

Learning to collaborate interprofessionally in health care

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Leren interprofessioneel samenwerken in de gezondheidszorg

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“Knowing is not enough; we must apply. Willing is not enough; we must do.”

- Johann Wolfgang von Goethe-

Table of Contents

List of often used abbreviations	5
List of figures	6
List of tables	7
Chapter 1: Introduction	9
Chapter 2: Interprofessional education	25
Chapter 3: Interprofessional collaborative practice	53
Chapter 4: Interprofessionality in usual care in nursing homes	75
Chapter 5: The effectiveness of learning to collaborate interprofessionally	93
Chapter 6: Discussion	175
Chapter 7: Summary/Samenvatting	191
Appendix	201
Dankwoord	207
Curriculum Vitae	217

List of often used abbreviations

CAIPE	Centre for the advancement of Interprofessional Education
CanMeds	Canadian Medical Education Directions for Specialist
GP	General practitioner
IPC	Interprofessional collaboration
IPCIHC	Interprofessional collaboration in health care
ICF	International classification of functioning, disability and health
IPE	Interprofessional Education
IPL	Interprofessional Learning
WHO	World Health Organization

List of figures

Chapter 1

- Figure 1 From local health needs to improved health outcomes
Figure 2 Interprofessional education for collaborative patient-centred practice
Figure 3 Competence of 'collaborator in healthcare' based on

Chapter 2

- Figure 1 Structure and main components of the one week IPCIHC model
Figure 2 The competence 'Collaborator in Health Care' described in seven roles
Figure 3 Percentage of 'yes' answers per question per year on the seven closed questions

Chapter 3

- Figure 1 Flowchart results literature search

Chapter 4

- Figure 1 Model of interprofessional collaboration and difference with multi-professional collaboration

Chapter 5

Research protocol

- Figure 1 Intervention: to learn to collaborate interprofessionally

Intensity of interprofessional care

- Figure 1 Intervention: to learn to collaborate interprofessionally
Figure 2 Intensity of interprofessional collaboration, the total score over time for intervention and control group.
Figure 3 Intensity of interprofessional collaboration, the total score before and after intervention for intervention and control group.
Figure 4 What is interprofessional collaboration: scores for control versus intervention group 4 time points
Figure 5 'What is interprofessional collaboration', the total score before and after intervention for intervention and control group.
Figure 6 Subscale interdisciplinary coordination: scores for control versus intervention group
Figure 7 Subscale perception of patient: scores for control versus intervention group
Figure 8 Subscale shared clinical activities: scores for control versus intervention group
Figure 9 Subscale global perception: scores for control versus intervention group

Outcomes for residents in a nursing home

- Figure 1 EQ-5D-5L - EuroQol five dimensions
Figure 2 Body weight over time for intervention and control group
Figure 3 Fall incidence of the residents for both intervention and control group
Figure 4 Number of falls of the residents for both intervention and control group
Figure 5 Medication per day of the residents for both intervention and control group
Figure 6 Different medication per day of the residents for both intervention and control group
Figure 7 EQ-5D-5L – mobility
Figure 8 EQ-5D-5L - self-care
Figure 9 EQ-5D-5L – daily activities (usual activities)
Figure 10 EQ-5D-5L – Pain/discomfort
Figure 11 EQ-5D-5L – Anxiety/Depression
Figure 12 EQ-5D-5L – VAS score
Figure 13 Self-reported KATZ
Figure 14 Official KATZ
Figure 15 MMSE
Figure 16 MMSE official in the medical file
Figure 17 Percentage reporting anxiety/depression for the Belgian population

Discussion

- Figure 1 Stages of learning to collaborate interprofessionally

List of tables

Introduction

Table 1 Interprofessional learning domains (WHO 2010)

Chapter 3

Table 1 Results Quality Appraisal

Table 2 Overview data-extraction included studies

Table 3 Overview of the outcome indicators on interprofessional collaboration

Chapter 4

Table 1 Description of characteristics participants – Health professionals

Chapter 5

Intensity of interprofessional care

Table 1 Timetable study

Table 2 Description of characteristics participants – Health professionals

Exploring the level of interprofessional collaboration

Table 1 Overview of the content of the educational program per session

Table 2 SWOT-matrix for supporting or hindering elements for interprofessional change

Table 3 Group criteria of an interprofessional team (Tsakitzidis and Van Royen 2015)

Table 4 Description of characteristics participants – Health professionals

Table 5 Overview of SWOT-analyses in framework of interprofessional collaborator.

Outcomes for residents in a nursing home

Table 1 Overview measured outcome indicators residents on baseline, 6, 12 and 18 months

Table 2 Description of characteristics participants – Residents

Table 3 Overview weight of the residents over the four measure points for intervention and control group

Table 4 Fall incidence and number of falls for control and intervention group over the four measure points.

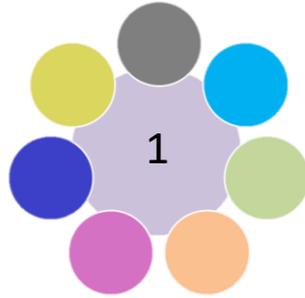
Table 5 Overview of medication use for control and intervention groups over the four measure points

Table 6 Overview of the scores on the EQ-5D-5L for the intervention and control group over four measure points

Table 7 Overview of the scores for KATZ for intervention and control group over four measure points

Table 8 Overview of the scores on MMSE for intervention and control group over four measure points

Chapter



Introduction

“Let me tell you a story about myself. I am Bella and I am 84 years old. I live in a nursing home since 3 years now. I have had a great life and still enjoy every day the beautiful memories and seeing my family being happy. But still ... I have to admit, it is not how I imagined the last years of my life. My dear husband died 10 years ago and that is where my difficult years have started. My health got worse year by year. I have diabetes, I have a new hip since 4 years and 3 years ago I have had a little stroke. My daughter and son do the best they can to make me feel good and happy. Initially they wanted to manage care for me at home so I shouldn't have to move to a nursing home. But I felt guilty for being a burden on my children and grandchildren. So I decided to move to a nursing home so my family didn't have to worry about my medication, making the house 'fall proof' and my rehabilitation. But now I wonder; am I happy? Is this what I always dreamt of? I have no input in deciding when and what to eat. I cannot choose my cloths; I cannot visit the cemetery to put fresh flowers for my darling on his grave. I have to play bingo and smile so they will not give me extra medication to make me 'feel' happy. I don't know. What happened to me? I always was a very independent woman with a very well organized life. I had a bookstore, which now is being managed, by one of my grandchildren. It has been over 2 years now that I have read even one book. My husband and I saw half of the world and still there are so many cities and countries I have on my 'to visit' –list. But will I even get out of this building to see the city where I grew up? Well, maybe I should tell somebody, maybe somebody can help me to make me happy again without feeling like a burden to somebody while chasing my own happiness.”

This case is pure fiction, but is based upon real stories of different people I met during my career and research period. All the real stories keep me wondering about how we look at older people living in a nursing home. Are we really interested in what they want? Are we interested in helping them to achieve their life and day-to-day goals? Do we really want to provide good and qualitative care? Delivery of health care for this population requires high levels of coordinated teamwork and efforts (1) to provide a good quality of care (1). Knowing the ageing of the population is expected to be a major driver of increasing demand for long-term care services makes it also urgent to find answers to how high levels of coordinated teamwork and efforts can be obtained (2, 3).

Every professional gets educated to become competent in a specific health care profession. People become professional nurses, doctors, physiotherapists and so on throughout thorough and robust educational programs. They learn how to take care of patients. They know how to help people rehabilitate and so to achieve a best possible health status or comfortable end of life. In health care research, up until now the dominant focus is on researching and developing the most efficient and best medication and therapies. But to deliver good and qualitative care and make things work in practice, health care professional have to work together. Nothing will happen without interprofessional collaboration. So how and where do we learn to collaborate as professionals with professionals? And why should we even learn to collaborate and what and how should we learn about collaborating professionals? What is needed to know how to collaborate interprofessionally?

BACKGROUND

Interprofessional education exists as a powerful construct for many years with roots in the 1960s and 1970s, mostly across the United Kingdom and the United States of America (4). As Interprofessional education became more widely discussed, differences in definitions, perceptions, purposes and approaches became apparent among stakeholders, including health care providers, professional

associations, regulatory bodies, universities and the burgeoning interprofessional education research (4, 5). In the late-1990s and early 2000, the Centre for the Advancement of Interprofessional Education (CAIPE) formally defined interprofessional education as “occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care” (6, 7). In 2010, according to the World Health Organization, interprofessional care involves teamwork with a higher level of engagement that revolves around respectful understanding of diverse and competing scopes of practice including a value of the unique contributions each profession brings to the health care team (8). Through collaboration the health system becomes stronger (see fig 1) (8). Interprofessional collaboration is essentially an interactive process that requires the presence of a series of elements in the relationships between the professionals in a team. These include a willingness to collaborate, trust in each other, mutual respect and communication. But in complex health care systems professionals cannot, on their own, create all the necessary conditions for success. Organizational determinants play a crucial role, especially in terms of human resource management capabilities and strong leadership (9).

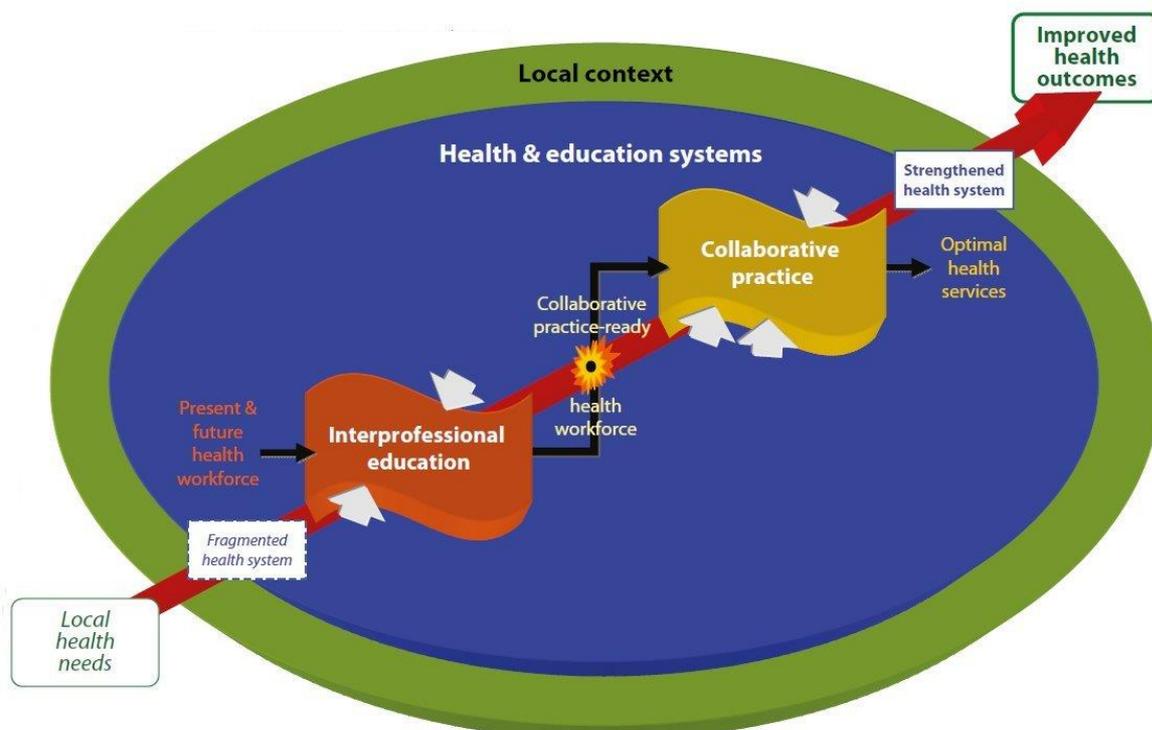


Figure 1: From local health needs to improved health outcomes (8)

Because society is competitive it is important to understand interprofessional collaboration in health care isn't about winning. It is about professionals coordinating their unique skill set with others as they work together to find the best solutions (10). In interprofessional collaboration it is important to understand the rules of the game, to know collaboration is accomplished in daily practice. When 'perception of ownership' and 'process of trade' within interprofessional interactions are appreciated and handled well, team members are able to anticipate reactions, deflect obstructions, and achieve individual goals while maintaining team cohesion (11). There are many studies about barriers to interprofessional collaboration (12, 13). Therefore an important starting point is to highlight the

‘interprofessional concept’ in collaborative practice and education (5, 10). Many health care professionals feel that collaboration isn’t relevant to them because they work in solo practice and not in well-defined teams. The words ‘team’ and ‘collaboration’ are often used interchangeably, but they are not the same. Practice becomes more and more community based so more ‘loose’ teams exist and membership shifts and changes according to the needs for care. So collaboration is not just about formal teams (10). Teams represent different professions and each profession has struggled to define its identity, values, sphere of practice and role in patient care. Different health care professions have evolved under their own and society’s historic forces and ongoing sociological processes (12). Over the years there still seems to be a lack of clarity about the concept of ‘collaboration’ and so it contributes to continue misunderstanding and obstacles to optimal interprofessional education and its effect on interprofessional practice (5).

Interprofessional collaboration in education and practice

D’Amour and Oandasan proposed the concept and framework of “interprofessionality” (see fig 2) (14). This framework permits a better understanding of a phenomenon that is the development of a cohesive and integrated health care practice among professionals in response to patients/clients’ needs. This concept specifically concerns the development of a cohesive practice among different professionals from the same organization or from different organizations and the factors influencing it. Interprofessionality implies a means by which professionals can practice in a more collaborative or integrated way. The framework is made of two circles: the first circle for education and a second for practice. The patient/client is at the core of the second circle, and his or her health care outcomes will be affected by the professionals’ collaborative practice.

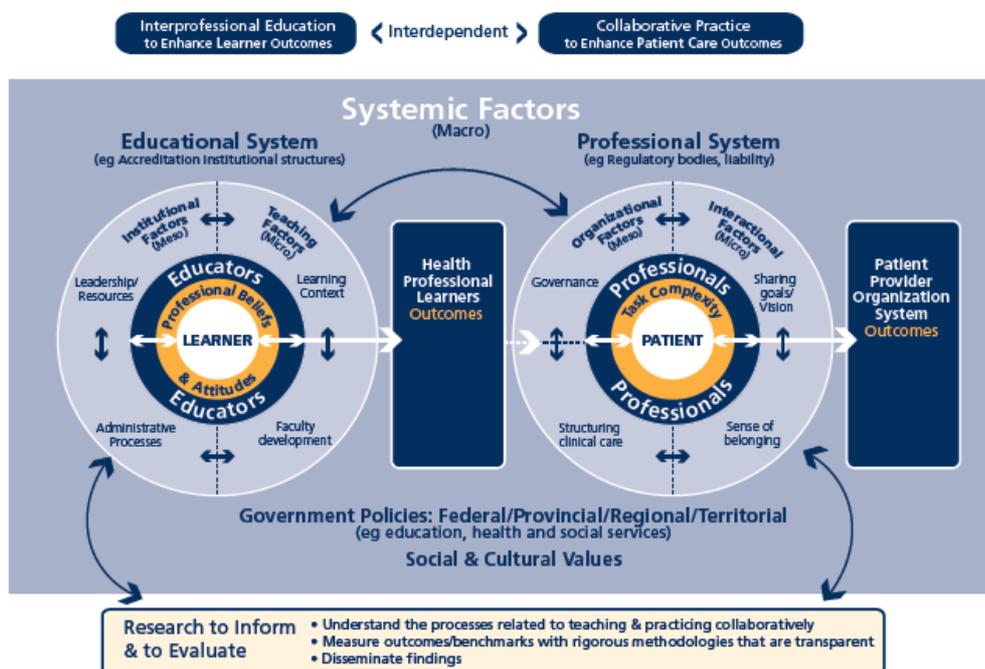


Figure 2: Interprofessional education for collaborative patient-centred practice (14)

It is important to understand the difference between interdisciplinarity versus interprofessionality. Interdisciplinarity is a silo-like division of professional responsibilities and is rarely naturally nor cohesively integrated in a manner which meets the needs of both the clients and the professionals. While in interprofessionality, professionals can practice in a more collaborative or integrated fashion

to emerge a more cohesive and less fragmented interprofessional practice in order to meet the needs of the clients (14, 15).

Governments around the world are looking for innovative, system transforming solutions that will ensure the appropriate supply, mix and distribution of the health workforce. One of the most promising solutions can be found in interprofessional collaboration (8). When health workers want to collaborate effectively and improve health outcomes, two or more health workers from different professional backgrounds must first be provided with opportunities to learn about, from and with each other. This interprofessional education is essential to the development of a “collaborative practice-ready” health workforce, one in which staff work together to provide comprehensive services in a wide range of health-care settings (8).

Working together also means working in teams. Therefore also attention for positive team working is important. There seem to be three important indicators of positive team working. Firstly the personal qualities and commitment of staff, secondly the communication within the team and thirdly the opportunity to develop creative working methods within the team (16). To learn to work interprofessionally, it is important to know what to do (i.e. knowledge) and how to apply the knowledge (i.e. skills) within the appropriate ethical framework using that knowledge (i.e. attitudes and behaviour) (8). These outcomes may be seen in the following learning domains (see table 1).

Learning domains	Content
1. Teamwork:	<ul style="list-style-type: none"> ▪ being able to be both team leader and team member ▪ knowing the barriers to teamwork
2. Roles and responsibilities:	<ul style="list-style-type: none"> ▪ understanding one’s own roles, responsibilities and expertise, and those of other types of health workers
3. Communication:	<ul style="list-style-type: none"> ▪ expressing one’s opinions competently to colleagues ▪ listening to team members
4. Learning and critical reflection:	<ul style="list-style-type: none"> ▪ reflecting critically on one’s own relationship within a team ▪ transferring interprofessional learning to the work setting
5. Relationship with, and recognizing the needs of, the patient:	<ul style="list-style-type: none"> ▪ working collaboratively in the best interests of the patient ▪ engaging with patients, their families, carers and communities as partners in care management
6. Ethical practice:	<ul style="list-style-type: none"> ▪ understanding the stereotypical views of other health workers held by self and others ▪ acknowledging that each health workers views are equally valid and important

Table 1: Interprofessional learning domains (8)

Interprofessional collaboration in health care in Belgium

The Belgian health system is based on the principle of social insurance characterized by solidarity between the rich and poor, healthy and sick people and with no selection of risk (17). The organization of health services allows therapeutic freedom for physicians, freedom of choice for patients and remuneration based on fee-for-service payments. Belgium currently enjoys qualitatively good health care. Patients have the freedom to choose their sickness fund, health care provider and health care institution. These features explain to a significant degree the population’s satisfaction with the organization of health care in Belgium. A great challenge will be the maintenance of a system mainly based on solidarity in an increasingly global world. Because of the aging population, innovations in health care organizations will be required to be able to care for an older population with fewer people. It becomes necessary to facilitate the move from disease-oriented to patient-oriented care (18). Stimulating cross-border collaboration and supporting the sharing of resources and experiences could provide an additional asset to health systems for improving their overall performance (17, 19). Since

2015 the Flemish Minister of Welfare, Public Health and Family (20) initiated the development of a primary care collaboration platform towards more integrated care. The outcome of this program is to be expected in 2019.

Interprofessional collaboration in primary care in Belgium

Primary healthcare is defined as the first point of contact between an individual and the health system. Primary healthcare in Belgium is organized in a cooperation initiative for primary healthcare. This cooperation initiative includes GPs, home nurses, midwives, occupational therapists, physiotherapists, first-line psychologists and psychotherapists, psychiatric home care, dieticians, pharmacists, dentists etc. In addition, also it works with organizations and individuals that enable or support primary care, such as the nursing homes, student care centers, public welfare work centers, catering services, hospital services, etc. (21). Since there is no referral system in Belgium, for several specialties (in particular for gynecology, ophthalmology, dermatology, paediatrics and otorhinolaryngology) the specialist often forms the first point of contact with the patient in the health care system. Delivery of ambulatory care in Belgium is mainly private and based on the principles of independent medical practice, that is, independent medical practitioners and paramedics are remunerated via fee-for-service payment and there is free choice of physician by the patient. The vast majority of physicians work as independent, self-employed health professionals. Medical specialists can work in health institutions (mostly hospitals) and/or on an ambulatory basis in private practice (17). In Belgium every patient at any age, can ask his or her GP to apply a global medical record (GMD). A global medical record promotes quality of care and entitles you to the benefit of for example centralization of your medical data, avoiding unnecessary investigations (22). The global medical record aims to facilitate collaboration exchange of information between primary and secondary healthcare.

In Belgium next to the emergency an out-of-hours primary care system exists. GPs organize out-of-hours care in rotation systems. In these small scale organizations, GPs on call usually work from their private practices. Most of the local GP organizations use a phone number which immediately leads to the out-of-hours care facility. It concerns an organizational model for general practitioners, on duty after the regular practice schedule of the physician, embedded in the health care system (23, 24). Since 2003, in some regions in Belgium, the first general practitioner cooperatives (GPC) emerged (25). A GPC is a specific organizational model for out-of-hours care. It is a large scale organisation for general practitioners in one location, who collaborate in a non-profit organization and take turns being on duty out-of-hours for the patient population of all participating GPs. This organizational model for medical care provided after the regular practice schedule of the physician is embedded in the health care system and in some organizations supported by nurses, management, chauffeurs, et cetera (23, 26-28). With these new structures it becomes clear that more collaboration will be necessary to provide qualitative healthcare.

Interprofessional collaboration in nursing homes in Belgium

From July 1 2014 the policy on rest homes for older persons (ROB – Rustoord voor bejaarden) and the retirement and nursing homes (RVT – rust- en verzorgingstehuis) officially is a Flemish Authority and has ‘nursing home’ as a new name. A nursing home offers permanent shelter and care to the elderly. All those 65 years or older, can go to a nursing home. In practice, a nursing home primarily is intended for those who really can no longer live at home. It is only when someone needs almost constant care and assistance or supervision for living, that persons move into a nursing home. Each resident of a

nursing home has its own room and living room. Naturally, any resident can go in and out the nursing home whenever they want. Also they can receive family and friends when they want it. Residents can count on extra support, domestic help and assistance with daily tasks and receive the medical care they need. A nursing home can also be a service flat construction, day care center or a short-stay centre. The nursing home also collaborates with other health care providers not employed in the nursing home (29). The steadily increasing number of residents in nursing homes will challenge medical care and the interaction across professions, especially nurses and general practitioners (GPs) (30).

Development and aim of the doctoral study

The theme for this research was developed from previous projects, literature studies and own observations and interest. In health care the attention increases every day for patient-centered care, integrated care and professional acting (31). Caregivers are positive about interprofessional collaboration (31-33), but still different health care services and professional care givers should work more collaborative (34).

In this doctoral study the term 'interprofessional collaboration' (IPC) will be used, because this term 'interprofessional' refers to the interaction and stresses out the importance of different professions being involved and fits in the concept of 'interprofessionality' (14). A second reason to use the term 'interprofessional', is because in the literature it is preferred above 'interdisciplinary' (7, 15, 35).

From literature interprofessional collaboration seems to have a positive influence on health care and patient care (16, 32-34, 36, 37). Despite this offer in literature still no research measures the effect of interprofessional collaboration on quality of care (34). Many researchers described the competences needed for collaboration as well as assessment methods to evaluate interprofessional collaboration (33, 38-40).

The doctoral study's aim is to measure the effect of learning to collaborate interprofessionally in practice. We chose to measure these effects in nursing homes, because nursing homes represent a specific context within primary care and give the opportunity to involve different professions from primary care.

The most important building brick to measure interprofessionality in this thesis, is the description of the competence of interprofessional collaborator (fig 3). A full description of this competence can be found in appendix 1 on p 201.

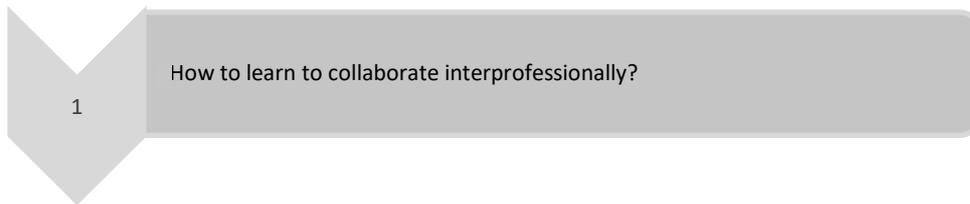


Figure 3: Competence of 'collaborator in healthcare' based on The CanMEDS 2005 Physician Competency Framework (41)

To address the aims this doctoral study we considered four research questions:

- 1 How to learn to collaborate interprofessionally?
- 2 What is known about interprofessional collaborative practice for older people?
- 3 How interprofessional is the usual care in nursing homes?
- 4 What influence can learning to collaborate have for nursing home teams?

Outline of the thesis



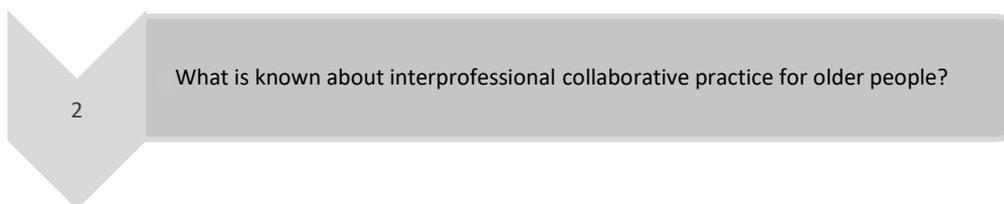
Chapter 2: Learning to collaborate interprofessionally

This chapter is divided in two parts. In the first part of this chapter, the development and evaluation of the interprofessional education module, Interprofessional Collaboration In Health Care (IPCIHC), is described in a case study design. Hereby the case study is analysed with attention to three parts: the need for interprofessional education, the process of development of the case 'IPCIHC' and the evaluation of the module.

Title: ***Tsakitzidis G, Timmermans O, Callewaert N, Truijen S, Meulemans H, Van Royen P. Participant evaluation of an education module on interprofessional collaboration for students in healthcare studies. BMC Med Educ. 2015 Oct 27; 15: 188.***

The second part of this chapter focuses on everyday practice where problems are often encountered in cooperation in the primary care. On the day of the GP on 18 May 2013, possibilities and pitfalls of interdisciplinary consultation were interactively reviewed. Because this reflects the need to learn to work together from the field of work, this is included in this thesis.

Title: ***Tsakitzidis G, Philips H. Interdisciplinair overleg: begint ook het werkveld de nood aan te voelen voor meer opleiding over 'samenwerken'? Huisarts Nu, 2013; 42(6): 291- 294.***



Chapter 3: Interprofessional collaborative practice

In this chapter we systematically reviewed the literature concerning outcome indicators used to measure the effect of interprofessional collaboration interventions for elderly. We explored the literature between 2007 and June 2014.

Title: ***Tsakitzidis G, Timmermans O, Callewaert N, Verhoeven V, Lopez-Hartmann M, Truijen S, Meulemans H, Van Royen P. Outcome Indicators on Interprofessional Collaboration Interventions for Elderly. International Journal of Integrated Care, 2016; 16(2): 5: 1-17***

3

How interprofessional is the usual care in nursing homes?

Chapter 4: Interprofessionalism in usual care in nursing homes

In chapter 4 we aimed to gain insights in the perception of professionals towards interprofessional collaboration in nursing homes and the factors that have an impact on interprofessional collaboration. Therefore we conducted a qualitative study and interviewed different professionals who work in nursing homes or treat patients who live in nursing homes; physicians (GPs), paramedics (nurses, caregivers, physiotherapists, occupational therapists) and policy (board members).

Title: *Tsakitzidis G, Anthierens S, Timmermans O, Truijen S, Meulemans H, Van Royen P. Do not confuse multidisciplinary task management in nursing homes with interprofessional care! Primary health care research & development, 2017:1-12.*

4

What influence can learning to collaborate have for nursing home teams?

Chapter 5: The effectiveness of learning to collaborate interprofessionally

In this fifth chapter we investigate the influence of learning to collaborate interprofessionally on the quality of care from two perspectives. The first is the professional perspective, the second is the residents perspective and this within the context of nursing home. This chapter is divided in four parts.

The first part is the protocol of the experimental study. The intervention is based on the IPCIHC-education modules and focuses on practice in health care. The study ran as a pilot at three nursing homes (one as intervention group and two as control group). The main objective of this pilot study is to test the protocol and the instruments as well as evaluate the database to determine whether interprofessional learning can affect the quality of care.

In the second part of this chapter we aimed to investigate the effectiveness of learning to collaborate interprofessionally on the level of intensity of care and knowledge of interprofessional collaboration as a working model. We performed a cluster randomized controlled pilot trial in primary health care. The results of the intervention group are compared with the results of the control groups at four measurement points. For the professional perspective, the intensity of cooperation and the knowledge about interprofessional collaboration is measured.

Title: *The influence of group education at the workplace on intensity of, and knowledge about interprofessional collaboration in nursing homes.*

In the third part we aimed to describe the education process during the pilot trial interprofessional educational program for personnel in nursing homes in Belgium. The specific aims were to explore the personal change processes during the group sessions and to identify supporting and hindering elements in working as a competent interprofessional team.

Title: ***Exploring the level of interprofessional collaboration in a nursing home during a group education programme at the workplace.***

In the fourth and last part of this chapter we aimed to investigate the influence of an educational module offered as learning at the workplace for the intervention group. We measured outcomes on patient level for weight of the residents, fall incidence, medication use, health related quality of life, independence for activities of daily life and cognitive status. We measured at four time points; baseline, 6 months, 12 months and finally 18 months.

Title: ***Can learning to collaborate interprofessionally influence outcomes for residents in a nursing home?***

Chapter 6: Discussion and Conclusion

In the final chapter we put all findings into perspective and offer possible links between interprofessional education and interprofessional collaboration as learning at the workplace for more interprofessional practice. We offer a number of suggestions for policy and future research.

Chapter 7: Summary/Samenvatting

In this part of the thesis you can find an executive summary *in English and Dutch*.

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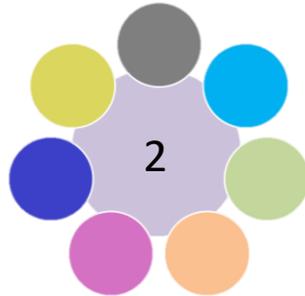
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Bella: It makes me happy to know young people will be encouraged to work together with attention to what we 'old' people need? But why is it so difficult for the 'older professionals or older generation' to learn to collaborate?

Chapter



Learning to collaborate interprofessionally

This chapter is based on:

*Tsakitzidis G, Timmermans O, Callewaert N, Truijen S, Meulemans H, Van Royen P
Participant evaluation of an educational module on interprofessional collaboration for students in
health care studies.*

BMC Medical Education. 2015; 15: 188

*Tsakitzidis G, Philips H
Interdisciplinair overleg: Is er nood aan opleiding over 'samenwerken'?*

Huisarts Nu. November-december 2013; 42(6): 291-294



Bella: Oh that really encourages me to hear professionals do want to do the best for their 'patients/clients'. They only don't know how to learn from each other. My message: don't give up, it is never too late to learn.

ABSTRACT

Background

Interprofessional collaboration is considered a key-factor to deliver the highest quality of care. Interprofessional collaboration (IPC) assumes a model of working together, in particular with awareness of the process of interprofessional collaboration, to develop an integrated and cohesive answer to the needs of the client/family/population. Educational modules are developed in response to a perceived need to improve interprofessional collaboration for the benefit of patientcare. Up until 2005 no explicit module on interprofessional collaboration existed in the education programs of the Antwerp University Association (AUHA). During a decade the 'Interprofessional Collaboration In Healthcare (IPCIHC) – module' is organised and evaluated by its participants.

Methods

One group, post-test design was used to gather data from the participating students using a structured questionnaire. Data was collected between March 2005 and March 2014 from participating final year students in healthcare educational programs.

Results

3568 (84% overall response) students evaluated the IPCIHC module from 2005 up to 2014. Over 80% of the participants were convinced the IPCIHC increased their knowledge and changed their understanding that it will impact their future professional relationships, and felt a greater understanding about problem-solving in healthcare teams . Even though the results indicate that the goals of the IPCIHC module were achieved, less than 60% of the participants experienced a change in attitude towards other professional groups.

Conclusions

Despite the positive outcomes from the participants, the challenge still remains to keep on educating future healthcare providers in interprofessional collaboration in order to achieve an increase in interprofessional behaviour towards other professional groups. Research is needed to investigate the effectiveness of undergraduate programs on the quality and safety of patientcare in practice.

Keywords

Interprofessional, collaborate, education, healthcare

INTRODUCTION

Flexner (2010) wrote in his report "*An education in medicine involves both learning and learning how; the student cannot effectively know, unless he knows how*" (1). One hundred years later it seems that with transformative learning healthcare workers develop their leadership and learn to collaborate interprofessionally in teams so they can contribute to changes in society and healthcare (2). Healthcare professionals in Belgium continue to be educated in silo-structured mono-disciplinary educational systems, wherein interprofessional collaboration is taught through clinical practice through learning by doing (3). Seemingly interprofessional teamwork evolves from trial and error learning (4) and so interprofessional collaboration (IPC) has to be actively taught (5, 6). Overall IPC assumes a model of working together (7), in particular with awareness of the process by which healthcare professionals develop an integrated and cohesive answer to the needs of the client/family/population (8) with a common vision and purposeful approach and with shared responsibility (9).

The rapidly changing context in healthcare, with increasingly more chronic and multimorbid pathologies, resulting in complex care situations and with more professionals involved, sets clear demands towards IPC (10). Educational modules on interprofessional collaboration are developed in response to a perceived need to improve interprofessional collaboration for the benefit of patientcare (11). However, the emphasis on interpersonal skills as a key feature of successful interprofessional working (12) logically should imply that students also have opportunities to interact face-to-face with other students and professionals (13). Additionally it seems that, unless senior staff in both environments fully support interprofessional initiatives, it is extremely difficult for teaching staff to ensure that students have suitable opportunities to learn and work interprofessionally (13). Up until 2005 no explicit course of interprofessional learning was organised in the education programs of the Antwerp University Association (AUHA)(3). To address this problem, we developed the 'Interprofessional Collaboration In Healthcare (IPCIHC) – module'. This interprofessional education module for pre-licensure students is now organised in the education programs of the Antwerp University Association (AUHA) (14) . We have implemented the IPCIHC module annually for 10 years. As in Hunters' study (15), the goal in our project was to effectively translate interprofessional collaboration in healthcare into an educational format where pre-licensure students could learn with, from and about each other (16). During the following ten consecutive years, annual evaluations were used from students, teachers, faculty and participating institutions , to continually refine content, improve process and integrate the most current teaching methods, research on IPC and interprofessionalism. The IPC committee members representing all ten faculties and departments of the participating institutes, provided ongoing input into the yearly modifications in working with this challenge for curriculum design as well as for challenging the organisation in regards to the 'face - to -

face' program. This paper describes the participant evaluation of the interprofessional module on items such as knowledge, attitude and future relationships with other professionals in healthcare. In addition, the study reports on the development of this interprofessional learning module.

METHODS

Development of the program

The starting point of the development of the interprofessional module was the setup of an interprofessional steering team with representatives from the participating education programs. All the education programs for healthcare of the Antwerp University Association (AUHA) received an invitation for participating in developing an interprofessional education module. The aim of the project was to develop an integrated interprofessional module in the existing participating educational programs in the region of Antwerp city. Additionally it had to conform to the existing learning goals for every participating education program. The interprofessional module had to be organised based on competence according to the Bologna Declaration of 19 June 1999 so that widespread student mobility could be promoted. Finally the importance of assessment had to be respected and appropriate instruments to assess the competence 'interprofessional collaborator' had to be used. The first 'Interprofessional Collaboration In Healthcare (IPCIHC) – module' was organised in March 2005.

Structure of the IPCIHC-module: learning and assessment methods used.

Even though different terms are often used in literature to define a model of working together, (7) particularly with regards to the process (8), the term 'interprofessional' was consistently used in the IPCIHC-module to create a common language (17). To help participants in developing a common vision in the IPCIHC-module, the model of team effectiveness of Fry (18) was used. A team should always begin with a team level goal. After the goal is defined, the roles and responsibilities will become clearer. As individuals work together, they will see that goals and responsibilities are often not sufficiently clear. Consequently, team members will need to redefine them. That redefinition enables them to adjust and readjust team processes, such as decision making, conflict resolution and work flow. When doing all that, they will be developing the interpersonal relationships needed to relate to other team members and the team leader (19). In this module the Flexner report is also taken into account to learn and to learn how to collaborate, by using Miller's pyramid of clinical competence (20). The definition of CAIPE (16), used in this module as a central concept, also helped to make choices about didactical and methodological teaching tools when developing the IPCIHC-module.

The definition of the Centre For The Advancement Of Interprofessional Education (CAIPE) was used: "Interprofessional education occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (16).

The recurring theme in the learning process in the IPCIHC-module was competency oriented, where students were assessed based on Miller's learning pyramid (20). The IPCIHC-module was presented in one week (see figure 1) for all final year students of the participating institutions: physicians, physiotherapists, occupational therapists, nurses, midwives, dieticians, speech therapists, social workers and bachelors in psychology. Proper assessment tools to evaluate the learning goals were portfolio, self – and peer assessment and group evaluation. The curriculum contained colleges (3 plenary sessions with lecturers), workshops coached by one teacher and practical sessions for case studies and creation of care plans. We used basic principles of interprofessional learning in terms of learning-teaching issues, such as collaborative learning, egalitarian learning, group-oriented learning: shared responsibility, learning through experience, reflective learning and applied learning (6, 17, 21, 22).

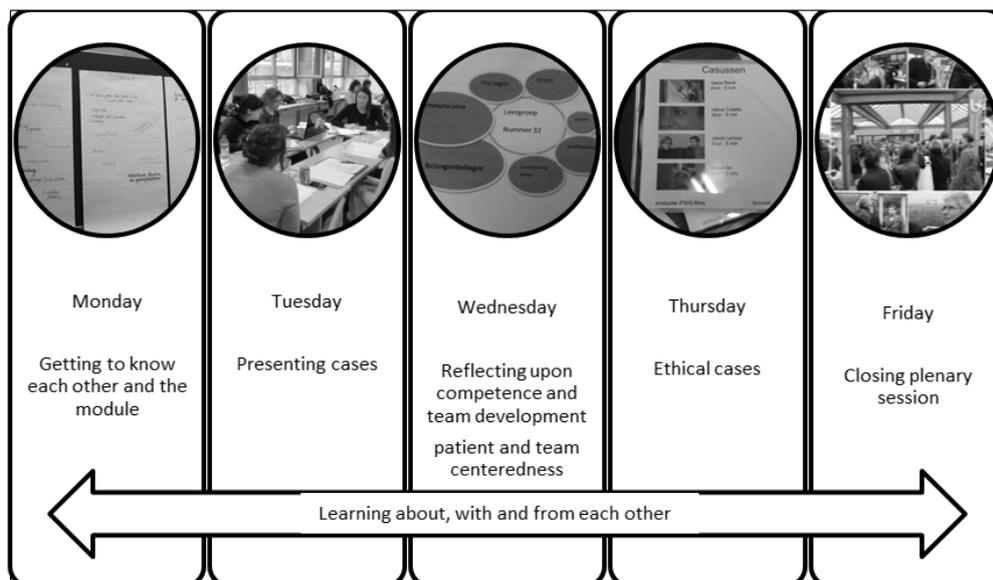


Figure 1: Structure and main components of the one week IPCIHC model

Content and process

Plenary sessions

In order to become familiar with the goals and definition on interprofessional collaboration the IPCIHC-module started with a plenary introductory session on the Monday morning. In the entire group

(between 270 and 600 students, depending on the academic year) some brief lectures were given, alternating with videos, about the foundation and building bricks of interprofessional collaboration such as 'what is interprofessional collaboration' and 'explaining the link between education and practice'. To achieve the objectives, the following topics were presented during plenary sessions: leadership and teambuilding, an inventory and analysis of collaboration in healthcare. In total there were three plenary sessions; one on the first day as introduction, the second on the third day with focus on patient and team centeredness and the closing session with a multidisciplinary panel. The multidisciplinary panel was a representation of patients, policy and healthcare providers.

Small group sessions

From the first day onward (after the plenary session), students were allocated into an interprofessional group of maximum 14 students in which they remained throughout the whole module. The learning goal on the first day started with getting acquainted interprofessionally. So participants in the learning group delved into their own profession and what they knew about the other professions. On the second day, allocated in interprofessional groups again, they had to create a care plan for a case chosen from real clinical situations (anonymised) taken from their mono-disciplinary program. In order to create the care plan the International Classification of Functioning, Disability and Health was used. This is known more commonly as ICF and is a classification of health and health-related domains (23). On the third day, in the afternoon, focusing on patient-centeredness and thinking and acting ethically, they had to reflect upon their own development in the seven roles of the competence 'collaborator in healthcare', as well as reflect upon the group process and development during the three days up until then. On the fourth day students had to discuss ethical cases presented by the teacher on video. Finally at the end of the fourth day, the group had to prepare their presentation for the last day of the module and fill in the self- and peer assessments. On the final day they presented their results and findings during the plenary session and discussed or directed questions to a multidisciplinary panel.

Assessment and evaluation of the students

All results and reflections had to be filed in a portfolio for evaluation. The students' final score on their competence 'interprofessional collaborator in healthcare' was based for 50% on portfolio and 50% on 'collaborative behaviour' during the IPCIHC-module. Students' portfolio was evaluated by tutors from their own discipline and the score for 'collaborative behaviour' was the result of group evaluation, peer and self-assessment in the interprofessional team.

The competences and learning goals

Through literary research and discussions with experts, information was gathered and discussed within the steering committee. The representatives of the participating educational programs considered the competences that should be developed to become an effective collaborator in healthcare. The goal of the IPCIHC-module was to prepare all participating health professional students on basic level for deliberately working together with the common goal of building a safer and better patient-centred and community/population-oriented healthcare system (24). As in the team effectiveness model of Fry (18), all student-teams in the IPCIHC-module had to appoint the goal, the roles every member of the team played and the procedures for every assignment during this educational program. The competence for 'collaborator in healthcare' was finally described as seven roles based upon the CanMeds roles 2005 (25). The fundamental difference with the original and medical competence description of the CanMeds roles is that 'collaborator in healthcare' is the central competence (see figure 2).

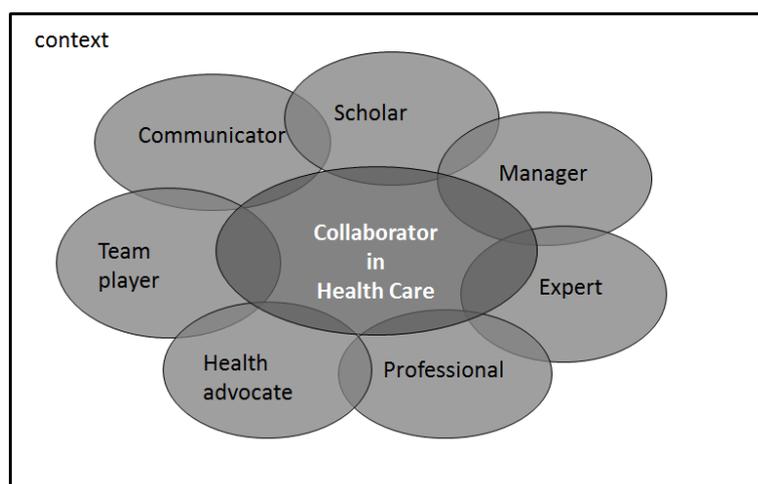


Figure 2: The competence 'Collaborator in Health Care' described in seven roles

For every role the core competencies were described and also used as basis for self- and peer assessment on the competence as 'collaborator in healthcare'.

The basic principle for interprofessional collaboration in this module was understood as a bio-psycho-social model with patient-centeredness (26) and shared decision-making; so looking at patients as persons who have a problem and who present themselves to a certain health worker with a request for help. The patients tell their story to the healthcare professional and together they search for the best available and relevant treatment thus enabling a team to start developing a care plan. The

problem in the patient/client context is the starting point, not as frequently in practice: available discipline tests to see if they can be meaningful in the process of rehabilitation (27).

EVALUATION OF THE MODULE

Annual evaluations from the students, teachers, departments and faculty were iteratively used to continually refine content, improve process and to integrate the most current interprofessionalism. No structural gathering of those data was used. For this study we therefore focused on the participant evaluation, which was performed annually.

STUDY DESIGN

A singular group post-test design was used to gather data from the participants using a structured questionnaire. Data was collected between March 2005 and March 2014. On a standardised moment, all participants were offered the questionnaire. No approval of an ethics committee was required for this study according to the Belgian Law of 7 May 2004 concerning Experiments on the Human Person. Therefore the study does not in any way constitute or involve a 'test carried out on the human person' (within the meaning of Article 2, 7° of this Law), but only concerns an assessment of an educational module. All participating students were informed about the questionnaire and the fact that the data would be processed anonymously.

SAMPLE

From all the participating education programs for healthcare of the Antwerp University Association (AUHA) all final year students between 2005 and 2014 were included. The students represented the faculty of medicine and health sciences (University Antwerp), the departments health and social care of the Artesis University College Antwerp, the departments health and social care of the University College Karel-de-Grote Antwerp, the department of dieticians and nutrition of the University College Plantijn and the department of psychology and speech therapy of the University College Lessius .

DATA COLLECTION-INSTRUMENT AND ANALYSIS

To evaluate whether the learning goals for this interprofessional education module such as knowledge, attitude and future relationships with other professionals in healthcare were achieved, the interprofessional module was progressively evaluated with the participating students. Similar to the evaluation strategy used in Parsell et al. (1998) (28) the participants evaluated the course by a written questionnaire. Seven closed questions were translated from English to Dutch and back to English. For question five and seven the term 'interprofessional' was used instead of 'multiprofessional'. Also for question six 'NHS' (National health service) was replaced by 'Healthcare'. The seven closed questions were:

1. Has the course increased your knowledge of the roles and duties of other professional groups?
2. Has the course changed your understanding of how other professional groups work?
3. Has the course changed your attitude towards other professional groups?
4. Do you feel that a course in interprofessional learning will have any effect on your future relationships with other professional groups?
5. Should interprofessional learning be included in your undergraduate course?
6. Do you feel you have a greater understanding about problem solving in teams in the healthcare?
7. Do you think a course in interprofessional learning will enable you to work more effectively as a member of a healthcare team?

All questions could be answered simply with 'yes' or 'no'. Missing answers were strictly scored as 'no'. To increase the response rate, tutors were asked to gather the questionnaires on the last day of the module. Questionnaires were filled in anonymously.

