly, where 73.2% of the GPs with support were in favor of a higher education level for a practice nurse, compared to 48.1% of the GPs without support.

Table 3: Significant socio demographic differences between GPs that do or do not appeal to support from a practice nurse. (N=271)

	Practice nurse (N=82)		**No practice nurse (N=189)**		**p (95% CI)**
	n	%	n	%	
Characteristics general practices					
Number of patients					
<1001	2	2.4	21	11.1	**0.015***
1001-1500	7	8.5	28	14.8	
>1500	73	89.0	140	74.1	
Location					
Rural are	38	46.3	115	60.8	**0.027***
City	44	53.7	74	39.2	
General practitioner colleagues (number)	Mean (SD) 4.46 (2.76)		Mean (SD) 2.85 (1.61)		**<0.001****
Solo practice	9	11.0	50	26.5	**<0.001***
Group practice to 5 GPs	48	58.5	129	68.3	
Group practice > 5 GPs	25	30.5	10	5.3	
Student internships					
None	7	8.5	59	31.2	**<0.001***
Medicine	9	11.0	57	30.2	
HAIO	16	19.5	33	17.5	
Medicine and HAIO	50	61.0	40	21.2	
Support in the practice					
Administrative assistant	64	78.0	104	55.0	**<0.001***
Spouse/partner	9	11.0	38	20.1	0.068*
Other	1	1.2	15	7.9	**0.031***
None	0	0.0	52	27.5	**<0.001***
Preference nurse education					
No nurse	0	0.0	24	12.7	**<0.001***
No preference	9	11.0	69	36.5	
HBO5/ Bachelor degree	13	15.9	5	2.6	
Postgraduate degree	60	73.2	91	48.1	

Table 3 presents on the left the socio demographic characteristics of the GPs and the characteristics of the practices for the GPs who appeal to support from a practice nurse. The right column presents the characteristics of GPs who do not appeal to support from a practice nurse. The far right column presents (in bold) the significant differences between the two groups.
*Chi-square test
**Mann-Whitney U test
CI: Confidence interval; GP: general practitioner; HAIO: general practitioner trainee; HBO5: three year course (For more detailed information on the nurse education levels, see Table 1).

Attitude of GPs towards support by practice nurses in the general practice.

Table 4 shows that the vast majority (≥80%) of the GPs with support showed positive attitudes towards collaboration with practice nurses. They strongly agreed that this collaboration is an added value for the general practice, that task delegation improves the quality of care and has a positive impact on the GP workload, and that the development of evidence-based protocols monitors the quality of care provided by the practice nurse.

59.1% of the GPs shared the opinion that the existing payment system (pay for performance) hinders task delegation within a general practice. The ethical framework and the job profile of practice nurses were found to be sufficiently clear by respectively 54.3% and 44.6% of the general practitioners.

Table 4: General statements on support by a practice nurse in a general practice (N=271)		
Statements	Agree %	Disagree %
Collaboration with a practice nurse is an added value for the general practice.	83.4	2.6
Developing evidence based protocols monitors the quality of care provided by the practice nurse.	82.7	5.9
Task delegation towards a practice nurse improves the quality of care provided by the general practice.	81.5	6.7
A practice nurse could offer me suitable support during my work.	81.2	18.8

Task delegation has a positive impact on the general practitioner workload.	80.0	4.8
The existing payment system (pay for performance) hinders task delegation within the general practice.	59.1	27.3
The ethical framework of practice nurses is sufficiently clear.	54.3	28.8
The job profile of practices nurses is sufficiently clear.	44.6	45.0

Table 4 presents in the left column different statements on support by a practice nurse, in the middle the percentages of GPs who agreed with the statements, and in the right column the percentages of GPs who disagreed with the statements.

The extent to which GPs consider practice nurses suitable to perform tasks in a practice.

Table 5 presents the nine different statements on task suitability of practice nurses. GPs declared practice nurses to be most suitable to provide patient education, to perform technical skills, and to provide health promotion advise. Nursing tasks that were considered least suitable to be performed by a practice nurse in a general practice were developing evidence-based protocols and performing administrative tasks.