Descriptive statistics were used to summarize and describe the data gathered by the questionnaire.

RESULTS

Since 2005, over 4000 students have attended this module. All participant evaluations and comments from 2005 up to 2014 were gathered (see figure 3). The evaluation was anonymous and in total 3568 of 4232 (84% overall response) students evaluated the module.

Overall 90% of all participants indicated that the IPCIHC-module increased their knowledge about the roles and duties of other professional groups. 80% was convinced the IPCIHC-module changed their understanding on how other professional groups work. Less than 60% of the participants experienced a change in attitude towards other professional groups. The participants commented that they already had a positive attitude before the IPCIHC-module. The percentage of positive scores for this question increased between 2005 and 2014. On the question concerning whether they thought that a course in interprofessional learning would have any effect on their future relationships with other professional groups, almost 80% answered 'yes'. According to the participants, interprofessional learning should be included in undergraduate courses (90%). Almost 80% felt a greater understanding about problem-solving in teams within healthcare. Finally, 75% of the participants thought a course in

interprofessional learning would enable them to work more effectively as a member of a healthcare team.

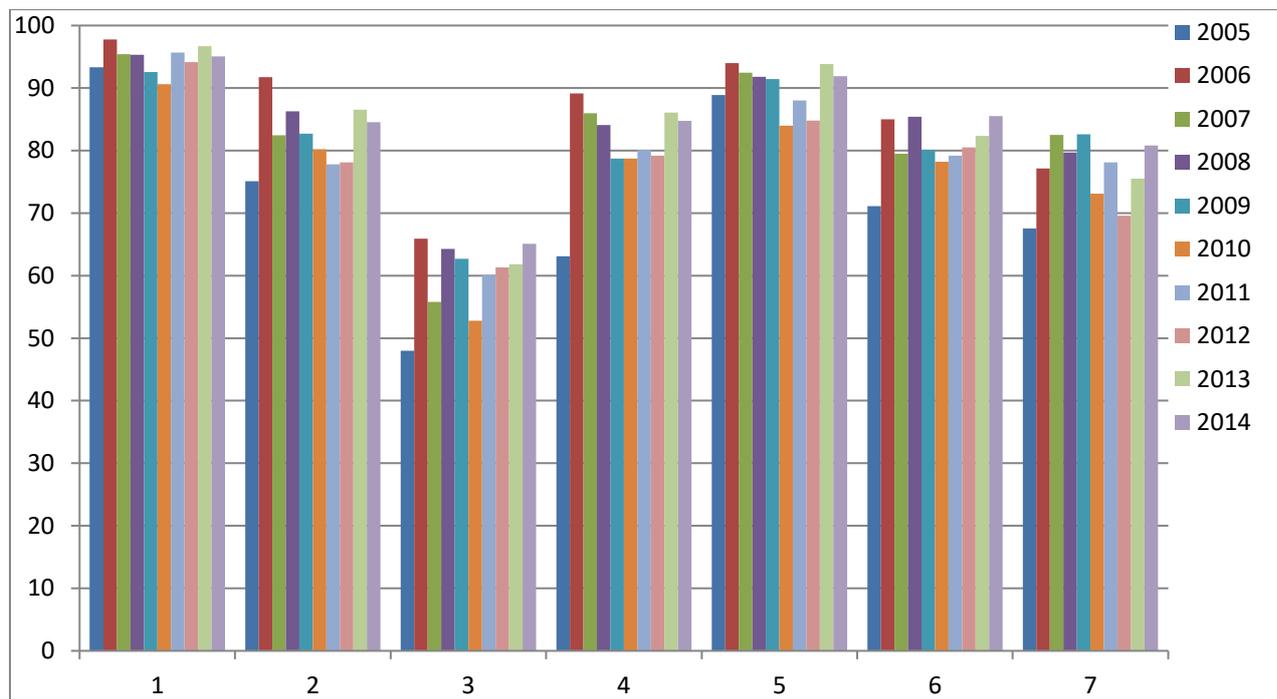


Figure 3: Percentage of 'yes' answers per question per year on the seven closed questions (Total number of participants = 3568)

1. Has the course increased your knowledge about the roles and duties of other professional groups?
2. Has the course changed your understanding of how other professional groups work?
3. Has the course changed your attitude towards other professional groups?
4. Do you feel that a course in interprofessional learning will have any effect on your future relationships with other professional groups?
5. Should interprofessional learning be included in your undergraduate course?
6. Do you feel you have a greater understanding about problem-solving in teams in the National Health Service?
7. Do you think a course in interprofessional learning will enable you to work more effectively as a member of a health care team?

On top of the annual evaluations of the students, teachers', departments' and faculties feedback and evaluations were also taken into account to adjust the program. Despite the fact that no structural gathering of this data was used, it seemed that participating institutions also adjusted their curriculum in order to better prepare students for an interprofessional module. Content was refined yearly when necessary. The learning goals and learning processes were improved by using the most recent teaching methods. For example, in many participating educational programs self- and peer assessment was not used as an evaluation tool. After participating in the IPCIHC-module, this evaluation method was introduced in different curricula. In 2005 the curriculum of physiotherapy had no training in basic communication skills. After evaluation of the participation education program, it seemed there was a need for training in communication skills and so from 2006 onwards it was introduced in their

curriculum. So the entry level of students changed over the years between 2005-2014. Another example is that, at the time, the social workers, medicine and nursing program participants had never worked with ICF as a framework to facilitate the process for delivering a care plan. ICF today is introduced as a theoretical framework in different curricula.

DISCUSSION

The aim of this study was to evaluate education on 'collaborative skills' to be learned in an interprofessional education module. The results suggest a success of this Belgian IPCIHC module for the participating students and institutions. But the continuous changes in healthcare and curricula still challenge the interprofessional committee of the IPCIHC-module to keep on 'proving' the advantages of learning with, from and about each other during undergraduate programs in healthcare.

The importance of interprofessional education and the link with competence seem clear from the literature (29-31). Moreover stakeholders from the micro and meso level of chronic care organization in Belgium, identified the lack of integration of care as one of the biggest weaknesses of today's healthcare system, along with the unclear definitions of the roles and functions of health professionals involved in care processes (32). Collaboration cannot just be 'brought' to practice by giving theoretical frames (33). Interprofessional education modules should develop the competence of 'collaborator in healthcare' in an interprofessional team. Education and practice have to be linked through 'learning while collaborating interprofessionally' and vice versa (33). Therefore it is difficult to translate all these needs and criteria from literature and practice in an education module for a specific context. But the hidden drive to keep going and to keep looking for qualitative and relevant education is the quality and safety of patientcare (24, 34).

Based upon the results we suggest students have to work with their own cases from internship and not with fictitious cases. Moreover, the module on interprofessional collaboration should be organised during or after internship. Yearly, in the development of the IPCIHC-module, the organising team used the results of the evaluations, the written feedback and the oral feedback of the students and tutors to modify the IPCIHC-module where necessary. Also, each year the participating institutions evolved. Participating in the IPCIHC-module enhanced the awareness of the importance of communication skills and had an impact on different participation curricula. Due to this impact the entry-level competence changed for most participating students between 2005 and 2014. Curricula became more interprofessional-oriented. Taking this into account and based on the participant evaluation results, the value of the face-to-face interprofessional education program has been respected despite the continuous changes on different levels. It appears from the participant evaluation results that participants' knowledge on the roles and duties of the other healthcare professionals increased. This

underbuilds the selected and executed teaching methods. In every session the learning goals were appointed and processed. It may well be that this explicit interprofessional learning module helped participants to be aware of the changes in their understanding of how other healthcare professionals work. But also it helped curricula developers to be aware of international changes of how to prepare students to think and work more interprofessionally. Even though participants claimed that one week is not enough to get acquainted with all professions and aspects from the results, it seems that almost 80% replied that the IPCIHC-module will impact their future relationship with other professional groups. The majority of the participants suggested that the IPCIHC-module increased their understanding of problem-solving in teams and that the course will enable them to work more effectively as a member of a healthcare team. This perception could be the result of the reflective methods used, but should be further investigated in future research for its real effects. It is not only about looking for 'interprofessional' answers for the questions in the modules' assignments, it is also about working in an interprofessional team with respect to the definition of learning with, from and about each other. Participants became familiar with the definition of interprofessional collaboration as described in the literature, but this also applied to the curricula developers. The students worked with cases from their own internship, for which they made an interprofessional care plan. During the week they learned to discuss ethical problems while taking 'ethical' decisions. Moreover, students developed their insights in the competence of interprofessional collaborators in healthcare. The curricula developers on the other hand became aware of competence needed for basic training, thus preparing their students to enter this interprofessional module. All participants worked with the same competence model to reflect and to assess the group functioning as well as the individual development on the core competences per role, as well as the functioning of their group. Still, one has to be aware that the IPCIHC-module only offers handles and triggers to develop the competence of an interprofessional collaborator and to develop more interprofessional curricula. Whereas context is an important influencer on interprofessional collaboration, research is needed to investigate the real effectiveness of undergraduate programs for patientcare in clinical practice settings. It seems a never-ending story in an always dynamic and interactive complex practice.

CONCLUSION

We gathered data through a questionnaire and gave an overview of the content and development of the interprofessional educational module. Despite the fact it is only a participant evaluation, based on seven closed questions, it gives a descriptive overview of positive participants' evaluation of the interprofessional module over 10 years. The challenge still remains to keep on educating future healthcare professionals to collaborate interprofessionally. More research on teaching methods and

curricula development is needed to investigate the real effect of undergraduate programs for patientcare in practice.

LIST OF ABBREVIATIONS USED

IPCIHC: Interprofessional collaboration in Healthcare

CanMeds: Canadian Medical Education Directions for Specialist

COMPETING INTERESTS

All authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

GT is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. She drafted the manuscript. OT and PVR made a substantial contribution to concept and design. They revised it critically and gave final approval of the version to be published. NC made a substantial contribution to analysis and interpretation of data and critically revised the manuscript. ST and HM revised the manuscript critically and gave final approval to the version to be published.

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INTERDISCIPLINARY CONSULTATION. IS THERE A NEED FOR TRAINING IN ‘COLLABORATION’?

SUMMARY

It is becoming readily apparent that interprofessional education is organized with the belief that this will improve the quality of care. Is this true? This article elaborates on what we mean with interprofessional collaboration and what problems may occur in practice. Interprofessional teaching modules can indeed offer an answer to overcome the barriers.

INTRODUCTION

Problems in healthcare are still often caused by insufficient or inadequate interdisciplinary or interprofessional collaboration. On the one hand, the literature suggests that by working together the quality of care can improve, but the number of randomized controlled trials (RCTs) that have conducted research in this area is limited (1). On the other hand, there is an increase in interprofessional education because there is the belief that this will also improve the quality of care, however, up till today there is a little evidence to support that belief (1, 2).

But what happens in practice or in 'reality'? The patient is consulting the GP and then what happens? Does it make sense to work together with other disciplines? What is collaboration really and how does it work in practice? What are the points for attention? Which competencies must a healthcare provider develop in order to be able to function as a 'good' (interprofessional) collaborator in health care?

HOW DO CARE WORKERS EXPERIENCE “COLLABORATIVE” WORKING IN THE PRIMARY CARE?

Questionnaire

Each year Domus Medica – the Flemish GP organization, organizes a ‘GP day’. On 18th May 2013 there was, among other workshops, a workshop that focused on the 'possibilities and pitfalls of interdisciplinary consultation'. The participants of this workshop were asked to answer some questions on paper with the purpose to start the consult and discussion with a more specific focus. It is of utmost importance to know which problems the professionals encounter in their daily practice, “the real world”.

The 17 participants were mainly GPs but there were also some GP’s in training (HAIO’s), care process promoters and a psychologist. Some of the participants were also active in education and/or research. The “barriers” are ranked and situated in different aspects of the conditions necessary to achieve a good collaboration. The named problems can be summarized under the four head sections: appointments, information exchange, expectations and competences.

RESULTS

Unclear agreements

Appointments are frequently not kept. Consult and follow up did not go well because of unclear agreements. Some care workers took initiatives on their own beyond the agreements made, which causes a lot of difficulties. There are also no or unclear agreements about who is contacting which care worker and at which timeframe. Frequently assumptions were made that appointments had already been made, although these were not explicitly allocated to a specific person.

Too little flow of information

When it comes down to communication and information exchange there seemed not enough information flow between the different care workers/disciplines. Psychiatry as a discipline was even experienced as “seemingly inadmissible”. Sometimes discussions were experienced as “talk to deaf man’s ears” or everybody took up his own point of view without taking other views into consideration. Additionally, care workers and doctors sometimes presumed that their communication was clear. Through bad communication patients feel left out, or do not know what to do because of this bad communication. Sometimes they were referred to one specialist and then to another without any explanation whatsoever. It was also given that sometimes there was not enough feedback about the treatment itself by paramedics or fellow doctors.

Different expectations

There were also problems reported relating to views and expectations. It seems that an individual view is related to certain expectations. Different health care workers can have the same vision but still have different expectations if they are not verbalized or discussed together: *“discussion with the organizations whereby the expectations weren’t tuned with each other in advance”, “ a difference in interpretation to the need of care between different care workers or for example “Note of obvious malnutrition (with lab proof) that are neglected by management of residence and care center”*.

Question marks against competencies

A striking finding was the reports on the competences of ‘others’. It seems that there are quite a few remarks on other disciplines; *“Nurses who put out wrong medication”, “physiotherapists making the ‘wrong diagnoses””, “pharmacists who want to manage medication files without knowledge of the ‘medical’ background of the patient”, “GP’s who do not know the health guide”*. It is understood as insufficient ‘knowhow’, but also as a lack of positive attitude towards what the other one does well.

Proposed solutions

The participants clearly indicate that obvious and agreed divisions of tasks are important. In the scope of the follow up of chronic patients it has been reported that information technology (IT) could provide

solutions. An efficient registration and communication through a performant Electronic Medical File (EMF) would benefit the multidisciplinary functioning and care of the patient. Shared files are obviously an interesting track, but the possibility to have a telephone contact is still very important. E-mail is seen as a rather good tool to make practical agreements, but not to exchange substantive information. The possibility to divide tasks over various disciplines can optimize the care. The pitfall here could be that in the long run you have so many various agreements that it is no longer organized or feasible. A consult with the patient (and his/her environment) and other care workers eventually is important in addition but is not always feasible. Local collaboration between GPs and other groups of care workers can - according to the needs and possibilities- be a tool. A face to face meeting and consult is good but it might lead to "meetingitis"? Unclear calendars and lack of communication skills or personalities that do not match, lack of leadership often stand in the way of a good division of tasks. Some people take the lead and the others keep on doing their own thing. There are differences in attitude, but providing incentives to the care workers to improve collaboration is seen as a possibility. Why not learn to get to know each other and learn from one another by common training for example? This could be provided in the accreditation system as a 'new section', 'interprofessional work and consultation', in addition to compare with the points 'ethics and economy'.

HOW DO RESEARCHERS UNDERSTAND '-COLLABORATIVE' WORK IN PRIMARY CARE?

Benefits of working together

Theory indicates that interprofessional collaboration improves recognition and knowledge of and confidence in one another's expertise (3). The communication can run smoother and a better division of tasks can be organized and the complexity can be handled in a more structured way. The tendency to strong specializations, profiling and mutual competition are discouraged. Finally it will improve the job satisfaction, dividing of the workload and the responsibility and also finally the quality of the care. Communication and information exchange is important in collaboration and is an essential social process that assumes shared tools, communication and mutual support. Technology will never prevent the need to traditional forms of interaction. The technology will provide new possibilities and facilitate new or other forms of collaboration (4).

Improvement of the care

The literature shows us that when professionals daily discuss the tasks that are necessary to provide the care for that patient, the amount of days in the hospital significantly drops (from 4.1 days SD 2.1 to 2.7 days SD 1.4 $p < 0.05$) (5). These findings are from the secondary care and for a specific patient population (orthopedics section, for total hip prosthesis). Everybody knows that a daily meeting in the primary care is impossible.

Research on the effect of multidisciplinary collaboration (weekly consult) with breast cancer patients

resulted in a higher chance of survival in this population (6). Consult in the scope of the care quality is unthinkable. There are only a small amount of reviews that did research on the efficacy of interprofessional education in the primary care, however the founded results are promising. The results were mainly related to questions on attitude and change of behaviour measured by a list of questions. Unfortunately these cannot be generalized because the publications did not meet the strict standards of for example Cochrane (7).

Collaboration

- Be prepared to work together
- Be open to a different perspective
- Acknowledge and trust everybody's expertise and task
- Make clear agreements on target, roles and procedures

IS ONE'S OWN EXPERIENCE SUFFICIENT?

What makes us 'competent' collaborators in health care? It all starts with ourselves. There is no standard cookbook that gives us the ingredients or recipes for a step-by-step plan to lead us to a successful collaboration. Each one must look within their own context and within their own possibilities what's feasible for the situation that occurs with respect for what the 'patient' needs. Obviously in order to do this you need to have a competence of reflection. These scopes and handles are offered within the training based on the definitions as presented in annex on p 48.

In the training module "Interprofessional collaboration in health care", short for "IPCIHC" the competence "collaborator in health care" is described on the base of the 7 roles of the CanMEDS (8). Collaborating means that there are others involved and here, for the team effectiveness, the model of Fry seems usable (9). We use this model in our training as a handle to map out a structured collaboration. It is important to always know first what the target is. Then the roles known as terms of "who does what" and preferably "why". All partners working together have to agree upon the procedures, "how are we going to handle it? Only in the last phase the interpersonal relationships are considered as important because if the agreements go well and all roles are clear, then the working relationships will run well.

CONCLUSION

It is not because we have the experience in working together, that we effectively learned to 'collaborate'. It might be useful to learn to experience and to experience through learning. Interprofessional learning means to learn 'from, about and with each other' (10). Be aware that in reality, things or care change continuously and we need to be aware of that all the time. A dynamic and interesting occurrence that demands more collaboration between research, education and practice.

KEY POINTS

Interprofessional collaboration can be learned.

To reflect on good collaboration helps to make success keys concrete and clearly formulated interprofessional targets.

By working together in an interprofessional way, you learn to appreciate and value each other's expertise and so a trusting working relationship can grow and develop.

Through training one is better equipped to adapt to the ever-changing context, within which the best care is given.

The participants were enthusiastic and convinced that the quality of patient care takes precedence and learning to collaborate is important.

Annex

Uni-, multi-, inter-, transdisciplinary, ...?

Everything starts with the correct concepts. Do we know the difference between working in a multi- and transdisciplinary way? What is the essential difference between multi- and interprofessional collaboration? An unambiguous definition of these terms helps to better understand in which partnerships we work and what expectations this can imply.

(Uni)Disciplinary working

'Monodisciplinary' working is a situation whereby the care worker independently (on his own) can take care of the patient. There is little awareness or acknowledgement of the practice of colleague care workers of a different discipline (3). This form of working can be seen when the GP offers the best possible care to his patients and tries to estimate to his best capability what is relevant for his patient with the provided problem, within his own discipline.

Multidisciplinary working

With 'multidisciplinary' different aspects of patient care are approached independently and separately. The disciplines know from each other that they are taking care of the same patient but each is responsible for his own "disciplinary" part (3). The GP has prescribed a few tasks and actions which are performed by other disciplines. There is an exchange between the doctor and the care workers involved or between the doctor and the patient through oral information or written information, making sure that the involved disciplines are kept up to date.

Interdisciplinary working

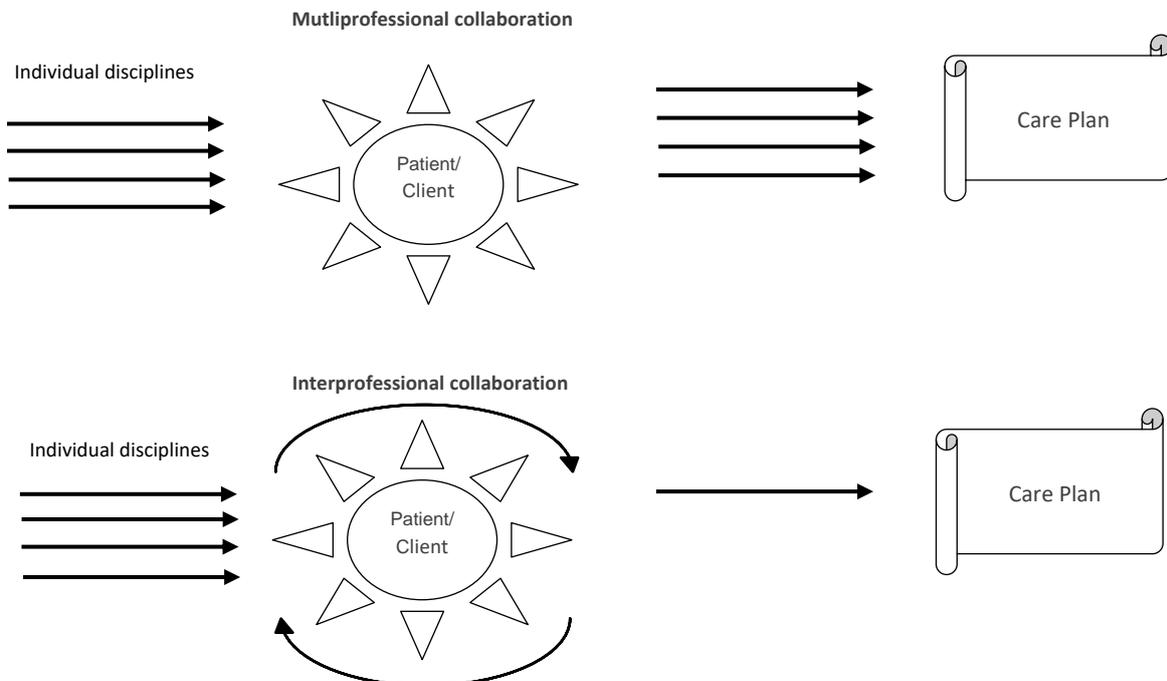
Although with 'interdisciplinary' working it's about common aims and responsibility for the patient care. The provided help comes from different disciplines, coordinated and adjusted to the needs of the patient (3). The doctor works closely with other disciplines. There is consult and a broader aspect than strictly medical problematic. There is more coordination so measured up care can be provided. This also brings us to "transdisciplinary" working.

Transdisciplinary working

With 'transdisciplinary' working the borders of the different disciplines is vague (3). The involved disciplines are counting on one another's expertise and make agreements to divide the tasks directly to the needs. With transdisciplinary care some tasks can even be taken over by another discipline to optimize the feasibility of the aims. This last presumes knowledge of and recognition and trusting one another's input.

Interprofessional collaboration

'Interprofessional collaboration' presupposes an interdisciplinary or interprofessional approach. In the educational module the term "interprofessional" is being used. 'Inter' emphasizes the interaction and 'professional' emphasizes the involvement of the various professional care providers as well as the patient and his/her system. This model distinguishes itself clearly from the multiprofessional model. Thereby, the different actors act on a sequential way up, i.e. one after another and so with little interaction between the actors (4).



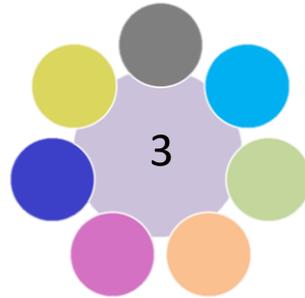
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Bella: When I wonder if the care that I get is interprofessionally, what should be known? How can one tell that the care I get is 'interprofessionally' good?

Chapter



Outcome indicators on interprofessional collaboration interventions for elderly

This chapter is based on:

Tsakitzidis G, Timmermans O, Callewaert N, Verhoeven V, Lopez-Hartmann M, Truijen S, Meulemans H, Van Royen P.

Outcome Indicators on Interprofessional Collaboration Interventions for Elderly. International Journal of Integrated Care. 2016;16(2): 5: 1–17

ABSTRACT

Background

Geriatric care increasingly needs more multidisciplinary health care services to deliver the necessary complex and continuous care. The aim of this study is to summarize indicators of effective interprofessional outcomes for this population.

Method

A systematic review is performed in the Cochrane Library, PubMed (Medline), Embase, Cinahl and Psychinfo with a search until June 2014.

Results

Overall, 689 references were identified of which 29 studies met the inclusion criteria. All outcome indicators were summarized in three categories: collaboration, patient level outcome and costs. Seventeen out of 24 outcome indicators within the category of 'collaboration' reached significant difference in advantage of the intervention group. On 'patient outcome level' only 15 out of 32 outcome parameters met statistical significance. In the category of 'costs' only one study reached statistical significance.

Discussion and conclusion

The overall effects of interprofessional interventions for elderly are positive, but based on heterogeneous outcomes. Outcome indicators of interprofessional collaboration for elderly with a significant effect can be summarized in three main categories: 'collaboration', 'patient level' and 'costs'. For 'collaboration' the outcome indicators are key elements of collaboration, involved disciplines, professional and patient satisfaction and quality of care. On 'patient level' the outcome indicators are pain, fall incidence, quality of life, independence for daily life activities, depression and agitated behaviour, transitions, length of stay in hospital, mortality and period of rehabilitation. 'Costs' of interprofessional interventions on short- and long-term for elderly need further investigation. When organizing interprofessional collaboration or interprofessional education these outcome indicators can be considered as important topics to be addressed. Overall more research is needed to gain insight in the process of interprofessional collaboration and so to learn to work interprofessionally.

Key words

elderly, interprofessional care, quality of care, effect

INTRODUCTION

The ageing of the population is expected to be a major driver of increasing demand for long-term care multi-disciplinary services [1, 2]. An average of 81% (for Belgium 84%) Europeans prefers to be cared for in their homes either by relatives or by professionals, whereas only 8 % (for Belgium 11%) prefers to be cared for in a long-term care institution [3]. Delivery of health care for the ageing population will therefore require more and high levels of inter-disciplinary teamwork or 'interprofessional collaboration' [4-6]. The extent to which different health care professionals work inter-disciplinary well together affects the quality of the health care that they provide [7-9]. Distinctions between the terms multi-disciplinary and inter-disciplinary (or interprofessional) are important. Interprofessional collaboration (IPC) is a model of different disciplines (inter-disciplinary) working together [10-12] and assumes a process by which professionals develop an integrated and cohesive answer to the needs of the care receivers and their social system [13, 14]. In multi-professional collaboration on the contrary, appropriate experts from different disciplines handle problems of care receivers independently. The care receivers' problems are subdivided and treated separately, with each provider responsible for his/her own area so it is more an additive collaboration rather than an integrative collaboration as in IPC [15]. Despite the large amount of publications on IPC, still a higher quality of research, evidence and more rigorous evaluation is needed to understand the effectiveness of IPC and to support decision makers [9, 16]. Studies should provide insights into how interventions affect collaboration and how improved collaboration contributes to changes in outcomes on patient level and especially quality of care [9]. Over the years different studies tried to indicate positive effects of IPC and interprofessional education (IPE) in practice for outcomes on patients [9, 17]. However indicators to measure the effect of IPC in order to learn to collaborate interprofessionally, are still not well investigated nor standardized [18, 19]. A summary of outcome indicators used to measure the effect of IPC interventions for elderly, can help to organize IPC and to develop IPE. An overview of effective indicators of IPC can help to gain insight in how interventions affect collaboration and how improved collaboration contributes to changes in outcomes for elderly. This review aims to summarize outcome indicators used to measure the effect of IPC interventions for elderly.

METHODS

Search strategies

A systematic search was performed for articles published between 2007 and June 2014. This search for relevant publications repeated the strategy used by Zwarenstein et al 2009 [9] as a starting point not with the aim to update the review. Databases used were The Cochrane Library, PubMed (Medline), Embase, Cinahl and Psychinfo. Only literature published between 2007- and June 2014 was included. The search strategy employed the following terms: interprofessional relations, patient care teams, interprofessional, multidisciplinary and transdisciplinary collaboration. The search strings as used can be found in annex p 69.

Selection criteria publications

For the search five independent readers (PVR, GT, NC, VV and MLH) selected the references on the basis of title and abstract using the following inclusion criteria: a practice-based IPC intervention was

the topic of the study and outcomes were reported on the effect of the IPC intervention with a relevance for elderly. We also reviewed the selected studies on description of the intervention and the control group. An IPC was considered when there was a model of working together between different disciplines and with the awareness of the process by which health care professionals developed an integrated and cohesive answer to the needs of the care receivers and their social system, a common vision and purposeful approach and shared responsibility [13, 14, 20].

Study quality appraisal

The selected papers were screened on full text by two reviewers (GT and PVR) and assessed with the use of the Dutch Cochrane assessment instruments for evaluation of systematic reviews, for evaluation of RCT's, cohort studies and qualitative research [21].

Data extraction

For all included studies the characteristics were reported including year of publication, study design, population, aim, intervention and control, and finally outcome (see table 2).

RESULTS

Overall, 689 references were identified by the search, of which 57 were eligible on the basis of their title and abstract. Finally, 29 publications met the inclusion criteria after critical appraisal (table 1) on full text and were included for the review (figure 1). In general the interventions were described well enough to decide whether an intervention could be identified as 'interprofessional' or not. However the description of the control group was not always well described to know the exact difference between 'interprofessional collaboration' as intervention and the 'other' collaboration.

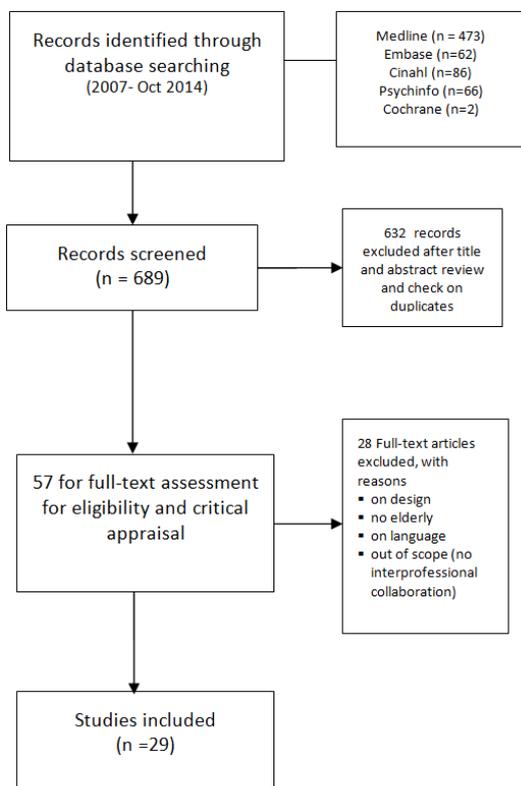


Figure 1: Flowchart results literature search

Results of the critical appraisal

RCT's Author (y)	Questions (Dutch Cochrane for RCT's instrument)									TOTAL/9	Quality appraisal: Medium/High
	1	2	3	4	5	6	7	8	9		
Bellantonio, 2008	1	1	0	0	0	0	0	1	1	4	medium
Berggren, 2008	1	1	1	1	1	1	1	1	1	9	high
Berglund, 2013	1	1	0	0	0	1	1	1	1	6	medium
Boult, 2008	1	1	0	0	0	0	0	1	1	4	medium
Boyd, 2009	1	1	0	0	1	1	1	1	1	7	high
Bryant, 2011	1	0	0	0	0	1	1	1	1	5	medium
Chapman, 2007	1	0	0	0	0	0	1	1	1	4	medium
Counsell, 2007	1	1	1	1	1	1	1	1	1	9	high
Counsell, 2009	1	1	1	0	0	1	1	1	1	7	high
Denneboom, 2007	1	0	0	0	0	1	1	1	1	5	medium
Hogg, 2009	1	1	0	0	1	1	1	1	1	7	high
Markle-Reid, 2010	1	1	0	0	1	1	1	1	1	7	high
Mudge, 2012	0	0	0	0	1	1	1	1	1	5	medium
Phelan, 2007	1	0	0	0	1	1	1	1	1	6	medium
Respect team, 2010	1	1	0	0	1	1	1	1	1	7	high
Ryvicker, 2011	1	0	0	0	1	1	1	1	1	6	medium
Stenvall, 2007a	1	1	0	0	0	0	1	1	1	5	medium
Stenvall, 2007b	1	1	1	1	1	1	1	1	1	9	high
Unutzer, 2008	1	0	0	0	0	1	0	1	1	4	medium
Van Leeuwen, 2009	1	1	0	0	1	1	1	1	1	7	high
Wu, 2010	1	0	0	0	0	1	1	1	1	5	medium
Young, 2007	1	1	0	0	1	1	1	0	1	6	medium

For all questions 1 = yes 0 = no or? Questions: 1. Randomization? 2. Allocation concealment? 3. Patient blinding? 4. Blinding of administrator of treatment? 5. Blinding outcome assessment? 6. Similarity of groups at the start of the study? 7. Descriptions of losses to follow-up/withdrawals? 8. Intention-to-treat analysis? 9. Groups equally provided of care? Note: Publications with a score < 4 were excluded.

SR Author (y)	Questions (Dutch Cochrane for SR instrument)								TOTAL/ 8	Medium/ High
	1	2	3	4	5	6	7	8		
Gates, 2008	1	1	1	1	1	1	1	1	8	high
Handoll, 2009	1	1	1	1	1	1	1	1	8	high
Nazir, 2013	1	1	1	1	1	1	1	1	8	high
Stroke Unit Trialists', 2007	1	1	1	1	1	1	1	1	8	high
Cameron, 2010	1	1	1	1	1	1	1	1	8	high

For all questions 1 = yes 0 = no or? Questions: 1. Question adequately formulated? 2. Quality of search? 3. Selection procedure? 4. Quality appraisal? 5. Description of data extraction? 6. Description of study baseline characteristics? 7. Clinical and statistical heterogeneity? 8. Statistical pooling? Note: Publications with a score < 4 were excluded

Cross sectional study's Author (y)	Questions (Dutch Cochrane for cohort research)								TOTAL/8	Medium/High
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	1	2	3	4	5	6	7	8		
Dedhia P, 2009	1	0	1	1	0	1	0	1	5	medium

For all questions 1 = yes 0 = no or? Questions: 1. Comparable groups defined? 2. Can selection bias be excluded? 3. Is the exposure defined and is the method judging exposure? 4. Is the outcome well defined and is the method judging outcome adequate? 5. Is the outcome blind for exposure defined? 6. Is the follow-up period long enough? 7. Can selective loss-to-follow-up be excluded? 8. Are the important confounders of prognostic factors identified and is this being adapted in the design of the research or the analyses? Note: Publications with a score < 4 were excluded.

Qualitative research Author (y)	Questions (Dutch Cochrane for qualitative research)							TOTAL/ 7	Medium/High
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	1	2	3	4	5	6	7		
Rantz, 2013	1	1	1	0	0	0	1	4	medium

For all questions 1 = yes 0 = no Questions: 1. Relevant research question? 2. Adequate method of data collection? 3. Adequate sampling ? 4. Research is controllable? 5. Concrete description of methods used for analysis? 6. Researcher perspective is described? 7. Conclusion fits qualitative research criteria? Note: Publications with a score < 4 were excluded.

Table 1: Results Quality Appraisal

RCT's= Randomized controlled trials, SR= Systematic review. A score < 4 is low, between 4 and 6 = medium , > 7 = high

Reference	Study design	Population	Aim	Intervention and control	Outcome
Chapman, 2007	RCT	118residing in nursing homes (Aged ≥75)	This study evaluated the effectiveness of advanced illness care teams (AICTs) for nursing home residents with advanced	AICT advanced illness care teams versus usual care	Descriptive characteristics of the participants (age education, income, MMSE, Global deterioration scale, ADL-Scale, gender, marital status, race or ethnicity) * pain * depression * agitation With: * Cohen-Mansfield Agitation Inventory (CMAI) to measure agitated behaviors in elderly people * Faces Legs Activity Cry Consolability (FLACC) Behavioral Pain Scale. * Cornell Scale for Depression in Dementia (CSDD). * Pain in Advanced Dementia (PAINAD).
Counsell, 2007	RCT	951 adults 65 years or older	To test the effectiveness of a geriatric care management model on improving the quality of care for low-income seniors in primary care.	Geriatric resources for assessment and care of elders (grace) versus usual care	Main outcome measures: * medical outcomes: 36-Item short-form (SF-36) scales and summary measures (PCS, physical component summary and MCS, mental component summary) * instrumental and basic activities of daily living (AHEAD-survey), also days in bed due to illness or injury * patients' overall satisfaction * emergency department visits not resulting in hospitalization and hospitalizations. Also: Depression severity with Patient Health Questionnaire Quality of medical care with ACOVE (Assessing Care Of vulnerable Elders)
Denneboom, 2007	RCT	738Older people (≥ 75 years) on polypharmacy (> five medicines)	To determine which procedure for treatment reviews (case conferences versus written feedback) results in more medication changes, measured at different moments in time. To determine the costs and savings related to such an intervention.	Pharmacists and GPs performed case conferences on prescription-related problems vs pharmacists provided results of a treatment review in GPs as written feedback.	* number of medication changes (following recommendations with clinical relevance) * costs and savings associated with the intervention at various times were calculated.

Reference	Study design	Population	Aim	Intervention and control	Outcome
Phelan, 2007	RCT	874 patients aged 75 and older	To assess the effect of a team of geriatrics specialists on the practice style of primary care providers (PCPs) and the functioning of their patients aged 75 and older.	An interdisciplinary team of geriatrics specialists worked with patients and providers to enhance the geriatric focus of care vs usual care	Practice level outcomes: - careful prescribing, operationalized as avoidance of prescribing high-risk medications (defined for purposes of this study as psychoactive medications); and proactive screening for selected geriatric syndromes (depression, cognitive impairment, falls). - satisfaction with the Senior Resource Team (SRT) * patient level outcomes * functional status: Arthritis Impact Measurement Scale 2F ShortForm (AIMS2-SF) - new disability in any basic ADLs (bathing, using the toilet, feeding oneself, and walking inside the home), self-rated health, psychological, well-being (assessed using the Mental Health Index-5), and hospitalizations. * death ascertainment (24-months follow-up)
Stenvall, 2007a	RCT	199 patients with femoral neck fractures aged 70 years or older	To investigate the short- and long-term effects of a multidisciplinary postoperative rehabilitation programme in patients with femoral neck fracture.	Special Intervention program in geriatric ward versus conventional care in orthopedic ward	Short- and long-term effects of intervention on: * activities of daily living * mobility after hip fracture (walking ability) * consumption inpatient days after discharge * mortality
Stenvall, 2007b	RCT	199 patients with femoral neck fracture aged ≥70 years	This study evaluates whether a postoperative multidisciplinary, intervention program, including systematic assessment and treatment of fall risk factors, active prevention, detection, and treatment of postoperative complications, could reduce inpatient falls and fall-related injuries after a femoral neck fracture.	Special intervention program in geriatric ward vs conventional care in orthopedic ward	* postoperative fall incidence rate * postoperative complications * postoperative in-hospital stay
Stroke unit, 2007	SR	Involving 6936 patients of which one subgroup age: greater than 75 years and have had a stroke	To assess the effect of stroke unit care compared with alternative forms of care for patients following a stroke.	Organized inpatient (stroke unit) care	* primary analysis examined: death, dependency and type requirement for institutional care * secondary outcome measures included: quality of life, patient and care satisfaction, duration of stay in hospital or institution or both
Young, 2007	RCT	490 older patients (81-90)	To compare the effect of community hospital care on Independence for older people needing rehabilitation with that of general hospital care.	community hospital rehabilitation versus usual care	* primary outcome: independence with Nottingham extended activities of daily living scale (NEADL) * secondary outcome: independence with Barthel index; for emotional, social and physical health problems the Nottingham health profile, hospital anxiety and depression scale; mortality; discharge destination; 6-months residence status and satisfaction with services.
Bellantonio, 2008	RCT	100 persons with dementia moving into two dementia-specific assisted living facilities > 70Y.	To determine whether a multidisciplinary team intervention minimizes unanticipated transitions from assisted living for persons with dementia.	Four systematic multidisciplinary assessments conducted by a special geriatric team versus usual clinical care consisted of a medical evaluation conducted by the resident's primary care physician	Permanent relocation from assisted living to a nursing facility, emergency department (ED) visits, hospitalization, and death. * socio demographic and medical information age, sex, comorbidities, weight * Cognitive Status 30-item Folstein MMSE * Functional Status KATZ-ADL index * Behavioral Symptoms BehaveAD Rating scale
Bergrenn, 2008	RCT	199 patients with femoral neck fracture aged ≥ 70 years	This study evaluates whether a postoperative multidisciplinary, multifactorial fall-prevention program performed by a geriatric team that reduced inpatient falls and injuries had any continuing effect after discharge. The intervention consisted of staff education, systematic assessment and treatment of fall risk factors and vitamin D and calcium supplementation.	Special intervention program in geriatric ward versus conventional care in orthopedic ward	Comparing falls and new fractures between intervention and control. * basic characteristics during hospitalization, at 4 months and 12 months. * medical data * social data * including morbidity and mortality, the occurrence of falls.* occurrence of falls were registered from the records (obliged to document)
Boult, 2008	(cluster) RCT	904 multimorbid older patients (66-106y)	To assess whether GC can improve the quality of health care for this population, "Guided Care" (GC) was designed to enhance quality care by integrating a registered nurse, intensively trained in chronic care, into primary care practices to work with physicians in providing comprehensive chronic care to 50-60 multimorbid older patients.	Guided Care versus usual care	* Patients' health and functional status, quality of health care, and satisfaction with health care. * Patient Assessment of Chronic Illness Care (PACIC) * Satisfaction with 11 aspects of care. * The amounts of time spent on five tasks necessary for managing chronically ill patients. * Whether the physician knows six elements of information. * Whether four care coordination processes occur. * Elements of information and care coordination were derived from the Primary Care Assessment Tool (PCAT).

Reference	Study design	Population	Aim	Intervention and control	Outcome
Gates, 2008	SR	Involving 5874 elderly	To evaluate the effectiveness of multifactorial assessment and intervention programmes to prevent falls and injuries among older adults recruited to trials in primary care, community, or emergency care settings.	Fall prevention interventions versus standard care, no fall prevention intervention	'no of fallers 'fall related injuries 'recurrent falls 'admission to hospital attendance at emergency departments 'attendance at doctor's surgery 'death 'move to institutional care
Unutzer, 2008	RCT	551, 60 years or older patients with major depression, dysthymia or both	To determine the long-term effects on total healthcare costs of the Improving Mood: Promoting Access to Collaborative Treatment (IMPACT) program for late-life depression compared with usual care.	Collaborative care intervention (IMPACT) vs usual care	cost outcome data
Counsell, 2009	RCT	951, low income seniors aged 65 or older	To provide, from the healthcare delivery system perspective, a cost analysis of the Geriatric Re-sources for Assessment and Care of Elders (GRACE) intervention, which is effective in improving quality of care and outcomes.	Home-based care management for 2 years versus usual care.	'chronical preventive care costs 'acute care costs 'total costs in the full sample (* predefined high-risk and low risk groups)
Dedhia, 2009	pre-post design 'cohort'	422 patients 65y> admitted to the hospitalist services	To study the feasibility and effectiveness of a discharge planning intervention	Intervention period: October-April 2007 1. admission form with geriatric cues 2. facsimile to the primary care 3. interdisciplinary worksheet to identify barriers to discharge 4. pharmacist-physician collaborative medication reconciliation 5. pre-discharge planning appointments vs control period January-May 2006	Thirty-day readmission and return to emergency department rates and patient satisfaction with discharge. 'Katz 'self-perceived health status 'ED visits 'need for hospital readmission 'patient satisfaction with Coleman's Care Transition Measures (discharge planning intervention: 'follow-up within 1 week of discharge 'follow-up at 30 days after discharge Effect of the intervention across the three hospital sites)
Handoll, 2009	SR	Involving 2498 elderly	To examine the effects of multidisciplinary rehabilitation, in either inpatient or ambulatory care settings, for older patients with hip fracture.	Interventions with treatments in a multidisciplinary rehabilitation program (supervised by geriatrician or rehabilitation physician/clinician) versus usual care	Primary outcome: 'poor outcome' defined as death or deterioration of functional status leading to increased dependency in the community or admission to institutional care. Secondary outcomes: 'Morbidity 'Length of stay in hospital and hospital readmission 'Care burden 'Costs
Hogg, 2009	RCT	241 adults 50 and older and considered to be at risk of experiencing adverse health outcomes	To examine whether quality of care (QOC) improves when nurse practitioners and pharmacists work with family physicians in community practice and focus their work on patients who are 50 years of age and older and considered to be at risk of experiencing adverse health outcomes.	Anticipatory and Preventive team care (APT care) from a collaborative multidisciplinary team versus usual care from family physicians	Main outcome measure: 'chronic disease management score secondary outcomes: 'Intermediate clinical outcomes (mean hemoglobin A _{1c} blood pressure). 'Quality of preventive care 'QOL with the SF-36
Van Leeuwen, 2009	Multisite RCT	906 Young-old (60-74y) and old-old patients (≥ 75y)	To compare the clinical outcome of young-old patients and old-old patients who received collaborative care management for depression.	Patient have access for 12 months to a depression clinical specialist who coordinated depression care with their primary care physician.	Comparison between groups on 'process of care' type of treatment and level of care received. Clinical outcomes compared between groups: Symptom checklist (SCL)-20 depression score, treatment response (≥ 50% decrease SCL-20 score).
Boyd, 2009	Cluster RCT	904 of 65 and older and 'high-risk patients'	To evaluate the effects of "Guided Care" on patient-reported quality of chronic illness care.	'Guided care' integrate a nurse trained in chronic care into a primary care practice to work with 2-5 physicians in providing comprehensive chronic care to 50-60 multi-morbid older patients.	Patient Assessment of Chronic Illness Care (PACIC) survey by telephone: (Experience of chronic care) * goal setting, coordinated care, decision support, problem solving, patient activation, aggregate quality
Wu, 2010	RCT	74 long-term care facility resident (aged >70y)	To evaluate the clinical effectiveness of integrated interdisciplinary team care for severely disabled LTCF residents in Taiwan, so to promote better quality of care in this setting.	Integrated care model versus traditional model of care	Physical function, nutritional status, several quality indicators (Quality indicators included unplanned feed tube replacement, unplanned urinary catheter replacement, emergency department visit, hospitalizations, and incidence of urinary infections, pneumonia, and pressure sore.)

Reference	Study design	Population	Aim	Intervention and control	Outcome
Cameron, 2010	SR	Involving 25422 elderly	To present the best evidence for effectiveness of programs designed to reduce the incidence of falls in older people in nursing facilities and hospitals.	Any intervention to reduce falls vs usual care or placebo	Primary outcome: <ul style="list-style-type: none"> ' number of falls ' number of people who fall Secondary outcome: <ul style="list-style-type: none"> ' severity of falls ' fractures and deaths
Markle-Reid, 2010	RCT	109 elderly 75y and older	This study determined the effects and costs of a multifactorial, interdisciplinary team approach to falls prevention.	Multifactorial, interdisciplinary team approach compared with usual home care services	<ul style="list-style-type: none"> ' number of falls ' fall risk factors (number of slips and trips, functional health status and related quality of life, nutritional status, gait and balance, depressive symptoms, cognitive function, and confidence in performing ADLs) ' the six-month costs of use health services with a multifactorial, interdisciplinary team approach
Respect team, 2010	Multiple interrupted time-series	551 Aged ≥ 75	To estimate the effectiveness of pharmaceutical care for older people, shared between GPs and community pharmacists in the UK, relative to usual care.	Pharmaceutical care, shared between GPs and community pharmacists in the UK relative to usual care (acted as own control)	Primary outcome: UK Medication Appropriateness Index (UK-MAI) Secondary outcomes: <ul style="list-style-type: none"> ' quality of life (SF-36) ' health utility measured by the EQ-5D ' costs of pharmaceutical care ' associated health care to the NHS were also collected
Bryant, 2011	RCT	269 65 years and older on five or more prescribed medicines.	The objective was to determine whether involvement of community pharmacists undertaking clinical medication reviews, working with general practitioners, improved medicine-related therapeutic outcomes for patients.	Community pharmacists undertook a clinical medication review (Comprehensive Pharmaceutical Care) and met with the patient's general practitioner to discuss recommendations about possible medicine changes versus usual care.	<ul style="list-style-type: none"> ' Quality of Life (SF-36) ' Medication Appropriateness Index.
Ryvicker, 2011	RCT	3290 older chronically ill patients served by a large homecare organization	To describe (1) the impact of a quality improvement initiative (QI) on functional outcomes of older, chronically ill patients served by a large homecare organization; and (2) key implementation challenges affecting intervention outcomes.	A quality improvement initiative on functional outcomes of older, chronically ill patients served by a large homecare organization vs usual care.	Primary outcomes: changes in ADL on patient level (Notes from observations and from semi-structured interviews about how the intervention was implemented during phase 1 and phase 2)
Mudge, 2012	Pre-planned subgroup analysis of controlled trial	1004 aged over 65 and admitted from residential aged care	To identify the impact of an interdisciplinary care model on medical inpatients admitted from residential aged care (RAC).	Interdisciplinary care model on medical inpatients admitted from residential aged care (RAC)	In-hospital mortality for patient from RAC and 6-month mortality compared to patients from the community.
Berglund, 2013	RCT	161 age 80 and older or 65-79 with minimum 1 chronic illness and a need for assistance in ADL	To analyze frail older people's views of quality of care when receiving a comprehensive continuum of care intervention, compared with those of people receiving the usual care (control group).	Data-collection period: January 2009-October 2011. A comprehensive continuum of care intervention versus usual care. (The intervention included early geriatric assessment case management, interprofessional collaboration, support for relatives and organizing of care-planning meetings in older people's own homes.)	Peoples' views on quality of care with questionnaire. Scales and items contained: functional ability, illness, life satisfaction, health, medication and quality of care.
Nazir, 2013	SR	Involving > 33015 elderly	To study the impact of interdisciplinary interventions on health outcomes of NH residents and to document features of successful interventions including those that used formal teams.	RCT's, NH setting or residential care facilities, team-based interventions and outcomes that were facility or resident based.	(impact on) Resident outcomes as reported in the included studies.
Rantz, 2013	Qualitative research (during randomized two group repeated-measures design)	Nursing homes (72 professionals)	The purpose of this article is to discuss a qualitative analysis of field notes of observational data of the nursing homes that participated in a two-year intervention to improve quality of care, resident outcomes, and organizational working conditions (Rantz et al., 2012). The focus of this analysis was on the use of team and group processes by the nursing home staff in quality improvement efforts.	Facilities in resident outcome "need of improvement" received multilevel intervention designed to help them (quality improvement methods and team and group process for direct-care decision-making. . .)	The focus of this analysis was on the use of team and group processes by the nursing home staff in quality improvement efforts. Description of behavior of staff in intervention facilities during a RCT for improving quality of care and subsequently improving resident outcomes in nursing homes.

Table 2: Overview data-extraction included studies

After the critical appraisal the reviewers labeled the results on outcomes with a category to be able to synthesize the results on outcomes in an overview (table 3). This strategy brought us to the following categories: 'Collaboration' (n=24), 'Patient outcome level' (n=32) and 'Costs' (n=4). For nineteen studies of the 29 at least one positive effect including statistical significance was found in

advantage of the intervention group and so in favour of interprofessional collaboration. Overall seventeen studies investigated the possible effect of an interprofessional intervention on the category ‘collaboration’, nineteen on ‘patient outcome level’ and four on ‘costs’. The 29 publications included a total of over 80,000 participants and were carried out in 18 different countries.

Reference	Collaboration					Patient level outcomes										Costs
	KE	ID	SPr	Spa	QOHC	P	FI	QOL	I	D	B	T	LOSH	M	PR	
Chapman 2007		NS				S			NS	NS	S					
Counsell 2007					S			S	NS			S				
Denneboom 2007		S														
Stenvall 2007a									S						NS	
Stenvall 2007b							S									
Phelan 2007			NS		NS			NS	NS							
Young 2007				S				S								
Bellantonio 2008												NS				
Bergrenn 2008							NS									
Boult 2008	S		S		S											
Gates 2008							NS									
Unützer 2008																NS
Boyd 2009	S			S	S											
Counsell 2009																S
Dedhia 2009												NS				
Handoll 2009			S						NS				NS	NS	NS	NS
Hogg 2009		S			S											
Stroke Unit 2009								NS	S				S	S		
Van Leeuwen 2009										S						
Cameron 2010							NS									
Markle-Reid 2010							S									NS
Respect team 2010		NS						NS								
Wu 2010					NS											
Bryant 2011		S						S								
Ryvicker 2011	NS								S							
Mudge 2012	S													S		
Berglund 2013				S												
Nazir 2013	S	S														
Rantz 2013	NS															

KE= Key elements
 ID = Involved disciplines
 SPr= Satisfaction professionals
 Spa=Satisfaction patients
 QOHC= Quality of Health Care
 P=Pain
 FI= Fall incidence
 QOL= Quality of Life
 D= Depression
 I= Independence
 B= Behaviour
 T= Transitions
 LOSH= Length of Stay in Hospital
 M= Mortality
 PR= Period of Rehabilitation
 NS= not significant

Table 3: Overview of the outcome indicators on interprofessional collaboration

Collaboration

Seventeen out of 24 outcome indicators within the category of ‘collaboration’ reached significant difference in advantage of the intervention group (table 3). Within the category of ‘collaboration’ the sub-indicator outcomes are key elements, involved disciplines, satisfaction by professionals and by patients and finally quality of health care.

Key elements

<p>Summary key elements reported in the studies:</p> <ul style="list-style-type: none"> - Goal setting [22, 23] - Team communication [24-26] - Coordination of care decision support [22-26] - Patient activation [23, 25] - Care (and discharge) planning [24-26] - Kind of contribution of involved disciplines [25-27] - Leadership [25-27]

Seventeen of the included studies reached a statistically significant effect of interprofessional collaboration as an intervention by using (organizing) coordinated collaboration or special programs (table 3). Nazir et al (2013) investigated the impact of multidisciplinary rehabilitation on health outcomes of nursing homes residents. Team communication and coordination were confirmed as consistent features for successful collaboration [25]. Mudge (2014) reported in the implementation of an interprofessional care model, including greater allied health staffing, consistent interdisciplinary teams, structured daily interdisciplinary meetings and explicit discharge planning. This interprofessional care model seemed effective for patients admitted from residential aged care [24]. 'Guided Care' scored significantly higher on quality of care [22, 23]. Participants receiving guided care reported also significant higher scores on knowledge about and satisfaction for goal setting, coordination of care, problem solving, patient activation and aggregated quality in comparison with receivers of usual care, up to 18 months follow up [23]. In the quality improvement initiative in the study of Ryvicker et al (2011), the findings highlight the challenges of relying on peer-to-peer spread, and of distinguishing the core elements of an effective improvement strategy. Leaders should develop explicit communication plans and commit resources to implement the quality improvement initiatives over time [26]. Rantz et al (2013) described the influence of interprofessional teams to sustain quality improvement in nursing homes that 'need improvement'. Active participation of the leaders increases the chance for success of implementing quality improvement projects [27].

Involved disciplines

Chapman et al (2007) reported social workers played an important role in coordinating the work of the multidisciplinary team and especially in involving family members in care planning and interventions. Although the teams were significantly effective in reducing agitated behaviour and pain of the residents, no effect was found on the level of collaboration and coordination itself [28]. In two out of three studies [29-31] interventions targeting pharmaceutical care including general practitioners and pharmacists showed significant effects. In the study of Denneboom et al (2007) pharmacists suggested the changes in medication to the general practitioners after medication review. Case conferences on prescription-related problems resulted in more medication changes than written feedback [30]. Clinical medication reviews in collaboration with general practitioners can have a significant positive effect on the 'Medication Appropriateness Index'. However pharmacist withdrawal from the study suggest that community pharmacy may not be an appropriate environment from which to expand clinical medication reviews in primary care [29]. Interviewing patients, development and implementation of pharmaceutical care plans together with patients' general practitioners and monthly medication reviews with patients performed by pharmacists did not reach any significant changes in appropriateness of prescribing medication [31]. In contrast,

participation of primary physicians and/or a pharmacist in the interprofessional intervention, as well as team communication and coordination, were consistent features of successful interventions [25]. It seemed beneficial for the quality of care for chronic disease management to expand traditional family practice with pharmacists or nurse practitioners who focus on the management of this specific group of older, complex patients [32].

Professional satisfaction

In the study of Boulton (2008) guided care had a positive effect on changes in physicians satisfaction for communication with patients, family caregivers, educating family caregivers, motivating patients to participate in maximizing their health, referrals to community resources and change in knowing all the medication patients are taking [22]. The burden of the care in a multidisciplinary rehabilitation for elderly with hip fracture, as rated by the Caregiver Strain Index was reported to be statistically and clinically significantly less for care providers of participants of home-based group [33]. Primary care providers' satisfaction in the study of Phelan et al (2007) in investigating effective primary care to elderly was positive for intervention but not statistically significant [34].

Patient satisfaction

When receiving a comprehensive continuum of care intervention, frail older people perceived quality of care significantly higher [35]. More specially the items about care planning in the intervention group were rated higher than the control group at three- and 12 months follow-ups. Guided care also improves self-reported quality of chronic health care for multi-morbid older persons [23]. The reported patient satisfaction for the multidisciplinary team care for elderly was significant higher in community hospitals than in general hospital care [36].

Quality of health care

In six studies effect on quality of health care was investigated [22, 23, 32, 34, 37, 38]. In the studies of Boulton et al (2008) and Boyd et al (2009) the quality of the health care was measured with the Patient Assessment of Chronic Illness Care (PACIC) [22, 23]. In the study of Counsell et al (2007) effect on quality of care was measured with 'Assessing Care of Vulnerable Elders' [37]. In the study of Hogg et al (2009) effect on quality of care for chronic disease management was found using a form of collaborative multidisciplinary care teams as intervention [32]. In all four of the above mentioned studies a positive statistical significance was reached in favour for the intervention [32]. In the study of Phelan (2007) and Wu (2010) no statistical difference was found for quality of care indicators [34, 38].

Patient outcome level

On 'patient outcome level' only 15 out of 32 outcome parameters were to be understood as effective, by reported statistical significance (table 3). Within the category of 'Patient level outcome' the sub-indicator outcomes are pain, fall incidence, quality of life, independence, depression and behavior, transitions, length of stay (LOS) in hospital, mortality and period of rehabilitation.

Pain

One study found a positive effect of an interprofessional intervention for decreasing pain, using the Faces Legs Activity Cry Consolability (FLACC) and Pain in Advanced Dementia (PAINAD) scales [28].

Fall incidence

Two studies targeted effects on fall incidence and fall-related injuries and were successful in significantly decreasing fall incidence and slips and trips [39, 40]. Three studies, including two systematic reviews, did not report significant decrease of fall incidence as a result of interprofessional interventions [41-43].

Quality of life

Effect on quality of life was found in the study of Counsell et al (2007) implementing a geriatric care management model on improvement of the quality of care [37]. Bryant et al (2011) investigated the influence of involvement of community pharmacists on improvement in medicine related therapeutic outcomes for patients. Quality of life and medication appropriateness index increased because of interdisciplinary pharmaceutical care [29]. There were no statistically significant differences favouring the intervention group in a systematic review on multidisciplinary rehabilitation for elderly with hip fractures [33]. Also in the RESPECT (Randomized Evaluation of Shared Prescribing for Elderly people in the Community over Time) model of wherein pharmaceutical care was shared between community pharmacists and general practitioners, no significant changes were reported on the quality of life for elderly [31]. Also the Stroke unit study (2009) did not report on statistically significant changes for quality of life [44].

Independence

In four out of eight studies significant effects were found on independence for older people needing rehabilitation and receiving an interprofessional intervention [26, 28, 33, 34, 36, 37, 40, 44].

Depression and behaviour

The results on clinical outcomes for collaborative care management on treatment response for depression seemed effective on the long-term (24 months) for young-old patients (aged 60-74) [45]. Advanced illness care teams for nursing home residents with advanced dementia were found effective in reducing agitated behaviour and pain but not depression [28].

Transitions and LOS hospital

In the study of Counsell et al (2007) emergency department visits and hospital utilization were reduced through geriatrics interdisciplinary team that provided ongoing care management [37]. A multidisciplinary team intervention did not significantly reduce the risk of transitions for individuals with dementia relocating to assisted living. [46]. Even though hospitalized elderly patients are treated with consideration of their specific needs, health care outcomes visits to emergency departments did decrease, but not significantly. [47]. In multidisciplinary rehabilitation participants of the intervention group had overall shorter hospital stays as reported in the systematic review of

Handoll [33]. In the study of the stroke unit (2009) for length of stay in the stroke unit group a modest reduction was found [44].

Mortality

In four studies [24, 33, 40, 44] mortality was explicitly mentioned, of which in two significant difference was found [24, 44]. Stroke patients who received multidisciplinary organized care were more likely to be alive one year after the stroke [44]. Patients admitted from residential aged care receiving the interprofessional intervention had a significant reduction in in-hospital mortality [24].

Period of rehabilitation

In the study of Handoll (2009) the hospital stay was shorter for the intervention group, but the period of rehabilitation was longer (not statistically)[33].

Costs

In the category of 'costs' only one study reached statistical significance (table 3). In the study of Counsell et al (2009) targeting the costs of interprofessional collaboration programs, neutral cost over two years was reported for patients at high risk of hospitalization from the healthcare delivery system perspective. For patients at low-risk of hospitalization the costs differed statistically significant in disadvantage of the intervention [37]. In three studies with all different periods of measuring costs to use health services with a multifactorial, interdisciplinary team approach, no statistical differences were reported [33, 39, 48].

DISCUSSION

The aim of the study was to summarize indicators of effective interprofessional collaboration for elderly. It has to be acknowledged that due to the strict methodology, relevant studies could have been missed. During the process of summarizing the indicators the reviewers categorized the indicators in three categories. This strategy helped to gain insight into what is being investigated in order to measure possible effects of interprofessional interventions. The overall effects of interprofessional interventions are positive, but based on heterogeneous outcomes. Exploring the outcomes gave an overview of outcome indicators with interprofessional collaboration as intervention.

Within the category of 'collaboration' the key elements target important criteria for interprofessional collaboration to be measured. Goal setting, team communication, coordination of care decision support, patient activation, care planning and discharge planning, kind of contribution of disciplines and leadership seem to be important key elements for interprofessional collaboration. Moreover, the way of communication and medication appropriateness in pharmaceutical care, seemed important outcome indicators [29, 30] that affected the quality of life for patients [29].

Despite the positive effects found favouring interprofessional collaboration on health care outcomes, still too many outcome indicators remain without effect or were reported with a poorness of evidence. Moreover, we noticed that the existing collaboration within the usual care is rarely described. This makes it difficult to fully understand the difference with the usual care and what

makes the interprofessional collaboration as intervention effective. From the results it seemed not possible to summarize the process how collaboration was experienced differently from the usual care. From another perspective it is generally accepted that working in an interprofessional team involves group dynamics and leadership. In the systematic review of Nazir et al (2013) this perspective was confirmed [25]. Several studies educated the professionals of the intervention group [22, 47, 48], but with the information from the publication we could not identify how and with which aim they were trained. It was not clear whether the education was on how to work together or just on being able to perform the intervention as standardized as possible. So no conclusions can be made on learning goals in training to learn to collaborate interprofessionally. In terms of quality of care regarding the definition by Donabedian [49] most of the studies measured effect of interprofessional collaboration on the level of technical performance, only few described the effect on level of interpersonal procedures [22, 34, 47].

Several outcome indicators concerning interprofessional care effectiveness for elderly on patient level outcome were found. Pain, fall incidence, quality of life, independence for daily life activities, depression and agitated behaviour, transitions, length of stay in hospital, mortality and period of rehabilitation seem the most prominent outcomes in the included literature to identify effect of interprofessional collaboration for this specific population. However, as mentioned in the study of Rantz (2013) [27], teams can fully, partial or not adopt new ways of working when implementing interprofessional collaboration strategies. This should always be taken into account when teaching and so implementing models of interprofessional collaboration in practice. If one wants to show effect of interprofessional collaboration, the intervention should also last long enough and be well described so difference with usual care is also clear.

To enhance insights in possible bottlenecks in interprofessional care delivery it can be important to include the influence of professional and personal relationships within the team and with the patients. In the studies of Nazir (2013) [25] and Boulton (2008) [22], the professional relationships as key elements were very well described. This gave insight in how interprofessional collaboration is to be understood in their context. Also the patients appreciated the knowledge about the goals of the care they received. Therefore it seems important that interprofessional collaboration is to be clearly described and implemented long enough to know what effects it can have on patient level. Based on the three included studies involving costs of interprofessional collaboration, no general conclusion can be drawn on that category.

CONCLUSION

Overall, outcome indicators of interprofessional collaboration for elderly with a significant effect can be summarized in three main categories: 'collaboration', 'patient level' and 'costs'. For 'collaboration' the outcome indicators for IPC are key elements of collaboration, involved disciplines, professional and patient satisfaction and quality of care. On 'patient level' the outcome indicators are pain, fall incidence, quality of life, independence for daily life activities, depression and agitated behaviour, transitions, length of stay in hospital, mortality and period of rehabilitation. 'Costs' of interprofessional interventions on short- and long-term for elderly need further investigation. When organizing interprofessional collaboration or interprofessional education these outcome indicators

can be considered as important topics to be addressed. Overall more research is needed to gain insight in the process of interprofessional collaboration and so to learn to work interprofessionally.

Annex: search strings

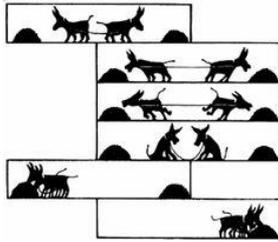
1. exp Interprofessional Relations/ and (collaborat\$ or team\$).tw.
2. exp Patient Care Team/ and (collaborat\$ or team\$).tw.
3. ((interprofessional\$ or inter-professional\$) adj (collaborat\$ or team\$)).tw.
4. ((interdisciplin\$ or inter-disciplin\$) adj (collaborat\$ or team\$)).tw.
5. ((interoccupation\$ or inter-occupation\$) adj (collaborat\$ or team\$)).tw.
6. ((multiprofession\$ or multi-profession\$) adj (collaborat\$ or team\$)).tw.
7. ((multidisciplin\$ or multi-disciplin\$) adj (collaborat\$ or team\$)).tw.
8. ((multioccupation\$ or multi-occupation\$) adj (collorat\$ or team\$)).tw.
9. ((transdisciplin\$ or trans-disciplines\$) adj (collaborat\$ or team\$)).tw.
10. (team\$ adj collaborat\$).tw.
11. or/1-10
12. randomized controlled trial.pt.
13. controlled clinical trial.pt.
14. randomized controlled trials/
15. random allocation/
16. double blind method/
17. single blind method/
18. or/12-17
19. animals/not humans/
20. 18 not 19
21. 11 and 20

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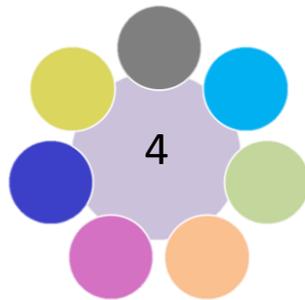
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Bella: When task management seems so important how come no time is taken to think about why things should be done and who is in the best position to do so? Has talking about aims become so difficult? Isn't it just like good house holding? Everybody knows what to do and what to expect from each other in good and in bad days?

Chapter



Do not confuse multidisciplinary task management in nursing homes with interprofessional care!

This chapter is based on:

Tsakitzidis G, Anthierens S, Timmermans O, Truijen S, Meulemans H, Van Royen P.

Do not confuse multidisciplinary task management in nursing homes with interprofessional care!

Primary health care research & development. 2017:1-12.

ABSTRACT

Problem statement: Little is known about how interprofessional health care providers in nursing homes work together. We know that interprofessional teamwork evolves from trial and error learning and so interprofessional collaboration has to be actively taught. This study aims to gain insights in the perception of professionals towards interprofessional collaboration in nursing homes and the factors that have an impact on interprofessional collaboration.

Approach: A qualitative descriptive methodology using focus group interviews and additional semi-structured interviews was performed. In total three focus group sessions with health care providers from different disciplines were held and additionally nine semi-structured interviews were executed. A thematic analysis was performed. The transcripts were read to immerse in the data and initial ideas were noted. Both open coding (identification of primary themes) and axial coding (analysis of relationships among themes) were conducted and re-focussed into potential themes.

Findings: Four main themes emerge from the analysis: context, collaboration, care and experience. From the findings it seems that healthcare teams in nursing homes work as ‘separated groups’. A lot of collaboration is perceived, but no common vision or responsibility sharing is found. The role description of the different disciplines does not always seem clear or is not always explicit.

Conclusion: In usual care the perceived interactions between professionals are called collaboration. Obviously physicians and all healthcare professionals do not work interprofessionally according to definitions from the literature. This study provided evidence of the awareness that interprofessional collaboration in usual care is situational and fragmentary organized.

Keywords

interprofessional, collaboration, nursing homes, integrated, education

INTRODUCTION

Provision of good quality of care for frail elderly requires high levels of interprofessional interventions by coordinated teamwork of healthcare professionals (1). The extent to which the healthcare professionals show interprofessional collaboration and execute interventions affects the quality of the care provided (2). For example, interprofessional collaboration in the care for elderly decreases fall incidences (3-5), the level of independence for activities of daily life (6, 7) and increases patient and professionals satisfaction (8-10). Moreover, interprofessional interventions improve communication and collaboration to deliver good quality of care (9, 11). Interprofessional collaboration is considered when there is a patient-centered model of working interactive together between different healthcare providers (see figure 1(12)) (13-19). It involves the awareness of different roles in the team. The healthcare providers develop a multidisciplinary integrated and cohesive answer to the needs of the care receivers and their context. With a common vision, purposeful approach and shared responsibility, a care plan is chosen and followed-up (20-24). Integrated working and interprofessional collaboration aims to ensure continuity of care, reduce duplication and fragmentation of services and places the patient as the focus for service delivery (25, 26). Multi-professional collaboration (see figure 1) however is characterised by the fact that appropriate experts from different professionals handle patient's care independently. The patient's problems are subdivided and treated separately, with each provider responsible for his/her own area (27). There is an urgent need to develop and test interventions that promote integrated working and address the persistent divide between health services and independent providers (28, 29). Individual interprofessional collaboration teams have opportunities to improve collaboration regardless of the organizational or policy context within which they operate. So successful integrated care (i.e. models that are effective in meeting patient needs) demands (interprofessional) collaboration and the ongoing involvement of patients and family carers in program planning, implementation and oversight. This will ensure that user needs and expectations are reflected when it counts, and that consumer satisfaction issues can be realistically addressed (30).

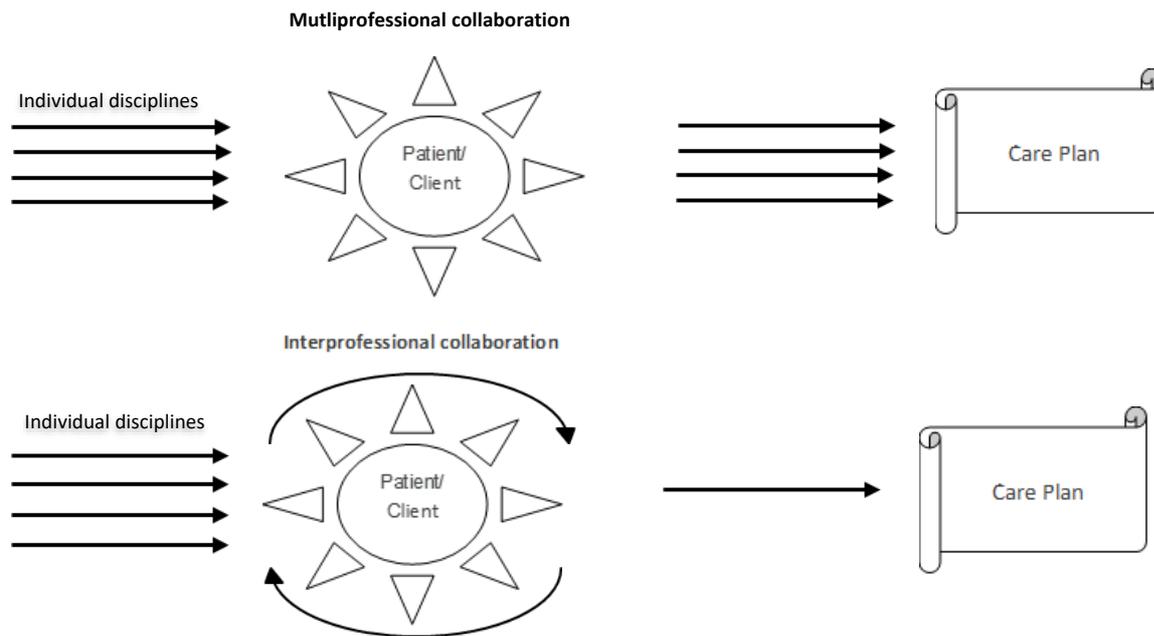


Figure 1: Model of interprofessional collaboration and difference with multiprofessional collaboration (based on McGill 2001) (12, 19)

Little is known about how interprofessional health care providers in nursing homes work together (11, 31). From the literature it is noticed that the existing collaboration within usual care in nursing homes is rarely described. This makes it difficult to fully understand what makes the interprofessional collaboration as intervention effective, in comparison to the usual care (31). We know that interprofessional teamwork evolves from trial and error learning (32) and so interprofessional collaboration has to be actively taught (33, 34).

There is also limited insight in the perceptions and the factors that have an impact on (or barriers and enablers of) collaboration in nursing homes (11). To make a success of integrated care, formal structures may need to be put in place for health service delivery and organisation of care for care homes (28). Barriers to integrated collaboration include a failure to acknowledge the expertise of care home staff, their lack of access to health care services, as well as high care home staff turnover and limited availability of training. The care home manager supports the process of integrated care through facilitating trainings for all levels of care home staff professionals (28). When different health professionals promote or recognize a common social identity, built on shared views and goals, integrated care can be facilitated (25). Further insight is needed in how interprofessional collaboration in nursing homes is understood and experienced. This will support the education of future healthcare providers regarding their responsibilities in multidisciplinary teams in order to work interprofessionally to deliver the required care within their context.

AIM

This study aims to gain insights in the perception of professionals towards interprofessional collaboration in nursing homes and the factors that have an impact on interprofessional collaboration.

DESIGN

Based on the research question to investigate how interprofessional collaboration in nursing homes is understood and experienced, the study used a qualitative descriptive methodology (35). Focus group interviews and additional semi-structured interviews were performed. The focus group interviews were used to elicit the multiplicity of perceived roles within a group context, gaining a larger amount of information in a shorter period of time (36). The semi-structured interviews further explored individual attitudes, beliefs and feelings and went more in depth with the preliminary findings from the focus groups (36).

ETHICAL CONSIDERATIONS

The study protocol was approved by the Medical Ethics Committee of the University of Antwerp (number: UA A11-01). Participants were all informed about the process, and confidentiality was respected for all gathered information.

DATA COLLECTION AND PARTICIPANTS

The National Institute for Health and Disability Insurance (37) provided us with a list of officially recognised existing nursing homes in the province of Antwerp. All eligible nursing homes (n=194) received a written invitation to participate in this qualitative research. The Belgian model (including the province of Antwerp) of long-term residential care for the elderly offer a home-replacing environment. This is offered when possibilities for long-term care at home or short-term residential care are no longer sufficient, after (re)-assessment of the severity of activities of daily living (ADL) or instrumental ADL limitations. In 2007 there were about 566.000 persons with moderate to severe levels of dependence in Belgium (on a total population of 10.6 million and a 1.8 million population aged 65+), a number which will double by 2060 (38). About 123.000 (22 % of disabled elderly or 7 % of the 65+ population) mainly elderly persons are living in homes for the elderly (73.000) and nursing homes (50.000). There is a mix of residents with mild and severe disability, and also older people with dementia living together in one institution. The elderly can move between different levels of care, from a home for the elderly to a nursing home, without leaving the institution. All institutions are well spread over the country (39). About 39.000 FTE nurses are taking care of elderly in homes for the elderly and nursing homes. General practitioners (GPs) have responsibility for the clinical care of the elderly in these institutions. Also other primary health care services are involved in the medical care. The health insurance system covers nursing care (as well as paramedical and rehabilitations care) for dependent persons. Non-medical expenses are not covered, leaving a big financial burden to the elderly- with a nursing home bill of more than € 1600 per month –which is higher than the average pension of € 1.300 per month. This burden is partly alleviated by some other cash benefits such as the allowance for assistance to elderly persons.

After a period of three weeks every nursing home was called to ask if they received the invitation and if they had personnel interested to participate in a focus group. The coordinator of the nursing home proposed a list of participants. Finally the purposive sample consisted of professionals from nursing homes (profit and non-profit) representing different geographical areas within the province of

Antwerp. Recruitment was not easy, a lot of nursing homes and/or personnel rejected to participate even after showing initial interest and confirmation to participate. Eventually three focus groups were conducted and took place at the University of Antwerp during working hours and lasted approximately two hours. Focus groups were ‘mono-disciplinary’ to better understand the perception of the roles in interprofessional collaboration within a specific group of healthcare professionals, as well as to avoid bias in responding because of hierarchic relations. The first focus group was held with general practitioners (GPs), the second one with nurses and the third one with paramedic disciplines of physiotherapists (PT) and occupational therapists (OT) (see table 1). The focus groups were facilitated by a moderator (LS, a psychologist) using an interview guide to lead the discussion, and observed by a member of the research team (GT, a physiotherapist) who took field notes during the sessions. The interview guide was developed by the research team (PVR, HM, ST and GT) and reviewed by colleagues for comprehensibility and feasibility. The interview guide for the focus groups started with an introductory question to get acquainted with each other. Then several open questions followed; the first explored the description of the global organisation of their nursing home and how they perceived their own role in collaboration. This was followed by two open questions about how the care was being organised and what the future aim was of the nursing home regarding the care. Each focus group was recorded and transcribed ad verbatim. Additional individual interviews (see table 1) were executed with professionals from the representative specific healthcare professionals semi-structured interviews were face-to-face with the participant and the interviewer (GT). These interviews lasted approximately one hour, were recorded and transcribed ad verbatim.

Profession	N	Gender Female/male	Age median	Statistics age	Focus group	Interview	years of experience in current profession
GP	9	5/4	59	Mean=52,56 (SD 11,603)	7 GPs	2 GPs out of hours 1 GP CRA	2.5 - 36 years
N	6	3/3	42	Mean=43,17 (SD 4,446)	1 HN 3 N	1 HN 1 N	13 - 18 years
NA	2	1/1	31	Mean=30,50 (SD 6,364)		2 NA	1 - 7 years
MB	1	1/0	39			1 HPaT	2 years
P	5	3/2	49	Mean=44,20 (SD12,834)	2 HPT 1PT 1 OT	1PT	3 - 27 years

GP= General practitioner
 GP CRA = general practitioner as coordinating physician in a nursing home
 PT= Physiotherapist
 HPT = Head Physiotherapy
 OT= Occupational therapist
 N= Nurse
 HN = Head Nurse
 NA = Nurse Auxiliary
 MB = Management Board
 HPaT = Head Paramedic Team
 P = Paramedics

Table 1: Description of characteristics participants – Health professionals

ANALYSIS

A thematic analysis (40) was performed. A group of five researchers from different disciplines (a psychologist, a sociologist, an occupational therapist and two physiotherapist (LS, SA, NC, GT and GL)) read one focus group and 4 interviews to immerse in the data and initial ideas were noted by the team. This phase produced the initial codes from the data. Both open coding (identification of primary themes) and axial coding (analysis of relationships among themes) were conducted (41) and re-focused into potential themes. Subsequently, three out of the 5 initial analysts (NC, GL and GT) revised

and refined emergent themes through constant comparison of instances from the data set. They compared interpretive memos and discussed relationships between categories. Discrepancies were given particular attention to ensure the validity of the analysis: they were considered by consulting specific instances in the transcripts, discussing their relationship to established themes, and reaching consensus as a group (42).

FINDINGS

Participants

In total three focus group sessions were held: one focus group with GPs (n=6), one with nurses (n=4) and one focus group with paramedic disciplines including three physiotherapists (PT) and one occupational therapist (OT) (n=4). Additionally nine semi-structured interviews were executed, with a coordinating GP (CRA), a head nurse, a nurse, two nursing auxiliaries, two GPs from out-of-hours services, one physiotherapist, and one member of a nursing home management board. One GP who took part in the focus group gave an additional individual interview on her experience of out-of-hours practice.

Four main themes represented the perception and factors that impact interprofessional collaboration: context, collaboration, care, and experience. These themes emerged consistently from all focus groups and interviews. Even though usual care was described differently, all participants expressed a tension between the ways they would like to collaborate and the way collaboration is being experienced in daily practice.

'Context' of working is more professional-centred than patient-centred

In this theme, the context is described from the experiences of professionals that can influence collaboration. In nursing homes mainly GPs, nurses, physiotherapists and nursing auxiliaries are involved in the care for residents.

GPs, who work independently in private (often solo) practice, consciously choose to continue (or not) seeing their patient when they move to a nursing home and have between two and 18 patients living in a nursing home. The decision whether to continue visiting the patient is based on the distance from a nursing home relative to their practice, and whether it is located on their work path. Occasionally GPs make an exception based upon their relationship with the patient. This raises the question if continuity of the care of the residents depends upon the willingness and practical considerations of their GPs?

"...Normally we do the follow-up of our patients if they go to a nursing home nearby, but if it's too far away, we do not do that" (FG (Focus group) - GPX p2 line 42) " ... within 5 km of the practice more or less " (FG GPY p 2 line 49)

"One of them is now in a nursing home in a village further away, she is actually a chronic patient who I have actually known from years back when she was still living at home and I have continued to visit her because otherwise she had to change GP and I didn't want her to go through that" (FG-GPZ p2 line 61)

As regards to physiotherapy on the whole, there are two to five physiotherapists available in nursing homes. Physiotherapists work on prescription and therefore the number of patients in treatment also

depends on the situation of the residents in the nursing homes. This means that not all physiotherapist work fulltime and that they are as a discipline less involved in planning the care.

Nurses and nursing auxiliary's work in shifts and, depending on the size of the nursing home, they are mostly responsible of approximately 30 residents. A head nurse leads the 'care-team'. Head nurses work as managers but often they are also involved in the actual care in order to feel more engaged with the care for their residents. It stays unclear whether the head nurses take responsibility for the 'teamwork' and if they bring the information and disciplines together.

"... I am no longer doing patient care, as a head nurse I truly do the work of a head nurse I think then, in the sense that I do not have to wash residents, nor do I have to make their beds, I don't give medicine" (FG -N p9 line 306)

"... I am helping a little bit here and there when necessary, and at eight o'clock I try to organize and give the medication, that's pretty much my job, euhm why I do this well ... because it actually gives me the opportunity to see all residents ..." (Interview)- HN p6 line 175)

Even members of the nursing home management board try to keep in close contact with the residents by participating actively in the workplace.

"... So I hope with being there more, and I already see results that is an observation that previously came from the nursing auxiliaries and nurse team, that animators were never seen in the department, which was also true ..." (I- HPaT, p8, line 276)

'No collaboration' or 'Collaboration' limited to information exchange

Collaboration is mainly described as helping each other independently of being a professional, a resident, family or volunteer. Unfortunately in nursing homes collaboration is expressed in tasks that professionals perform to offer the best care possible for residents and to get the prescribed performance supplied. Collaboration is mainly limited to information exchange throughout different communication channels, e.g. consultations, mono - and multi-professional briefings. Within the nursing homes paramedics work in 'separate' groups. Firstly there is the team of nurses and nursing auxiliary for the care. Secondly there are all other professions such as physiotherapists, occupational therapists, etc., often named the 'paramedics team'.

"... us physios have taken matters into our own hands, so basically we are self- employed physiotherapists so we do our work under the lead of the head nurse so basically the head nurse is our boss but actually we decide ourselves how our work has to be done. I mean we plan our work we have been working with two physiotherapists who are self-employed for many years. We simply organize our work ourselves because we as physiotherapist have the best insight on what you can offer as a physiotherapist or do in given situation; while the nurses, they often have a slightly different view " (FG – PT p4 line 128)

In a lot of nursing homes it is noted that staff wear a uniform without an explicit difference between disciplines. Since GPs indicate a head nurse as the most important contact person it would be easy recognizing them because of their uniform. Implicitly this confirms that GPs don't really know or recognize staff of the nursing homes.

"S. They know a lot about their patients, so I hope it is the head nurse ... she can also be a nurse, anyway it will be a nurse (I- GP -OOH1 p9, line 284)

Nurses confirm that GPs depend on them for important information but they also complain about collaboration with GPs. Some GPs promise to make a visit for acute situations but often they do not

turn up or visit on another day. This can affect the support or feedback GPs receive because there is not always a nurse available depending on the time they arrive in the nursing home.

"... problem is also that with us, there are a lot of GPs who come in the afternoon, that is to say that there are two nursing auxiliaries at that moment who know nothing of the program nor about the medication or about the care record and if so they cannot actually help the GP ... " (FG-N p34, line 1143)

During the weekend it seems that communication and information exchange is organised differently. Doctors from out-of-hours practice declare that they do not always know the professional profile of the person who gives them the information. Therefore GPs are unsure about the quality of the information they receive. This results in the possibility of lacking important information in certain situations and can compromise continuity of care.

" S. it is sometimes creepy, because you only read 'shortness of breath' as a doctor. If you then for example receive a phone call, that at least you can ask a little bit more 'ah yes breathlessness and there are other complaints?', but so euhm during out of hours you get only 'shortness of breath' on a little paper ... " (I- GP OOH 1 p4 , line 114)

In nursing homes multi-professional consultations are regularly organised. Unfortunately not all disciplines are always represented. It seems difficult to find appropriate moments for everybody involved per case. The content of the consultations is mainly about the residents' evolution or problems to be solved, especially when there is a decline of the residents' health situation. So no proactive planning of the care is mentioned. Generally the tasks and collaboration between professionals are performed as they present themselves ad hoc. According to the GPs the 'better nursing homes' are those where it is clear what the tasks are for each discipline then a more structured collaboration is present. According to the GPs these aspects facilitate collaboration in order to achieve the goals of the care plans.

" ... There are some nursing homes, where indeed, occasionally everything goes completely wrong. There are some nursing homes where everything goes very well, where the organisation is better. And you have some nursing homes where sometimes they know you will normally be there the next day and they still pretend that you have to come urgently the day before. When you get there, it often seems that you could have waited until the next day. " (FG - GP p4 line 141)

The 'care' is described as routine tasks to be done

This theme is described in terms of how and which care is organised, and how continuity of care is pursued. All the 'actions' take place in the morning to get the care done. All professionals in the nursing homes are busy to get all residents washed and dressed. A lot of therapies are also planned in the morning. There is little time for a chat with the residents. GPs that are not immediately linked to the nursing homes come and go as it suits them personally. Nurses ensure that doctors prescribe what they think residents need.

" I get prescriptions for residents and these are listed on a big board so that I know which patients I have to give therapy to and on which day, so I'll see which patients I have to do today and euhhm then I already start than I know oops that resident was sick so I must not treat him today, and then I can start with my work , so I 'm going eum looking for the first resident to treat " (FG – PT and OT p3 , line 83)

The tasks are fairly routinely organised, fixed times for breakfast, lunch, afternoon snack, drink tour, etc. Follow-up of care is mainly done through briefings, multidisciplinary consultation and not by

integrated care planning. During the weekends and during holiday periods the basic care continues but, the workforce is much smaller. Planning revolves around tasks to be done.

It seems that no time is taken to plan the 'care' and to 'take care' of the residents, which demonstrates that there is no coordination of care to create an integrated care plan. Everyone has the best intentions and works with best endeavours to offer the highest quality possible, but, time and time pressure throw a spanner in the works. Professional health workers admit that therefore residents don't receive the 'care' they deserve.

"Sometimes it contains a bit of the danger of the routine could be, that you say as of now I'm going in there and I do that and that and that and surely as the pressure is there. I am already with my thoughts on the next thing, in oh I have to go there and then I have this and that to be done, and that I also should not forget these things but meanwhile I am with a resident engaged and I am with my mind already with another resident because I have to organise everything. I try to get everything scheduled, and that should not be the things in my mind when I am with a resident but yes I do so, and that has to do with the pressure, I think." (FG-N- P40 line1337)

'Experience' about collaboration

The experiences GPs have with collaboration and communication with nursing homes are very diverse. Sometimes GPs get the feeling there is no internal communication in nursing homes. They receive on unexpected moments requests for an urgent visit, but once they get there it seems a pure administrative question. GPs get dispirited to comment on requests for visits. GPs indicate that staff involvement with the residents and enthusiasm of staff is the most important indicator to label a nursing home as a 'good' nursing home.

*"M. ... when you see that residents are happy, I wonder if they are satisfied with the care, and I think that often these are the nursing homes where better and more staff is present when the residents are happy...
(FG - GP p32, line 1034)*

Nurses complain about having little time to talk or chat with the residents. They do not have time to 'take care' of the people in a personalised way. On the other hand, nursing auxiliaries expressed their experience as being satisfied with their work and also have time to be there for their residents. This confirms that a personal approach with residents seems important.

" S. Yes because actually I don't like hearing "what do I do now", there is always something to do, you must not work eight hours or six hours or four hours in a row, I think it's important to sit down once in a while, have something to drink, have a chat with your colleagues about your private life, but that you can see what work needs to be done and that it is done which I find very important. " (I- NA1 p17, line 517)

Physiotherapists complain about the communication between professionals. They depend on written information to exchange thoughts, concerns and just the status of the residents. They are not involved in the briefings of the nurses and nursing auxiliaries and thus no integrated care planning is present. They are concerned about giving quality treatments because of the lack of information.

"...but to us it remains still a tricky issue that the care givers themselves are very difficult to motivate to read something or to communicate the received care in the right way, you have already repeated the issue and one month later you have to repeat what you have in fact told them already a month ago, and is already like this and nothings has changed in over twelve years, it's terrible..." (FG-PT p7 line 241)

DISCUSSION

The aim of this study is to gain insights in the perception of healthcare professionals towards interprofessional collaboration in nursing homes and the factors that impact the interprofessional collaboration. Four main themes emerge from the analysis: context, collaboration, care and experience. The themes gave us valuable information about how interprofessional collaboration is performed in practice. As in the definition, interprofessional collaboration involves the awareness of **different roles** in the team (20-24). No additional energy is invested in identifying personnel or staff. In relation to discipline identification as described by the participants, care providers do not know the competences associated with the discipline, even though professional identity is important before interprofessional relationships can be successful (43). Sometimes the only visible difference of disciplines can be noticed through the different uniforms.

In interprofessional collaboration there is a model of **working together** between different healthcare providers (23). All disciplines/professionals really try to inform each other with the most current information. Because of the way the care is organised it is difficult to even achieve basic needs (a walk, wanting a chat, ...) of residents. The findings show us that it seems not feasible to expect physicians or other health professionals to perform vital organisational roles in addition to their clinical responsibilities (44). Formal team-based care, presence of communication and coordination among team members, and leadership are consistent features of successful interventions for interprofessional care (11). However we found little valid structure in the results of this study in nursing homes. Without an interprofessional collaboration it will be difficult to develop a multidisciplinary integrated and cohesive answer to the needs of the care receivers and their context. The different healthcare professionals in the nursing homes are seen as separate groups. There is little evidence that they are working towards the same goals. There is a first group called 'care-team', involving nurses and nursing auxiliaries, the second group involves all paramedics and other non-medical staff working in the nursing home and thirdly there are the GPs. The care as task described by the participants does not reflect the challenges or benefits of interprofessional working.

The shift in responsibility for health and elderly care from acute inpatient settings to the community sector and to family and care providers means that older people and their families should be involved in planning and decisions about their care and identifying what would be of most assistance to them (45). From our data the participants see these care tasks still as their core business and they do not immediately link their task to other healthcare professionals or families and do not immediately look for ways to work in a more interprofessional way. Seemingly everyone wants to do everything at once, but there is no one taking responsibility for making the 'groups' work as a team. Collaboration between different disciplines in nursing homes presented itself as fragmentary. The interprofessional **relationship between GPs and nurses** is described as an important factor for collaboration. In every nursing home nurses are seen as the most important contact person. But for nurses it is difficult to work with so many GPs who all work differently. And with staff shortage a lot of nursing auxiliaries help out the nurses. On the other hand, knowing GPs have different patients in different nursing homes, good structure could help not to lose time looking for the right professional to receive relevant information. From the perspective of the GPs, collaboration is influenced by the fact that they always have to adjust their way of working and that there are often problems with accessibility of the nursing home. During the weekend GPs often describe the care different from that during the week. The transfer of information is often very concise and can therefore not be labelled as "good". Sometimes

it even creates an unsafe feeling for GPs. Physicians have more legal accountability for medical decisions, so they have to receive as much information as possible. In a study among GPs in Germany, it was shown that GPs apply different strategies to achieve a productive performance when visiting a patient in a nursing home (26). In Belgian study it is shown that collaboration between GPs and geriatricians is enhanced by exchanging information on, and reflections on roles and competencies (46). Therefore by openly recognizing and discussing the tensions between traditional and interprofessional discourses of collaborative leadership, it may be possible to help interprofessional teams, physicians and clinicians alike, to work together more effectively (47). In usual care a lot of collaboration is perceived, but in our results no common vision or responsibility-sharing is found. The role description of the different disciplines does not always seem clear nor is it always explicit. It is a matter of getting the task done.