Table 5: Statements on task suitability of a practice nurse. (N=271)	**Mean score Min-max: 1-4**	**Agree %**
Nurses are suitable for providing administrative support in a practice. Updating patient files, checking lab results,… .	3.23	81.9
Nurses are suitable for organizing the practice. Managing the stock, sterilizing material, triage,… .	3.43	90.7
Nurses are suitable for organizing patient care within primary care and between primary and hospital care.	3.25	83.8
Nurses are suitable for developing evidence based protocols, in collaboration with the GP.	2.87	67.1
Nurses are suitable for performing technical skills like: removing stitches, vaccinating, drawing blood, taking an ECG,… .	3.49	92.2
Nurses are suitable for providing patient education.	3.44	92.6
Nurses are suitable for providing health prevention advise.	3.38	89.3
Nurses are suitable for providing health promotion advise.	3.41	92.2

Nurses are suitable for caring for patients with chronic conditions according to evidence based protocols.	3.26	82.3
Likert scale: 1-4 (totally disagree – totally agree). Total: min-max score: 9-36. Mean: 29.77. Range: 14-36.		

Table 5 presents the nine different statements on task suitability of a practice nurse, followed by the mean score for each statement, and on the far right the percentage of GPs who agreed with the statement (a sum of the 'agree' and the 'totally agree' scores on the 4-point Likert scale).
GP: general practitioner; ECG: electrocardiogram.

Associations between practice/GP characteristics and task suitability of practice nurses.

Table 6 shows that eight characteristics have a significant association with task suitability of practice nurses. General practices in the city show a higher degree of task suitability (p=0.019), even so for practices with over 1500 patients compared to practices with less than 1001 patients (p=0.034).

GPs who expressed the preference for a higher educated nurse (postgraduate degree) show a higher degree of task suitability compared to respondents with no specific preference (p<0.001) or who responded to prefer no nurse in the general practice (p<0.001). Significant associations were also found between group practices and solo practices, and between practices that provide internships for medicine students and general practitioner students and practices that do not provide internships (<0.001). The presence of an administrative assistant, and/or a practice nurse, is also associated with a higher degree of task suitability (both p-values <0.001).

Table 6: Associations between characteristics and the outcome variable: task suitability of a practice nurse.

Characteristics	Mean (SD)	p-value	Multiple levels	p-value***
Location		**0.019***		
Rural area	29.16 (5.04)			
City	30.56 (4.52)			
Preference nurse education level		**<0.001***		

No nurse No preference Bachelor/HBO5 Postgraduate	22.58 (5.11) 28.45 (4.23) 31.11 (3.31) 31.42 (4.00)		**Bachelor/HBO5 – No nurse** **Postgraduate – No nurse** **No preference – No nurse** **No preference – Postgraduate**	**<0.001** **<0.001** **<0.001** **<0.001**
Number of patients <1001 1001-1500 >1500	 27.61 (4.55) 28.37 (5.48) 30.23 (4.70)	**0.009***	**<1001 – >1500**	**0.034**
N° of GP colleagues Solo practice Group practice to 5 GPs Group practice > 5 GPs	 27.86 (5.19) 29.89 (4.70) 32.34 (3.80)	**<0.001***	**Group practice to 5 GPs – Solo practice** **Group practice > 5 GPs – Solo practice** **Group practice > 5 GPs – Group practice to 5 GPs**	**0.012** **<0.001** **0.014**
Student internships No students Medicine students HAIO Medicine and HAIO	 27.76 (5.32) 29.94 (4.35) 29.39 (5.47) 31.31 (3.96)	**<0.001***	**Medicine students – No students** **Medicine and HAIO – No students**	**0.039** **<0.001**
Administrative assistant Yes No	 30.99 (4.31) 27.76 (5.07)	**<0.001***		
Practice nurse Yes No	 32.69 (3.35) 28.49 (4.88)	**<0.001***		

Support in the practice		**<0.001***		
Yes	30.65 (4.41)			
No	26.04 (4.95)			

Table 6 presents the associations between practice/general practitioner characteristics and the outcome variable: task suitability of a practice nurse. From left to right: the characteristics, the mean degree of task suitability (with a maximum of 36), followed by the standard deviation (SD), the p-value, the multiple levels, and on the far right the p-values for each of the characteristics with multiple levels. Statistically significant associations are written in bold.
* One-way ANOVA, **Linear regression, ***Tukey correction for multiple testing
HAIO: general practitioner trainee.

Discussion

Current support in the general practice

In the current survey, one out of three respondents appealed to support by a practice nurse and these GPs were significantly more often found to be working in a larger general practice, in a group practice, and in an urban environment. GPs who experienced a need for support, in order to accommodate the increasing patient demands for primary health care, seem to have already taken the initiative themselves.