Globally the results illustrate that in nursing homes it is not only about 'taking care of' but it is all about 'caring for'. Nursing auxiliaries explicitly mentioned they make time for their residents and have consciously chosen to ensure an enjoyable stay in broader terms than just provision of basic care. They sense that being there for the residents is the most important task. Every professional wants to do well for the residents and provide qualitative care. Therefore knowing and understanding the definition of interprofessional collaboration in health care is important. Next to what the definition involves for interprofessional collaboration, the indication that the involvement of the staff plays an important role should also be taken into account. When we look at it in a more general way (transferability of the data) 'care' is perhaps not only a matter of time management and taking the right medication at the right time. Healthcare professionals still need to reflect on, and reconsider their attitudes, approaches and expectations towards both traditional ways of working and professional power balances in interprofessional settings (11, 43). Within health care teams, formal and social processes and team structure are critical considerations. There is need for a paradigm shift from single-profession healthcare delivery toward integrated care in which several disciplines work together in interprofessional teams to address an individual's needs (20, 21, 23).

Many straightforward actions can be taken at this level, such as dedicating human resources to championing collaboration, setting a common vision and goals, attending to formal and social processes to minimize conflict and value the contributions of team members. Ongoing reflection for continuous improvement of the full team is required, through formal mechanisms like quality audits, as well as regularly scheduled team meetings. At the same time, the context within which the team operates is important, although understudied (29). So what is the goal of the care plan and which role do the different disciplines play to achieve the goal with a 'common vision' and 'shared responsibility'? Who will lead the team to provide the best patient-centred care possible? How will we grow to a more interprofessional working model such as integrated care (30). With this study we confirm that patient's problems are subdivided and treated separately (27) and so healthcare professionals do not work interprofessionally according to definitions from the literature. More research in primary care is needed with the aim to get better insight in the process of changing from an existing working model to a more interprofessional working model.

Strengths and weaknesses

Our results are based on the findings of a particular setting and their relevance in other settings needs to be further explored. However data triangulation with use of focus group and additional individual interviews using different perspectives in data analysis allowed us to explore the perceptions and experiences with interprofessional collaboration. However perceptions and experiences have their limitations and are only one component of the description of collaboration in usual care. In addition to our study it would be good to gain more insight in how the care is actually delivered. Other methodologies can be used such as (non)participant observation or questionnaires or even a quantitative study.

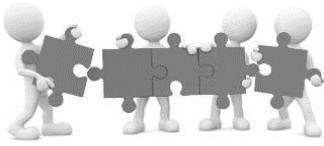
Conclusion

This study provides insight in the perception of healthcare professionals towards interprofessional collaboration in nursing homes. In usual care the perceived interactions between professionals is called collaboration. Obviously physicians and all healthcare professionals do not work interprofessionally according to definitions from the literature. This study provided evidence of the awareness that interprofessional collaboration in usual care is situational and fragmentary organized. From the results and from the literature it seems that healthcare professionals need more training to advance their knowledge about how to collaborate interprofessionally. It is more than just the sum of tasks divided over different disciplines, attention for formal and social processes is needed. Research on implementation of interprofessional education in practice and its effect is needed to get insight on how to create a more common vision on taking care in order to deliver more integrated and so patient centred care.

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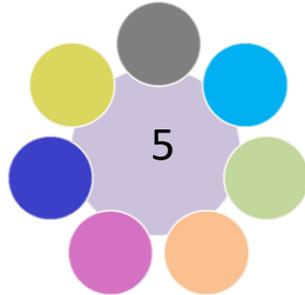
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Bella: To understand what makes things work, we need to understand the key succes factors. Which steps need to be taken to learn to work interprofessionally.

Chapter



The effectiveness of learning to collaborate interprofessionally on health care processes and outcomes in nursing homes

The following parts of this chapter are submitted as:

Tsakitzidis G, Coenen S, Fransen E, Timmermans O, Truijen S, Meulemans H, Van Royen P.

The influence of learning at the workplace on intensity of, and knowledge about interprofessional collaboration in nursing homes.

Tsakitzidis G, Bastiaens H, Timmermans O, Truijen S, Meulemans H, Van Royen P.

Exploring the level of interprofessional collaboration in a nursing home during a group education programme at the workplace.

Tsakitzidis G, Fransen E, Timmermans O, Truijen S, Meulemans H, Van Royen P.

Can learning to collaborate interprofessionally influence outcomes for residents in a nursing home?

RESEARCH PROTOCOL

The ageing of the population is expected to be a major driver of increasing demand for more complex and continuous care. The delivery of health care for this population requires high level of coordinated teamwork and efforts. Interprofessional collaboration can improve healthcare processes and outcomes. It assumes a model of working together. It is a process by which professionals develop an integrated and cohesive answer to the needs of the patients. In this study we investigate the possible effects on health care processes and outcomes, of learning to collaborate interprofessionally and what we can learn from it for further development of interprofessional education modules.

INTRODUCTION

The extent to which different health care professionals work together can affect the quality of the health care they provide (1). Government bodies and organizations of different medical and paramedical professions emphasize the importance of interprofessional collaboration (IPC) in health care. IPC assumes a model of working together (2) particular with attention for the process by which professionals develop an integrated and cohesive answer to the needs of the client/family/population (3). The outcome is rather difficult to be evaluated (2) and therefore it is important to understand the effectiveness of interventions aimed at improving IPC and health care (1) and so improving quality of care.

Despite the large number of publications on IPC, a higher quality of research, evidence and more rigorous evaluation is needed to support decision makers (4). It is especially required to be specific when conclusions for a geriatric population and their context should be drawn. The ageing of the population is expected to be a major driver of increasing demand for long-term care services. A vast majority of Europeans would prefer to be cared for in their homes either by relatives or by professionals (for 27 European countries an average of 81% and for Belgium 84%) and only 8 % prefers to be cared for in a long-term care institution (for Belgium 11%) (5). It is obvious that geriatric care increasingly needs more structured health care services to deliver the necessary complex and continuous care.

Delivery of health care for this population requires high levels of coordinated teamwork and efforts to provide a good quality of care (6). But what is quality of care? To assess 'quality of care', it first has to be defined and that depends on whether one assesses only the performance of practitioners or also the contribution of patients and the health care system (7). As described by the American Medical Association, quality of care is "care that consistently contributes to the improvement or maintenance of quality and/or duration of life" (8). Donabedian (7) conceptualized quality of care as having an inter-related structure, process and outcome components. Structure components are for example 'staffing' (and correlated to for example absenteeism), besides process components as actions on the patients such as for example restraint. Outcome indicators assess patient's end result such as for example falls.

Interprofessional collaboration as an intervention seems to result in a positive effect for health care outcomes (now published as: (9)). Nevertheless there is need for more concrete information on effect of interprofessional collaboration for chronic geriatric patients. What exactly makes interprofessional collaboration the key to a better quality of health care delivery? Overall the positive effect of IPC as an intervention for chronic geriatric care is mainly found for outcomes such as fall incidence, transition,

quality of life, medication change and costs. Still interprofessional teamwork evolves from trial and error learning (10) and so interprofessional collaboration has to be actively taught (11, 12). That brings us to what should be learned and so what should be taught?

RESEARCH QUESTION

What are the effects of learning to collaborate according an interprofessional model on healthcare processes and outcomes for chronic geriatric patients in nursing homes?

STUDY OBJECTIVES

Primary objective

The primary objective is to investigate the effectiveness of learning to collaborate interprofessionally on quality indicators of 'care and safety' (fall incidence, medication review, hospital visits) and on quality indicators of 'caregivers and care organization' (absenteeism).

Second objective

The second objective is to investigate the effectiveness of learning to collaborate interprofessionally on the level of intensity of care and knowledge of interprofessional collaboration as a working model.

Third objective

The third objective is to investigate the effectiveness of learning to collaborate interprofessionally for the chronic geriatric patient on the level of health-related quality of life, independence and cognitive functioning.

STUDY DESIGN

We will set up a cluster randomized controlled trial in primary health care aiming to investigate the effectiveness of training in interprofessional collaboration. Patient oriented outcomes will be assessed in chronic geriatric patients in nursing homes, including a pre-post assessment of the intervention with short and long term follow-up.

Eligible nursing homes (see sample criteria p105) will be invited to participate in this study as intervention group or as control group. When informed consent is received, baseline measurements will be performed. The nursing homes will be randomly allocated to control or intervention group. Researcher assistants blinded for allocation, and not involved in data analysis will perform data collection in the nursing homes.

Both for the control and intervention group, data will be gathered at baseline, at 12 and 18 months. Moreover for the intervention group some extra measurements will be done at 6 months. A researcher who will not be involved in data analysis will manage all data.

After allocation, the research team will discuss an allocation specific measurement schedule with the management board of the nursing homes. Once the management board and research team agree upon the schedule, all nursing home personnel will also receive allocation specific information. They will be

asked to actively participate in the study and if so, to sign for informed consent. Finally, also the eligible residents of the nursing homes (see sample criteria p105) will receive the allocation specific information and will be asked to participate and sign the informed consent.

The intervention consists of an educational program titled: 'to learn to collaborate interprofessionally' (figure 1). The educational program concerns two educational modules. The first module (module 1) is a 10 hours course. It is a problem-based interactive learning method with real life casus. This first module concerns definition, getting to know each other (the other disciplines), making a care plan, discuss ethical cases, reflecting on the competence of 'interprofessional collaborator' and finally presenting what you have learned.

Also the second module (module 2) is a 10 hours course. In this module 2 it is important to get on the personal level. Small teams will be formed. The teams will be guided by a tutor/educator. In 3 sessions of 3 hours participating professionals will have to reflect upon their competence as collaborator within their team and formulate a learning goal for themselves about what has to be learned. This reflection will be based on critical incidents of interprofessional collaboration. Bottlenecks in collaboration will be collected by the tutor/educator as well as opportunities and possibilities to address the critical incident. The professionals will be helped by their team to gather recommendations of possible actions. With these recommendations the professionals will go to their working field and perform a try out. In the second and third session the process and possible results will be discussed. The lessons will basically take place at the nursing homes and if necessary for logistic issues at the University of Antwerp. In the last session of one hour the team members have to present what insight they gained through the sessions about themselves as collaborators. Finally they formulate a learning goal for themselves for the future.

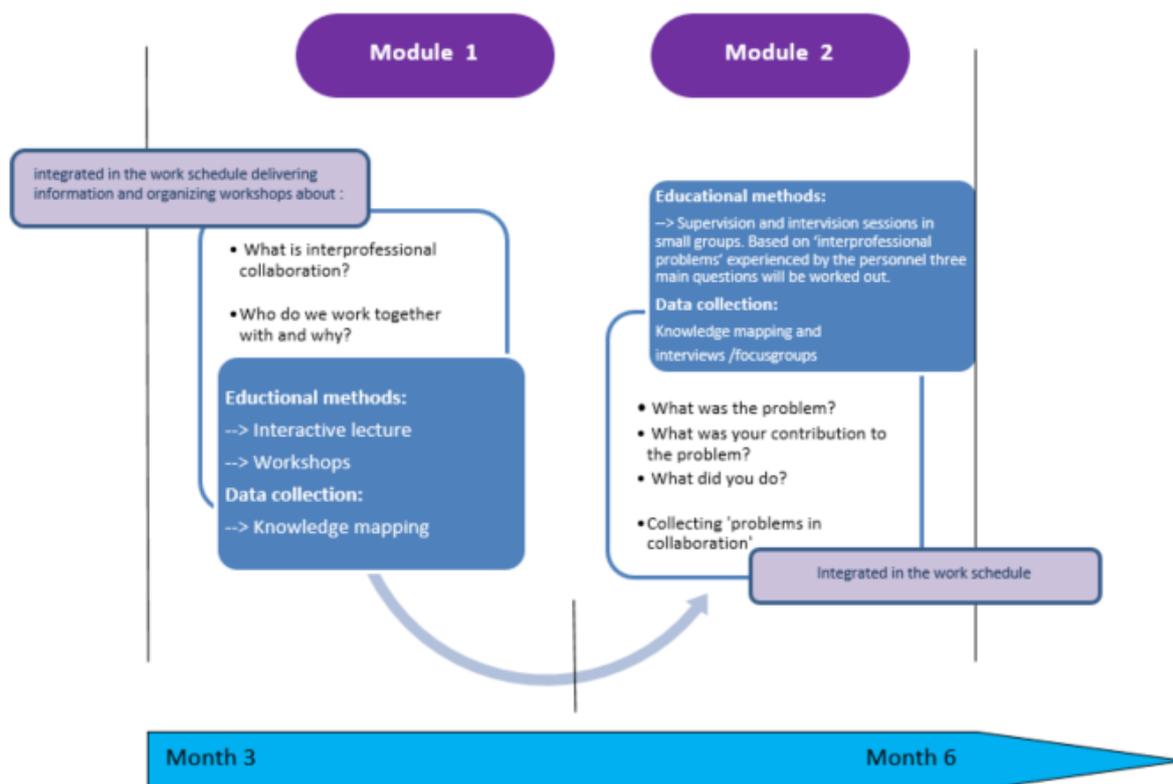


Figure 1: Intervention: to learn to collaborate interprofessionally

In this study quality of care is described for the professionals in terms of the learning outcomes, processes and outcomes expressed on the level of residents' progress. We are aware of the fact we can never measure all outcomes for quality of care for this specific population, so we chose on basis of the literature and discussion with experts. The main hypothesis for this study is that the intervention will have effect on the level of interprofessional collaboration of the health care providers in nursing homes and the quality of care for chronic geriatric patients in their nursing homes.

OUTCOMES

Based on the literature and the quality indicators for nursing homes described by the Flanders Agency of Care and health (13) and after discussion with experts and an interdisciplinary research team the outcome parameters were decided.

In this section the parameters of each planned study assessment is described briefly. The exact timing of each assessment is listed in flowchart (section 6).

5.1 Outcomes for the first objective

- Primary outcomes
 - ✓ Fall incidence
 - ✓ Medication use
 - ✓ Hospital visits
- On professionals level:
 - ✓ Absenteeism

FALL INCIDENCE

It seems that fall-prevention probably must be part of everyday life in fall-prone elderly (14). In the literature contrasting findings make it difficult to draw general conclusions. In primary care settings, community, or emergency care settings limited evidence is found that multifactorial fall prevention programs are effective in reducing the number of fallers or fall related injuries (15). Nevertheless in the systematic review of Cameron et al (2010) there is evidence that multifactorial and interdisciplinary interventions reduce falls and risk of falling in hospitals and may do so in nursing care facilities (16). The study of Close et al shows that an interdisciplinary approach to high-risk population can significantly decrease the risk of further falls and limit functional impairment (17). Based upon the literature we expect interprofessional collaboration to be effective in reducing fall incidence. Therefore we choose to report the number of falls and number of recurrent falls per resident as one of our primary outcome measures.

MEDICATION USE

The PHEBE (Prescribing in Homes for the Elderly in Belgium) project study confirmed the high consumption of medication in nursing home residents. A strong relationship is revealed between medical consumption and patients' characteristics, with increase in use when the number of clinical and care problems increased, as well as with decrease in use when the degree of dementia or the status of palliative care has been taken into account (18). Medical and paramedical professionals have a crucial role in all steps from the prescription and the ordering till the monitoring of medication, the knowhow of effects and side effects (19). We assume that interprofessionally collaborating teams should monitor well the medication management. Therefore we choose to measure the number of medication and also the number of different medications per resident.

HOSPITAL VISITS

It is known that a lot of hospital visits are a consequence of fall incidences (20). Unnecessary complications and expenditures on preventable hospitalizations of nursing home residents can be reduced and improve care (21). But it will require a multifaceted approach, commitment of energy and resources, teamwork among health care funders, regulators, health care professionals, nursing homes, and hospitals and a true focus on resident-centered care (21). Therefore we report the outcome on number of hospital visits and number of days in hospital. We expect in our study a reduction of hospital visits and duration of stay in hospital.

ABSENTEEISM

Absenteeism is an important problem in nursing homes. It directly affects the quality of care provided to residents. Furthermore, the number of days absent, the other staff members on the unit have an increased work load, which affects their stress levels, and thereby staff satisfaction (22). Absenteeism is a complex problem that requires commitment from each member and collaboration between all the members of the organization if it is to be kept at the acceptable (23). With teamwork and an interprofessional working model we hypothesize absenteeism to decrease in number of employees to be absent and as in number of days of absenteeism.

- Secondary outcomes
 - ✓ Body weight (residents)
 - ✓ Restraint policy

- ✓ Mortality of the residents
- ✓ Training (professionals)

BODY WEIGHT

Involuntary weight loss resulting from malnutrition is a major problem among residents in long-term care facilities. Although body weight is easily measured, the evaluation of unintended weight loss in long-term care facilities is difficult. A structured approach to the management of unintended weight loss or malnutrition in long-term care helps to facilitate a comprehensive resident evaluation (24). From the study of Simmons et al it seems that feeding assistance interventions are efficacious in promoting food and fluid intake and weight gain in residents at risk for weight loss. Both interventions require more staff time than usual nursing homes care. The delivery of healthy snacks between meals requires less time than mealtime assistance and thus may be more practical to implement in daily nursing home care practice (25). Based on the literature we assume that more collaboration and consultation on nutrition and its management can help. It can help to keep the weight and nutrition quality under control expressed in fewer residents with weight loss and decreases the period of weight loss of the residents at risk for weight loss.

PHYSICAL RESTRAINT POLICY

Decisions about restraint need to be taken after discussion, wherever possible, with the older person, their relatives and friends, as partners in care. It is important to involve the whole care team, including other professionals and agencies that may be helping to support the older person (26). A guideline- and theory-based multicomponent intervention compared with standard information reduced physical restraint use (such as belts, fixed tables and other restraints limiting body movement) in nursing homes (27). We assume in interprofessional care restraint policy can be a result of a patient-centered and interprofessional approach. So good collaboration may decrease the use of unnecessary restraint such as sitting all day in a wheel chair while the resident is able to walk with a minimum of guidance. We expect interprofessional collaboration (including family) can be effective in choosing the best restraint policy if necessary.

MORTALITY

Nursing home caregivers should pay attention to physically nonaggressive behaviours, such as pacing or other types of restless behavior, among cognitively intact residents, as these may be indicators of significant health or mental health issues that result in shorter survival (28). Among the cognitively intact, males and those with a greater disease burden were most likely to die first. However, physical movement, seemingly indicating restlessness and suffering, was another indicator of shorter life in this population. This global picture underscores the suffering in the nursing home as an institution and demonstrates that simple and observable indicators and behaviors should be used as monitors for probable suffering in this population (28). We assume that interprofessional collaboration can help to understand causality and improve quality of life and maybe even extend survival.

TRAINING PROFESSIONALS

For the secondary outcomes 'training professionals' in the category for 'quality indicators of care givers and care organization' we refer to the section following.

- Outcomes for the second objective
 - Personnel/professionals/volunteers
 - ✓ Description of the setting of the nursing homes
 - Informed consent
 - Number of residents
 - Number of professionals
 - Identification of disciplines
 - Intensity of interprofessional collaboration

DESCRIPTION OF THE SETTING OF THE NURSING HOMES

In order to describe the context of the nursing homes we will gather the following parameters: **number of residents**, **number of professionals**, **number of volunteers** but also the **identification and number of disciplines** working in the nursing homes. In number of professionals we include the personnel working in the nursing home but also for example the general practitioners who have patients living in the nursing home and so collaborators for the care.

We also will make an inventory of the **the trainings/ courses** done by the personnel in order to help increase professionalism.

Findings in the study of Martin-Rodriguez et al suggest that **intensity of interprofessional** collaboration has a positive effect on patient satisfaction, reduces uncertainty, and improves pain management, yet they also suggest that the degree of collaboration does not influence the length of hospital stay (29, 30). Therefore we will describe the intensity of interprofessional collaboration and the possible effect of an educational intervention on that intensity of interprofessional collaboration over time.

To measure the effect of the intervention on knowledge of interprofessional collaboration a quality check of the intervention will be performed.

- ✓ Quality check of the intervention
 - ✓ Module 1
 - Questionnaire ‘interprofessional collaboration, what is it?’
 - Who do you work with and why?
 - ✓ Module 2
 - Reflection report on ‘how do I collaborate?’
 - Inventory of ‘problems in interprofessional collaboration’

The overall vision and mission of this educational model is based on the program already integrated for 13 years in health care educational programs in Antwerp (31). The intervention will be an educational module integrated in the working schedule in nursing homes. During the period the intervention is given, a quality check of the educational model itself will be performed. We expect after the educational module the knowledge about ‘What is interprofessional collaboration’ to increase.

- Outcomes for the third objective
 - Patients/residents
 - ✓ Health profile of the residents
 - Basic characteristics
 - Health related Quality of life (HRQoL/ EQ5)
 - Independence (Katz scale)
 - Cognitive functioning (MMSE)

HEALTH PROFILE OF THE RESIDENTS (PATIENT GROUP)

Basic characteristics

Demographic parameters will be gathered such as gender, date of birth, race, status (married or not), having children/grandchildren, educational level and profession, years of living in nursing home and hobbies. Medical history will be obtained from the medical records. For every participating resident a profile will be made with a list of morbidities (co-morbidities), medication, therapies that are running.

HRQoL EQ5-5D-5L

EQ-5D is a standardised measure of health status developed by EuroQol Group in order to provide a simple, generic measure of health for clinical and economic appraisal. It includes a descriptor health classifier and a visual analog scale (VAS). The self - classifier has five dimensions on a five level scale including mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 5 levels: no problems, slight problems, moderate problems, severe problems, and extreme problems. The VAS score is a rating of health today by the respondent where 0 presents worst imaginable health state and 100 represents best imaginable health (32).

Independence

The Katz Index of Independence in Activities of Daily Living, commonly referred to as the Katz ADL, is the most appropriate instrument to assess functional status as a measurement of the client's ability to perform activities of daily living independently. It is used as tool to detect problems in performing activities of daily living and to plan care accordingly. The Index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transferring, continence, and feeding. Clients are scored yes/no for independence in each of the six functions. A score of 6 indicates full function, 4 indicates moderate impairment, and 2 or less indicates severe functional impairment (33).

MMSE

The Mini-Mental State Exam (MMSE) is a brief, structured test of mental status that takes about 10 minutes to complete. The MMSE tests global cognitive function, with items assessing orientation, word recall, attention and calculation, language abilities, and visuospatial ability. Scores on the MMSE range from 0 to 30, with scores of 25 or higher being traditionally considered normal. Scores less than 10 generally indicate severe impairment, while scores between 10 and 19 indicate moderate dementia. People with mild Alzheimer's disease tend to score in the 19 to 24 ranges. However, scores may need to be adjusted or interpreted differently to account for a person's age, education, and race/ethnicity. The use of the MMSE in this trial is as a means of following the course of cognitive changes in an individual over time (34).

SAMPLE

Sample size

From the literature we can state an average of two falls per person per year in nursing homes with a standard deviation of 1.5 (17). We would require a sample size of 300 with 80% power to detect a 30 % reduction in the rate of falls from 2.0 to 1.4 in the intervention group with a probability of $p < 0.05$. In this calculation we took into account a 30% drop out in rate of attrition.

However, this estimate is based on a non-cluster sample. Therefore we also take into account the intra-cluster correlation ($ICC = 0,10$) for falls in care homes as suggested by Dyer et al. (35). With the design effect calculation ($D_e = 1 + (m-1)\rho$) the sample size would be increased up to 1170. These numbers are not realistic for residents in nursing homes in Belgium. Therefore taking practical organization into account we chose to enroll 40 nursing homes in this trial. This brings us to approximately 1200 participants/ residents. We have to be aware of the fact that not all residents will meet the inclusion criteria. We also have to consider unpredictable practical and logistic issues that will influence recruitment.

Ideal sample size:

- 20 nursing homes as intervention group:
Intervention group (with an average of 30 residents per nursing home)
n= 600 residents
- 20 nursing homes as control group:
Control group (with an average of 30 residents per nursing home)
n= 600 residents

Inclusion criteria

Nursing homes are eligible for participating when they have residents who meet the following criteria:

- Age 65+
- Speaking and understanding the Dutch language
- Living at least one year in nursing home
- MMSE van $>24/30$

Residents who meet the criteria and are willing to participate in the study will be interrogated.

Sample of professionals, including physicians, general practitioners, nurses, physiotherapists, occupational therapists, ...

The intervention and the control nursing home will have to be matched on the level of organization such as community social services or religious charities or private for-profit nursing homes.

WITHDRAWAL CRITERIA

All participants may withdraw from the study at any time at his/her request, or may be withdrawn at any time at the discretion of the investigator for safety, behavioral or administrative reasons.

Overview of the study schedule

Primary and secondary outcomes

		Timetable (months)		0-3		6		12		18	
		Group		I	C	I	C	I	C	I	C
Primary outcomes	Quality indicators of care and safety	Fall incidence	Number of fallers	x	x	x		x	x	x	x
			Number of recurrent fallers, ≥2 falls	x	x	x		x	x	x	x
		Medication	Number of medication/day	x	x	x		x	x	x	x
			Number of different medication	x	x	x		x	x	x	x
		Hospital visits	Number of visits	x	x	x		x	x	x	x
			Number of days in hospital	x	x	x		x	x	x	x
	Quality indicator of care givers and care organization	Absenteeism	Number of days absent	x	x	x		x	x	x	x
			Number of absent personnel	x	x	x		x	x	x	x
Secondary outcomes	Quality indicators of care and safety	Body weight (residents)		x	x	x		x	x	x	x
		Restraint policy		x	x	x		x	x	x	x
		Mortality						x	x	x	x
	Quality indicator of care givers and care organization	Training professionals		x	x	x		x	x	x	x
		Volunteers		x	x	x		x	x	x	x

Description of the setting of the nursing homes

Timetable (months) +	0-3		6		12		18	
Nursing home	I	C	I	C	I	C	I	C
Informed consent	x	x						
Number of residents	x	x			x	x	x	x
Number of professionals	x	x			x	x	x	x
Identification of disciplines	x	x			x	x	x	x
Intensity of interprofessional collaboration	x	x			x	x	x	x

Health profile of the residents (patient group)

Timetable (months)	0-3		6		12		18	
Group Patients	I	C	I	C	I	C	I	C
Informed consent	x	x						
Basic characteristics	x	x	x		x	x	x	x
Medical history	x	x	x		x	x	x	x
HRQoL (EQ5-5L)	x	x	x		x	x	x	x
Independence (Katz)	x	x	x		x	x	x	x
MMSE	x	x	x		x	x	x	x

Quality check of the intervention

		Timetable (in months)		
		0	3	6
Step 1	Questionnaire 'interprofessional collaboration, what is it?'	x	x	x
	Who do you work with and why?	x	x	x
Step 2	Reflection report on 'how do I collaborate?'		x	
	Inventory of 'problems in interprofessional collaboration'		x	

Step 2 is embedded in the intervention module and so it is only will be measured during the intervention period.

STATISTICAL EVALUATION

Analysis of the data

Descriptive statistics of demographic and all specific outcome measurements will be performed and where possible compared to references and within the clusters.

Differences in baseline characteristics between participants completing the trial and participants who prematurely discontinued the trial will be statistically tested using independent sample t tests for continuous normally distributed data, Wilcoxon Mann-Whitney U tests for continuous non-normally distributed data and χ^2 tests for categorical variables. Statistical analysis will be performed with SPSS version 20.0 values of 0,05 will be considered significant. The effect of the educational module 'to learn to collaborate interprofessionally' will be tested through a paired t test and/or by an ANOVA for repeated measurements for continuously normally distributed data. Wilcoxon Mann-Whitney matched pair single test and / or Friedman test for continuous non-normally distributed data and χ^2 tests for categorical variables. Mixed effects analysis of covariance models for repeated outcomes will be undertaken to adjust for baseline values or patients characteristics. If distributional assumptions for parametric models are violated, then non-parametric methods will be used.

EXPECTED RESULTS

One can expect the effect of an educational program and the integration of this program within the working schedule to enhance the level of collaboration and increase the quality of care expressed in the presented outcomes:

- On the level of the professionals:
 - Intensity of interprofessional collaboration
 - Knowledge of interprofessional collaboration
 - Bottlenecks in interprofessional collaboration
 - Reflection of competence of interprofessional collaborator

- On the level of the residents
 - Quality indicators of care and safety for the residents
 - Fall incidence
 - Medication

- Hospital visits
- Body weight
- Restraint policy
- Mortality

- Health profile of the residents
 - HRQoL (EQ5-5L)
 - Independence (KATZ)
 - MMSE

ETHICS

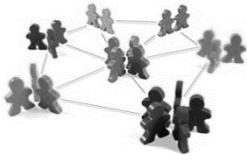
This study can only be undertaken after approval of the protocol and informed consent by the EC of the University Hospital of Antwerp.

The study protocol was approved by the Medical Ethics Committee of the University of Antwerp (number: B300201215061, September 2013).

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Bella: So you know how to collaborate, you should not hesitate and just do it! Get the intensity of collaboration higher! You will feel more supported and you will have more energy for yourself!

THE INFLUENCE OF A GROUP EDUCATION PROGRAMME AT THE WORKPLACE ON INTENSITY OF, AND KNOWLEDGE ABOUT INTERPROFESSIONAL COLLABORATION IN NURSING HOMES.

We aim to investigate the effectiveness of learning to collaborate interprofessionally on the level of intensity of care and knowledge of interprofessional collaboration as a working model. We performed a cluster randomized controlled pilot trial in primary health care.

ABSTRACT

Background

Interprofessional learning (IPL) and improving the intensity of interprofessional collaboration (IPC) have been shown to create teams that work together better and improve patients experience. With this study we aim to measure the effect of an educational module on the intensity of IPC as well as on the knowledge about IPC.

Methods

A cluster randomized controlled pilot trial in nursing homes was set up aiming to investigate the influence of an educational module offered as a group education programme at the workplace for the intervention group. We measured intensity of collaboration and knowledge of IPC by using questionnaires for the participating staff in nursing homes at four time points; baseline, 6 months, 12 months and finally 18 months.

Results

Twenty-nine professionals from the nursing homes participated of which fifteen were in the intervention group. In total eleven different disciplines were represented. The control group scores significantly higher ($p=0,0324$) for intensity of IPC from the start. Both groups, intervention and control group, score significantly ($p= 0,0088$) higher after the intervention period. No correlation between intensity of IPC and the general knowledge about what is IPC is found on all time points ($0 \leq R^2 \leq 0,2$).

Conclusions

A significant positive difference is found in the two groups before and after the intervention regarding knowledge and intensity of IPC. No significant difference is found before and after intervention for knowledge about IPC. Surprisingly overall the control group scores higher for intensity of IPC in comparison to the intervention group from the start till the end of the study. So unexpectedly both groups increase from baseline measurement compared with the third time point. More research is needed to explore if an education process can influence the perception of intensity of IPC and result in more strict evaluation of it.

Keywords

Interprofessional, collaborate, intensity, healthcare, nursing homes

INTRODUCTION

For resident outcomes in nursing homes interdisciplinary interventions have a positive impact. Team communication and coordination, were also consistent features of successful interventions (1). Key elements of collaboration such as for example goal setting, care decision support, patient activation, etc. are relevant outcome indicators on interprofessional collaboration for elderly involving the professional health care providers (2). Over the world many institutes implemented interprofessional education (IPE) with the aim to improve knowledge and to increase interprofessional skills needed for delivering better quality of care (3, 4). Interprofessional learning (IPL) and the intensity of interprofessional collaboration (IPC) have been shown to create teams that work together better and improve patients' satisfaction (1, 5). Standardizing IPL in the curricula of all health professionals can improve key skills and prepare students for their careers by driving up standards of professionalism and best practice (6, 7). Despite these positive effects known from literature, still more research is needed to measure the impact of IPE on collaborative practice and patient outcomes (8). Finally, the inclusion of patient, family, and caregiver experiences could be especially helpful in promoting better alignment between education and practice as well as for impacting person- and community-centered outcomes.

Without insight in the effectiveness of educational modules and the factors that have an impact on (or barriers and enablers of) collaboration in nursing homes, it is difficult to educate future healthcare providers regarding their responsibilities in multidisciplinary teams in order to work interprofessionally to deliver the required care. With this study we aim to measure the effect of an educational module on the intensity of IPC as well as on the knowledge about IPC.

AIM/S

Firstly this study aims to measure the impact of an interprofessional educational module on intensity of interprofessional collaboration in practice. Secondly it aims to measure the impact on knowledge about interprofessional collaboration for professionals in practice.

DESIGN

A cluster randomized controlled pilot trial in primary health care was set up aiming to investigate the process of learning and the influence of an educational module offered as an education programme at the workplace for the intervention group. This trial is performed according the protocol discussed in 5.1 earlier in this chapter regarding the second aim and which is registered at clinicaltrials.gov under NCT01792219.

To explore the influence of the educational module we measured intensity of collaboration and knowledge of interprofessional collaboration by using questionnaires for the participating staff in nursing homes. Outcomes were assessed in nursing homes, including a pre-post assessment of the intervention with short and long-term follow-up. The measure moments are baseline (between 0 and 3 months), after 6 months, 12 months and finally 18 months (table 1). The intervention consists an educational module for the health care providers working in nursing homes titled 'to learn to collaborate interprofessionally' (figure 1) and executed between baseline and the second measure moment (table 1).

Timetable (months)	Baseline		Intervention		6		12		18	
Groups	I	C	I	C	I	C	I	C	I	C
Intensity of interprofessional collaboration	X	X	X	X	X	X	X	X	X	X
Knowledge of interprofessional collaboration	X	X	X	X	X	X	X	X	X	X

C= control group I= Intervention group

Table 1: Timetable study

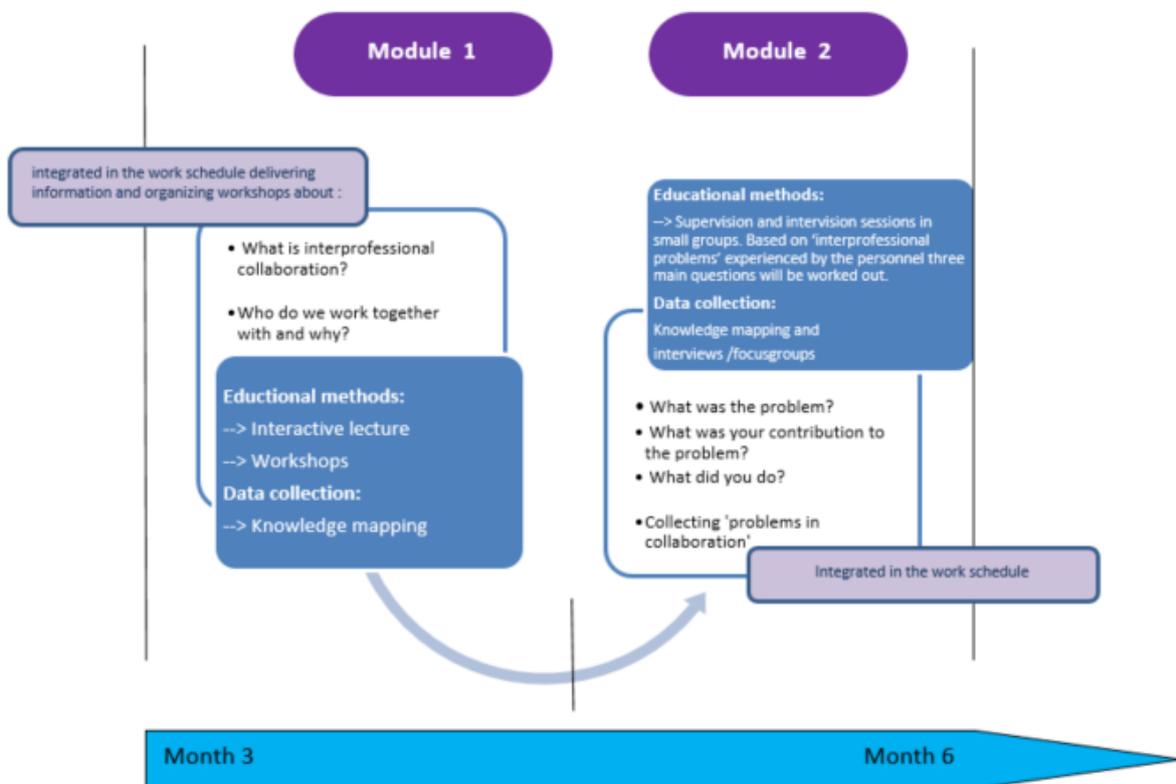


Figure 1: Intervention: to learn to collaborate interprofessionally

INTERVENTION

The intervention concerns two educational modules. The first module (module 1) is a 10 hours course and involves an adapted version of the *Interprofessional Collaboration in Health Care – module* (IPCIHC-module) (7). It is a problem-based interactive learning method with real life cases. This first module concerns definition, getting to know each other (the other disciplines), making a care plan, discuss ethical cases, reflecting on the competence of ‘interprofessional collaborator’ and finally presenting what you have learnt. Also the second module (module 2) is a 10 hours course (9). In this second module it is important to get on the personal level. Small teams were formed. The teams were guided by a tutor/educator. In 3 sessions of 3 hours participating professionals reflected upon their competence as collaborator and checked what had to be learnt. Also in this module the research team

collected bottlenecks in collaboration. The intervention took place at the nursing home and when needed for logistic issues it took place on other locations. In the last session the team members had to present what insight they gained through the sessions about themselves as collaborators. Finally they formulated a learning goal for themselves for the future.

QUESTIONNAIRES

Data for this study were collected using two questionnaires.

Intensity of interprofessional collaboration.

The intensity of interprofessional collaboration was measured by using the Spanish version of the intensity of interprofessional collaboration questionnaire (10). The questionnaire consists of 16 statements (annex 1) assessed on a 5-point Likert scale (1 to 5). The questionnaire has 4 subscales: interdisciplinary coordination (questions 3, 5, 6, 7 and 8), perception of patient (questions (4 and 16), shared clinical activities (10, 11, 12, 13, 14 and 15) and global perception (1, 2 and 9). The psychometric characteristics of this questionnaires were evaluated and a principal components factor analysis was performed (11). The Cronbachs α coefficient was 0,907 and the Pearson correlation coefficient between the Spanish instrument and another instrument measuring the same phenomenon was 0,718 (11). For this study the Spanish version of the questionnaire was translated from Spanish to Dutch by a master of linguistic and literature and then back to Spanish by a native speaker. To ensure face validity of the translated version, it was adapted to a new version based on feedback from professional health care providers (see appendix 1). All scores were gathered and imported in an excel database for analyses.

What is interprofessional collaboration?

The knowledge about the definition of interprofessional collaboration according to the definition in the literature (9, 12-14) was evaluated by a self-constructed questionnaire of 7 questions (see annex). All questionnaires were gathered and given to three researchers (NC, MS and GT) to evaluate the answers with a correction key made by the head researcher. All researchers worked independently from each other. When all questionnaires were revised the researchers compared the scores and discussed the final score. When consensus was reached a final score was imported in an excel database for analyses.

DATA COLLECTION AND PARTICIPANTS

Eligible nursing homes (see inclusion criteria) were invited to participate in this study as intervention group or as control group. When informed consent was received, baseline measurements were performed. For this study all participating staff of the participating nursing homes were asked to fill in two questionnaires. Rest and nursing homes offer a home-replacing environment when possibilities for long-term care at home or short-term residential care are no longer sufficient. There is a mix of residents with mild and severe disability, and also older people with dementia living together in one institution. The elderly can move between different levels of care - from a rest home to a nursing home - without leaving the institution. Rest and nursing homes are spread all over the country (15). Researcher assistants who were blind for allocation, and not involved in data analysis performed data collection.

For the control and intervention group data were gathered at baseline, at 6 months, at 12 and then again at 18 month point between March 2011 and February 2015. A specific measurement schedule for all participating nursing homes was set up with the management board of the nursing homes. After management board and research team agreed the schedule, all nursing home staff received allocation specific information. All staff were asked to actively participate in the study and were asked for informed consent.

2.3.1 Inclusion criteria

Nursing homes are eligible for participating when the participating residents meet the following criteria:

- Age 65+
- Speaking and understanding the Dutch language
- MMSE van >24/30

DATA ANALYSIS FOR THE QUESTIONNAIRES

Outcomes were measured at 4 time points. Plotting the different outcomes versus time showed a non-linear evolution of most outcomes with time. Therefore, time was treated as a categorical variable in all subsequent analyses.

To model the change in the outcomes over time across the control and intervention group, linear mixed models were fitted. Time, group and the interaction between them were entered as fixed effects. A random intercept for individual was added to the model to account for the non-independence between observations from the same individual. In this model, the significance of the interaction term shows if the change over time of the outcome is different between the two intervention groups. If this interaction term is not significant, the differences in outcome at each of the time points are not significantly different between the groups. In this latter case, the interaction term was removed from the model and the significance of the main effects (time and group) was tested. Significance of the fixed effects was tested using an F-test with Kenward-Roger correction for the degrees of freedom. Spearman correlation coefficients were calculated in order to reveal possible correlations between intensity of interprofessional collaboration and the general knowledge of what is interprofessional collaboration. Correlation analysis was performed for the four time points. All calculations were performed in JMP[®], Version 12 - SAS Institute Inc., Cary, NC, 1989-2007.

EXPECTED RESULTS

One can expect the effect of an educational program and the integration of this program within the working schedule to enhance the level of collaboration and increase the intensity of interprofessional collaboration as well as to increase the knowledge about interprofessional collaboration.

ETHICAL CONSIDERATIONS

The study protocol was approved by the Medical Ethics Committee of the University of Antwerp (number: B300201215061). Participants were all informed about the process, and confidentiality was respected for all gathered information.

RESULTS

Characteristics participants

Of all invited nursing homes to participate in the study initially only one nursing home of a private organization was willing to participate. Because of practical considerations we invited two more nursing homes from the same organization to participate as control group and so the study could start. This was an important issue because the context of vision and structure of staff was the same we could match the results of the intervention group. Finally three nursing homes from the same organization but geographically spread (between 20km and 141km from each other) confirmed their participation. All staff from the three nursing homes received the invitation to participate on the study and had to fill in the informed consent if they agreed to participate. For the intervention group also an introduction was given about the content of the intervention. Finally 29 professionals from the nursing homes participated of which 15 where in the intervention group (see table 2).

Control/ Intervention	Profession	N	Gender Female/ male	Age Median (SD)	years of experience in current profession Median (SD)
Intervention	total	15	13/2	41,6 (11,2)	7 (8,8)
	MB	3	3/0		
	OT	1	1/0		
	PT	1	0/1		
	N	3	2/1		
	QC	1	1/0		
	NA	3	3/0		
	A	1	1/0		
	CS	1	1/0		
	TC	1	1/0		
Control	total	14	14/0	34,6 (10,1)	6 (7,8)
	MB	1	1/0		
	OT	2	2/0		
	PT	1	1/0		
	N	3	3/0		
	QC	1	1/0		
	NA	2	2/0		
	TC	2	2/0		
	CS	1	1/0		
	KS	1	1/0		

PT= Physiotherapist - HPT = Head Physiotherapy - OT= Occupational therapist - N= Nurse - NA = Nurse Auxiliary
 MB = Management Board - CS= cleaning staff - KS = Kitchen staff - QC= Quality coordinator - A= Animator - TC = Teamcoördinator

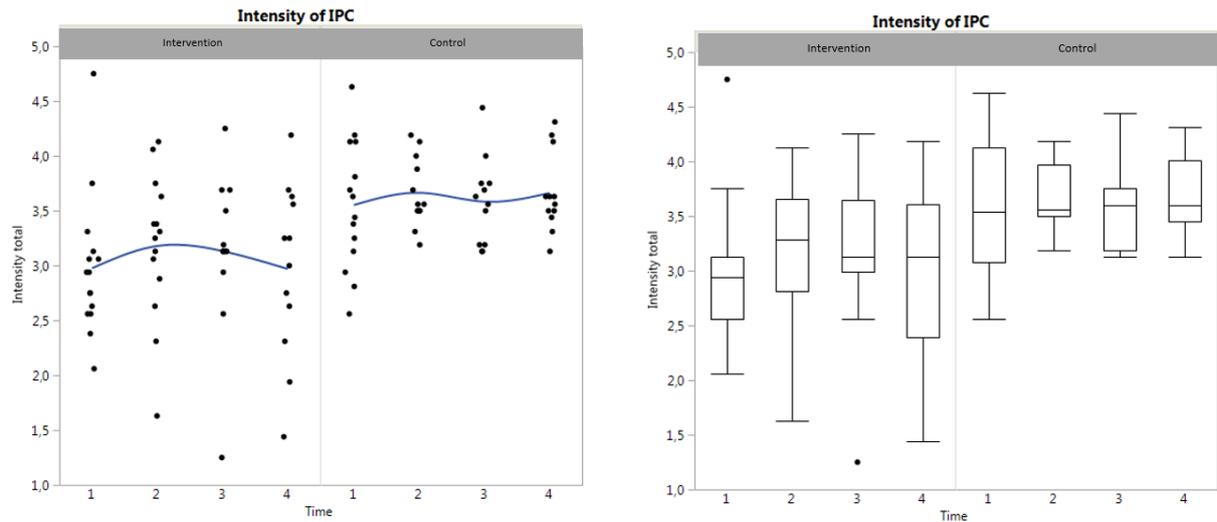
Table 2: Description of characteristics participants – Health professionals

Questionnaires

Questionnaire 1: intensity of interprofessional collaboration

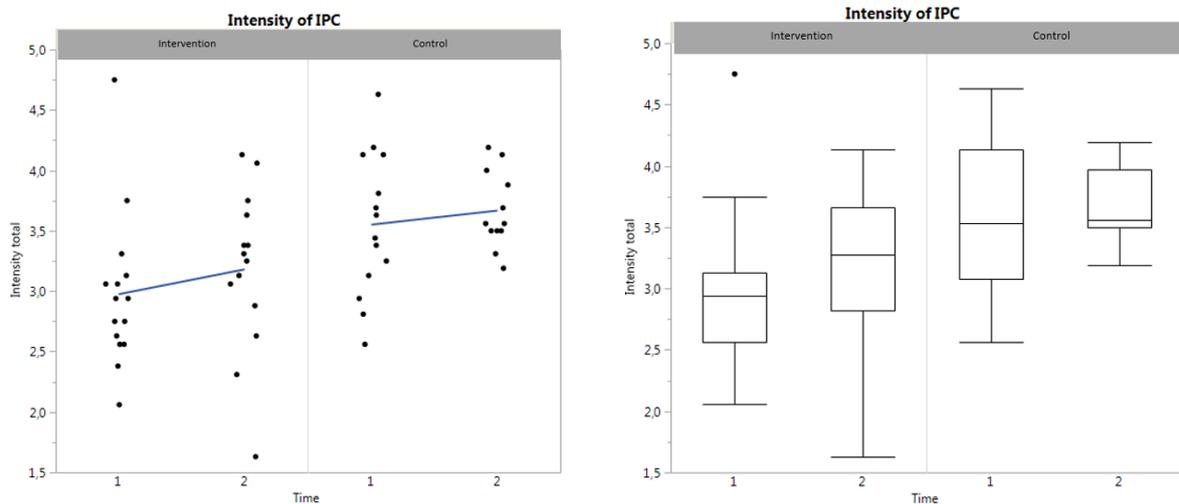
Global result of the questionnaire

There is a significant difference ($p=0,0324$) in advantage of the control group for intensity of interprofessional collaboration (fig 2). Both groups, intervention and control group, score significantly ($p= 0,0088$) higher after the intervention period (fig. 3).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 2: Intensity of interprofessional collaboration, the total score over time for intervention and control group.