Government support and financial incentives

Currently, there is no formal support from the government to employ a practice nurse in a general practice but GPs have nevertheless taken the initiative – possibly – based upon an experienced necessity. Convinced of the importance of a sound government support and infrastructure, in order to accomplish interprofessional collaboration in primary care, the Netherlands have introduced a new funding system in 2018 to support and stimulate this collaboration (Zorgenzo, 2017).

In Australia, the government has implemented several initiatives, including the Practice Nurse Incentive Program (PNIP) and nurse-specific Medicare Benefits Schedule (MBS) items, to encourage general practices to employ practice nurses. These policy initiatives have led to a significant increase in the number of practice nurses working in a general practice. In 2012, 63% of the general practices were already employing one or more practice nurse (Afzali et al., 2014).

The nurse subsidy, introduced in 1970 in New-Zealand, to encourage general practices to employ nurses, was initially not successful because it did not automatically result in practice nurses assuming greater clinical workloads. However, since 1983 when the New-Zealand government introduced a funding requirement that nurses undertake specific clinical tasks, practice nursing as a discipline has evolved significantly (Supper et al., 2015). Therefore, governmental support is only effective and truly supportive when linked to a number of requirements that create the conditions for practice nurses to work within their area of expertise.

Attitudes regarding support

Importance of interprofessional education

According to the World Health Organization, interprofessional education is essential to the development of a collaborative practice-ready health workforce (World Health Organization (WHO), 2010). The persistence of negative or low-positive stereotypes in the absence of appropriate education seems to be one reason for the challenge to become a fully effective interprofessional health care team. Students have improved perceptions of professions that will potentially be members of their future practice teams, after they have had the opportunity to learn alongside students from those other professions (Ateah et al., 2011). This

could explain the strong association we found between the presence of support in the general practice and the degree of task suitability of a practice nurse. Professionals who already had experience with working together, sharing responsibilities and delegating tasks, were more susceptible to the idea of doing the same with a practice nurse. Therefore, health and education systems must work together to coordinate health workforce strategies. If health workforce planning and policymaking are integrated, interprofessional education and collaborative practice can be fully supported (World Health Organization (WHO), 2010).

Interprofessional collaboration: conditions and consequences

Once employed in a practice, it still comes down to providing interprofessional care. The Registered Nurses Association of Ontario (RNAO) developed an evidence-based guideline "Developing and sustaining interprofessional health care: optimizing patient, organizational and system outcomes." Within this best practice guideline, three key components of a healthy work environment are explained to be necessary to support an interprofessional health care. Conversely, an exemplary interprofessional collaboration has a positive impact on a healthy work environment, and by extension on the four goals of the quadruple aim: improving the individual experience of care, improving the health of populations, reducing the per capita cost of health care, and improving the experience of providing care (Registered Nurses' Association of Ontario (RNAO), 2013; Sikka, Morath, & Leape, 2015). One of the three components of the healthy work environment model are the 'physical/structural policy components'. Explaining that external factors like funding, and economic and political frameworks, have an indirect impact on interprofessional collaboration within an organization (Registered Nurses' Association of Ontario (RNAO), 2013). The RNAO recommends governments to provide health-care organizations with the fiscal resources required to develop, implement and evaluate interprofessional healthcare (Registered Nurses'

Association of Ontario (RNAO), 2013). The World Health Organization (WHO) developed a framework for action on interprofessional education and collaborative practice. Within this framework, recommendations for policy makers are made, including the recommendation to harmonize the way in which health programs are funded, financed and commissioned to ensure there are no barriers to collaborative practice (World Health Organization (WHO), 2010). Broadening the collaboration towards an interprofessional approach, creates a need for specific joint long-term funding, training and evaluation at team level (Supper et al., 2015).

Knowledge and recognition of each other's expertise are basic conditions for establishing exemplary interprofessional collaboration (Macdonald et al., 2010; Registered Nurses' Association of Ontario (RNAO), 2013; Tsakitzidis & Van Royen, 2015). When these conditions are not met, professionals are unable to develop a shared care plan for the patient, and unable to share responsibilities while providing care (Tsakitzidis & Van Royen, 2015). In the present study, over 80% of GPs have declared to see the practice nurse as an added value for the general practice, and have declared to share the opinion of practice nurses contributing to the quality of care provided by the general practice. On the other hand, only 30% of the GPs appealed to support by a practice nurse. A possible explanation for this gap might be the job profile of a practice nurse, which was declared to be insufficiently clear by 45% of the GPs.