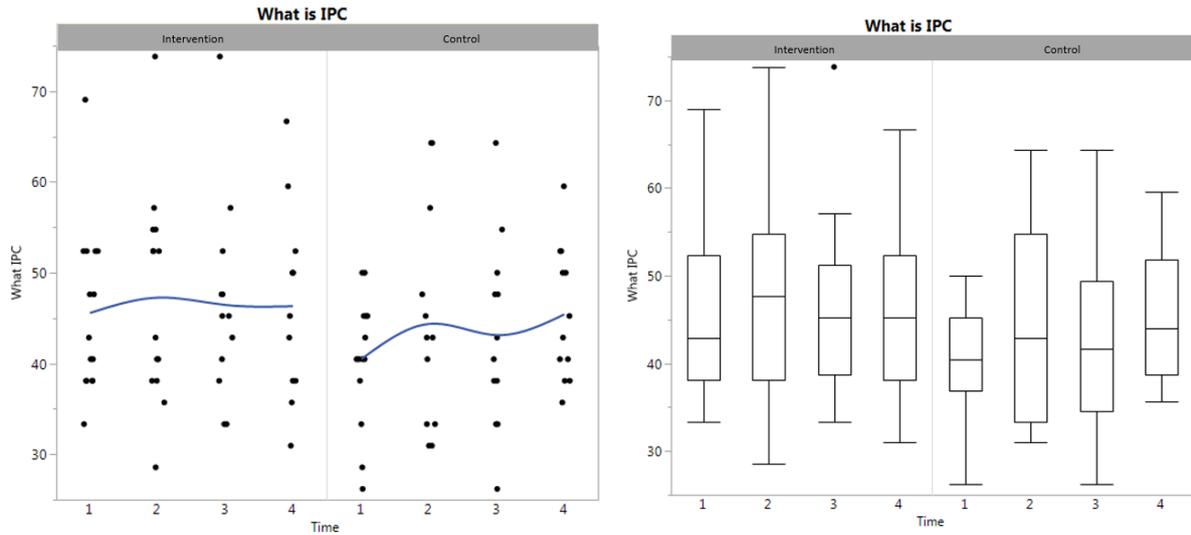
Time 1 = baseline measurement, Time 2 = 6 months

Figure 3: Intensity of interprofessional collaboration, the total score before and after intervention for intervention and control group.

Questionnaire 2: What is interprofessional collaboration?

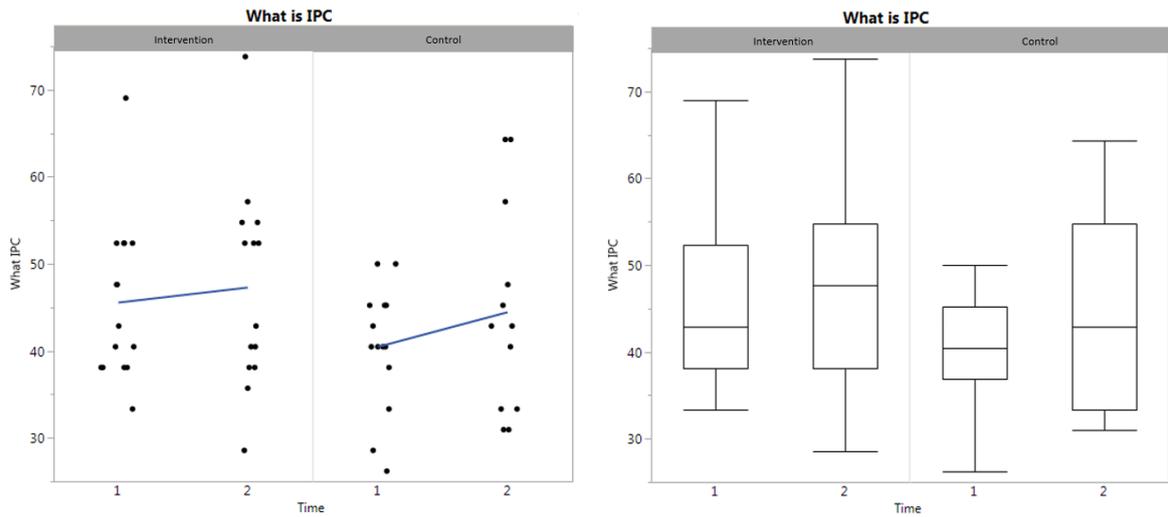
Global result of the questionnaire

There is no significant difference ($p=0,2620$) between the intervention and the control group for global knowledge about interprofessional collaboration (fig 4). Both groups have very spread scores knowledge about interprofessional collaboration. No significant difference is found before and after intervention for either of the groups ($p=0.2459$)



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 4: What is interprofessional collaboration: scores for control versus intervention group 4 time points

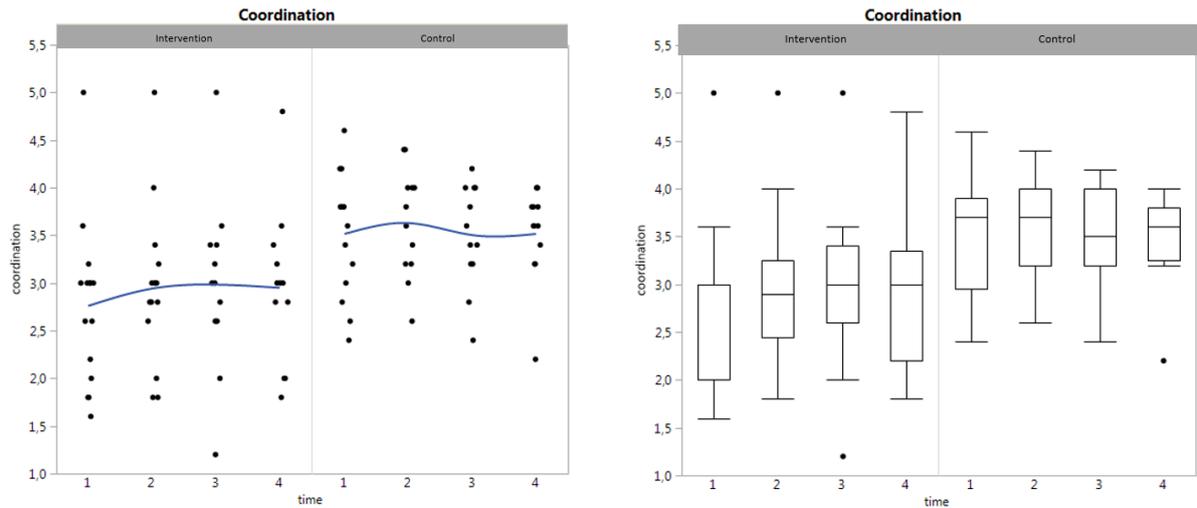


Time 1 = baseline measurement, Time 2 = 6 months

Figure 5: 'What is interprofessional collaboration', the total score before and after intervention for intervention and control group.

Questionnaire 1 per subscale

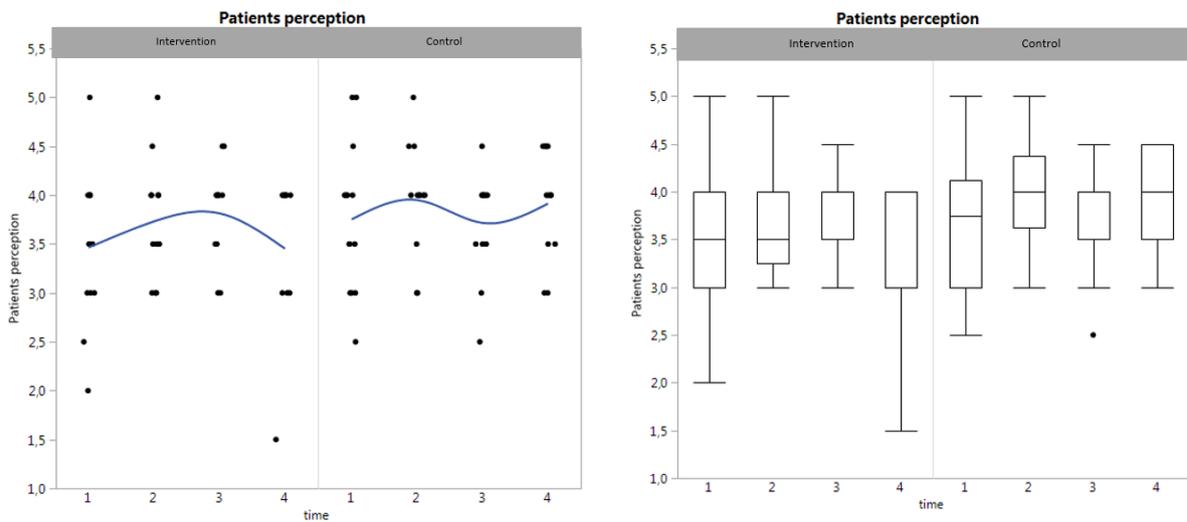
Subscale *interdisciplinary coordination* involves the questions number 3, 5, 6, 7 and 8 (annex 1). The control group scores significantly higher ($p= 0.0061$) than the intervention group see in fig 6.



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 6: Subscale interdisciplinary coordination: scores for control versus intervention group

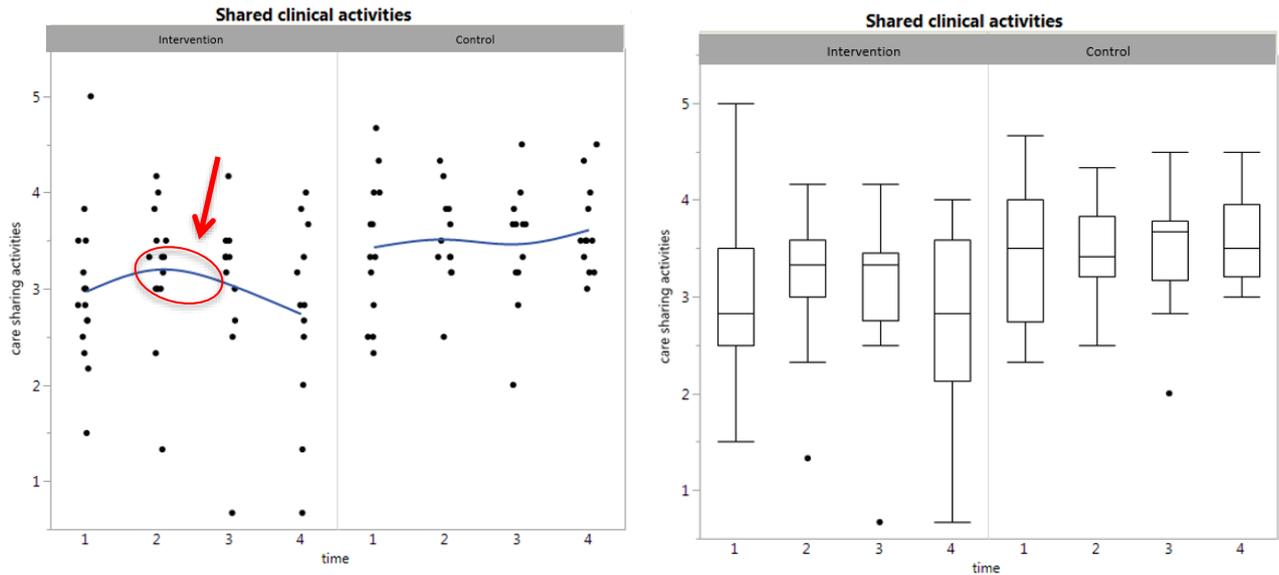
Subscale *perception of patient* involves questions number 4 and 16 (annex 1). No significant difference is found between the two groups ($p= 0,3227$) (fig 7).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 7: Subscale perception of patient: scores for control versus intervention group

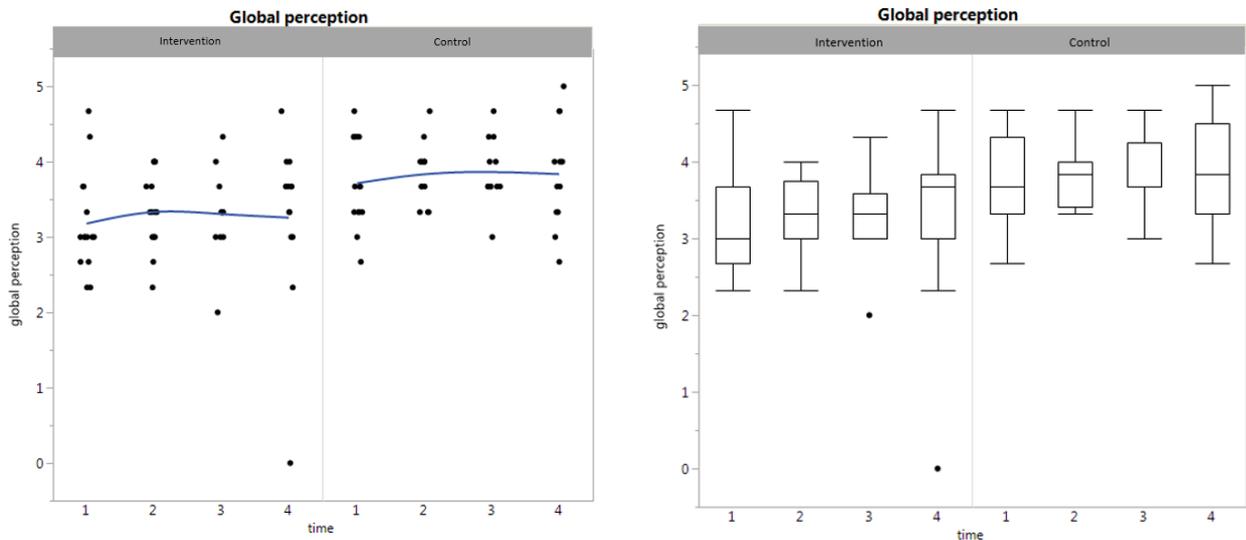
Subscale *shared clinical activities* involves questions number 10, 11, 12, 13, 14 and 15. Even though the results seem similar, a significant difference ($p=0,0351$) is found between the control and intervention group. The control group scores higher than the intervention group for shared clinical activities (fig 8).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 8: Subscale shared clinical activities: scores for control versus intervention group

Subscale *global perception* involves the questions number 1, 2 and 9. Also here a significant difference ($p=0,0036$) in advantage of the control group is found (fig. 9).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 9: Subscale global perception: scores for control versus intervention group

Correlation between intensity of and knowledge about of interprofessional collaboration

No correlation between intensity of interprofessional collaboration and the general knowledge about what is interprofessional collaboration is found on all time points ($0 \leq R^2 \leq 0,2$).

In the results outlier with case number 15, seemed to be an influential point with high leverage.

Therefore it was ignored for the definite calculation of the correlation between intensity and knowledge about interprofessional collaboration.

DISCUSSION

The aim of the study was to investigate if interprofessional learning has an effect on intensity of interprofessional collaboration. Secondly the aim was to investigate if a learning model on the workplace effects knowledge about interprofessional collaboration for professionals in practice. From the literature we know interprofessional collaboration has to be actively taught (16, 17), so we wanted to investigate the possible effects of implementing an educational module in practice. Despite the poor responses from nursing homes to participate in this study, we decided to perform the study with three nursing homes.

At the start of the investigation the intervention and control group differed significantly ($p= 0,0324$) from each other regarding scores on intensity of interprofessional collaboration. The average score for the control group was 3,61 (SD 0,42) and 3,06 (SD 0,69) for the intervention group. In theory there is no explanation for this significant difference we measured and we know from literature that Interprofessional Primary Care Teams (IPCTs) have opportunities to improve collaboration regardless of organizational or policy context within which they operate (18). Both groups, intervention and control group, score significantly ($p= 0,0088$) higher for intensity of interprofessional collaboration after the intervention period (fig. 2). This can be explained by a Hawthorne-effect through investigating 'interprofessional collaboration' – knowledge and intensity (19). This effect was visible on all time points. Based on the results it seems that filling in the questionnaires can influence the scores on intensity of collaboration regarding the results for this study. All professionals are educated to work with other professionals through practice. Maybe this, together with available literature, can be enough to know what interprofessional collaboration involves. When looking at the subscales, we found only significant differences between the intervention group and the control group for sub scale *interdisciplinary coordination* ($p= 0.0061$) and *shared clinical activities* ($p=0.0351$). In the subscale shared clinical activities we noticed a decrease of the score given by the intervention group (see fig 8). The hypothesis grew that when interprofessional teams know more about interprofessional collaboration and have gone through an educational process, they will probably score more strict and closer to experiences rather than thoughts. Unfortunately no significant difference ($p=0,2620$) for knowledge about interprofessional collaboration is found between the two groups and so we cannot confirm the hypothesis with our results from the questionnaires. The mean knowledge (over all 4 points measurement) for the intervention group was 46,38% (SD 10,35) and for the control group 43,23% (SD 9,29)%. Overall for both groups we found very spread scores for knowledge about interprofessional collaboration (fig 4). Nevertheless this has to be further explored by looking in depth at the learning process of the intervention group. Also no causal correlation is found between the knowledge of interprofessional collaboration and the intensity of interprofessional collaboration. We have to be critical about the questionnaires and so cautious to draw global conclusions. To know if intensity of interprofessional collaboration changes over time and after an educational intervention, also more qualitative and qualitative outcomes should be measured (20, 21). For example it is important to know how many times professionals search for help to get their job done in an interprofessional context, but also why they search for help and where they search for this (22). Also observational methods can be very useful to get more insight in what happens on the working floor involving interprofessional collaboration. From this study talking about interprofessional collaboration seems sufficient to bring the knowledge about it and the intensity of interprofessional collaboration on a higher awareness level. Because of the same progress in both groups, maybe interprofessional

skills are latent present. Of course it also should be taken into account that the groups are very small to draw conclusions in general. As in all research limitations of the study are a fact. We are convinced this study itself confirms that in future research, there must be more attention for mixed research methods to get a better insight in the complexity of learning in and for practice. It is a pilot study in a Belgian context, so the questionnaires need to be adjusted to the context of the working field as also taking into account the educational background and profession of the participants. Even though we had 40% of the staff of the nursing home of the intervention group included in the study, more participants over more different settings can give a better insight in whether the Hawthorne-effect is indeed to be acknowledged. Strengths of this study are the high participation of staff nursing home during the intervention period and the active participation of the intervention group. The participants represent the different disciplines involved in daily practice in nursing homes. The long-term measurement gave the opportunity to measure effect over different time points.

CONCLUSION

This study aimed to investigate if IPL has an effect on intensity of interprofessional collaboration. And secondly it aimed to investigate if IPL has an effect on knowledge about IPC for professionals in practice. Despite the small sample size this study identifies slightly higher scores on intensity of interprofessional collaboration from the second time point for both intervention and control group. After the third time point the scores decreased. A significant positive difference is found in the two groups before and after the intervention regarding knowledge and intensity of interprofessional collaboration. No significant difference is found before and after intervention for knowledge about interprofessional collaboration. Surprisingly overall the control group scores higher for intensity of interprofessional collaboration in comparison to the intervention group from the start till the end of the study. So unexpectedly both groups increase from baseline measurement compared with the third time point. Only the intervention group underwent the intervention. More research is needed to explore if an education process can influence the perception of intensity of IPC and result in more strict evaluation of it.

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ANNEX

Questionnaire 1

1. In my team, everyone has an equal amount to say
2. In my residential care facility there is a good collaboration between the different kinds of staff
3. In my team there are never any conflicts concerning task allocations or responsibilities
4. I think that the residents think the cooperation within my team is good
5. The tasks and responsibilities are very clearly divided within our team
6. The everyday work schedule is discussed with all co-workers (for example; everyone is present when we decide who will be doing what today)
7. The tasks of the team members are completely well coordinated (for example: care and animation planning)
8. All colleagues of the team always know who does what for one and the same resident?
9. The colleagues of the team approach the resident as a human and a person
10. The health care record is filled in and read by all disciplines
11. Colleagues of the team only help with tasks that fall under their professional authority
12. All colleagues of the team draw up a care plan for the residents together
13. I can always, in order to be able to execute my tasks, direct all of my questions my colleagues
14. Within my team, everyone exchanges important information to each other, so we can care for and support a resident in a good way.
15. The different disciplines at my residential care facility work closely together to ensure the care and support of the resident.
16. I think the residents feel that the different colleagues of my team do their work well and that we don't overlap one another

Questionnaire 2

1. What is interprofessional collaboration within healthcare?
2. Why is working in team important?
3. Which competence (ability) does one need to have in order to be able to collaborate?
4. Why is leadership important when it comes to collaborating?
5. Name 5 disciplines that work with you at the care facility
6. For all 5 disciplines, give a short description of their tasks.
7. Who do you work with and why?



Bella: I know it takes more than just knowledge and support, you need to trust each other and to experience that together you are stronger!

EXPLORING THE LEVEL OF INTERPROFESSIONAL COLLABORATION IN A NURSING HOME DURING A GROUP EDUCATION PROGRAMME AT THE WORKPLACE.

ABSTRACT

Background

Interprofessional learning and improving the intensity of interprofessional collaboration have been shown to create teams that work together better and improve patients experience. With this study we aim to describe the education process during a pilot interprofessional educational program for staff in one nursing home in Belgium and to identify supporting and hindering elements in working as a competent interprofessional team. The specific aim was to explore the personal change processes during the group sessions and to improve the level of interprofessional collaboration in that nursing home.

Methods

Within a cluster randomized controlled pilot trial in three nursing homes, data of the participating staff of the intervention group in one nursing home were gathered during the educational program for analysis. We used a qualitative research approach to study the education process during the group sessions. Audio-recordings and observers' notes during the actual group sessions were used to gather data. We performed a SWOT- analysis to identify supporting and hindering elements in interprofessional collaboration. Secondly we evaluated the level of interprofessional collaboration during the training. Finally the participants evaluated the educational program.

Results

Fifteen professionals from the participating nursing home underwent the educational program. In total nine different disciplines were represented. Based on the results it seems that the strengths in the nursing home are overshadowed by the weaknesses and threats to work interprofessionally and resident-orientated. The main threat is the atmosphere of hospital feeling while it is supposed to be the home of the residents. Moreover the results also indicated that staff is ready for change and to implement ideas in the working field to improve interprofessional collaboration.

Conclusions

This study identified supporting and hindering elements for interprofessional collaboration in nursing homes. There is still a lot of work to be done to realize a more interprofessional and resident-orientated care. Participants are convinced that better interprofessional collaboration will have a positive effect on the work atmosphere as well as the quality of the residents care. We got a better insight into how to observe and evaluate interprofessional collaboration in a nursing home. We also got a better insight into the education processes of the participants. Still more research is needed to explore whether an education process can influence the interprofessional competences of staff and the level interprofessionality of the collaborating teams.

Keywords

Interprofessional, collaborate, SWOT, education, healthcare, nursing homes

INTRODUCTION

Interdisciplinary teams are widely considered to be essential for delivering quality geriatric care (1) and to benefit health systems and patients, particularly those patients with complex care needs (2) (2). Care home managers support integrated care interventions, protected time and the inclusion of all levels of care home staff for training to facilitate interprofessional integrated working (3). The improvement of teamwork may depend on how well team members can collaborate (1). Team communication and coordination, are consistent features of successful interventions and fundamental to effective team working (4, 5). Key elements of collaboration like goal setting, care decision support, patient activation, etc. are relevant outcome indicators on interprofessional collaboration for older people involving the professional health care providers (6). Despite the known positive effects and key elements from literature, still more research is needed to measure the impact of interprofessional education on collaborative practice and patient outcomes (7). Interdisciplinary teams are important in providing care for older patients, but interprofessional teamwork is rarely a teaching focus, and little is known about trainees' or even professionals' attitudes towards learning to collaborate (1). Without insight in the effectiveness of educational modules and the factors that have an impact on (or supporting or hindering elements) collaboration in nursing homes, it is difficult to educate future healthcare providers regarding their responsibilities in multidisciplinary teams in order to work interprofessionally and to deliver the required care. With this study we aim to describe the education process during a pilot interprofessional educational program for staff in one nursing home in Belgium and to identify supporting and hindering elements in working as a competent interprofessional team. The specific aim is to explore the personal change processes during the group sessions and to improve the level of interprofessional collaboration in the participating nursing home.

DESIGN AND DATA COLLECTION

This study is performed according the protocol discussed in 5.1 earlier in this chapter regarding the second aim within the quality check of the intervention and which is registered at clinical trials.gov under NCT01792219. Within the cluster randomized controlled pilot trial in primary health care we gathered data from the intervention group involving the process of learning and the influence of an educational module offered at the workplace.

Intervention

The intervention concerns two educational modules, planned between baseline (month 3) and a second measurement moment (month 6) within the timetable of the cluster randomized controlled pilot trial. The first module (module 1) is a 10 hours course and involves an adapted version of the *Interprofessional Collaboration in Health Care – module* (IPCIHC-module) (8) and titled 'to learn to collaborate interprofessionally'. It is a problem-based interactive learning method with real life cases. This first module concerns definition, getting to know each other (the other disciplines), making a care plan, discuss ethical cases, reflecting on the competence of 'interprofessional collaborator' and finally presenting what you have learnt (see table 1). Also the second module (module 2) is a 10 hours course (9). In this second module it is important to reach the personal level. Small teams were formed. The teams were guided by a tutor/educator. In three sessions of 3 hours participating professionals reflected upon their competence as collaborator and checked what had to be learnt and what they could change in their interprofessional collaboration. Also in this module the research team collected bottlenecks as in barriers and solutions in collaboration (see table 1).

The educational module was build up and carried out from an educational point of view and used existing evidence on interprofessional education programs (8). We focused on the intrinsic motivation of professionals to deliver good quality of care through interprofessional collaboration in the nursing home.

Session	Methodology	Key Points	Home work/Portfolio
Module 1 - Session 1	Module 1: Lecture/workshop	<ul style="list-style-type: none"> ▪ Introduction module and aims ▪ Interprofessional competences ▪ Explore motivation to participate ▪ Interprofessional acquaintance 	
Module 1 - Session 2	Lecture/workshop	<ul style="list-style-type: none"> ▪ Presenting cases ▪ Making a care plan based upon ICF-model* ▪ Reflecting upon interprofessional competence and team development 	
Module 2 – Session 1	Supervision – group session	<ul style="list-style-type: none"> ▪ Introduction module and aims ▪ Introduction portfolio ▪ Introducing themselves ▪ Setting concrete goals based upon 	<ul style="list-style-type: none"> ▪ Portfolio- element 1: <ul style="list-style-type: none"> ○ Description of who you are ▪ Portfolio- element 2: <ul style="list-style-type: none"> ○ Description of our expectations ○ How do you experience your job? ▪ Portfolio-element 3: <ul style="list-style-type: none"> ○ Describing a critical incidence ○ Setting learning goals
Module 2 – Session 2	Supervision – group session	<ul style="list-style-type: none"> ▪ Discussing the critical incidences ▪ Discussing experiences concrete goals and action plans ▪ Discussing barriers and solutions 	<ul style="list-style-type: none"> ▪ Portfolio-element 4: <ul style="list-style-type: none"> ○ Reflection report on session 1 of module 2
Module 2 – Session 3	Supervision – group session	<ul style="list-style-type: none"> ▪ Discussing the process and experiences of the goals and action plans performed ▪ Discussing barriers and solutions experienced during the process 	<ul style="list-style-type: none"> ▪ Portfolio-element 5: <ul style="list-style-type: none"> ○ Reflection report on session 2 of module 2 ▪ Portfolio-element 6: <ul style="list-style-type: none"> ○ Reflection on the competence of interprofessional collaborator
Evaluation module	<ul style="list-style-type: none"> ▪ Presentation of the results ▪ Questionnaires to evaluate the module 		

* ICF: international classification of functioning, disability and health

Table 1: Overview of the content of the educational program per session

The educational module was integrated in the work time of the participating staff. In the first module the knowledge or awareness from their ‘team players’ were questioned by asking ‘Who do you work with and why?’. During the second module an inventory of ‘problems in interprofessional collaboration’ were kept up. Next to knowledge mapping and the inventory of bottlenecks in collaboration we also reported on the process during the period of the intervention (between 3 and 6 months). To gather information about the process a reflection report had to be written by the participators on ‘how do I collaborate?’.

DATA COLLECTION

Data collection was based on audio recordings, transcriptions and observers field notes and was undertaken by three researchers (MS, NC and GT). GT the principal investigator (a physiotherapist) was involved in the educational module development and was present at all sessions. The two other researchers (MS and NC) are respectively a psychologist and an occupational therapist, who were familiar with the program aims but were not involved in the development or implementation. All three were involved in the reflective processes during the analysis process. We based our data collection method on the model of Grol and Wensing (2011) for implementing changes in clinical practice (10).

DATA-ANALYSIS PROCESS

The analysis was performed in two important steps. The first step contained the analysis method based on a guide for qualitative data analysis (11) and the Strengths-Weaknesses-Opportunities-Threats (SWOT) matrix (12).

The SWOT-analysis was performed in five steps: 1) familiarization with the material, 2) coding the transcripts and field notes, 3) applying the framework, the SWOT matrix, 4) testing in dialogue the results, 5) presentation of the results and member check.

All three researchers (NC, MS and GT) read the transcripts independently from each other and marked the elements in the text that were found to be a strength, weakness, an opportunity or threat. They listened to the audio recordings and completed their results. The researchers made independently from each other a code list in an excel document. Afterwards a thematic analysis was performed to cluster all strengths, opportunities, weaknesses and threats and create the SWOT-matrix.

All three researchers met and discussed on their results to finally have one agreed code list to use for the SWOT-matrix. The analysis followed an iterative process and finally resulted in one SWOT-matrix, which was based upon all three sessions. For this study, the different elements of the SWOT-matrix were defined as described in table 2.

Internal	Strength What is already good for interprofessional collaboration	Weaknesses What is going wrong and that needs improvement
External	Opportunities What can go better if it was used more efficient or in a different way	Threats What is a barrier and so a threat to be able to work interprofessionally

Table 2: SWOT-matrix for supporting or hindering elements for interprofessional change

For the second step of the analysis we wanted to evaluate ‘How interprofessional is the collaboration in the nursing home?’. Here for we used the following frameworks to analyse the data.

- GRPI model (13, 14)
- Group development (15)
- Competence of interprofessional collaborator (8, 9)
- Group criteria interprofessional team (9)

The GRPI-model stands for Goal, Roles & Responsibilities, Procedures and Interpersonal relations. A team should always begin with a team level goal. After the goal is defined, the roles and responsibilities

will become clearer. As individuals work together, they will see that goals and responsibilities are often not sufficiently clear. Consequently, team members will need to redefine them. That redefinition enables them to adjust and readjust team processes, such as decision-making, conflict resolution and workflow. When doing all that, they will be developing the interpersonal relationships needed to relate to other team members and the team leader (16).

In teams it is important that members are aware of different phases of group development in order to have attention for the relation between colleagues as well as for the tasks to be done (9, 15). Finally the competence of the interprofessional collaborator and the group criteria of an interprofessional team (see table 3) are used as presented in the IPCIHC-module (8, 9).

- | |
|---|
| <ol style="list-style-type: none">1. This group can work goal oriented2. In this group a decision can be taken3. Roles are being respected4. In this group questions are being asked about each other's expertise5. The group addresses to appointments6. In this group new material is applied7. In this group feedback is being given during the moments of group reflection8. In this group opinions are being given during the substantive discussions9. The members of the group motivate and stimulate each other10. In this group there is a positive group climate |
|---|

Table 3: Group criteria of an interprofessional team (9)

Presentation of the results, member check

In this final step the results were put in a PowerPoint presentation in order to present them to the participants and interested staff of the participating nursing home. In respect for anonymity it was very important to present the results in an anonymous way so results could not be identified from which group or participant they came. This group session was organized after five months of the educational module. The aim was to explore staffs' experiences with the educational module and to evaluate the module and its influence on the workplace. The research team led this session and a questionnaire was used to evaluate the educational module.

So as last step the results of a questionnaire for evaluation of the effectiveness of the educational module were analyzed. The questionnaire was based upon Kirkpatrick's' Model (see annex). The Kirkpatrick Model is the worldwide standard for evaluating the effectiveness of training (17). It considers the value of any type of training, formal or informal, across four levels. Level 1 Reaction evaluates how participants respond to the training. Level 2 Learning measures if they actually learned the material. Level 3 Behavior considers if they are using what they learned on the job, and Level 4 Results evaluates if the training positively impacted the organization (17).

PARTICIPANTS

All participating staff of the intervention group of the cluster randomized controlled pilot trial followed the educational module. For this study we focused on the results we gained from this group during the educational module.

ETHICAL CONSIDERATIONS

The study protocol was approved by the Medical Ethics Committee of the University of Antwerp (number: B300201215061). Participants were all informed about the process, and confidentiality was respected for all gathered information.

RESULTS

Characteristics participants

Of all invited (194) nursing homes to participate in the cluster randomized controlled pilot study initially only one nursing home of a private organization was willing to participate. All staff from the participating nursing home as intervention group, received the invitation to participate in the study and had to fill in the informed consent if they agreed to participate. For the intervention group an introduction was given about the content of the intervention. Finally 15 professionals from one nursing home as the intervention group participated (see table 4). The intervention took mostly place at the location of nursing home. For the first module we worked with all 15 participants of the intervention group together. For the second module they were divided into four multiprofessional groups.

Profession	Number	Gender Female/Male	Age Median (SD)	Years of experience in current profession Median (SD)
Total	15	13/2	41.6 (11.2)	7 (8.8)
MB	3	3/0		
OT	1	1/0		
PT	1	0/1		
N	3	2/1		
QC	1	1/0		
NA	3	3/0		
A	1	1/0		
CS	1	1/0		
TC	1	1/0		

MB= Management Board - OT= Occupational Therapist - PT= Physiotherapist - N = Nurse - QC= Quality Coordinator - NA= Nurse Auxiliary - A= Animator - CS= Cleaning Staff - TC= Team coordinator

Table 4: Description of characteristics participants – Health professionals

Findings from the SWOT- matrix

Strengths

From the analysis of the conversations with the participants it is clear that each staff member does care about the residents. It is said that they like to deal with people, that they help each other, are open to questions and they do it for the residents. A resident must feel at home here. Positive resident-oriented interventions have been appointed in the different groups. Thus it was stated, “the residents are the goal and collaboration is the tool”. They tried to have all noses pointing in the same direction. This happens in various consultation structures and frameworks: team co-ordination, quality co-ordination, staff meetings, residents interprofessional consultation, The policy seeks to ensure that the involvement of colleagues and residents is as close as possible. The negotiated care is very

important, it is understood as the vision in this nursing home. The resident must be central, but the staff also want to feel good.

(Quote 1) "Working together is good for residents, but also good for me. If you feel good then you can offer better care".

In all groups, the importance of communication is expressed several times. They are willing to learn and especially to learn from each other. The analysis also revealed that during the sessions solutions for problems were being sought. There is sense of responsibility for all colleagues to provide good care.

Weaknesses

For the "weaknesses" section, it was not so obvious to classify the statements by "weaknesses" or "threats". For this we have tried to respect the following rule very well. When it came from the staff it was labelled 'weakness' and when it came from the institution, the nursing home, it was labelled as a 'threat'.

Often the information transfer between staff members is called 'unclear', 'incomplete' and sometimes even 'inappropriate'. There is also some kind of 'inaccessibility' for information and the information does not always flow to where / who they intended. In the various groups, informal information transfer is also discussed regularly "in the corridor ". When talking about the residents during the sessions, nobody really knew what the residents wanted. The collaboration between certain staff is not optimal, there is no confidence in each other, it is indicated that there is being worked "on islands". Incorrect behavior is left unchecked, no action is taken to change this behaviour. Some staff are perceived as 'dominant' on the verge of verbal 'arrogance and aggression'. In dealing with criticism, the feelings are priming. The work atmosphere is coloured by frustrations by, for example, 'unfulfilled expectations'. The sessions have also shown that there is actually no direct contact between the workplace and the policy makers. The translation of the sector-specific quality requirements such as privacy for the residents for example, is not always respected into the "concrete" work floor.

(Quote 2) "people being washed while the door is still open, this is not respectful and should not be tolerated, but still it happens."

Staff do not make time for care for the residents and for each other. Besides the professional relationships, there are also personal relationships, but these are sometimes experienced as disturbing. In the organization of tasks, responsibility of the tasks can become unclear. There is no explicit 'team management' present. The management of the teams could help for the currently unclear procedures, unclear task distributions and task completion. Therefore, tasks are not always feasible during working hours and sometimes they are simply not executed. Some people suffer from "role confusion" because they have a "changing task package". When leadership is shown, it is with a directive style that is not even appreciated by all staff. Task distribution is delegated too much or too little, and thus perceived as 'in function of self-interest' rather than 'in function of what the resident needs'. Frequently "functions are perceived as unclear" and therefore there is an obscurity about what can and may be expected. There is no knowledge of each other's expertise, and as a result, this is experienced as 'not respectful' for each other's own discipline.

Opportunities

From the analysis it seems that on interprofessional collaboration there are various opportunities for eliminating the weaknesses. Work is being done on the "home and feeling home"- project. Residents are asked for what they want. Staffs try to involve family, informal caregivers and the animation team of the resident in order to succeed in this project. It appears from the analysis that although there is a top-down structure, the participants indicate the hierarchy is accepted.

Quote 3 "I do not discuss with superiors, that is how we were educated, your boss remains boss. I believe in hierarchy, but you must be able to say your opinion."

'Help-each-other' attitude in emergencies is typical after analysing all the conversations. All groups showed that their own duties are known. They are also willing to see and recognize their mistakes and to learn from it. That indicates a kind of "vulnerable drafting" in the team.

Quote 4 "I have to break the negative spiral, you cannot change others. I need to focus more on myself and focus on the resident."

There are various tools in use to promote communication for example, there is a wish book for staff, post-its system, There is a clear awareness of the importance of improving communication, regardless of who to whom.

Threats

As mentioned earlier in the weaknesses, it was not always easy to distinguish between 'weaknesses' and 'threats'.

Overall, according to the participants, there is a 'hospital feeling' in the residential care centre. The residents are prevented from getting short of medication, nutrition, hygiene, sleep and rest, and sometimes there it stops. Sometimes they even do not get the right care.

Quote 5: Some residents stay in a wheelchair for 'comfort' of the staff, wrong diner tables are ordered because of 'cheaper', the swallowing problems of residents are not always taken into account.

Colleagues are placed in a position from the nursing home policy, that sometimes leads to a "competitive feeling". The infrastructure is labelled by all groups as the "big difficulty". The office organization is not ideal. There are no real relaxation areas, there is a poor animation for residents. The conversations also indicated that there is a central policy and a local policy. This gives even more 'top-down hierarchy' when there is no linking between the social-emotional issues at the local level and passing on the tasks from the central level. This often results in announced changes, not often being implemented. Due to time pressure, tasks are sometimes taken home (finishing reports e.g.). Globally across all disciplines, communication problems are reported. Often it is about incomplete information or even lacking information .

There is a global sense of 'not being who you are', there is distrust in relation to each other and task clarity.

Quote 6: Every day I come to work, but I cannot be who I am.

In most conversations, it was mainly about the frustration that was “the sum of all the little things” together.

To have a better insight in what can be help- or harmful involving interprofessional collaboration in the nursing home, we put the SWOT-results in the framework of the competence for an interprofessional collaborator (8, 9). An overview can be found in table 5.

	HELPFUL +	HARMFUL -
INTERNAL	<ul style="list-style-type: none"> • Competence - Health advocate <ul style="list-style-type: none"> - The heart in the right place - Clearly positive residents-oriented intentions - Nice in the same direction - Negotiated care - Engagement to colleagues and residents • Competence - Communicator <ul style="list-style-type: none"> - Aware of the importance of communication • Competence- Scholar <ul style="list-style-type: none"> - Learn from others • Competence-Manager/Team player <ul style="list-style-type: none"> - Consultation opportunities are sought - Responsibilities - Solutions 	<ul style="list-style-type: none"> • Competence - Communicator <ul style="list-style-type: none"> - Information transfer - Between staff, often unclear, incomplete, 'inappropriate', unreachable for communication, often informal communication, inadequate throughput of information - About residents: nobody really knows what the resident wants - Not discussing inappropriate behaviour - No confidence in each other/everybody works on isolated islands - Dominant behaviour on the edge of arrogance and aggression. Emotional reactions prevail on dealing with feedback constructively. - Geen rechtstreeks contact tussen werkvloer en beleidsmakers - Gekleurde door frustraties door bv. oningevulde verwachtingen • Competence - Team player / Health advocate <ul style="list-style-type: none"> - No time and care for each other and / or resident - Personal relationships between colleagues are sometimes experienced as disturbing - To lose sight of your own responsibilities - The distribution of work sometimes goes wrong because <ul style="list-style-type: none"> • no task groups are created • no explicit 'team management' present • Competence - Manager <ul style="list-style-type: none"> - unclear procedures, unclear task distributions and task completion - role confusion because of changing task package - When leadership is shown, it is mostly in a directive style - Finishing tasks not always succeeds during working hours • Competence - Professional <ul style="list-style-type: none"> - Task distribution is delegated to too much or too little, 'in function of self-interest' not- resident-orientated • Competence - Expert: <ul style="list-style-type: none"> - functions are unclear as well as expectations - no knowledge of each other's expertise - No respect for other disciplines
EXTERNAL	<ul style="list-style-type: none"> • Competence - Health advocate <ul style="list-style-type: none"> - Home and feeling home - project - Interviewing residents - Attempts to involve family and others in the animation • Competence - Team player <ul style="list-style-type: none"> - hierarchy is accepted - 'help-each-other' attitude - willing to see and recognize their own mistakes - Own tasks are known • Competence - Scholar <ul style="list-style-type: none"> - Willing to learn, also from their own mistakes • Competence - Communicator <ul style="list-style-type: none"> - various tools available to promote communication - work is being done on recognition and accessibility - Awareness of importance of correct communication 	<ul style="list-style-type: none"> • Context <ul style="list-style-type: none"> - Hospital - feeling - Colleagues versus competitors - Infrastructure is 'big difficulty' - Office -organisation not optimal - Lack of relaxation areas - 'poor animation' for residents - ... Competence - Health advocate <ul style="list-style-type: none"> - Residents are not involved in planning the care - Residents do not always get the right care Competence - Manager <ul style="list-style-type: none"> - Central policy versus a local policy - Top-down hierarchy - Announced changes, not often being implemented - Time -pressure : a lot in between, a lot taken home, ... Competence - Communicator <ul style="list-style-type: none"> - Incomplete information - Lacking communication Competence - Team player <ul style="list-style-type: none"> - Frustrations: No confidence, 'not being who you are', task in clarity, ...

Table 5: Overview of SWOT-analyses in framework of interprofessional collaborator.

Group criteria for an interprofessional team

Based up on the SWOT- analyses in this phase of the research we used the group criteria for an interprofessional team as presented in the IPCIHC-module (9) to evaluate the level of interprofessional collaboration on team level (see table 4) as second step in the analysis of the data.

Criteria 1: This group can work goal oriented

The collaboration is very much tailored to the care and this creates the 'hospital-feeling' in the nursing home. The work is task-oriented, but cannot be confused with goal-oriented working. When working together, there is sometimes a lack of the balance between task-oriented and social-emotional leadership of the teams. Everyone should know why work is being done in a certain way. The results did not reveal that. Nevertheless, there are attempts at goal-oriented work appointed. When the teams name the goals and appointments more quickly, it can also be included in the reports in terms of who does what when. For example, "music in the background during dinner": clearly communicate with everyone that between that hour and that hour, that music has to get up. You do this on a forum where you can reach everyone (no post-its) and next to the radio is the schedule. It can be stressed that everyone is responsible for the success of this assignment, with the goal of creating a home atmosphere.

Criteria 2 : In this group a decision can be taken

From the results there seems to be a lack of open communication. Probably this is the reason why also decisions cannot be taken well, with an involvement and approval of everyone and all involved disciplines, as for instance with ordering/buying material.

Criteria 3 & 4: 'Roles are being respected' and 'In this group questions are being asked about each other's expertise'

It was clear that not much was known form each other's work/discipline. Colleagues appeared to recognize each other but not to really know each other. In a team that daily works in the same building, everyone can be expected to know who is working there and what tasks they have.

criteria 5: The group addresses to appointments

Appointments and agreements seemed not always to be addressed. For example, it was indicated that printed documents are not read and that e-mails are not followed. The backside of the medal is, of course, 'how' the agreements were made. One can think that when you involve the majority in the making of the agreements and how they are to be followed, they become more feasible.

criteria 6: In this group new material is applied

During the sessions, IPCIHC 1 and 2 there has been a search for creativity and input from all members of the groups. It's a different way of teaching than most of the participants are used to. However, this demanding "style" can be applied in daily practice. Colleagues can encourage each other to keep up with new methodologies or ideas for animation, décor ideas etc.

Criteria 7: In this group feedback is being given during the moments of group reflection

During the training, and so working with cases, the 'International classification of functioning , disease and health' (ICF) (18) was introduced. For most of the participants this model was unknown and so there was initially a resistance before willing to work with it. This maybe can explain when new "unknown" agreements are made in the context of, for example, the "quality manual", it may not be possible to implement this quickly enough. With the 'exporters' involved in the choice of 'new' methods, that kind of resistance can be counteracted.

criteria 8 : In this group opinions are being given during the substantive discussions

The foregoing criterion also fits well with this eighth criterion giving opinions during the substantive discussions. It is important that feedback and opinion be given in first person "I". It is desirable that this is concrete and clear, otherwise it is sometimes "wiser" to silence.

Criteria 9: The members of the group motivate and stimulate each other

During the sessions in the various groups, colleagues found themselves to be competitors. Stimulating and motivating each other is not always true. Many frustrations have been pronounced and thus also appointed. In addition, there is an atmosphere of distrust and a "not to be who you are". Unfortunately, just because of this, it is no longer seen how hard work is done. During the session it was very clear that each participant is very motivated to provide good work, but especially for the residents.

criteria 10: In this group there is a positive group climate

In the first conversations, there was rather a "negative" atmosphere in terms of "working together" than a positive one. It was clear that something was going on. But as the sessions progressed, there was much more insight into where the problems might arise from. The participants were clearly prepared to look at the same issues from another perspective.

EVALUATION OF THE EFFECTIVENESS OF THE EDUCATIONAL MODULE

For this step in the research we offered the attendees the questionnaire for evaluation of the educational interprofessional collaboration module. Sixteen persons filled in the questionnaire of which 14 had participated in the intervention and 2 persons did not but work in the same nursing home.

On the level of satisfaction 11 of the 16 pointed out to be satisfied about het educational module. Two were very satisfied, two were neutral and one was not filled in. When looking at the reasons of satisfaction, the participants mainly pointed out that the reflection was an important part of the module. The moment they stood still to analyse critical incidences on interprofessional collaboration, they appreciated that they got to know each other better and also to better know each other's tasks and responsibilities. But also they remarked that still a lot has to change and can be better. On the level of acquired knowledge they gained a better insight in their own competencies. Frustrations changed into positive thinking and trying to understand what it is all about. Giving and getting feedback is not being perceived as criticism but an opportunity to make changes. It was clear that leadership is an important issue in interprofessional collaboration. On the third level and so on the behaviour level, it seems that they work more resident-oriented. The care for the residents is more central. There is more contact with each other as colleagues. More help is asked to each other, the bridges with the

management team are made. In the nursing home there is a more positive collaboration atmosphere, there is more constructive discussion. Regarding impact, it seems that some changes took place. Expertise within the team is being explored, more feedback is given to each other. There is a bigger awareness of things that go wrong. There is more respect for each other's work and discipline.

DISCUSSION

With this study we aimed to describe the education process of participating staff during an interprofessional education module offered as an education programme at the workplace for an intervention group. The specific aim was to explore and to improve the level of interprofessional collaboration in that nursing home. From the literature we know interprofessional collaboration has to be actively taught (19, 20), so we wanted to have a look into what really supported or hindered staff to work interprofessionally. Analyzing the data triggered us to answer the following questions: What is helpful and what is harmful in order to work interprofessionally in nursing homes? How interprofessional does the participating team works? And finally how did the participants evaluate the educational model.

Firstly a SWOT framework was used to identify the supporting and hindering elements in interprofessional collaboration. This framework helped us to get an overview and insight in to the interprofessional collaboration problems (21). Based on the results it seems that the strengths in the nursing home are overshadowed by the weaknesses and threats. Too many things go wrong in the competences of communication, health advocacy and team player. Also leadership is lacking in the management while this is such an important key to create an interprofessional collaboration atmosphere (22). The main threat is the atmosphere of hospital feeling, while it is supposed to be the home of the residents. However there are also limitations using this strategy method. We are aware that by applying this SWOT method, we got a "photo" of a certain moment in the strategic planning (23). The research team had the trust of the participants. During the sessions the group was willing and able to reflect on interprofessional collaboration issues. Second, we illustrated that the participating staff were aware of the critical issues that hinders interprofessional collaboration. Moreover they also indicated to be ready for change and to implement ideas in the working field to improve interprofessional collaboration. According to Albert Humphrey, it is the people in an organization that can make or break a project (21), so it is important the team is empowered to make the change.

In Belgium at the moment a revision is in process of the KB78. KB78 is the Belgian official coordinated law of 10 May 2015 on the exercise of health care professions (24). In order to be able to speak of quality health care, three basic conditions must be fulfilled: 1. There must be sufficient guarantees that the healthcare practitioners are competent in the field; 2. Health care must be organized in a multidisciplinary, integrated way around the patient; 3. The patient is at the heart of healthcare: quality care is patient and patient care. In other words, the patient is not a suffering object, but plays an active part in his or her own care story.

This study gives an answer to the second basic condition. There is still a lot of work to do to get health care teams to work more interprofessionally. This further underpins the idea that flexible approaches, such as the supervision sessions may be preferable in group education at the workplace (25). Therefore we also used the framework of the group criteria for an interprofessional team. We wanted to explore how interprofessional the team works regarding these criteria. Unfortunately from the results we cannot conclude that in this nursing home the staff works goal-oriented. Working as an interprofessional team also implies that when a group / team is not complete, still a supported decision can be taken by the team. We cannot confirm that the intervention group

can take supported decisions. The roles and the tasks should be discussed when starting the job, a good organizational chart can help. Also it seems important to give staff the time to develop and to discover where to be when they have issues or question regarding their job. People should be able to be who they are in order to be able to stay empowered to do their job in the best way they can. Collaborative leadership can be helpful to acknowledge that there is no distinct leader, but that the team members must work together in an independent way, relying on each other's expertise in order to accomplish goals and carry out tasks (22).

It was very clear that all participants do care about their residents and delivering quality care. There were different examples given of how they help each other in distress. Maybe it is important for nursing teams to open their perspectives to more integrated care delivery. To make a success of integrated care, formal structures may need to be put in place for health service delivery and organisation of care for care homes (3).

Nursing homes that have adopted this paradigm shift focus on individualizing services to each resident's needs and preferences (i.e. resident-centred care), offering them choices in waking and eating time, and in some cases even selecting which staff members serve them. This approach to nursing home policy and operations emphasizes the "home" aspect of nursing homes, as a place where residents can continue to grow, rather than institutions where they come to die. According to this paradigm, older people should continue to make decisions for themselves and engage in meaningful activities, including caring for plants and pets in the home, or volunteering in a child care centre if there is one in site (26).

Despite the first impression that the ten criteria for interprofessional teamwork are deficient, there are clear indications of different possibilities from the strengths and opportunities to bring about a positive change for interprofessional collaboration. It is clear that this group wants to go forward. There are enough disciplines and commitment to realize this change.

The research team is aware that these data are insufficient to have a complete picture of interprofessional collaboration in the nursing home. It is only possible to talk about the data obtained through the participants at the moment. We aimed to help professionals reflect on their own role in interprofessional collaboration and changes within the context of nursing homes. Therefore we had the educational modules evaluated. Also two staff members filled in the evaluation questionnaires even though they didn't undergo the intervention. For this study 40% of the total staff of the nursing home participated. At least 9 different disciplines were present in the intervention group. Overall the results were positive and the participants seemed to confirm this kind of educational modules can help them to develop interprofessional competences as a team and individually. Although teamwork training is essential and has had impressive impact on patient outcomes, future research is needed to understand the organization shell in different settings of care and how team training and structured communication should be designed together with strengthening of an organizational shell. Achieving such understanding will require a combination of qualitative, ethnographic studies at multiple levels (27).

We are convinced this study confirms that in future research work there must be more attention for mixed research methods to get a better insight in the complexity of learning in and for practice. It is a pilot study in a Belgian context, so the results need to be adjusted to the context of the working field as also taking into account the educational background and profession of the participants. Strength of this study is the high participation of staff of the intervention group nursing home during the

intervention period. The participants represent the different disciplines involved in daily practice in nursing homes.

CONCLUSION

This study aimed to describe the education process of participating staff during an interprofessional education module offered as an education programme at the workplace for an intervention group. The specific aim was to explore and to improve the level of interprofessional collaboration in that nursing home. This study identifies supporting and hindering elements for interprofessional collaboration in nursing homes. There is still a lot of work to be done to realize a more interprofessional and resident-orientated care. Nevertheless the participants confirm they are ready to make efforts and to change their work to more interprofessional collaboration. They are convinced it will have a positive effect on the work atmosphere as well as the quality of the residents care. We got a better insight into how to observe and evaluate interprofessional collaboration in a nursing home. We also got a better insight into the education processes of the participants. Still more research is needed to explore if an education process can influence the interprofessional competences of staff and result in more strict evaluation of interprofessional collaboration on team level.

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ANNEX

**Questionnaire - Evaluation module
To learn to collaborate interprofessionally.**

1. **How satisfied are you with the education IPCIHC in its entirety within your nursing home?**

Circle below the statement that suits you best:

Very satisfied satisfied neutral dissatisfied very dissatisfied

Why?

2. **What did you learn from, during and through the IPCIHC module in your nursing home**

3. **What do you think this changed for:**

- the residents
- yourself
- your colleagues of the nursing home involving collaboration

4. **Would you recommend this form of training within and / or outside your organisation?**

Circle below the statement that suits you best:

Yes - No

Why?

5. **What do you think of the results of the module for your nursing home?**

6. **Do you have tips and / or advice that can help us improve this training to influence the quality of interprofessional collaborations (if necessary)?**



*Bella: We are all old and yes we have mainly similar problems,
but still we are who we are.*

We are persons with a story, try to listen.

CAN LEARNING TO COLLABORATE INTERPROFESSIONALLY INFLUENCE OUTCOMES FOR RESIDENTS IN A NURSING HOME?

We aim to investigate the effectiveness of learning to collaborate interprofessionally on outcome indicators for elderly.

ABSTRACT

Background

Interprofessional learning (IPL) and improving the intensity of interprofessional collaboration (IPC) have been shown to create teams that work together better and improve outcomes on patient level. With this study we aim to measure the effectiveness of learning to collaborate interprofessionally on outcome indicators for older people in nursing homes.

Methods

A cluster randomized controlled pilot trial in nursing homes was set up aiming to investigate the influence of an educational module offered as at the workplace for the intervention group. We measured outcomes on patient level (body weight, fall incidence, medication use, health related quality of life, independence for activities of daily life and cognitive status). We measured at four time points; baseline, 6 months, 12 months and finally 18 months.

Results

Seventeen residents within the participating nursing homes, who met the inclusion criteria, participated and nine residents were in the intervention group. Overall no significant differences were found between the intervention and control group.

Conclusions

This study identifies trends of differences between the intervention and the control group but no clinical relevant significant differences were found. What we learned from this study is that tailored patient-centered care is important. Measurements on patient level outcome should be always assessed on the aims of the care planning for the particular patient. More mixed method research is needed to explore if an educational process for personnel can influence quality indicators on patient level in nursing homes.

Keywords

Interprofessional, collaborate, residents, outcomes, health care, nursing homes

INTRODUCTION

The ageing of the population demands more long-term care and multidisciplinary services (1, 2). For resident outcomes in nursing homes interdisciplinary interventions may have a positive impact. On 'patient level' important outcome indicators are pain, fall incidence, quality of life, independence for daily life activities, depression and agitated behaviour, transitions, length of stay in hospital, mortality and period of rehabilitation (3). Team communication and coordination, were also consistent features of successful interventions (4). Interprofessional learning (IPL) and the intensity of interprofessional collaboration (IPC) have been shown to create teams that work together better and improve patients' satisfaction (4, 5). Standardizing IPL in the curricula of all health professionals can improve key skills and prepare students for their careers by driving up standards of professionalism and best practice (6, 7). Despite these positive effects known from literature, still more research is needed to measure the impact of IPL on collaborative practice and patient outcomes, specifically in the setting of nursing homes (8). Finally, the inclusion of patient, family, and caregiver experiences could be especially helpful in promoting better alignment between education and practice as well as for impacting person- and community-centered outcomes. Without insight in the effectiveness of educational programs and the factors that have an impact on outcome indicators for older persons in nursing homes, it is difficult to educate future healthcare providers regarding their responsibilities in multidisciplinary teams in order to work interprofessionally to deliver the required care. With this study we aim to measure the effect of an educational program on 'patient level' outcome indicators for older persons in nursing homes.

DESIGN

A cluster randomized controlled pilot trial in nursing homes was set up aiming to investigate the influence of an educational module offered at the workplace for the professionals of the intervention group. For the residents of the intervention group health-related quality of life, independence and cognitive functioning were assessed, as they are patient oriented outcomes in nursing homes. This trial was performed according the protocol discussed in 5.1 earlier in this chapter regarding the third aim and which was registered at clinical trials.gov under NCT01792219. Based on the literature and the quality indicators for nursing homes described by the Flanders Agency of Care and health (9) and after discussion with experts and an interdisciplinary research team the outcome parameters were decided. To explore the influence of the educational program we measured, body weight of the residents, fall incidence, medication use, health related quality of life, independence for activities of daily life and cognitive status (see table 1). Outcomes were assessed in nursing homes, including a pre-post assessment of the intervention with short and long-term follow-up. The measure moments were baseline (between 0 and 3 months), after 6 months, 12 months and finally 18 months (table 1). The intervention consisted of an educational program for the health care providers working in nursing homes titled 'to learn to collaborate interprofessionally' and executed between baseline and the second measure moment.

Outcome indicators	
Body weight (residents)	
Fall incidence	Number of fallers
	Number of recurrent fallers, ≥ 2 falls
Medication	Number of medication/day
	Number of different medication
HRQoL (EQ5-5L) (10, 11)	
Independence (Katz) (12)	
MMSE (13)	

HRQoL=Health related quality of life measured with the EQ5-5L version
MMSE= Mini Mental State Examination

Table 1: Overview measured outcome indicators residents on baseline, 6, 12 and 18 months

Body weight

Involuntary weight loss resulting from malnutrition is a major problem among residents in long-term care facilities. Although body weight is easily measured, the evaluation of unintended weight loss in long-term care facilities is difficult. A structured approach to the management of unintended weight loss or malnutrition in long-term care helps to facilitate a comprehensive resident evaluation (14).

Fall incidence

It seems that fall-prevention probably must be part of everyday life in fall-prone elderly (15). Based upon the literature we expect interprofessional collaboration to be effective in reducing fall incidence. Therefore we choose to report the number of falls and number of recurrent falls per resident as one of our outcome measures.

Medication use

The PHEBE (Prescribing in Homes for the Elderly in Belgium) project study confirmed the high consumption of medication in nursing home residents. A strong relationship is revealed between medical consumption and patients' characteristics, with increase in use when the number of clinical and care problems increased, as well as with decrease in use when the degree of dementia or the status of palliative care has been taken into account (16). Medical and paramedical professionals have a crucial role in all steps from the prescription and the ordering till the monitoring of medication, the knowhow of effects and side effects (17). We assume that interprofessionally collaborating teams should monitor well the medication management. Therefore we choose to measure the number of medications per day and also the number of different medications per resident.

EQ-5D-5L

We used the standardized paper-based EQ-5D which is a standardized measure of health status developed by the EuroQoL Group in order to provide a simple, generic measure of health for clinical and economic appraisal (11).



Figure 1: EQ-5D-5L - EuroQol five dimensions (18)

Each of the 5 dimensions comprising the EQ-5D descriptive system is divided into 5 levels of perceived problems: Level 1: indicating no problem Level 2: indicating slight problems Level 3: indicating moderate problems Level 4: indicating severe problems Level 5: indicating extreme problems A unique health state is defined by combining 1 level from each of the 5 dimensions (19) (see figure 1). The VAS score is a rating of health today by the respondent where 0 presents worst imaginable health state and 100 represents best imaginable health (18).

KATZ

The Katz Index of Independence in Activities of Daily Living, commonly referred to as the Katz ADL, is the most appropriate instrument to assess functional status as a measurement of the client's ability to perform activities of daily living independently (20). It is used as tool to detect problems in performing activities of daily living and to plan care accordingly. The Index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transferring, continence, and feeding. Clients are scored yes/no for independence in each of the six functions. A score of 6 indicates full function, 4 indicates moderate impairment, and 2 or less indicates severe functional impairment (20).

MMSE

The Mini-Mental State Exam (MMSE) is a brief, structured test of mental status that takes about 10 minutes to complete (13). The MMSE tests global cognitive function, with items assessing orientation, word recall, attention and calculation, language abilities, and visuospatial ability. For analysis proposes the cognitive decline and dementia severity was staged according MMSE ranges as: absent (MMSE of 30), questionable (26–29), mild (21–25), moderate (scores between 11 and 20) and severe dementia (MMSE score ≤ 10) (21).

DATA COLLECTION AND PARTICIPANTS

Nursing homes were eligible for participating when the participating residents met the following criteria: Age 65+, speaking and understanding Dutch language and a MMSE of >24 . Eligible nursing

homes were invited to participate in this study as intervention group or as control group. When informed consent was received, baseline measurements were performed. For this specific pilot trial study via participating staff, all residents meeting the inclusion criteria were invited to participate. For the control and intervention group data were gathered between March 2011 and February 2015. Researcher assistants who were blind for allocation, and not involved in data analysis performed data collection.

DATA ANALYSIS

Outcomes were measured at 4 time points. Plotting the different outcomes versus time showed a non-linear evolution of most outcomes with time. Therefore, time was treated as a categorical variable in all subsequent analyses.

To model the change in the outcomes over time across the control and intervention group, linear mixed models were fitted. Time, group and the interaction between them were entered as fixed effects. A random intercept for individual was added to the model to account for the non-independence between observations from the same individual. In this model, the significance of the interaction term shows if the change over time of the outcome is different between the two intervention groups. If this interaction term is not significant, the differences in outcome at each of the time points are not significantly different between the groups. In this latter case, the interaction term was removed from the model and the significance of the main effects (time and group) was tested. Significance of the fixed effects was tested using an F-test with Kenward-Roger correction for the degrees of freedom. All calculations were performed in JMP®, Version 12 - SAS Institute Inc., Cary, NC, 1989-2007.

EXPECTED RESULTS

One can expect the effect of an educational program and the integration of this program within the working schedule to enhance the level of collaboration and so to improve outcome indicators for residents.

ETHICAL CONSIDERATIONS

The study protocol was approved by the Medical Ethics Committee of the University of Antwerp (number: B300201215061). Participants were all informed about the process, and confidentiality was respected for all gathered information.

RESULTS

Characteristics participants

Of all invited nursing homes to participate in the study initially only one nursing home of a private organization was immediately willing to participate. To start the research as soon as possible we invited two more nursing homes from the same organization to participate as control group and so the study could start. This was an important issue because the context of vision and structure of personnel was the same we could match the results of the intervention group. All three nursing homes from the same organization but geographically spread (between 20km and 141km from each other) confirmed their participation. Finally 17 residents within the participating nursing homes met the criteria and participated and 9 of them were in the intervention group (see table 2). During the investigation two

residents of the intervention group passed away (20132407002 and 20132407008) and one moved to another nursing home (20132407007). One resident of the control group (20131710001) was not capable anymore to be interviewed, she had developed a sever dementia.

Control/intervention	Residents	Gender	Age
	N	Female/Male	Median (SD)
Total	17	14/3	84,73 (7,82)
Intervention	9	8/1	84,73 (8,17)
Control	8	6/2	85,55 (7,88)

Table 2: Description of characteristics participants - Residents

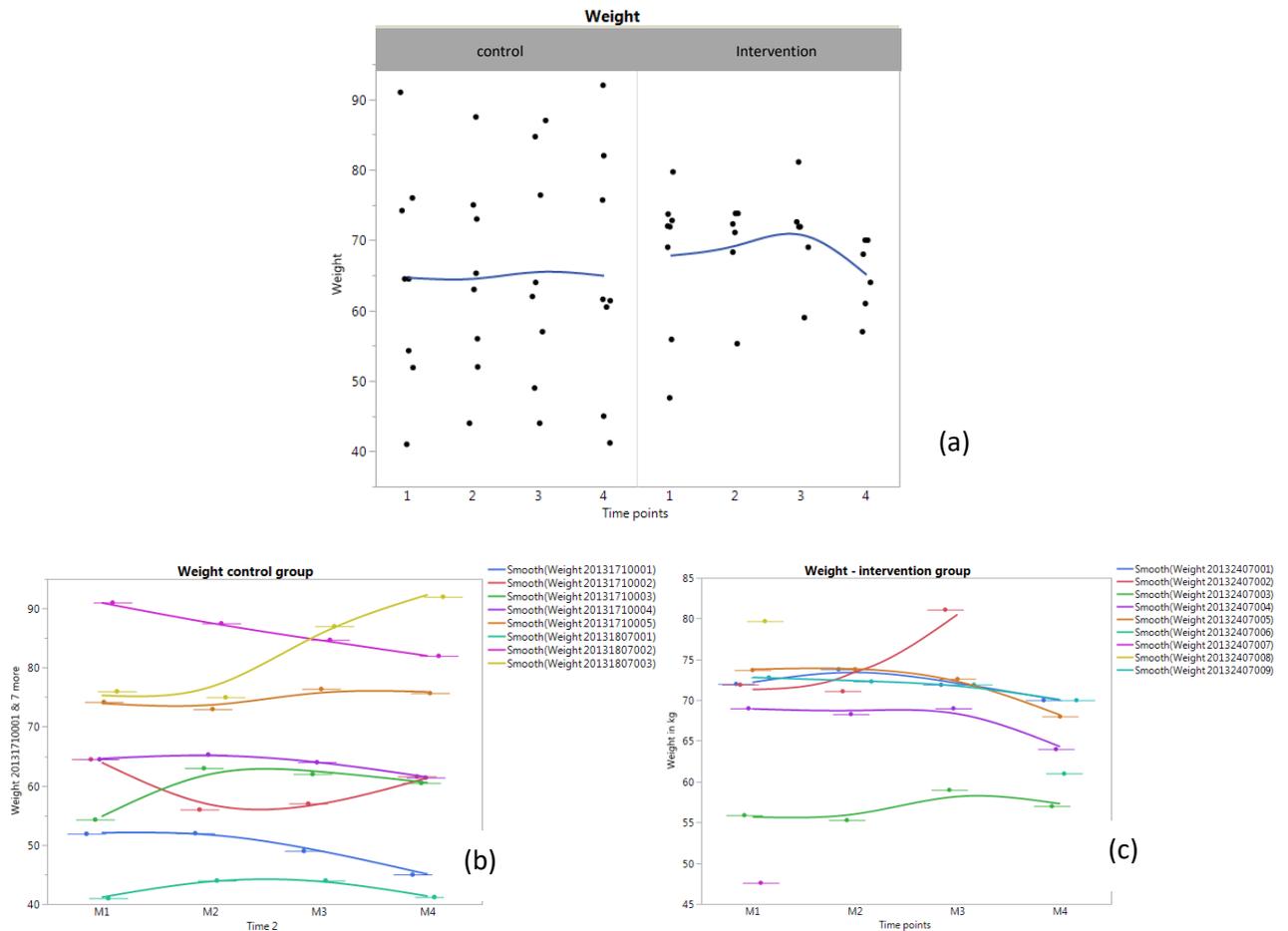
Body weight

There is no difference ($p= 0.4963$) between the intervention and control group for body weight over time (fig 2, table 3).

ID-number	Control (0)- intervention (1)	Gender (M=1/F=0)	M1_ weight (kg)	M2_ weight (kg)	M3_ weight (kg)	M4_ weight (kg)
20132407001	1	1	72	73,8	71,9	70
20132407002	1	0	71,9	71,1	81,1	
20132407003	1	0	55,9	55,3	59	57
20132407004	1	0	69	68,3	69	64
20132407005	1	0	73,7	73,8	72,6	68
20132407006	1	0				61
20132407007	1	0	47,6			
20132407008	1	0	79,7			
20132407009	1	0	72,8	72,3	71,9	70
20131807001	0	0	41	44	44	41,2
20131807002	0	1	91	87,5	84,7	82
20131807003	0	0	76	75	87	92
20131710001	0	0	51,9	52	49	45
20131710002	0	0	64,5	56	57	61,6
20131710003	0	0	54,3	63	62	60,5
20131710004	0	1	64,5	65,3	64	61,4
20131710005	0	0	74,2	73	76,4	75,7

0= control 1= intervention

Table 3: Overview weight of the residents over the four measure points for intervention and control group



M 1 = baseline measurement, M2 = 6 months, M3 = 12 months and M4 = 18 months.

Figure 2: Body weight over time for intervention and control group ((a) comparison control-intervention, (b) and (c) individually)

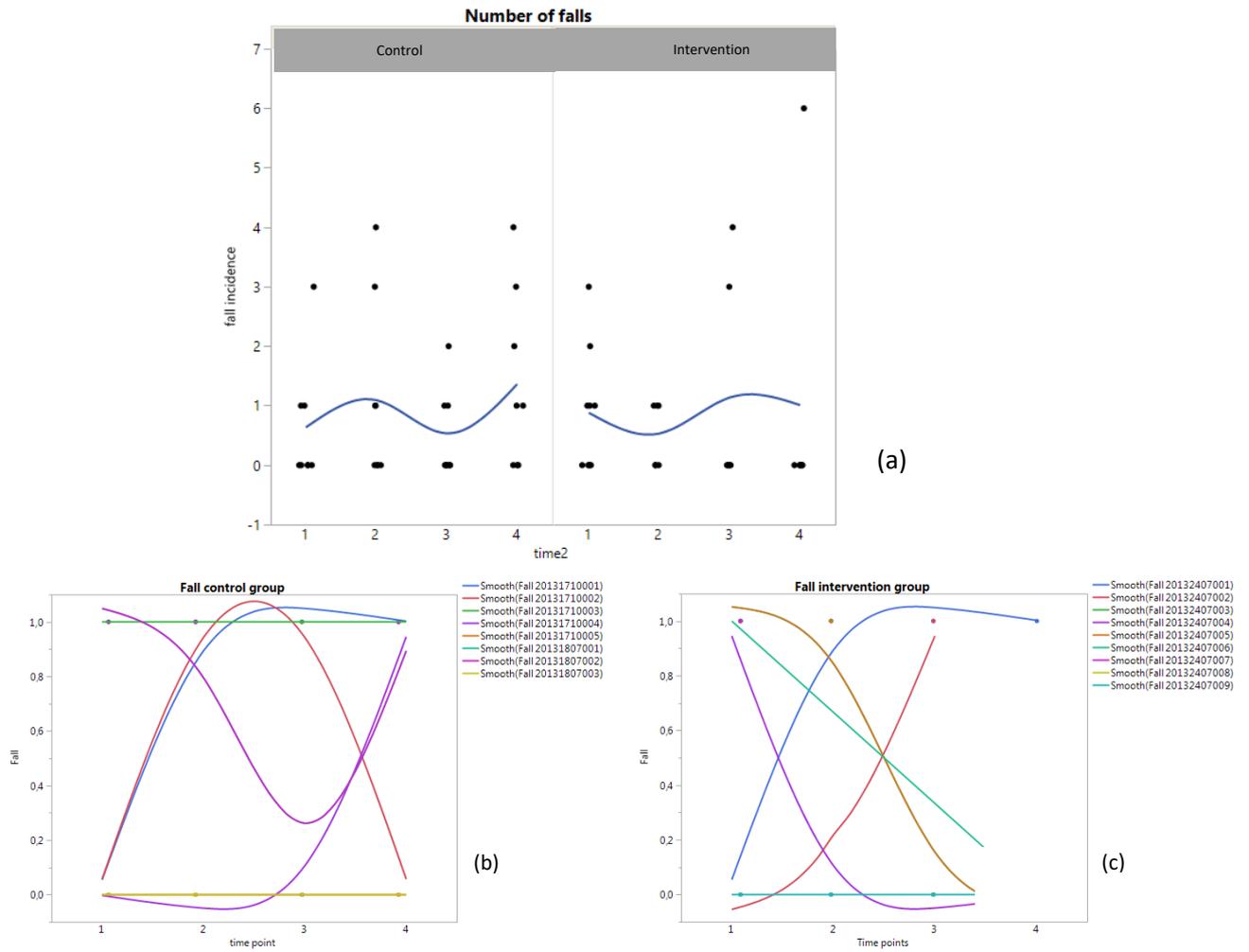
Fall incidence

The fall incidence of the residents is not significantly different between the intervention group compared to the control group ($p= 0.2870$) (fig 3, table 4), but we can see a decrease of falls in the intervention group.

ID-number	control-intervention	gender (M=1/F=0)	M1_fall(j=1/n=0)	M1_number of falls	M2_fall(j=1/n=0)	M2_number of falls	M3_fall(j=1/n=0)	M3_number of falls	M4_fall(j=1/n=0)	M4_number of falls
20132407001	1	1	0	0	1	1	1	3	1	6
20132407002	1	0	0	0	0	0	1	4		
20132407003	1	0	1	1	1	1	0	0	0	0
20132407004	1	0	1	1	0	0	0	0	0	0
20132407005	1	0	1	2	1	1	0	0	0	0
20132407006	1	0	1	3					0	0
20132407007	1	0	1	1						
20132407008	1	0	0	0						
20132407009	1	0	0	0	0	0	0	0	0	0
20131807001	0	0	1	1	1	1	0	0	1	1
20131807002	0	1	1	1	1	0	0	0	1	1
20131807003	0	0	0	0	0	0	0	0	0	0
20131710001	0	0	0	0	1	1	1	2	1	4
20131710002	0	0	0	0	1	3	1	1	0	0
20131710003	0	0	1	3	1	4	1	1	1	3
20131710004	0	1	0	0	0	0	0	0	1	2
20131710005	0	0	0	0	0	0	0	0	0	0

0= control 1= intervention

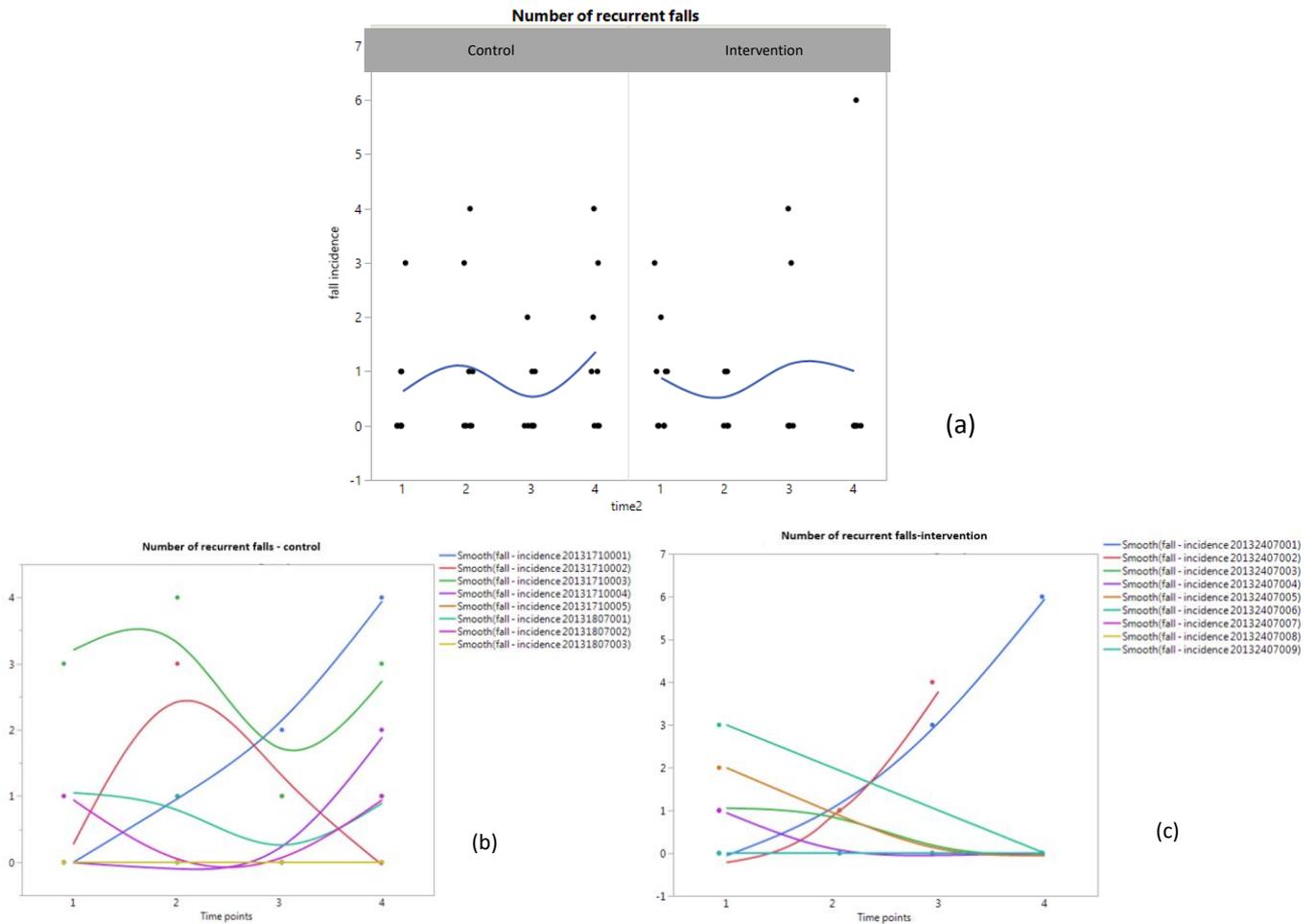
Table 4 : Fall incidence and number of falls for control and intervention group over the four measure points.



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 3: Fall incidence of the residents for both intervention and control group ((a) comparison control-intervention, (b) and (c) individually)

There is no significant difference between control and intervention group for number of falls ($p=0.5263$) (fig 4).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 4: Number of falls of the residents for both intervention and control group ((a) comparison control-intervention, (b) and (c) individually)

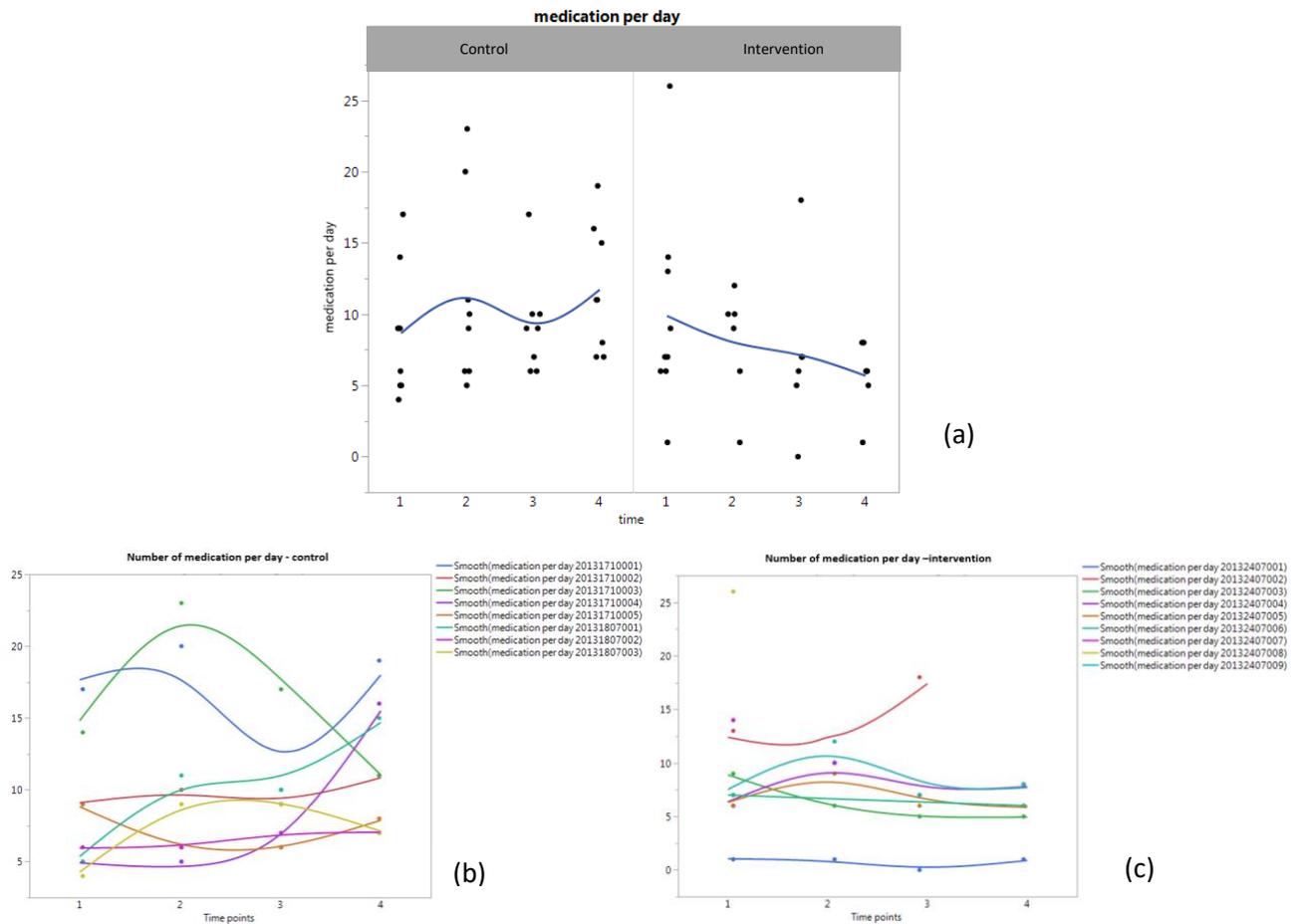
Medication use

For the number of medication per day, there is no significant difference between control and intervention group ($p=0.3047$). In global the number of medication increases in the control group and decreases in the intervention group (fig 5, table 5).

ID-number	control-intervention	gender (M=1/F=0)	M1_med_per_day	M1_med dif	M2_med_per_day	M2_med dif	M3_med_per_day	M3_med dif	M4_med_per_day	M4_med dif
20132407001	1	1	1	1	1	1	0	0	1	1
20132407002	1	0	13	10	10	10	18	14		
20132407003	1	0	9	6	6	5	5	4	5	4
20132407004	1	0	6	6	10	9	7	7	8	8
20132407005	1	0	6	5	9	8	6	5	6	4
20132407006	1	0	7	6					6	6
20132407007	1	0	14	10						
20132407008	1	0	26	18						
20132407009	1	0	7	7	12	8	7	7	8	7
20131807001	0	0	5	2	11	7	10	9	15	12
20131807002	0	1	6	6	6	6	7	7	7	7
20131807003	0	0	4	2	9	7	9	5	7	4
20131710001	0	0	17	9	20	14	10	7	19	15
20131710002	0	0	9	9	10	10	9	9	11	10
20131710003	0	0	14	10	23	14	17	11	11	9
20131710004	0	1	5	5	5	5	6	6	16	11
20131710005	0	0	9	6	6	5	6	5	8	7

0= control 1= intervention

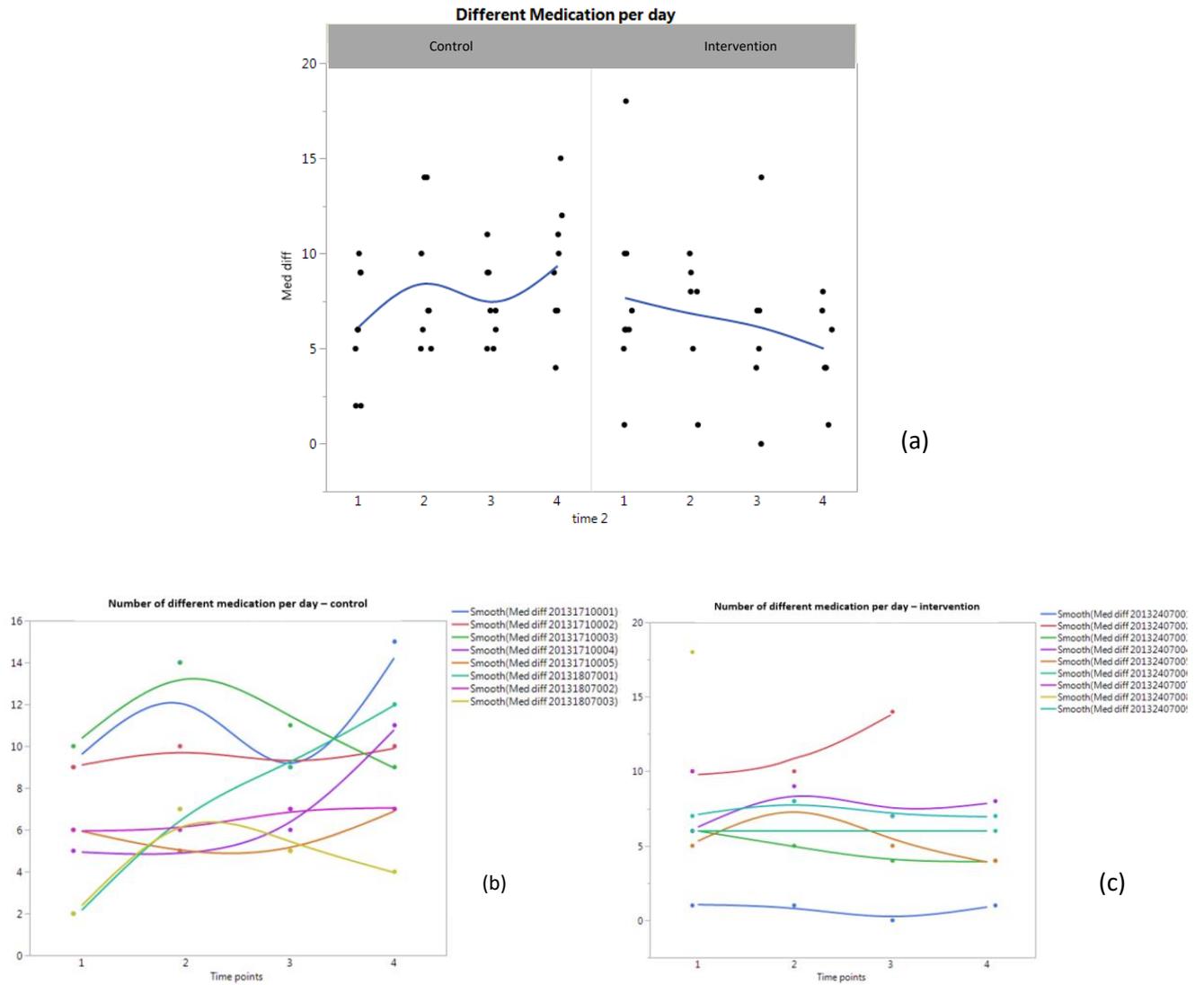
Table 5: Overview of medication use for control and intervention groups over the four measure points (M1, M2, M3 and M4)



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 5: Medication per day of the residents for both intervention and control group ((a) comparison control-intervention, (b) and (c) individually)

For the number of different medication per day we found no significant difference between the control and intervention group ($p= 0,0972$), but we do see a trend of decrease in the intervention group over time (fig 6).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

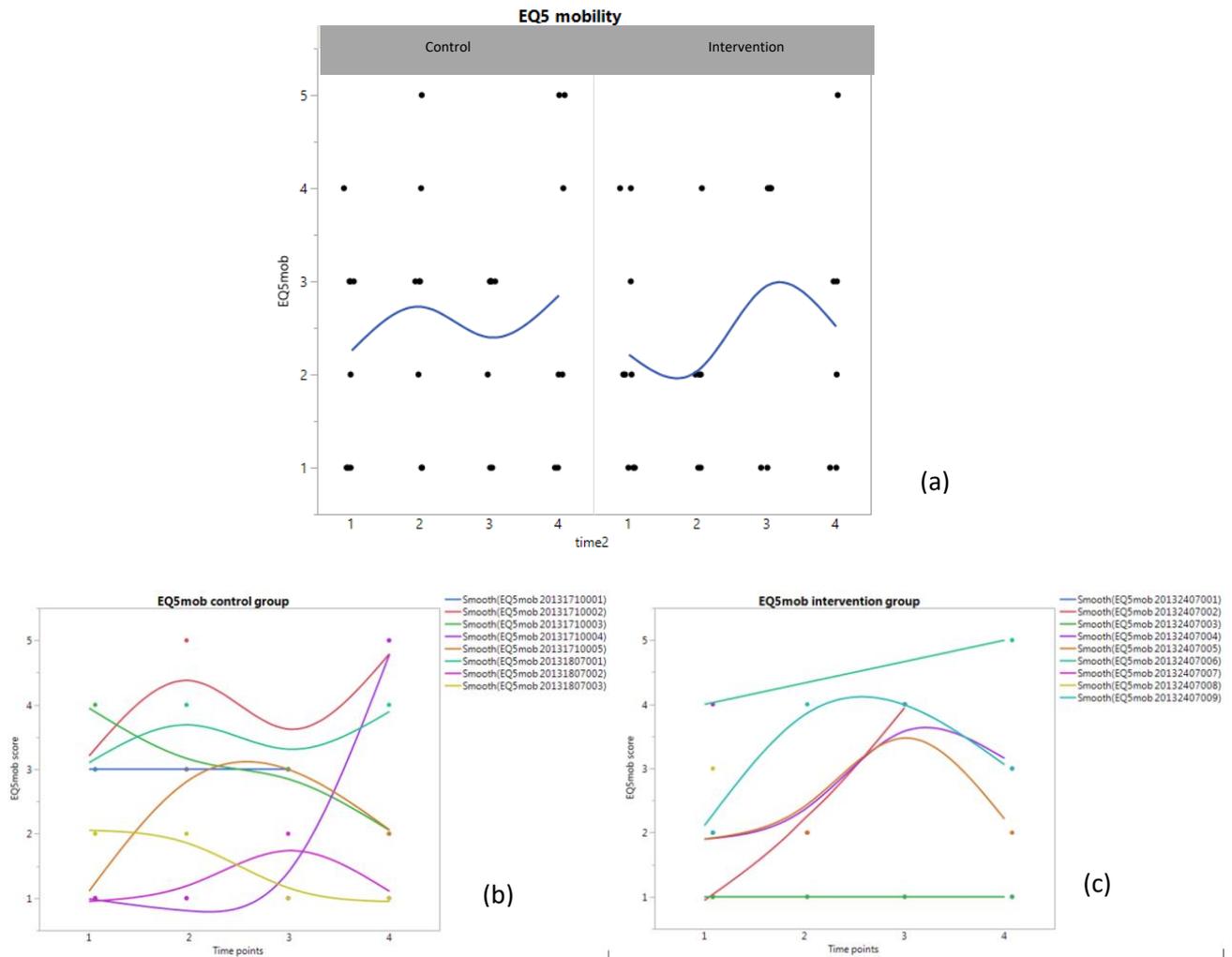
Figure 6: Different medication per day of the residents for both intervention and control group ((a) comparison control-intervention, (b) and (c) individually)

EQ-5D-5L

In table 6 we present an overview of the results for the 5 levels ion the EQ-5D-5L scale for both the intervention group and control group over the four measure points.