Task suitability of practice nurses

Around the world, nurses are employed in general practices, where they play a role in chronic disease management, patient education, medication management and administration. Only a limited number of practice nurses participates in primary care policy making and research (Norful, Martsolf, de Jacq, & Poghosyan, 2017). These findings are consistent with the attitudes of general practitioners in our research, where practice nurses were found least

suitable to develop evidence-based protocols. There's a high variety in nursing roles across the world, according to the context and local needs. Also, the level of clinical practice in some countries is more restricted than in others. In Belgium, nurses are authorized to perform a limited set of advanced clinical activities, usually under physician oversight. Belgian primary care nurses are, for instance, legally not allowed to prescribe pharmaceuticals (Maier et al., 2007). Findings concerning the impact of primary care nursing, on the other hand, are much more similar around the world. Nurse-led care has a positive effect on patient satisfaction, hospital admission and mortality (Martinez-Gonzalez et al., 2014).

Limitations

A risk of selection bias might be present in our survey since there is a possibility that GPs who are already supported in their practices are more likely to complete a survey concerning support in general practice. Therefore, the sample we obtained might not be representative of the population of general practitioners in Belgium. Demographics of general practitioners in Flanders confirm that the gender distribution within our research (45.8% male and 54.2% female) deviates from official figures (61.1% male and 38.9% female) (FOD, 2016). We were able to reach 3% of the population of GPs in Flanders and 9.7% of all Domus Medica members. A larger response rate might provide a more reliable view on the current support in general practices, and on the extent to which GPs consider practice nurses suitable to perform tasks in a general practice. A higher response rate might be achieved when multiple channels are used to distribute the survey and when GPs are contacted personally by email (Deutskens, de Ruyter, Wetzels, & Oosterveld, 2004). The literature describes a number of methods to increase response rates with this hard-to-reach population, even specifically with online surveys (James, Ziegenfuss, Tilburt, Harris, & Beebe, 2011). After all, low response rates with

physicians are well known and investigated (S. Flanigan, McFarlane, & Cook, 2008). However, the bias caused by the low response rate is debatable (Fosnacht, Sarraf, Howe, & K. Peck, 2017) since nonresponse does not equal bias, but merely increases the potential for biased estimates. In addition, no comprehensive theory of survey response exists that can generate reliable predictions about when nonresponse bias will occur (Fosnacht et al., 2017).

In addition, the length of the survey, including 39 items, is sufficiently short not to negatively influence the response rate (Galesic & Bosnjak, 2009). Another limitation is the self-developed questionnaire that was not based upon a theoretical framework or a validated measurement tool. However, to our knowledge, a more validated instrument was not available within our research context.

Future research

Future research is necessary to gain insight in what kind of (government) support GPs need to appeal to support by a practice nurse in their practices, and if the current education of nurses and GPs is meeting these needs. Also, it remains unclear if those GPs, who consider practice nurses highly suitable to perform a variety of tasks in the practice, are actually supporting and stimulating their practice nurses to perform the wide range of tasks that includes their entire area of expertise. Therefore, in a follow-up study, a qualitative research approach of this topic will be premised. This is important to gain insight in the experiences and visions of general practitioners and practice nurses concerning interprofessional collaboration and task delegation in general practices. In addition, the perceptions of patients, the recipients of this interprofessional care, could further complete the understanding of this topic.

Conclusion

General practitioners in Belgium have taken the initiative to employ practice nurses, despite a lack of governmental incentives. GPs are willing to entrust nurses with a number of tasks in the practice. Nurses are found most suitable to take on tasks concerning patient education and technical nursing skills. GPs generally have positive attitudes towards the integration of practice nurses in their practices, however the job profile and ethical framework of practice nurses remain insufficiently clear. It is remarkable that the vast majority of GPs has positive attitudes towards support by a practice nurse, however only one third currently chooses to be supported.

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Data availability statement

The data that support the findings of this study are openly available in "Figshare" at http://doi.org/10.6084/m9.figshare.6106274.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article. 'Wit-Gele Kruis van Antwerpen vzw' has no role in the design of the study and collection, analysis, and interpretation of data in writing the manuscript.

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References

Afzali, H. H., Karnon, J., Beilby, J., Gray, J., Holton, C., & Banham, D. (2014). Practice nurse involvement in general practice clinical care: policy and funding issues need resolution. *Aust Health Rev, 38*(3), 301-305. doi:10.1071/ah13187

Antwerp University. (2018). Nursing in a general practice. Retrieved from https://www.uantwerpen.be/en/education/education-and-training/nursing-general-practice/profile/

Araujo de Carvalho, I., Epping-Jordan, J., Pot, A. M., Kelley, E., Toro, N., Thiyagarajan, J. A., & Beard, J. R. (2017). Organizing integrated health-care services to meet older people's needs. *Bull World Health Organ, 95*(11), 756-763. doi:10.2471/blt.16.187617

Ateah, C. A., Snow, W., Wener, P., MacDonald, L., Metge, C., Davis, P., . . . Anderson, J. (2011). Stereotyping as a barrier to collaboration: Does interprofessional education make a difference? *Nurse Educ Today, 31*(2), 208-213. doi:https://doi.org/10.1016/j.nedt.2010.06.004

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: care, health, and cost. *Health Aff (Millwood), 27*(3), 759-769. doi:10.1377/hlthaff.27.3.759

Delamaire, M., & Lafortune, G. (2010). Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries(54), 106. Retrieved from http://dx.doi.org/10.1787/5kmbrcfms5g7-en

Deutskens, E., de Ruyter, K., Wetzels, M., & Oosterveld, P. (2004). Response Rate and Response Quality of Internet-Based Surveys: An Experimental Study. *Marketing Letters, 15*(1), 21-36. doi:10.1023/b:mark.0000021968.86465.00

Domus Medica. Retrieved from https://domusmedica.be/

FNBV. (2018). Federale neutrale beroepsvereniging verpleegkundigen. Retrieved from www.fnbv.be/wetgeving/algemeen

FOD. (2016). Jaarstatistieken met betrekking tot beoefenaars van gezondheidszorgberoepen in België. Retrieved from http://overlegorganen.gezondheid.belgie.be/sites/default/files/documents/statan_2016_nl_0.pdf

Fosnacht, K., Sarraf, S., Howe, E., & K. Peck, L. (2017). *How Important are High Response Rates for College Surveys?* (Vol. 40).

Galesic, M., & Bosnjak, M. (2009). Effects of Questionnaire Length on Participation and Indicators of Response Quality in a Web Survey. *Public Opinion Quarterly, 73*(2), 349-360. doi:10.1093/poq/nfp031

Gerkens, S., & Merkur, S. (2010). Belgium: Health system review. *Health Syst Transit, 12*(5), 1-266, xxv.

Goetz, K., Musselmann, B., Szecsenyi, J., & Joos, S. (2013). The influence of workload and health behavior on job satisfaction of general practitioners. *Fam Med, 45*(2), 95-101.

Jabaaij, L., & Hingstman, L. (2007). Alleen is maar alleen: huisartsen steeds vaker samen. *Huisarts & Wetenschap, 50*(5).

James, K. M., Ziegenfuss, J. Y., Tilburt, J. C., Harris, A. M., & Beebe, T. J. (2011). Getting physicians to respond: the impact of incentive type and timing on physician survey response rates. *Health Serv Res, 46*(1 Pt 1), 232-242. doi:10.1111/j.1475-6773.2010.01181.x

Kacenelenbogen, N., Offermans, A. M., & Roland, M. (2011). Burnout of general practitioners in Belgium: societal consequences and paths to solutions. *Rev Med Brux, 32*(4), 413-423.

Kringos, D. S., Boerma, W. G. W., Hutchinson, A., & Saltman, R. B. (2015). Building primary care in a changing Europe. Copenhagen (Denmark): World Health Organization 2015

Lahtinen, P., Leino-Kilpi, H., & Salminen, L. (2014). Nursing education in the European higher education area - variations in implementation. *Nurse Educ Today, 34*(6), 1040-1047. doi:10.1016/j.nedt.2013.09.011

Laurant, M., Reeves, D., Hermens, R., Braspenning, J., Grol, R., & Sibbald, B. (2005). Substitution of doctors by nurses in primary care. *Cochrane Database Syst Rev*(2), Cd001271. doi:10.1002/14651858.CD001271.pub2

Macdonald, M. B., Bally, J. M., Ferguson, L. M., Lee Murray, B., Fowler-Kerry, S. E., & Anonson, J. M. (2010). Knowledge of the professional role of others: a key interprofessional competency. *Nurse Educ Pract, 10*(4), 238-242. doi:10.1016/j.nepr.2009.11.012