Mobility

For this first dimension of health status we did not find any significant difference between the control group and the intervention group ($p= 0.1643$) (fig 7).

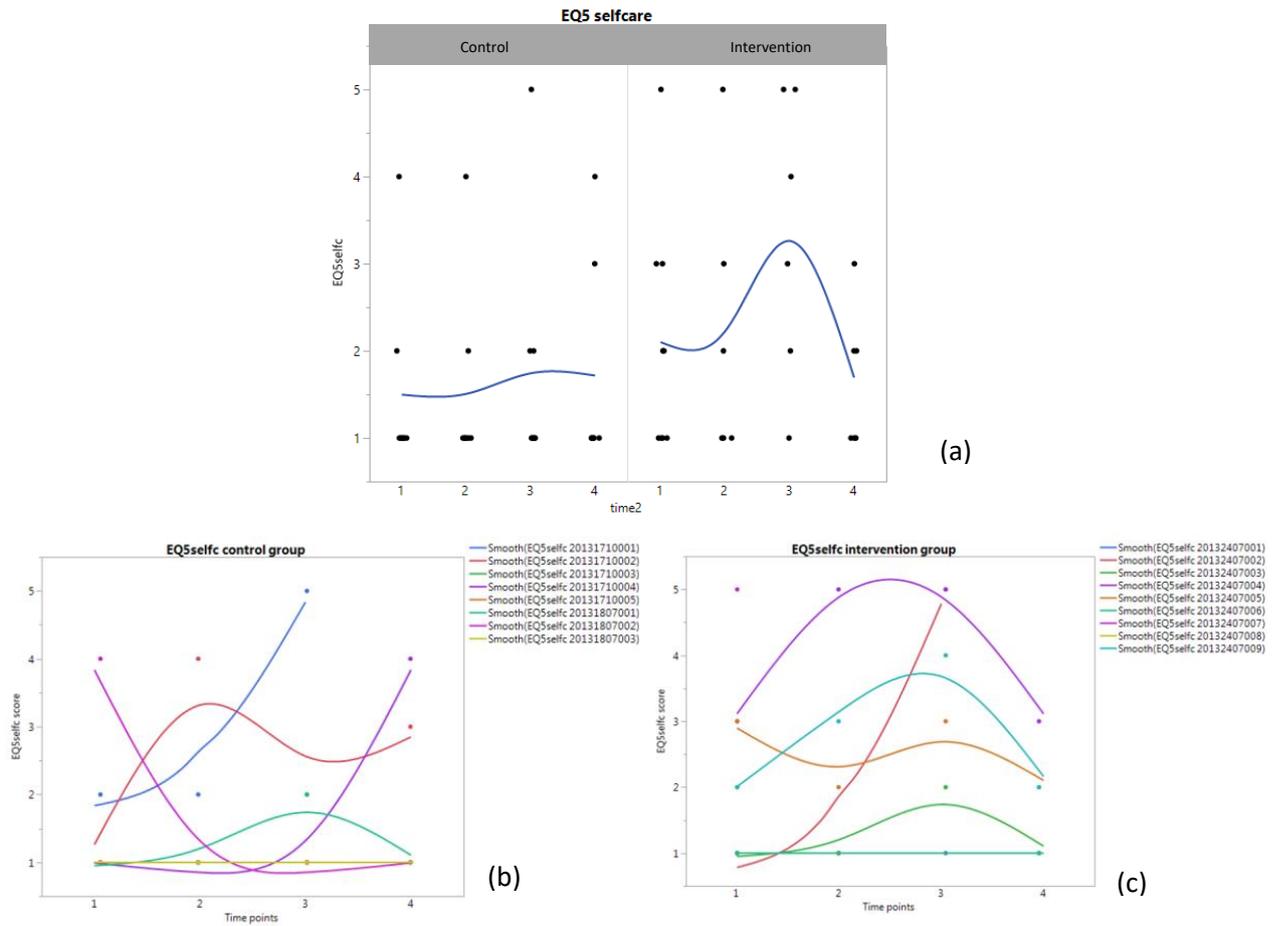


Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 7: EQ-5D-5L – mobility ((a) comparison control-intervention-, (b) and (c) individually)

Self-care

Also in the second dimension no difference of relevance is found ($p= 0.2171$) (fig 8).

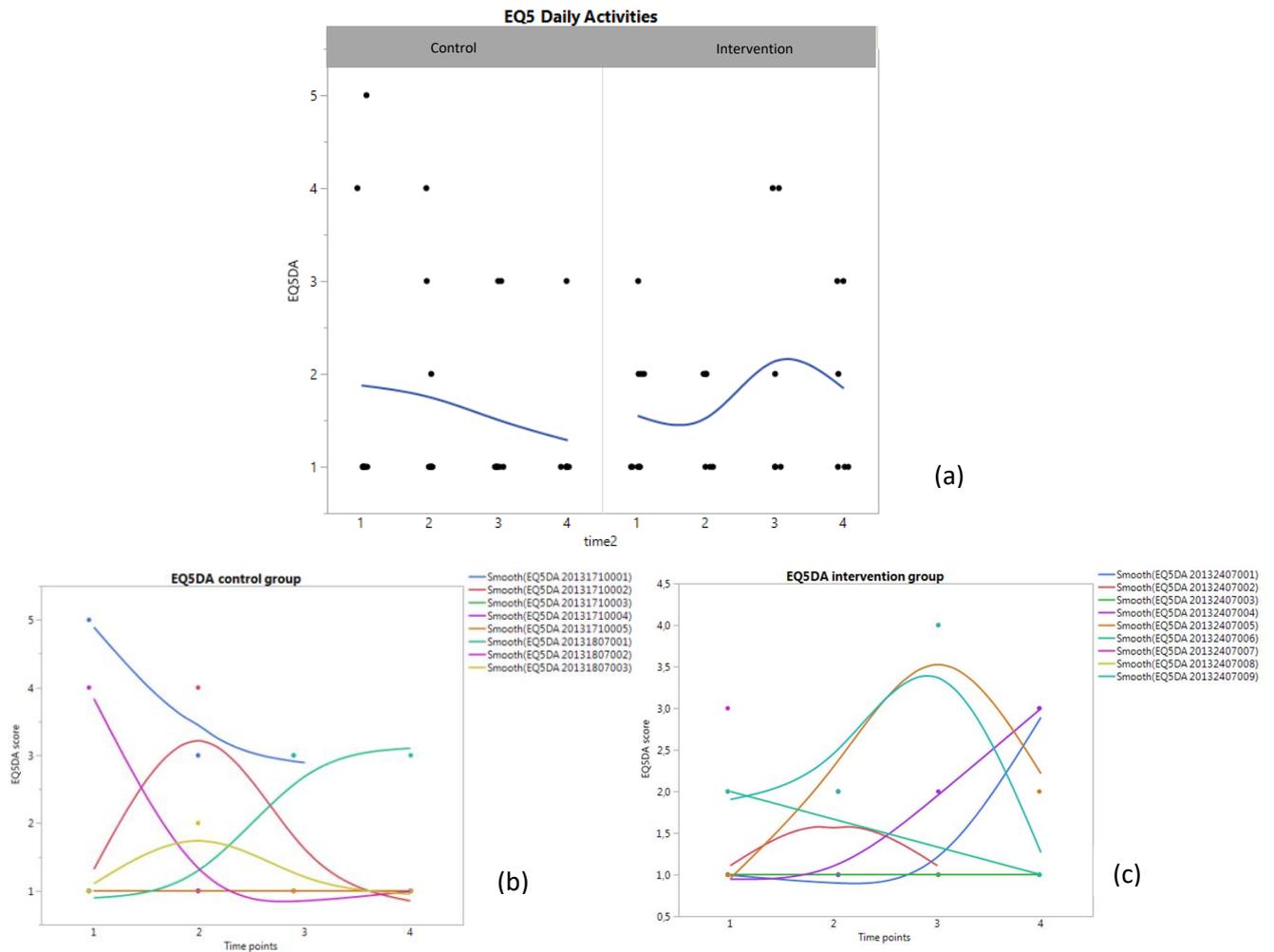


Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 8: EQ-5D-5L - self-care ((a) comparison control-intervention, (b) and (c) individually)

Daily activities (usual activities)

Even though we did not find a significant difference ($p= 0,4438$) between the control and intervention group, we do observe a rather different evolution for the two groups over the four time point measurements (fig 9). The control group indicates to have fewer problems with daily activities over time and compared to the intervention group.

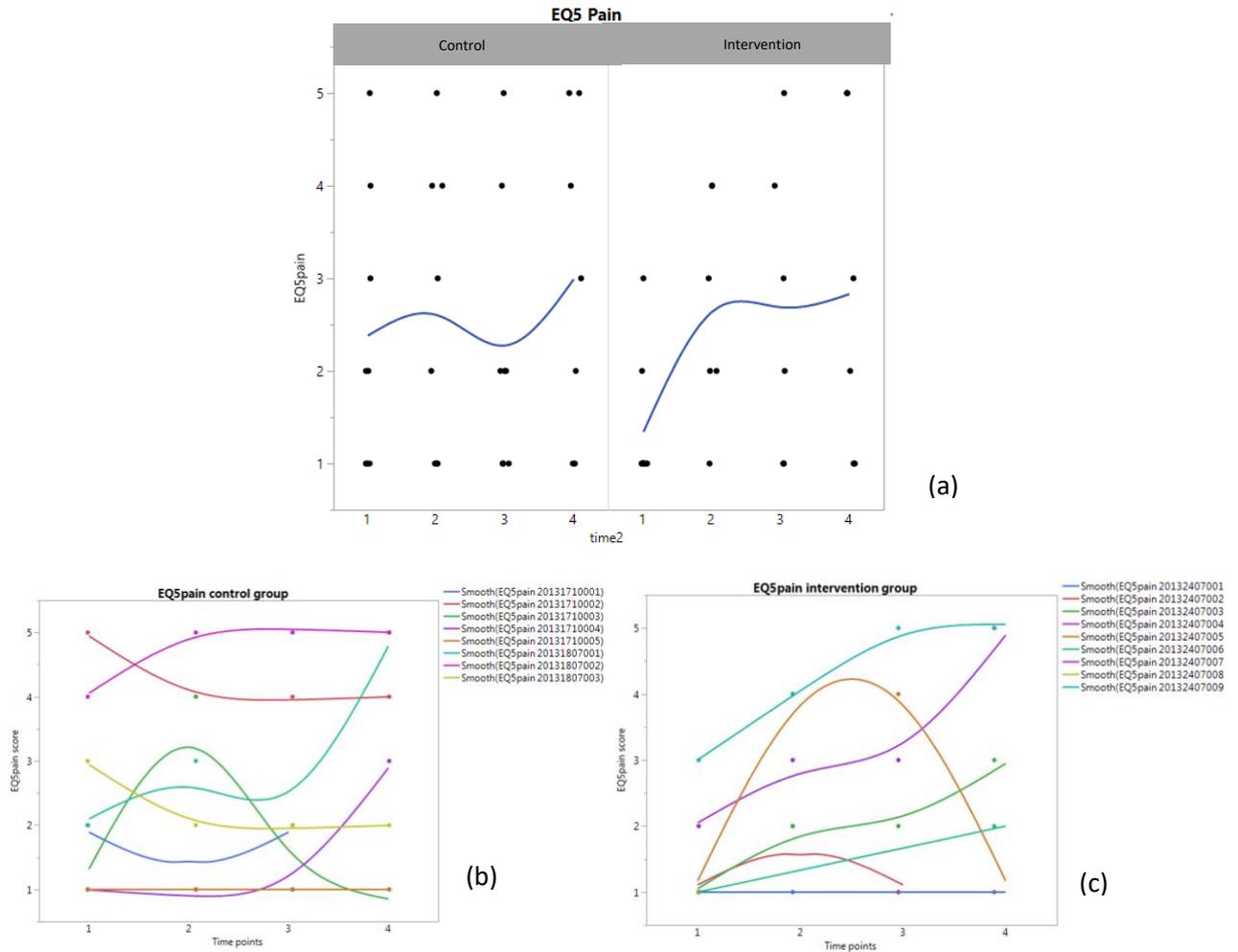


Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 9: EQ-5D-5L – daily activities (usual activities) ((a) comparison control-intervention, (b) and (c) individually)

Pain/discomfort

For pain, the fourth dimension, there is no significant difference between the two groups ($p=0,2652$). For the intervention group we observed that the pain scores increased after the second measurement point (fig 10).

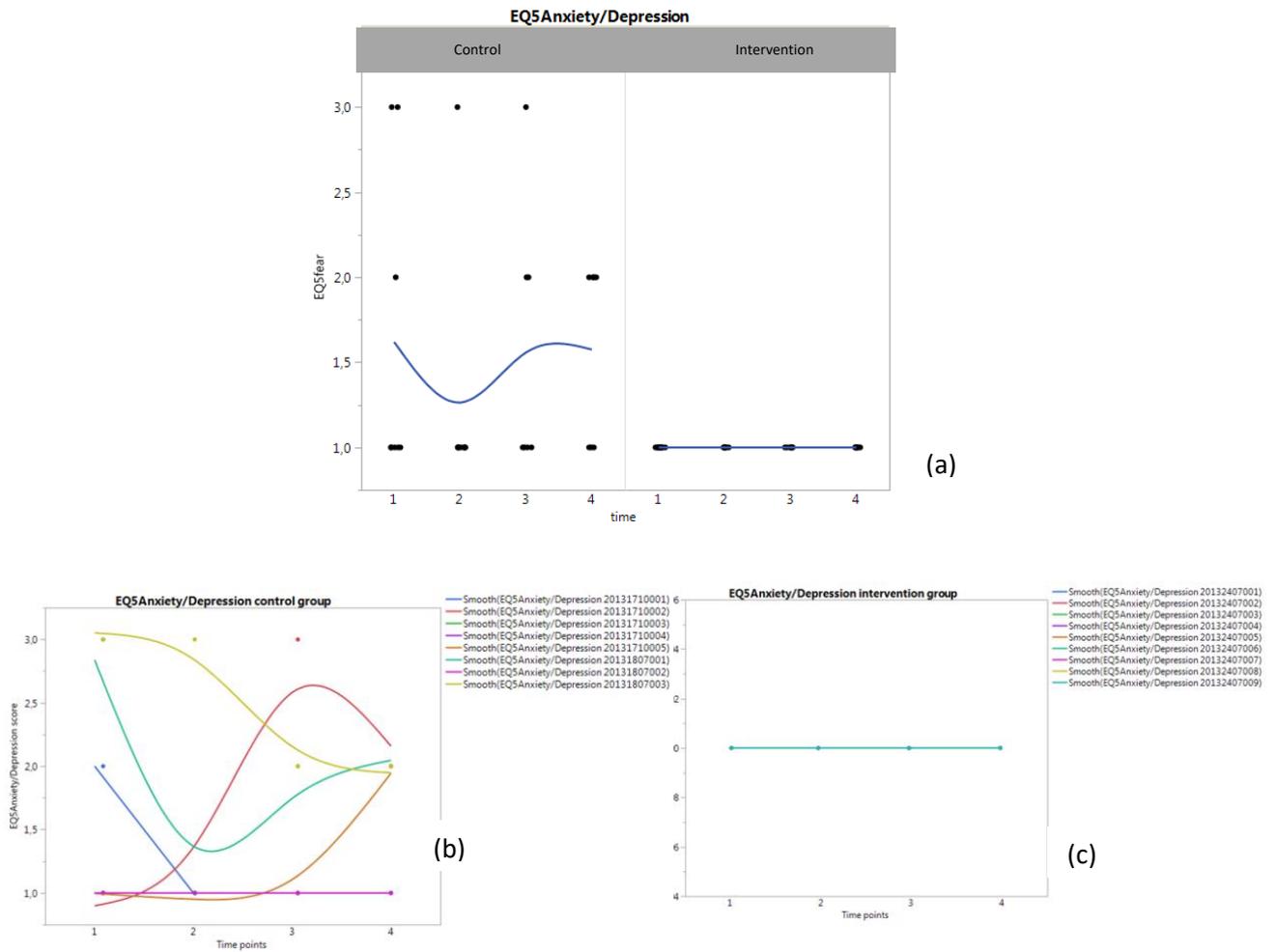


Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 10: EQ-5D-5L – Pain/discomfort ((a) comparison control-intervention, (b) and (c) individually)

Anxiety/Depression

For the fifth dimension we found a significant difference ($p= 0.0205$) between the control group and the intervention group. The results indicate that the intervention group has no problems with anxiety/depressions, while the control group scores between slight and moderate problems.

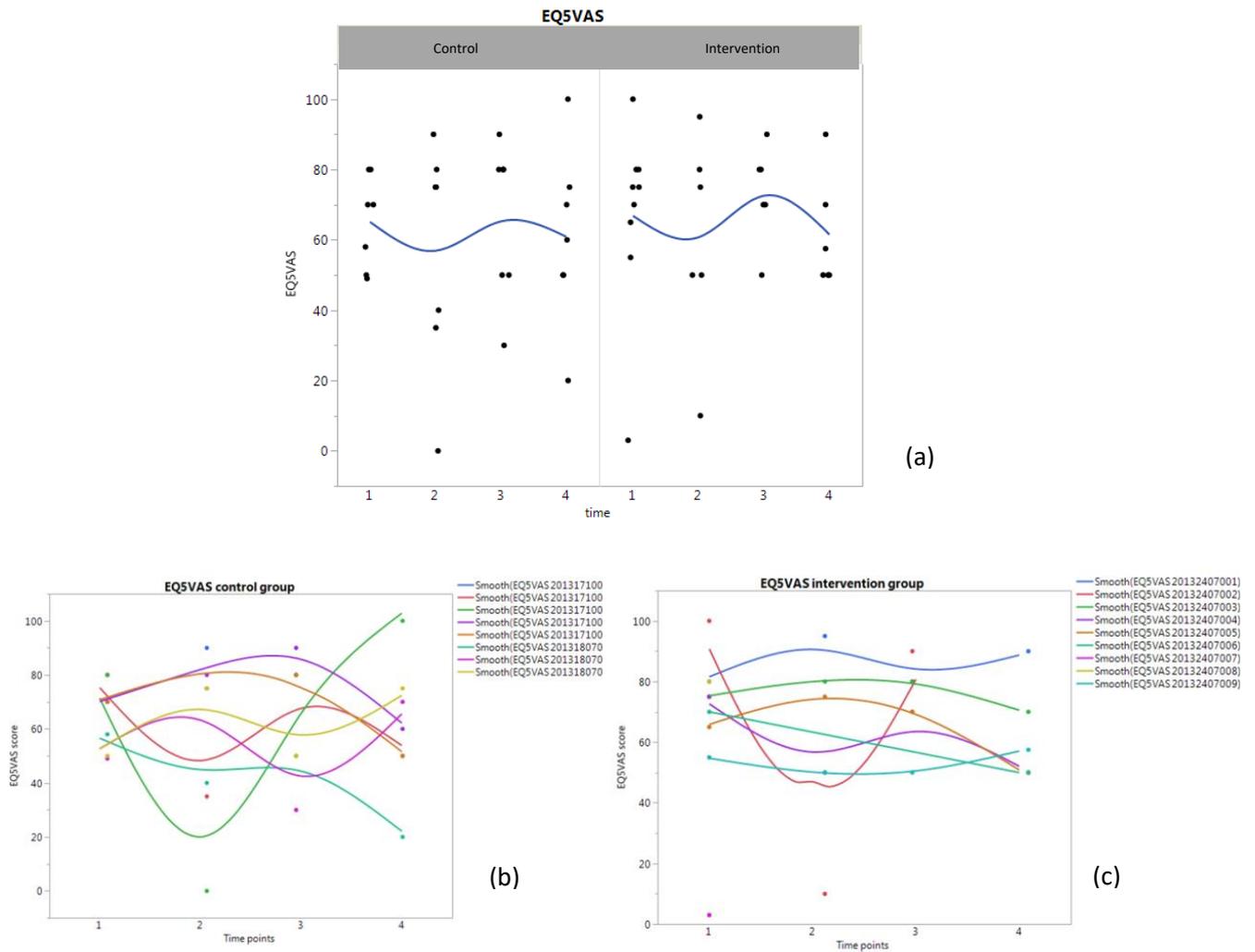


Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 11: EQ-5D-5L – Anxiety/Depression ((a) comparison control-intervention, (b) and (c) individually)

VAS score

For the total score of rating health by the participants on all measurement points, no significant difference is found ($p=0,9826$) (fig 12).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 12: EQ-5D-5L – VAS score ((a) comparison control-intervention, (b) and (c) individually)

KATZ

No significant difference ($p=0,4013$) found between control group and intervention group for the global score on the index of independence in activities of daily living (fig 13, table 7).

Chapter 5: The effectiveness of learning to collaborate interprofessionally on health care processes and outcomes in nursing homes

ID-number	control-intervention	gender (M=1/F=0)	M1_KATZ	M1_KATZ_off	M2_KATZ	M2_KATZ_off	M3_KATZ	M3_KATZ_off	M4_KATZ	M4_KATZ_off
20132407001	1	1	10	12	9	10	7	12	6	11
20132407002	1	0	7	0	7	7	11	7		
20132407003	1	0	9	10	5	9	7	9	6	9
20132407004	1	0	11	15	15	15	15	15	15	15
20132407005	1	0	11	12	10	12	11	12	9	11
20132407006	1	0	9	11					8	11
20132407007	1	0	13	13						
20132407008	1	0	10	13						
20132407009	1	0	8	7	11	11	12	11	9	11
20131807001	0	0	8	10	8	10	9	10	6	10
20131807002	0	1	11	11	6	6	6	6	6	7
20131807003	0	0	7	7	7	7	7	7	7	9
20131710001	0	0	9	11	9	9	15	14		14
20131710002	0	0	7	15	16	15	10	15	17	15
20131710003	0	0	7	7	6	7	7	8	7	8
20131710004	0	1	6	6	6	6	6	6	15	6
20131710005	0	0	8	10	8	10	8	10	8	10

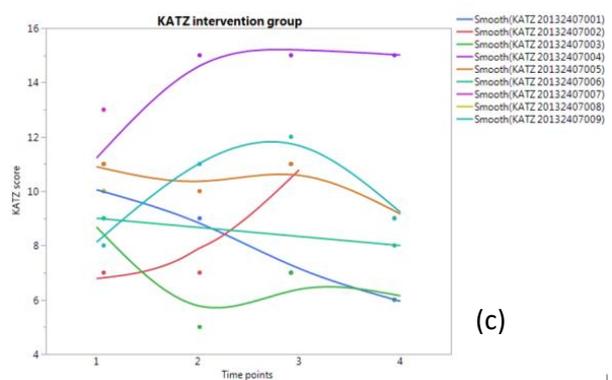
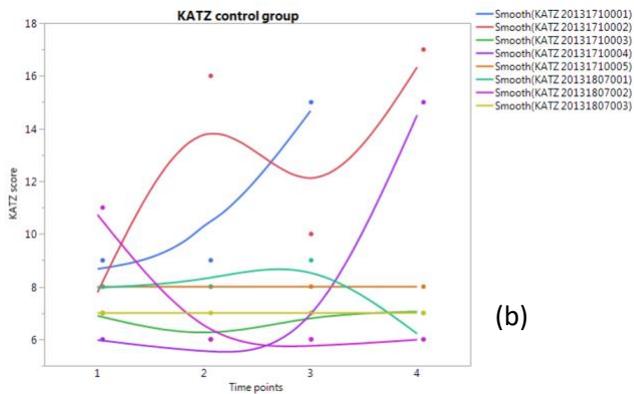
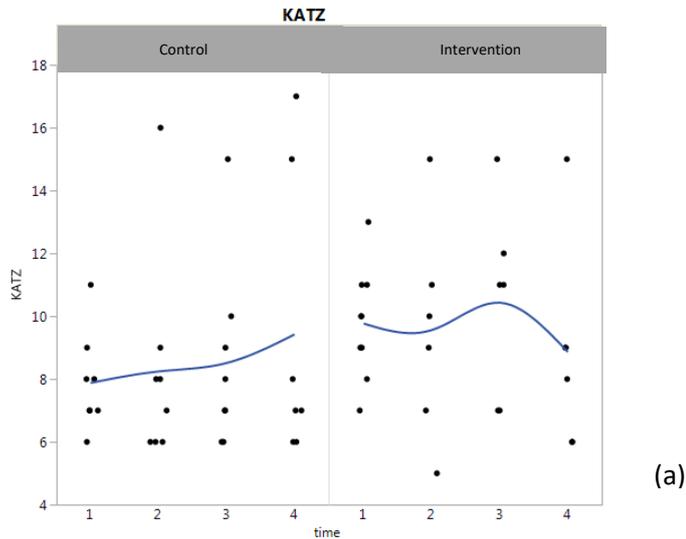
0= control 1= intervention

Legend:

KATZ= score as answered by the resident to the researcher

KATZoff= is the score as reported in the dossier of the resident

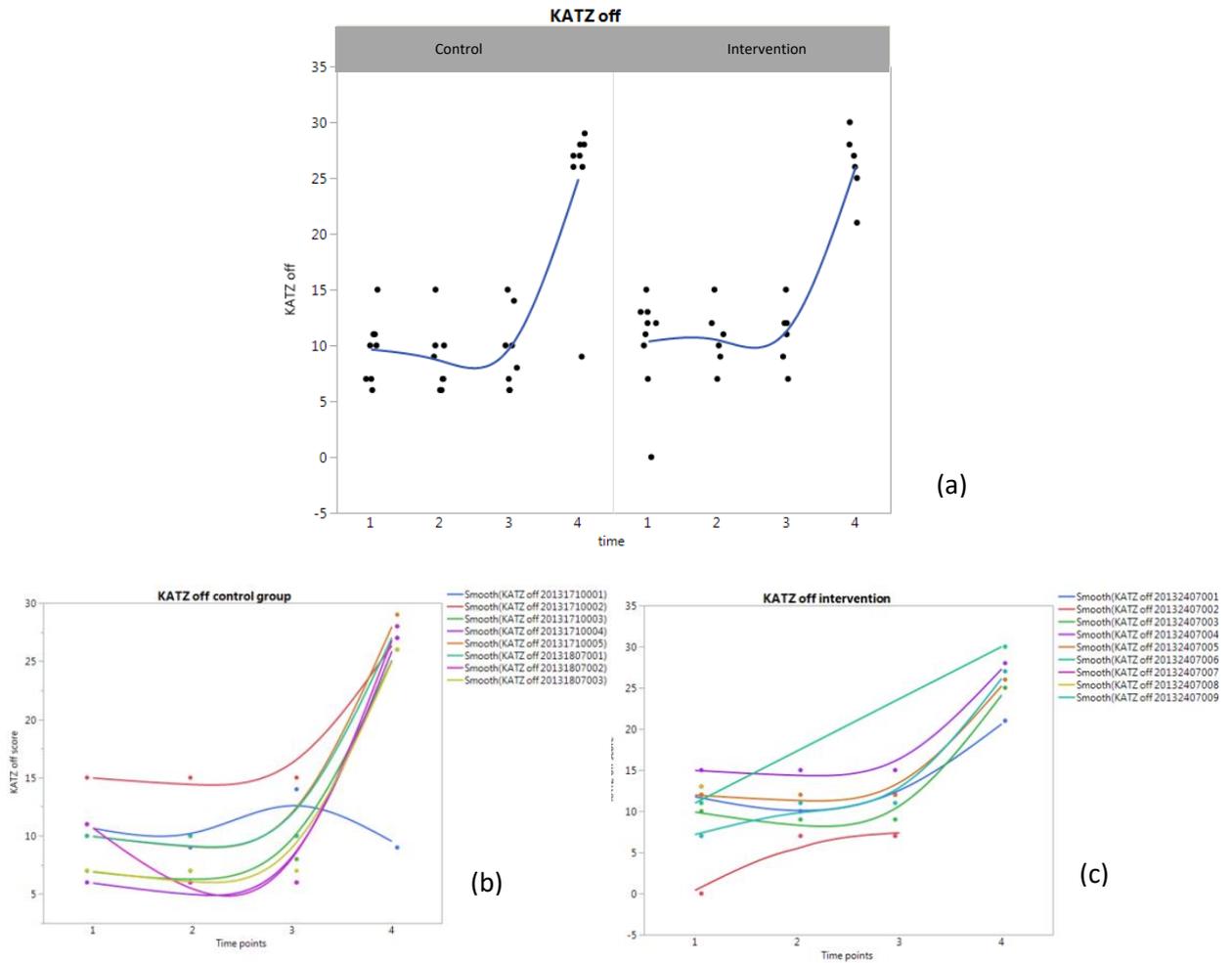
Table 7: overview of the scores for KATZ for intervention and control group over four measure points (M1, M2, M3 and M4)



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 13: self-reported KATZ ((a) comparison intervention- control, (b) and (c) individually)

For the KATZ as officially registered we found a significant difference between the fourth measure point and all other time points. ($p = 0.0001$) (fig 14).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 14: official KATZ ((a) comparison control- intervention, (b) and (c) individually)

MMSE

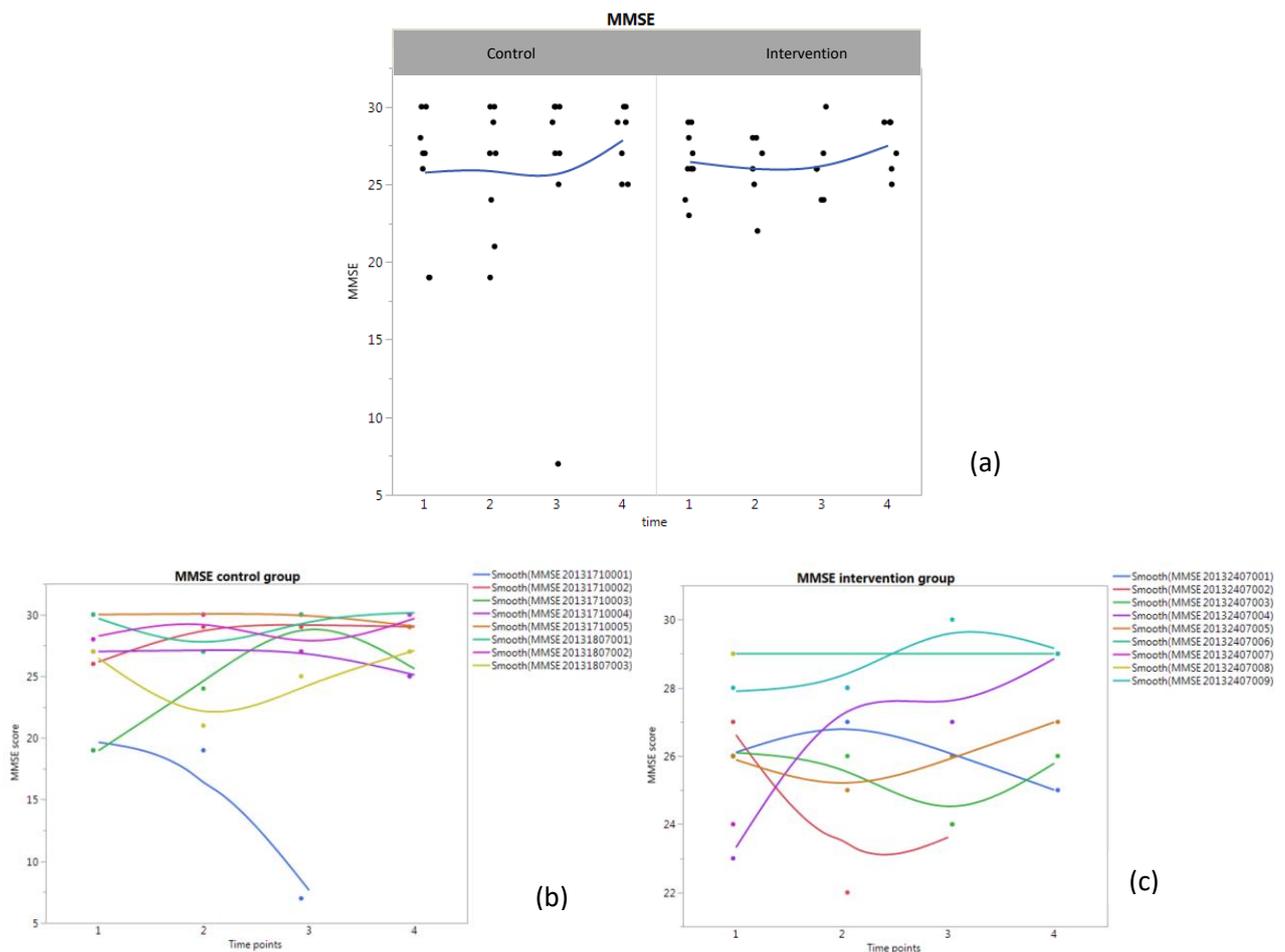
For the Mini-Mental State Exam no significant difference is found between the groups ($p = 0.9974$) (fig 15, table 8).

Chapter 5: The effectiveness of learning to collaborate interprofessionally on health care processes and outcomes in nursing homes

ID-number	control-intervention	gender (M=1/F=0)	M1_ MMSE-off	M1_ MMSE	M2_ MMSE-off	M2_ MMSE	M3_ MMSE-off	M3_ MMSE	M4_ MMSE-off	M4_ MMSE
20132407001	1	1	30	26	28	27	28	26	21	25
20132407002	1	0	27	27	27	22	27	24		
20132407003	1	0	25	26	23	26	25	24	25	26
20132407004	1	0	28	23	28	28	28	27	28	29
20132407005	1	0	24	26	24	25	24	26	26	27
20132407006	1	0	30	29					30	29
20132407007	1	0	25	24						
20132407008	1	0	25	29						
20132407009	1	0	29	28	29	28	29	30	27	29
20131807001	0	0	27	30	24	27	29	30	28	30
20131807002	0	1	30	28	29	30	30	27	28	30
20131807003	0	0	21	27	21	21	21	25	26	27
20131710001	0	0	23	19	23	19	14	7	9	
20131710002	0	0	26	26	26	29	27	29	27	29
20131710003	0	0	26	19	26	24	26	30	26	25
20131710004	0	1	27	27	27	27	27	27	27	25
20131710005	0	0	27	30	27	30	29	30	29	29

0= control 1= intervention

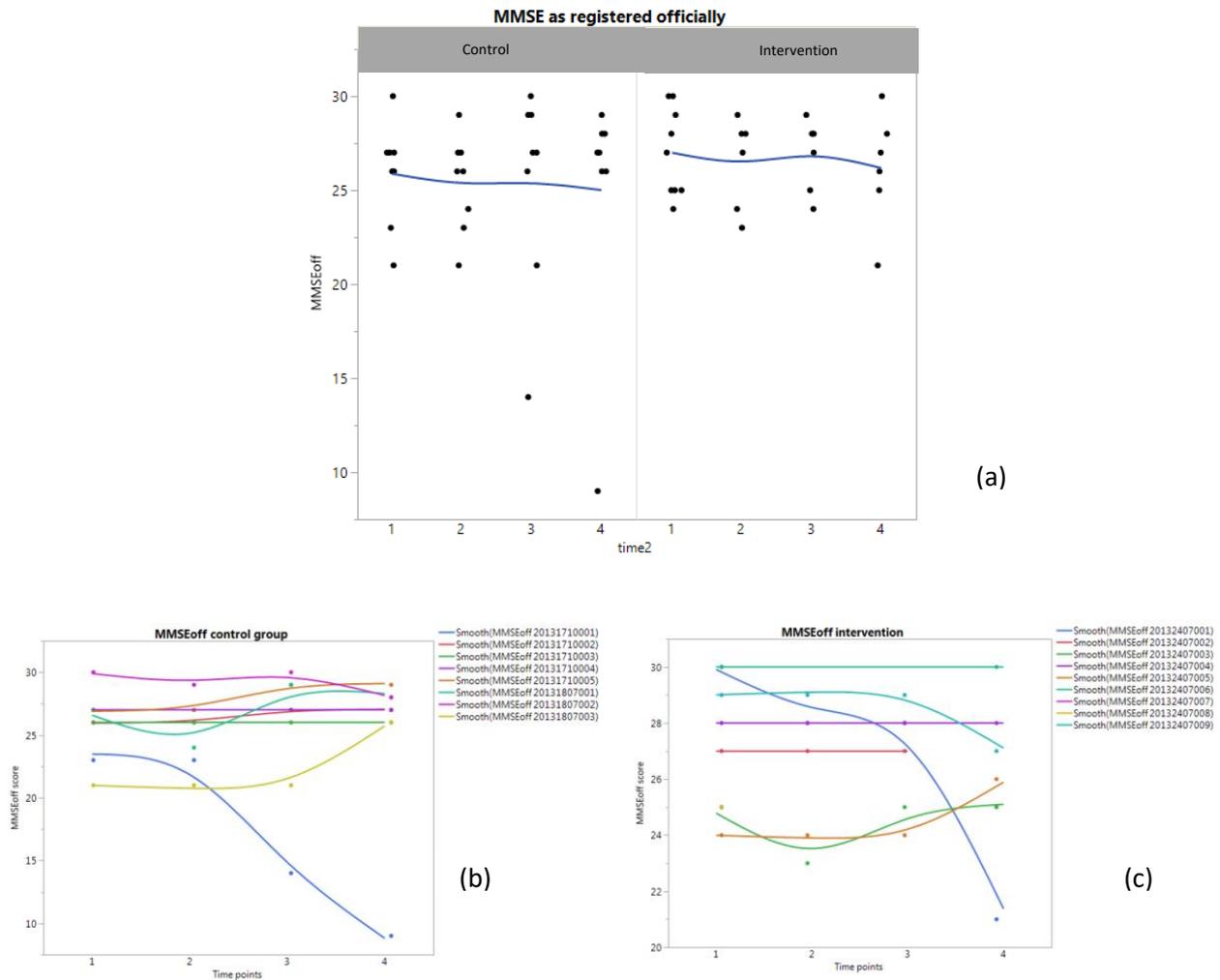
Table 8: Overview of the scores on MMSE for intervention and control group over four measure points (M1, M2, M3 and M4)



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 15: MMSE ((a) comparison control-intervention, (b) and (c) individually)

The MMSE as most registered in the residents' files, we also did not find a significant difference ($p=0.9883$) (fig 16).



Time 1 = baseline measurement, Time 2 = 6 months, time 3 = 12 months and time 4 = 18 months.

Figure 16: MMSE official in the medical file ((a) comparison control-intervention, (b) and (c) individually)

DISCUSSION

The aim of the study was to measure the effectiveness of learning to collaborate interprofessionally on outcome indicators for older persons. From the literature we know that interprofessional collaboration can have a positive influence on patient outcomes (3), so we wanted to investigate possible effects on patient level when teaching staff how to collaborate interprofessionally. Despite the poor responses from nursing homes and the poor existence of patients meeting the including criteria in the participating nursing homes, we decided to perform the study with three nursing homes.

At the start of the investigation the intervention group existed of 9 residents and 8 for the control group. When checking the inclusion criteria one residents did not meet the MMSE inclusion criteria for 1 point (MMSE of 23), but after discussion within the research team we did include this resident for the analyses. Two residents of the intervention group passed away and one moved to another nursing home. Despite the small population for this investigation we did perform an analyses on the data to have an insight in possible influences of the intervention on patient level. Therefore conclusions should

be taken with caution and not transformed to a total population.

Overall the intervention and control group did not score significantly differently except on one measurement, anxiety/depression from the EQ-5D-5L ($p=0,0205$) in favour of the intervention group. Compared to the EQ-5D population norms data for Belgium (22) the intervention group scores on level 1 for problems with anxiety/depression on the EQ5D as 60 percent of their age group. The control group scores between level 1 and 3 which is as 40 percent of their age group (see fig 17), so we conclude there is no clinical relevant difference.

ANXIETY / DEPRESSION – Percentage (%) reporting each level of problem

AGE GROUPS		18-29	30-39	40-49	50-59	60-69	70-79	80+
MEN	Level 1	78.2	84.2	83.1	69.5	81.0	76.3	60.0
	Level 2	20.0	14.2	16.9	30.5	17.9	22.4	40.0
	Level 3	1.8	1.7	0.0	0.0	1.2	1.3	0.0
WOMEN	Level 1	87.3	81.1	74.8	80.3	74.2	81.0	82.4
	Level 2	12.7	18.9	23.8	15.4	24.7	19.0	11.8
	Level 3	0.0	0.0	1.4	4.3	1.0	0.0	5.9
TOTAL	Level 1	83.1	82.4	78.6	75.5	77.3	78.4	66.7
	Level 2	16.1	17.0	20.7	22.2	21.5	20.9	31.6
	Level 3	0.8	0.7	0.7	2.4	1.1	0.7	1.8

Figure 17 Percentage reporting anxiety/depression for the Belgian population (22)

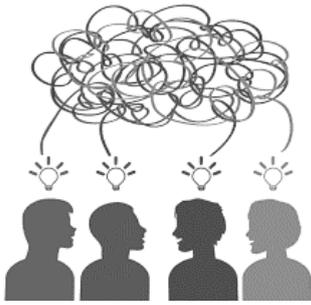
From literature we expected to see a positive influence of learning to collaborate on patient level (3), but from the results we cannot confirm this hypothesis. Of course the population is too small to draw conclusions, but it did surprise us to measure a significant difference for anxiety and/depression on the EQ-5D-5L scale. Also overall a slight advantage is found for the intervention group for the outcomes on falls and medication use. For self-care within the EQ-5D-5L and the KATZ-scale we noticed a higher rate of problems for the intervention group. May be this should be further explored to better understand if it suggests that the residents from the intervention group are more active? What we learned from this study is that tailored patient-centered care is very important and so measurements on patient level should be always assessed on the aims of the care planning for the particular patient. As in all research limitations of the study are a fact. We are convinced this study itself confirms that in future research, there must be more attention for mixed research methods to get a better insight in the complexity of learning in and for practice and especially on the level of patient outcome indicators.

CONCLUSION

This study aimed to measure the effectiveness of learning to collaborate interprofessionally on outcome indicators for elderly. This study identifies trends of differences between the intervention and the control group but no clinical relevant significant differences were found. So the hypothesis could not be confirmed that by teaching staff how to collaborate interprofessionally can effect outcome indicators on patient level. More mixed method research is needed to explore if an education process can influence on quality indicators on patient level in nursing homes.

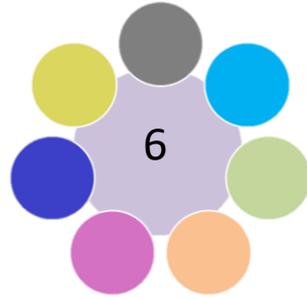
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Bella : Oh, I am so happy to read professionals do care and they want to learn from, with and about each other. Well, nobody is too old to learn. It is time for me to learn how to be happy without feeling like a burden. I need to communicate and to chase my own happiness, I need to learn to think interprofessional!

Chapter



Discussion

INTRODUCTION

This thesis focuses on interprofessional education and collaboration within the changing landscape in Belgian primary care. To gather in-depth-insights in the concept of interprofessional education and collaboration different studies with various designs were used. In this discussion the four research questions of this doctoral thesis are reviewed, the main findings of the individual studies discussed and overall strengths and weaknesses of this doctoral theses addressed. Furthermore, implications for future practice and curriculum development will be highlighted, but also the pitfall of forgetting the patient-centeredness in interprofessional collaboration will be briefly discussed. Finally, recommendations for future research will be formulated.

USED STUDY DESIGNS IN THIS THESIS

To address the research questions this thesis included a case study, a review of the literature, a qualitative study and a cluster randomized controlled pilot trial. Based on the description of the concept and framework of ‘interprofessionality’ (1) and the description of the competence of ‘interprofessional collaborator’ (2) we build up the methodology to address the research questions. Research question 1 (How to learn to collaborate interprofessionally) was addressed by the case study and the interactive review of possibilities and pitfalls of interdisciplinary consultation based on the experiences of professionals in practice. The systematic review addressed the second research question (What is known about interprofessional practice for older people). The qualitative study addressed the third research question (How interprofessional is the usual care in nursing homes). The final empirical study handled the fourth research question (What influence can learning to collaborate have for nursing home teams).

MAIN FINDINGS



The first research question concentrated on describing the development, aims and evaluation of the interprofessional education module and secondly explored the reflections of professionals active in practice (3, 4).

The development and evaluation of the interprofessional education module, interprofessional collaboration in health care (IPCIHC), was in fact the starting brick of this doctoral thesis. From the literature and research it is obviously necessary to educate future health care providers to become competent interprofessional collaborators (5-7). The continuous changes in healthcare and curricula still challenge the interprofessional committee of the IPCIHC-module to keep on ‘proving’ the advantages of learning with, from and about each other during undergraduate programs in healthcare. From the experiences of healthcare professionals, we state that collaboration cannot just be ‘brought’ to practice by giving theoretical frames. Results from the first study in this doctoral thesis suggest interprofessional education modules enhanced the awareness of the importance of communication skills and had an impact on different participating curricula. Curricula became more interprofessional-oriented. It appeared that the face-to-face interprofessional education program is respected. Interprofessional education can help participants to be aware of the changes in their understanding of how other healthcare professionals work. It helps curricula developers to prepare students to think and work more interprofessionally (1, 8). The majority of the participants suggest that interprofessional learning increased their understanding of problem solving in teams and that it could enable them to work more effectively as a member of a health care team. Interprofessionality can be learned during healthcare studies, but should also be continued during professional practice. Still, one has to be aware that interprofessional educational programs only offer handles and triggers to develop the competence of an interprofessional collaborator and to develop more interprofessional curricula.

Lessons learned from the findings :

- Interprofessional learning suggests an interprofessional steering team with representatives from participating professions
- There always has to be attention for team development and a common vision. The model of team effectiveness is very helpful

- Proper assessment tools to evaluate learning goals are important to get insight in development of the competence and thus necessary
- Themes to learn to work interprofessionally are:
 - Getting acquainted interprofessionally
 - Create a common (interprofessional) care plan based on shared decision
 - To work patient-centred and to reflect upon the own development in the seven roles of the competence of 'collaborator in healthcare', as well as reflect on the group process and development.
 - Think and act ethically
 - Think about the communication towards the receiver (patient, colleague, etc.)

2

What is known about interprofessional collaborative practice for older people?