Maier, C., Aiken, L., & Busse, R. (2007). Nurses in advanced roles in primary care: Policy levers for implementation. Retrieved from http://dx.doi.org/10.1787/a8756593-en

Martinez-Gonzalez, N. A., Djalali, S., Tandjung, R., Huber-Geismann, F., Markun, S., Wensing, M., & Rosemann, T. (2014). Substitution of physicians by nurses in primary care: a systematic review and meta-analysis. *BMC Health Serv Res, 14*, 214. doi:10.1186/1472-6963-14-214

Martinez-Gonzalez, N. A., Rosemann, T., Tandjung, R., & Djalali, S. (2015). The effect of physician-nurse substitution in primary care in chronic diseases: a systematic review. *Swiss Med Wkly, 145*, w14031. doi:10.4414/smw.2015.14031

Matthys, E., Remmen, R., & Van Bogaert, P. (2017). An overview of systematic reviews on the collaboration between physicians and nurses and the impact on patient outcomes: what can we learn in primary care? *BMC Fam Pract, 18*(1), 110. doi:10.1186/s12875-017-0698-x

Newhouse, R. P., Stanik-Hutt, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., . . . Weiner, J. P. (2011). Advanced practice nurse outcomes 1990-2008: a systematic review. *Nurs Econ, 29*(5), 230-250; quiz 251.

Nolte, E., Knai, C. & Saltman, R.B. (eds). (2014). *Assessing chronic disease management in European health systems: concepts and approaches (2014)*. United Kingdom: World Health Organization.

Norful, A., Martsolf, G., de Jacq, K., & Poghosyan, L. (2017). Utilization of registered nurses in primary care teams: A systematic review. *Int J Nurs Stud, 74*, 15-23. doi:10.1016/j.ijnurstu.2017.05.013

OECD/EU. (2016). *Health at a Glance: Europe 2016* Retrieved from http://dx.doi.org/10.1787/9789264265592-en

Osborn, R., Moulds, D., Schneider, E. C., Doty, M. M., Squires, D., & Sarnak, D. O. (2015). Primary Care Physicians In Ten Countries Report Challenges Caring For Patients With Complex Health Needs. *Health Aff (Millwood), 34*(12), 2104-2112. doi:10.1377/hlthaff.2015.1018

R. Core Team. (2017). R: A language and environment for statistical computing. Retrieved from https://www.R-project.org/

Registered Nurses' Association of Ontario (RNAO). (2013). *Devoloping and sustaining interprofessional health care: optimizing patients/clients, organizational, and system outcomes*. Toronto (Canada): Registered Nurses' Association of Ontario.

S. Flanigan, T., McFarlane, E., & Cook, S. (2008). *Conducting Survey Research among Physicians and other Medical Professionals - A Review of Current Literature*.

Sikka, R., Morath, J. M., & Leape, L. (2015). The Quadruple Aim: care, health, cost and meaning in work. *BMJ Quality & Safety*. doi:10.1136/bmjqs-2015-004160

Supper, I., Catala, O., Lustman, M., Chemla, C., Bourgueil, Y., & Letrilliart, L. (2015). Interprofessional collaboration in primary health care: a review of facilitators and barriers perceived by involved actors. *J Public Health (Oxf), 37*(4), 716-727. doi:10.1093/pubmed/fdu102

Tsakitzidis, G., Timmermans, O., Callewaert, N., Verhoeven, V., Lopez-Hartmann, M., Truijen, S., . . . Van Royen, P. (2016). Outcome Indicators on Interprofessional Collaboration Interventions for Elderly. *Int J Integr Care, 16*(2), 5. doi:10.5334/ijic.2017

Tsakitzidis, G., & Van Royen, P. (2015). *Leren interprofessioneel samenwerken in de gezondheidszorg* Berchem: De Boeck.

World Health Organization (WHO). (2010). *Framework for action on interprofessional education and collaborative practice*. Switzerland (Geneva): WHO.

World Health Organization (WHO). (2016). *Global strategy and action plan on ageing and health (2016-2020).*

Xyrichis, A., & Lowton, K. (2008). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *Int J Nurs Stud, 45*(1), 140-153. doi:10.1016/j.ijnurstu.2007.01.015

Zorgenzo. (2017). Nieuwe bekostiging eerste lijn voor ondersteuning samenwerking. *ZorgenZ... Zorg in de Praktijk*. Retrieved from https://zorgenz.nl/actueel/nieuwe-bekostiging-eerste-lijn-ondersteuning-samenwerking/