The second research question focussed on the systematic review of literature concerning outcome indicators used to measure the effect of interprofessional collaboration interventions for elderly. We explored the literature between 2007 and June 2014 (9). In the coming years it is obvious that delivery of care for the aging population will require high levels of interprofessional collaboration (10-12). We need insight into how interventions affect collaboration and how improved collaboration contributes to changes in outcomes on patient level and especially quality of care (5). The overall effects of interprofessional interventions are positive, but based on heterogeneous outcomes. Exploring the outcomes gave an overview of outcome indicators with interprofessional collaboration as intervention. Outcome indicators of interprofessional collaboration can be summarized in three main categories: 'collaboration', 'patient level' and 'costs'. Still, we are aware of the fact that too many outcome indicators remain without effect or were reported with poorness of evidence. Existing collaboration within usual care was also rarely described. So, despite the high number of publications it is still not clear where to put focus on within education programs about how to work together to improve the quality of the care for older persons in nursing homes. The learning goals in programs to learn to collaborate interprofessionally were not explicitly described. However we do know interprofessional collaboration has to be understood in its context (13, 14). We succeeded in summarizing several effective outcome indicators concerning interprofessional care effectiveness for older persons on patient level outcome. Unfortunately no general conclusions could be drawn on the category of costs. When organizing interprofessional collaboration or interprofessional education the indicated outcomes can be considered as important topics to be addressed.

Lessons learned from the findings:

- Effects of interprofessional collaboration can be categorized in:
 - Collaboration (as an interaction between professionals)
 - Patient outcome level
 - Costs
- Interventions should be well described and last long enough so that differences with usual care could become clear

The aim of the third research question was to gain insights in the perception of professionals towards interprofessional collaboration in nursing homes and the factors that have an impact on interprofessional collaboration (15). Therefore we conducted a qualitative study and interviewed groups of different professionals who work in nursing homes or treat patients who live in nursing homes; physicians (GPs), paramedics (nurses, caregivers, physiotherapists, occupational therapists) and policy (board members). We performed a thematic analysis of the data.

We used the following definitions for interprofessional and multiprofessional collaboration: Interprofessional collaboration involves the awareness of different roles in the team. The healthcare providers develop a multidisciplinary integrated and cohesive answer to the needs of the care receivers and their context. With a common vision, purposeful approach and shared responsibility, a care plan is chosen and followed-up (1, 2, 16-18). Multiprofessional collaboration however is characterised by the fact that appropriate experts from different professionals handle patient's care independently. The patient's problems are subdivided and treated separately, with each provider responsible for his/her own area (19).

From the analysis of the qualitative study, four main themes emerged: context, collaboration, care and experience. The findings assume that the context of working is more professional-centred than patient-centred. Secondly there is no collaboration or collaboration is limited to information exchange. The care is described as routine tasks to be done. Finally the professionals' experience about collaboration witness that still a lot has to be done to reach more interprofessionality in collaboration. Healthcare professionals need to reflect on, and reconsider their attitudes, approaches and expectations towards both traditional ways of working and professional power balances in interprofessional settings (14, 20). There is need for a paradigm shift from single-profession healthcare delivery toward integrated care in which several disciplines work together in interprofessional teams to address individual's needs (16, 17, 21).

Lessons learned from the findings:

- Awareness of different roles in a team is very important
- The importance to know the competences associated with discipline
- There is a willingness to collaborate
- Adding organisational roles to clinical responsibilities seems not feasible
- Different healthcare professionals in nursing homes are seen as separate groups
- Collaboration between different disciplines in nursing homes presents itself fragmentary
- It seems important to openly recognizing and to discuss tensions between traditional and interprofessional discourses
- Healthcare professionals do not work interprofessionally according the definitions from literature

What influence can learning to collaborate have for nursing home teams?

In answering the fourth research question we investigated the influence of learning to collaborate interprofessionally on the quality of care from two perspectives. The first perspective was the professional perspective; the second the residents' perspective and this within the context of nursing homes.

The research protocol for this study contained detailed description of an intended cluster randomized controlled trial in primary health care, aiming to investigate the effectiveness of training in interprofessional collaboration. The eventual performance of this protocol ran as a pilot at three nursing homes (one as intervention group and two as control group). The main objective of this pilot study was to test the protocol and the instruments as well as to evaluate the database to determine whether interprofessional learning can affect the quality of care.

Professional perspective

We know from literature that key elements of collaboration such as for example goal setting, care decision support, patient activation, etc. are relevant outcome indicators on interprofessional collaboration for older adults involving the professional health care providers (9). Also it seems that interprofessional learning (IPL) and the intensity of interprofessional collaboration (IPC) have been shown to create teams that work together better and improve patients' satisfaction (9, 14). In this part of the study, we investigated the effectiveness of learning to collaborate interprofessionally on the level of intensity of care and knowledge of interprofessional collaboration. We performed a cluster randomized controlled pilot trial in primary health care. We measured intensity of collaboration (22) and knowledge of interprofessional collaboration by using questionnaires for the participating personnel in nursing homes. The interprofessional educational module is build up and adjusted taking into account the outcome indicators as described in chapter three and four. We expected an effect of the educational program and the integration of this program within the working schedule to enhance the level of collaboration and increase the intensity of interprofessional collaboration as well as to increase the knowledge about interprofessional collaboration. Even though we found a significant difference between the control group and the intervention group, we did not expect this effect in advantage of the control group. This brought us to the assumption that can be explained by a Hawthorne-effect through investigating the interprofessional collaboration (23). From this study talking about interprofessional collaboration seems sufficient to bring the knowledge about it and the intensity of interprofessional collaboration on a higher awareness level. Because of the same progress in both groups, maybe interprofessional skills are latent present. But also the hypothesis grew that when interprofessional teams know more about interprofessional collaboration and have gone through an educational process, they will probably score more strict and closer to experiences rather than thoughts. Despite the small group and the limitations of this study, it helped us to get insight into the fact that measuring knowledge and intensity of interprofessional collaboration with questionnaires is not enough to better understand why a team succeeds in interprofessionality.

Lessons learned from the findings:

- Professional healthcare providers do know how to collaborate interprofessionally
- Intensity of interprofessional collaboration cannot be evaluated only based on a questionnaire
- Giving interprofessional collaboration explicit attention increases the awareness of the competence

Secondly we aimed to describe the education process during the pilot trial interprofessional educational program for staff in one nursing home in Belgium. It is important to know how well team members collaborate, especially when we know that good teamwork improves patient outcomes (24). Because interprofessional collaboration has to be actively taught (25, 26), in this study the specific aims were to explore the personal change processes during the group sessions and to identify supporting and hindering elements in working as a competent interprofessional team. Therefore a qualitative research approach was used to study the education process during the group sessions, using audio-recordings and observers' notes during the actual group sessions. The intervention was a problem-based interactive learning method with real life cases. From the three sessions of 3 hours participating professionals we gathered the reflection upon their competence as collaborator and checked what had to be learnt. In a first phase the collected bottlenecks in collaboration resulted from the SWOT-analysis. It seemed that the strengths in the nursing home were overshadowed by the weaknesses and threats. The main threat seems to be the atmosphere of hospital feeling. Secondly we evaluated the teamwork using among others the ten group criteria for interprofessional teams (3). Overall it seemed that according the criteria the team does not work interprofessionally, but there are clear indications of different possibilities from the strengths and opportunities to bring about a positive change for interprofessional collaboration. There was no collaborative leadership which can be helpful to develop team members working together in an independent way, relying on each other's expertise in order to accomplish goals and carry out tasks (27) to deliver the required quality of care. It was very clear that all participants do care about their residents and delivering quality care.

In the third phase the evaluation of the module took place. The participants mainly pointed out the reflections were an important part of the module. They appreciated that they got to know each other better and also to know each other's tasks and responsibilities. Participants seemed to confirm that this kind of educational modules can help them to develop interprofessional competences as a team and individually.

Lessons learned from this chapter:

- Reflective learning sessions can help to develop interprofessional competence
- A swot-analyses gives the opportunity to get a better insight in the level of interprofessional collaboration
- There is a readiness to learn to collaborate interprofessionally, but the process takes time to implement in daily practice
- Collaborative leadership is important to realize interprofessional care

Residents' perspective

In the fourth and last part of this chapter we aimed to measure the effect of an educational program on 'patient level' outcome indicators for older persons in nursing homes. For resident outcomes in nursing homes interdisciplinary interventions may have a positive impact (14, 28, 29). So we measured outcomes on patient level (body weight, fall incidence, medication use, health related quality of life, independence for activities of daily life and cognitive status). In this cluster randomized controlled pilot trial we measured at four time points; baseline, 6 months, 12 months and finally 18 months. Seventeen residents within the participating nursing homes met the criteria and participated and 9 of them were in the intervention group. Overall the intervention and control group did not score significantly differently except on one measurement, anxiety/depression from the EQ-5D-5L ($p=0,0205$) in favour of the intervention group, but this difference is clinically not relevant. Also overall a slight advantage is found for the intervention group for the outcomes on falls and medication use. For self-care within the EQ-5D-5L and the KATZ-scale we noticed a higher rate of problems for the intervention group. This study identified trends of differences between the intervention and the control group but no clinical relevant significant differences were found. So the hypothesis could not be confirmed that by teaching staff how to collaborate interprofessionally can effect outcome indicators on patient level. More mixed method research is needed to explore if and how an education process can influence on quality indicators on patient level in nursing homes.

Lessons learned from the findings:

- Tailored patient-centered care is very important and so measurements on patient level should be always assessed on the aims of the care planning for the particular patient

METHODOLOGICAL CONSIDIRATIONS: STRENGHTS AND WEAKNESSES

In general our results are based on the findings of particular settings and their relevance in other settings needs to be further explored.

The strength of the first case study lies in the fact that we have a participant evaluation with an overall response of 80% over 10 years. The design of the educational module is strong because all participating institutes are involved in the development as well as in the practical organization of this module. The value of the face-to-face interprofessional educational module is respected despite the continuous changes on different levels. The teaching methods as well as the evaluation instruments are all based upon the competence 'collaborator in healthcare' (see fig 3, chapter 1) (2, 3). This seems important to be able to evaluate whether a professional and/or a team work interprofessionally or not according to the definition of interprofessionality (21). Therefore it also helped to develop more interprofessional curricula and to be aware of how to prepare students to think and work more interprofessionally. On the contrary this study has its weaknesses. Because of the large number of participants, we need more tutors every year to guide the interprofessional learning groups (3). We did not investigate nor evaluate the level of interprofessional competence of the tutors. We cannot assure that all tutors have attention for the group dynamics and if necessary can take actions to coach the interprofessional groups in their learning process. Therefore we are very aware of the fact that we only can offer handles and triggers to develop the competence of an interprofessional collaborator.

Secondly we also know that the participant evaluation was based on seven closed questions. Even though it gives a descriptive overview of positive participants' evaluation of the interprofessional module over 10 years, we are aware of the lack of more in depth knowledge about the real effect in patient care in practice. Nevertheless we did find an answer on the need to learn to collaborate more interprofessionally (4). The professionals who were interactively interviewed in the second publication of the second chapter, remarked and so confirmed the need for more training and also pointed out some interprofessional issues in practice. It is important to always link education, practice and research when we all work for the same aim to improve or to maintain the quality of care for patients.

For the systematic review (9) we aimed to summarize indicators of effective interprofessional collaboration for older people. During the process of screening publications and because of the strict methodology we used, relevant studies could have been missed. Also we are aware that by categorizing the data we maybe did not handle the heterogeneous outcomes perfectly. The most important outcome of this study was the awareness that the usual care was not well described in the literature. It made us think about how interprofessional the usual care already is. Therefore it became important to us that interprofessional collaboration is to be clearly described and implemented long enough to know what effects it can have on patient level.

To gain insights in the perception of healthcare professionals towards interprofessional collaboration in nursing homes and the factors that impact the interprofessional collaboration, we performed a qualitative descriptive study. Data triangulation with use of focus group and additional individual interviews using different perspectives in data analysis allowed us to explore the perceptions and experiences with interprofessional collaboration (15). However perceptions and experiences have their limitations and are only one component of the description of collaboration in usual care. Our results are based on the findings of a particular setting and their relevance in other settings needs to be further explored. Nevertheless with this study we got insight in the importance of knowing and understanding the definition of interprofessional collaboration in health care, in order to be able to evaluate 'interprofessionality' in usual care (11, 21).

For the cluster randomised controlled trial, while dealing with practical problems to include participating nursing homes in the study, this made us choose to perform a pilot trial. This resulted in a limited number of participants. We did succeed to include three nursing homes from a same overall organisation but geographically spread. This made it possible to match the participating staff and residents living in the nursing homes of the control group with the ones of the intervention group and still having a same organizational culture. During the process of including participating nursing homes a lot of practical questions raised and had to be answered before receiving informed consent from the nursing homes. This concerned questions about timing, logistical issues such as meeting rooms, etc. We had to define very clearly the aims of the research and what this would mean for their staff and residents. Therefore we gave extra informative presentation. Staff saw us several times before, during and also after the intervention. This gave us the opportunity to give feedback when necessary for the participants. This implies that maybe not all participants of the intervention group had received the necessary information they needed to develop their interprofessional competence. And also we have to acknowledge we may have biased therefore the programme schedule a little bit by giving extra information. Nevertheless we did try to be as objective as possible by working with a research team of at least three researchers when analysing the data. To know if intensity of interprofessional collaboration changes over time and after an educational intervention, also more quantitative and

qualitative outcomes should be measured (30, 31). Also observational methods are very useful to get more insight in what happens on the working floor involving interprofessional collaboration (32). So the combination of quantitative and qualitative methods was used to answer the research question. It was used to explore the interprofessionality in the nursing homes and its influence on the level of several selected patient outcome indicators. Finally the implementation of the educational module , as intervention, was evaluated by the participating staff. But when looking back at the chosen research method now, an action research design would fit better to answer the research question. There is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process (33).

IMPLICATIONS FOR FUTURE PRACTICE

The link of education and research with practice is important to share knowledge and experience. In education we do think about patient-centeredness but you can only really understand it when being confronted with it in practice. The major pitfall of forgetting the patient-centeredness has become clear. To know if interprofessional goals of a team are effective, these have to be measured patient per patient. So to know if interprofessional collaboration can increase the quality of care for a certain patient, the tailored goals for that individual patient within his or her context have to be taken into account. You always have to involve the patient and their system within their context when choosing your interprofessional management of care. Unfortunately in nursing homes a lot of residents cannot tell us what they want any more so we have to try to find that information. Also we have to be realistic and not all requests and goals are realistic within a certain context. Therefore it is important there is collaboration between education and practice to exchange knowledge and experience. To prepare the next generation of interprofessional health care providers, education programs and practice have to be attuned to each other.

IMPLICATIONS FOR CURRICULUM DEVELOPMENT

The description and evaluation of the Interprofessional Collaboration in Healthcare (IPCIHC) module as reported in chapter 2 of this thesis (3), shows that it is a permanent challenge to keep on educating future healthcare providers in interprofessional collaboration. Within the educational system, as presented by D'Amour and Oandasan (2005) (21), both institutional (meso level) and teaching (micro level) factors have to be taken into account to develop interprofessional education. Institutional factors include leadership and resources, administrative procedures including the methods for implementing initiatives.

As we know from literature interprofessional collaboration has to be actively taught (25, 26) and institutions should be aware of this. A lot of key elements of interprofessional collaboration such as willingness to collaborate, trust in each other, mutual respect and communication are not obvious contents to be integrated into existing curricula in order to learn to collaborate interprofessionally. But we do need these contents to be developed, so future health care providers are competent to create all the necessary conditions for success in complex health care systems (34). In interprofessional collaboration it is important to understand the rules of the game. When ownership and trade are appreciated and handled well, team members are able to anticipate reactions, deflect obstructions,

and achieve individual goals while maintaining team cohesion (35). So learning to collaborate interprofessionally implicates also professional identity and knowing the rules of the game. When you are a member of an interprofessional team, you represent a discipline. Therefore in interprofessional collaboration it seemed important to get to know each other interprofessionally (3). Therefore we advise to pay attention in curricula to trigger students to get to know the 'other' professions. Curricula developers of the different education programs should work together. We suggest to work with an interprofessional steering team with representatives from participating curricula to develop common educational programs and stimulate collaborative practice.

To learn to collaborate interprofessionally can be summarized in learning in three stages when looking at the teaching factors (see fig. 1). In the first stage curricula should offer students educational modules to learn the definition of interprofessional collaboration. Secondly they should get familiar with the competence of interprofessional collaborator in order to be able to show their interprofessionality. In a second stage, so a deeper level of knowledge and insight in interprofessional collaboration competence and practice should be taught. Participants should be facilitated and get the chance to show how interprofessional they work and why. In the third and last stage of learning to collaborate interprofessionally, participants should be performing interprofessional collaboration in health care practice and pass the knowledge along.

These stages of learning to collaborate should be supported by education, practice and research. So the quality of care can be influenced positively and professional authenticity can be assured. Education, research and practice should be connected to learn to collaborate interprofessionally.

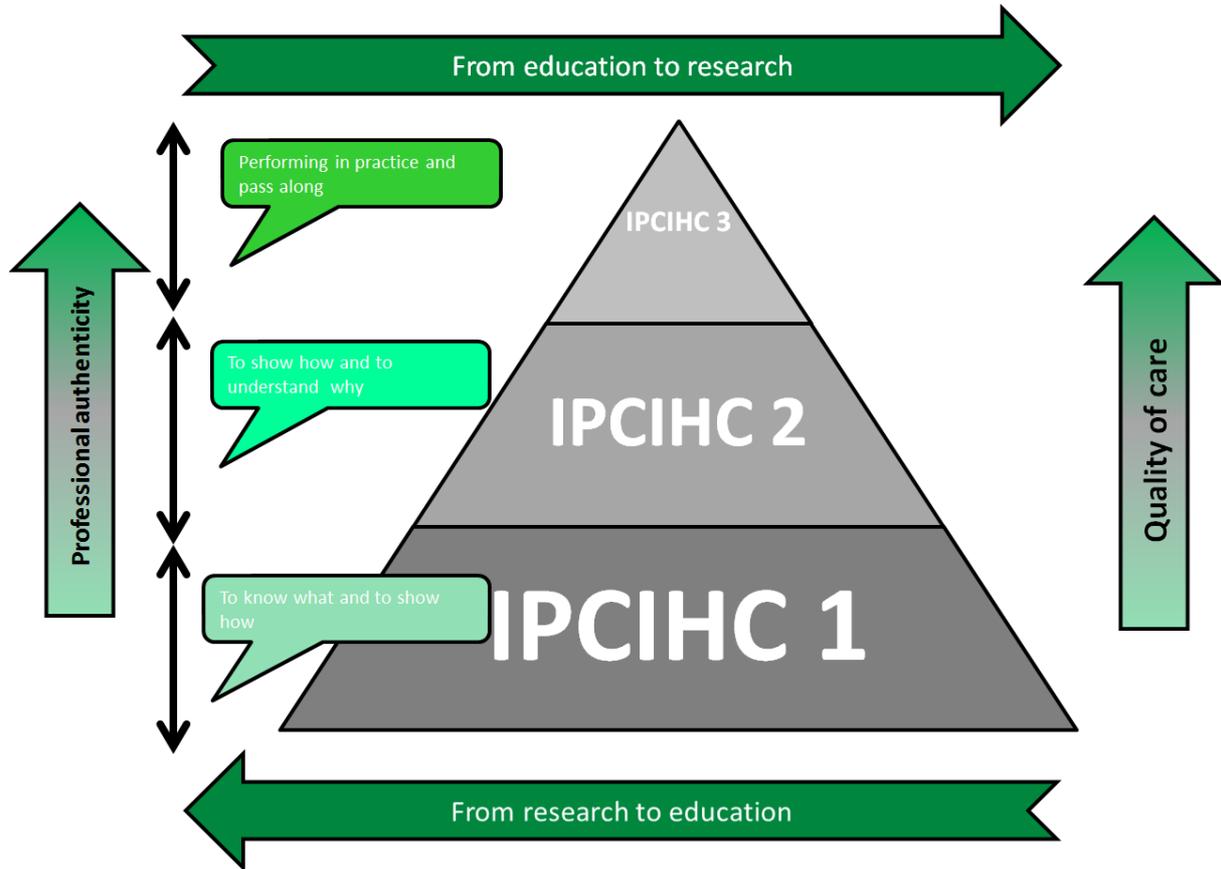


Figure 1: Stages of learning to collaborate interprofessionally

Within the professional system organizational (meso) and interactional (micro) factors are important to be taken into account when developing educational programs (21). As we suggested earlier, it is important that practice and education are connected to learn to collaborate interprofessionally. From our results we know that professional health care providers are ready to make efforts and to change their work to more interprofessional collaboration. To work interprofessionally asks a competence of reflection in a scope to reflect. These scopes and handles can be offered within interprofessional training. Training in interprofessional collaboration can help to be able to look from your own context and own possibilities what's feasible for the situation that occurs with respect for what the patient needs (4). Failures of teamwork and interprofessional communication, were, and continue to be, frequent causes of harmful medical errors. Training practitioners with better skills in teamwork and communication is thought to be essential for preventing errors (36). As in literature defined 'interprofessional education occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes (7, 18).

IMPLICATIONS FOR FUTURE RESEARCH

This thesis made it also clear that more research is needed with the aim to get better insight in the process and effects of interprofessional education and practice.

The interprofessional collaboration in health care modules are being organised for over ten years and within this thesis tested in practice. It might be interesting to purposively select parts of this educational program and to further investigate the teaching methods and assessment instruments.

Also it can be interesting to investigate the influence of the module after 5 years in practice by questioning practitioners who underwent this in their education program. Further research is needed to investigate the effectiveness of IPE programs on the quality and safety of patient care.

Also research on implementation of interprofessional education in practice and its effect on collaborative practice is needed. Investigating patient-centeredness within interprofessional collaboration in practice can be very interesting too. A lot of multiprofessional discussions are organised for patients in primary care, but how interprofessional are they?

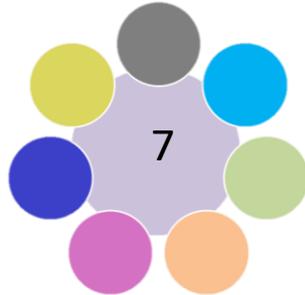
Learning in and for practice is a complex reality. Regarding research methods, this thesis also has shown that in future projects there must be more attention for mixed methods research, combining quantitative and qualitative designs.

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Chapter



Summary

Samenvatting

SUMMARY

This doctoral research focuses on how to learn to collaborate interprofessionally and this within the fast changing healthcare landscape in Belgium. In the first chapter a brief introduction into the scope of this thesis is provided. We also describe the concept and framework of interprofessionality. This work has been built on previous projects, literature studies and own observations and interest. In this thesis, "interprofessional collaboration" is understood as the interaction between different professionals, the patient being a member of that team, to choose, implement and regularly evaluate and adjust patient-oriented (care) plan of approach if necessary (see fig 1). This presupposes the competence of a collaborator in healthcare (see fig 2).

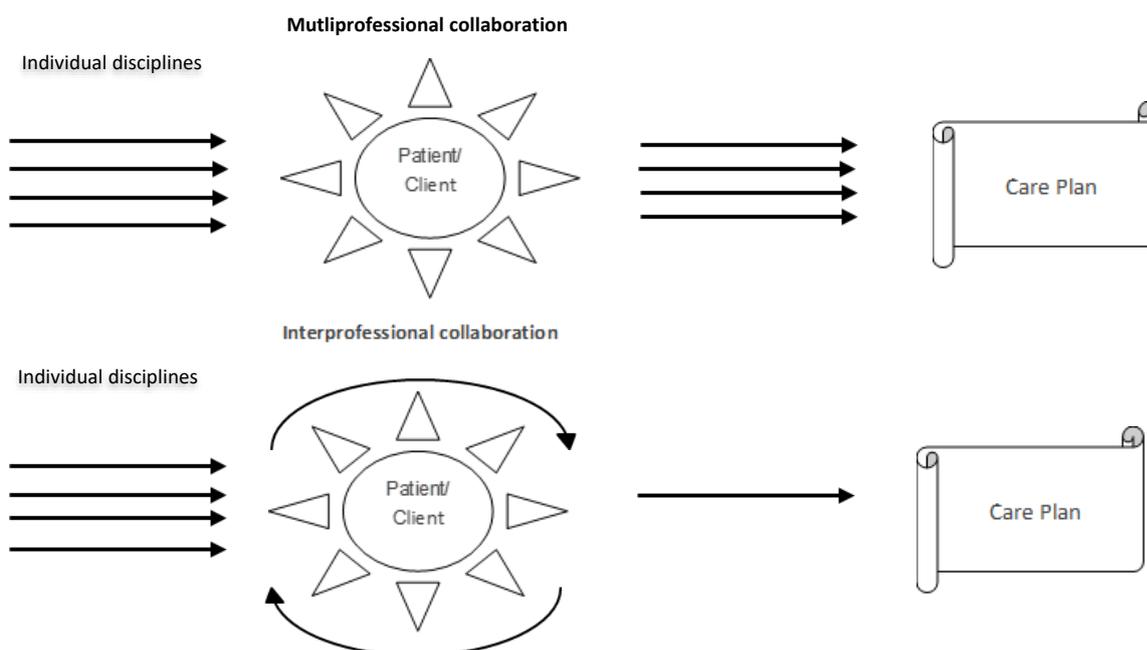


Figure 1: Model of interprofessional collaboration and difference with multiprofessional collaboration (based on McGill 2001)



Figure 2: Competence 'collaborator in healthcare' based on The CanMEDS 2005 Physician Competency Framework (41)

The general purpose of this PhD thesis is to measure the effect of interprofessional learning in practice. We chose to measure these effects in the setting of a nursing home because this is a very specific context within primary health care involving several health professionals. Health care providers are supposed to work interprofessionally to address the ever-increasing complexity of care.

In the second chapter an answer is formulated on the first research question on how to learn to collaborate interprofessionally. Since 2005, students from different disciplines in healthcare related education programs (physicians, physiotherapists, occupational therapists, nurses, midwives, dieticians, speech therapists, social workers and bachelors in psychology) are trained to learn to collaborate interprofessionally based on the description of the competence of 'collaborator in healthcare'. Evaluation of the IPCIHC-module has taught us that it is important for future professionals to have a first experience with working together with other future healthcare professionals during educational programs. It helps students to gain insight into problem solving and in more efficient teamwork. Next to the theoretical lessons they work with authentic cases to make interprofessional care plans. The annual evaluation of the IPCIHC-module by the students, also suggests that interprofessional education modules reinforce awareness of the importance of communication skills. Moreover it also influenced different participating curricula to prepare their students by introducing more training in communication skills. Healthcare providers from practice, confirmed via a brief survey that they, as professional healthcare workers still need to learn to work together in terms of patient-oriented care. By providing educational interacting modules where the various professionals in training need to interact, it increases the insight into each other's expertise and facilitates targeted collaboration (chapter 2).

In order to know more about what is known about interprofessional collaborative practice for older people, we have systematically surveyed the literature (chapter 3). With the aging of society, more and more interprofessional collaboration will be necessary to meet the needs rising from the increasing complexity of care. From this systematic literature review looking at studies published between 2007 and June 2014, research suggests that the most important effective indicators can be summarized in three substantive categories: 'collaboration', 'patient level' and 'cost'. Despite the reported positive effects of interprofessional collaboration on certain key indicators, it appears that the existing 'interprofessional' care is insufficiently described. In order to gain an insight into the influence of learning interprofessional collaboration, it is therefore important to know how interprofessional the usual care is already. This has led to the starting point of the third research question.

How interprofessional is the usual care in a nursing home setting (chapter 4)? In order to explore this topic a qualitative research study was set up in nursing homes. Data has been collected through focus groups and individual interviews with all professionals working in nursing homes (physicians, nurses, caregivers, physiotherapists, occupational therapists and board members) to gain an insight into the interprofessionality of usual care. The analysis of the data were divided into four categories: context, collaboration, care and experience. The context of working in a nursing home is more professional-oriented than patient-oriented. The results also showed that multidisciplinary task organization is confused with interprofessional collaboration. In usual care there is mainly attention given to information exchange. Many tasks in the daily care are routinely performed based on aims within the own discipline, thereby patient orientation and interprofessional thinking is being lost.

There is a need for a paradigm shift from monodisciplinary work to more integrated multi- and interprofessional collaboration.

Based on the results of the previous studies of this thesis, the interprofessional education module has been adapted and offered as an intervention in a nursing home (chapter 5). In this chapter, the latest research question has been addressed; what influence can learning to collaborate have for nursing home teams. This study was performed as a cluster randomized pilot trial in three nursing homes (one as an intervention group and two as control group). In a first part of the study, the intensity and knowledge of interprofessional collaboration was measured. These results are compared between the intervention group and the control group. The results identified that both groups scored high on the intensity of collaboration. This can be explained by a Hawthorne-effect through investigating 'interprofessional collaboration' – knowledge and intensity. This effect was visible on all time points. Surprisingly, the control group showed an even higher intensity of collaboration than the intervention group. The hypothesis grew that when interprofessional teams know more about interprofessional collaboration and have gone through an educational process, they will probably score more strict and closer to experiences rather than thoughts. From the results we can conclude that it is important to highlight interprofessional collaboration. Professionals can best be reminded regularly that collaboration brings you further and that reflecting on group-level is helpful. The presumption has been confirmed that knowledge of the definition of interprofessional collaboration makes that collaboration is evaluated more critical.

The second part of the research looked at the results of the education module as an intervention. In order to explore the process that participants went through whilst following the three times 3 hour training session, an observation study was carried out. The findings of this observation enabled us to make a SWOT analysis on the level of interprofessional collaboration in that nursing home. The interprofessional training module not only gave knowledge to the participants, it also provided an opportunity for them to evaluate and map the level of interprofessional collaboration in their setting. Interprofessionality was evaluated on the basis of the description of the competence of interprofessional collaborator in health care and the group criteria for an interprofessional team. The results identified that the team did not collaborate interprofessionally on the basis of definition of interprofessional collaboration and interprofessional group criteria. However, there are many strengths and opportunities that can certainly improve interprofessional collaboration. The willingness of the participating health care providers to work more interprofessionally was remarkable.

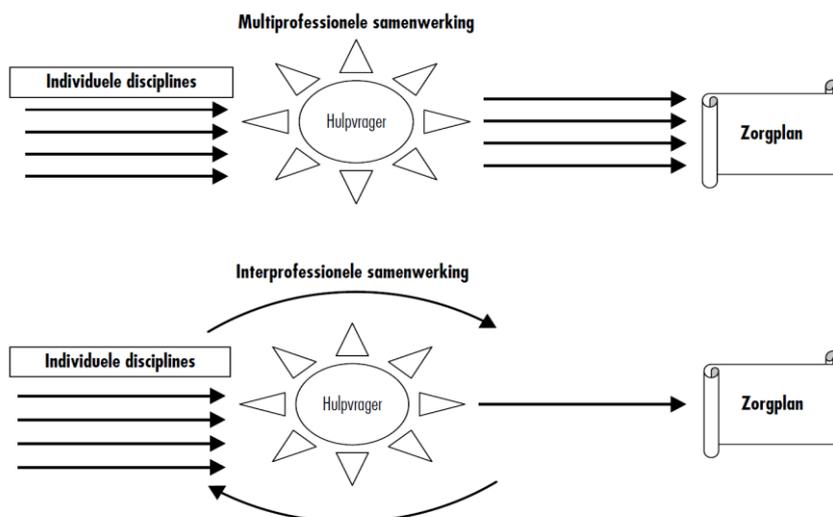
The last part of this chapter describes how learning to collaborate interprofessionally can have an effect on patient level outcomes for a number of key indicators, as determined on the basis of the previously mentioned literature study in chapter 3. At four measurement points (baseline, after 6, 12 and 18 months), key indicators were measured such as, among other things, quality of life (by EQ-5D-5L), self-reliance (by KATZ), fall incidence, weight, number of drugs, cognitive status (MMSE). Overall, initially no significant difference was found for the outcomes between the residents of the intervention group compared to those of the control group but some trends were visible. For the number of drugs per day, the EQ-5D-5L and fall incidence, the intervention group apparently achieved a trend of better results in comparison to the control group. Despite the lack of a significant difference, it may be interesting for clinical relevance to further investigate this. A limitation of this study was the representativeness of the surveyed population given the small number of participants.

I also recommend that measuring effects of interprofessional collaboration must be more at the level of interprofessional goals that are set with all the different partners. It is important that for each patient there should be looked at the (care) goals within his or her context to judge whether interprofessional collaboration as intervention may or may not affect certain indicators for a particular patient.

It seems that the continuous link between education, practice and research is extremely important to share knowledge and experience in order to ensure the quality of interprofessional collaboration and thus the quality of care and education (chapter 6). When students are in training they have the intention to work patient orientated, but it only gets meaningful when students experience it in practice and can apply it in practice. It is again important to keep an eye on interprofessional goals per patient in evaluating potential effects. Sometimes the patient will not be able to tell us their goals. In order to share the necessary knowledge and experiences, it is important to collaborate interprofessionally and to always involve the patient in his / her context. Educational programs and practice must be coordinated and continuously evolve adapting to the changing context of healthcare to prepare next-generation healthcare professionals. Interprofessional learning to work together also implies professional identities and the rules of the game. Each member of an interprofessional team represents a discipline. It is therefore important in interprofessional collaboration to get to know each other interprofessionally. In order to achieve this, curriculum developers from the various educational programs and practice have to work together.

SAMENVATTING

Dit doctoraatsonderzoek richt zich op het leren Interprofessioneel Samenwerken In de Gezondheidszorg en dit binnen het zich wijzigend gezondheidszorglandschap in België. In het eerste inleidende hoofdstuk is het concept interprofessionaliteit geïntroduceerd. Wij beschrijven ook het concept van interprofessionaliteit. Dit werk is gegroeid vanuit vorige projecten, literatuurstudies en eigen observaties en interesse. In deze thesis wordt 'interprofessioneel samenwerken' begrepen als de interactie tussen verschillende professionals, waarbij de patiënt lid is van dat team, om samen patiëntgericht een (zorg)plan van aanpak te kiezen, uit te voeren en regelmatig te evalueren en bij te stellen indien nodig (zie fig 1). Dit veronderstelt de competentie van samenwerker in de gezondheidszorg (zie fig 2).



Figuur 1: Het model van interprofessionele samenwerking en het verschil met multiprofessionele samenwerking (gebaseerd op McGill 2001)



Figuur 2: Competentie 'samenwerker in de gezondheidszorg' gebaseerd op The CanMEDS 2005 Physician Competency Framework (41)

Het algemeen doel van dit doctoraal proefschrift is het effect meten van interprofessioneel leren in de praktijk. We kozen ervoor om deze effecten te meten in de setting van een woonzorgcentrum, omdat dit een zeer specifieke context is binnen de eerstelijnsgezondheidszorg waarin verschillende gezondheidswerkers betrokken zijn. Gezondheidswerkers worden verondersteld interprofessioneel samen te werken om de steeds toenemende complexe zorg aan te kunnen pakken.

In het tweede hoofdstuk staat een antwoord geformuleerd op de eerste onderzoeksvraag naar hoe interprofessioneel samenwerken geleerd kan worden. Sinds 2005 worden studenten uit verschillende opleidingen in de gezondheidszorg en aanverwante beroepen (artsen, kinesitherapeuten, ergotherapeuten, verpleegkundigen, vroedvrouwen, diëtist en voedingsdeskundigen, logopedisten, sociaal werkers en bachelors in de toegepaste psychologie) opgeleid om te leren interprofessioneel samenwerken op basis van de beschrijving van de competentie van 'samenwerker in de gezondheidszorg'. Evaluatie van de module heeft ons geleerd dat het belangrijk is om toekomstige beroepsbeoefenaars tijdens de opleiding reeds voor een eerste keer in contact te brengen met andere toekomstige hulpverleners. Het helpt studenten beter inzicht te verwerven in het probleemoplossend en efficiënter werken in teamverband. Naast de theoretische lessen werken de studenten ook met authentieke casussen om interprofessionele zorgplannen te maken. De jaarlijkse evaluatie van de IPSIG-module door de studenten, suggereert ook dat interprofessionele onderwijsmodules het bewustzijn van het belang van communicatievaardigheden versterken en invloed hebben op verschillende deelnemende curricula. Hulpverleners vanuit het werkveld hebben via een korte bevestiging bevestigd dat ook zij nog steeds nood hebben aan leren samenwerken in functie van patiëntgerichte zorg. Door onderwijs te bieden waarbij de verschillende professionals met elkaar in interactie moeten gaan, vergroot immers het inzicht in elkaars expertise en kan er doelgericht samengewerkt worden (hoofdstuk 2).

Om meer te weten te komen over wat bekend is over interprofessioneel samenwerken voor ouderen, hebben we de literatuur systematisch onderzocht (hoofdstuk 3). Met de vergrijzing van de maatschappij zal steeds meer interprofessioneel samenwerken nodig zijn om de toenemende complexe zorg aan te kunnen. Uit de studies van dit systematische literatuuronderzoek tussen 2007 en juni 2014, blijkt dat de belangrijkste effectieve indicatoren overzichtelijk samengevat kunnen worden in drie inhoudelijke categorieën: 'samenwerken', 'patiënten niveau' en 'kosten'. Ondanks de gerapporteerde positieve invloeden van interprofessioneel samenwerken op bepaalde belangrijke indicatoren, blijkt echter dat de bestaande 'interprofessionele' zorg onvoldoende tot niet beschreven is. Om zicht te krijgen op de invloed van leren interprofessioneel samenwerken, is het dus belangrijk te weten hoe interprofessioneel de bestaande zorg reeds is. Dit heeft geleid tot het startpunt voor de derde onderzoeksvraag.

Hoe interprofessioneel is de bestaande zorg in woonzorgcentra (hoofdstuk 4)? Om dit onderwerp te verkennen, is een kwalitatief onderzoek opgezet in woonzorgcentra. Aan de hand van focusgroepen en interviews met alle professionals die werkzaam zijn in woonzorgcentra (artsen, verpleegkundigen, zorgkundigen, kinesitherapeuten, ergotherapeuten en directieleden) zijn data verzameld om een zicht te krijgen op de interprofessionaliteit van de bestaande zorg. De analyse van de gegevens konden in vier categorieën worden onderverdeeld: context, samenwerking, zorg en ervaring. De context van het werken in een woonzorgcentrum is meer professional-georiënteerd dan patiëntgericht. Uit de resultaten bleek tevens dat multidisciplinaire taakorganisatie verward wordt met interprofessioneel samenwerken. In de bestaande zorg wordt vooral aandacht gegeven aan

informatie-uitwisseling. Veel taken in de zorg worden routinematig uitgevoerd op basis van eigen discipline doelstellingen en daardoor gaat veel patiëntgerichtheid en interprofessioneel denken verloren. Er is nood aan een paradigmashift van monodisciplinair werken naar meer geïntegreerd multi- en interprofessioneel samenwerken.

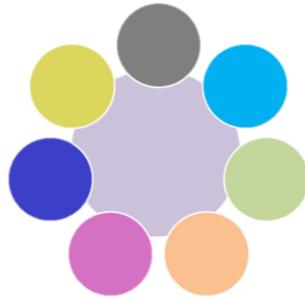
Op basis van de resultaten van de eerdere studies van dit proefschrift, is de interprofessionele onderwijsmodule aangepast en aangeboden als een interventie in een woonzorgcentrum (hoofdstuk 5). In het vijfde hoofdstuk is de laatste onderzoeksvraag aangepakt, met name welke invloed interprofessioneel onderwijs heeft voor teams in woonzorgcentra. Dit onderzoek werd als een cluster gerandomiseerde piloot studie uitgevoerd in drie woonzorgcentra (één als interventiegroep en twee als controlegroep). In een eerste deel van het onderzoek werd de intensiteit en kennis van interprofessioneel samenwerken gemeten. Deze resultaten zijn vergeleken tussen de interventiegroep en de controlegroep. Uit de resultaten bleek dat beide groepen hoog scoorden op intensiteit van samenwerken. Dit kan worden verklaard door een gevonden Hawthorne-effect bij het onderzoeken van kennis over en intensiteit van interprofessioneel samenwerken. Dit effect was zichtbaar op alle meetmomenten. Verrassend genoeg bleek de controlegroep zelfs een hogere intensiteit van samenwerken aan te geven dan de interventiegroep. De hypothese groeide dat wanneer interprofessionele teams meer weten over interprofessionele samenwerking en een educatief proces hebben doorlopen, ze waarschijnlijk strenger zullen scoren en eerder een score geven op basis van hun ervaringen eerder dan wat ze ervan denken. Uit de resultaten werd geconcludeerd dat het belangrijk is om interprofessioneel samenwerken in de aandacht te brengen. Professionals kunnen er best regelmatig aan herinnerd worden dat samenwerken je verder brengt en daar regelmatig op groepsniveau over reflecteren kan helpen. Het vermoeden is uit de resultaten bevestigd dat kennis van de definitie van interprofessioneel samenwerken maakt dat samenwerking kritischer beoordeeld wordt.

In het tweede deel van het onderzoek werd diepgaander gekeken naar de resultaten van de onderwijsmodule als interventie. Het proces dat de deelnemers hebben doorgemaakt werd verder onderzocht via audio-opnames en observatienota's tijdens de drie opleidingssessies van elk 3 uur. De resultaten die daaruit voortvloeiden hielpen een SWOT-analyse te maken over het niveau van interprofessioneel samenwerken in dat woonzorgcentrum. De onderwijsmodule gaf niet enkel een kennisvergroting voor de deelnemers, het bood ook de gelegenheid om het niveau van interprofessioneel samenwerken te evalueren en in kaart te brengen. Aan de hand van de beschrijving van de competentie van interprofessioneel samenwerker in de gezondheidszorg en de groepsriteria voor een interprofessioneel team werd de interprofessionaliteit geëvalueerd. Uit de resultaten bleek dat het team niet interprofessioneel samenwerkte op basis van definitie van interprofessioneel samenwerken en de interprofessionele groepsriteria. Echter zijn er wel veel sterktes en opportuniteiten gevonden die het interprofessioneel samenwerken zeker kunnen verbeteren. De bereidwilligheid van de hulpverleners was opmerkelijk om meer interprofessioneel te leren samenwerken.

In het laatste deel van dit hoofdstuk, is beschreven hoe het leren interprofessioneel samen te werken een effect kan hebben op patiënten niveau voor een aantal belangrijke indicatoren, zoals bepaald op basis van de eerder vermelde literatuurstudie in hoofdstuk 3. Op vier meetmomenten (baseline, na 6, 12 en 18 maanden) werden deze indicatoren gemeten zoals onder andere 'kwaliteit van leven' (a.d.h.v. EQ-5D-5L), zelfredzaamheid (a.d.h.v. KATZ), valincidentie, gewicht, aantal

geneesmiddelen, cognitieve status (MMSE). Globaal gezien werd geen verschil gevonden voor de uitkomstmaten tussen de bewoners van de interventiegroep ten opzichte van deze van de controlegroep. Wanneer meer gedetailleerd werd gekeken naar de resultaten bleken er verschillende trends zichtbaar te zijn. Wat betreft het aantal geneesmiddelen per dag, de EQ-5D-5L en valincidentie behaalde de interventiegroep schijnbaar betere resultaten ten opzichte van de controlegroep. Ondanks het ontbreken van een significant verschil, is het voor de klinische relevantie misschien toch interessant om dit verder te onderzoeken. De representativiteit van de onderzochte populatie kan hier uiteraard in vraag gesteld worden, gezien het klein aantal deelnemers. Het meten van effecten van interprofessioneel samenwerken dient meer op niveau van interprofessionele doelstellingen te gebeuren. Het is belangrijk dat voor elke patiënt binnen zijn of haar context naar de (zorg)doelstellingen gekeken wordt om te oordelen of interprofessioneel samenwerken als interventie, al dan niet een effect heeft voor bepaalde indicatoren van een welbepaalde patiënt.

De link tussen onderwijs, praktijk en onderzoek is uitermate belangrijk om kennis en ervaring met elkaar te delen om zo de kwaliteit van interprofessioneel samenwerken en zo ook de kwaliteit van zorg en onderwijs te kunnen blijven garanderen (hoofdstuk 6). Wanneer studenten in opleiding zijn, hebben ze de intentie om patiëntgericht te werken, maar het krijgt alleen zin als studenten het in de praktijk ervaren en het in de praktijk kunnen toepassen. In de praktijk is het dan weer belangrijk om interprofessionele doelstellingen per patiënt goed voor ogen te houden bij het evalueren van mogelijke effecten. Soms zal de patiënt zelf het ons zijn of haar doelstellingen niet kunnen vertellen. Om de nodige kennis en ervaringen met elkaar te kunnen delen is het belangrijk om een goede samenwerking te hebben tussen professionals en de patiënt met zijn/haar systeem. Onderwijsprogramma's en de praktijk moeten op elkaar worden afgestemd, om de volgende generatie samenwerkers in de gezondheidszorg voor te bereiden. Interprofessioneel leren samenwerken, impliceert ook professionele identiteit en de regels van het spel kennen. Elk lid van een interprofessioneel team, vertegenwoordigt een discipline. Daarom is het in interprofessioneel samenwerken belangrijk om elkaar interprofessioneel te leren kennen. Om dit te realiseren zouden curricula-ontwikkelaars van de verschillende onderwijsprogramma's en de praktijk moeten samenwerken.



Appendix

Appendix 1

Description of the competence 'collaborator in health care'



Expert → (h) recognizes the various professional-specific competencies within an interprofessional team

Core competences

- Knows its own profession-specific competencies and limitations.
- Knows the powers of other healthcare providers.
- Knows the powers of other healthcare providers.

Behavioural indicators

- Formulates the own boundaries in the field of professional expertise
- Observes, describes and acknowledges the roles and responsibilities of their own and other disciplines
- Conveys and functions with respect for the autonomy of the other professionals within the power limits

Communicator → Discusses and communicates within an interprofessional team

Core competences

- Develops a good understanding, trust and ethical therapeutic relationship with the client, the client system and other involved colleagues and other professionals.
- Shows relevant information and analyses it, taking into account the prospects of the client and colleagues and other professionals.
- Shares relevant information accurately and passes it on to the client, the client system, colleagues and other professionals.

- Develops a common understanding of problems and plans with the client, the client system and colleagues and other professionals in order to achieve a good interprofessional care plan.

Behavioural indicators

- Provides relevant information to other professionals in an understandable way to promote participation and discussion in decision making.
- Has an open communication style and thereby develops a constructive partnership.
- Involves the patient/client system to be an active participant in the interprofessional decision-making process.

Team player → takes part and takes responsibility in the team

Core competences

- Effective and appropriate participation in a team.
- Effectively work with other professionals for conflict prevention to promote quality care.
- Always maintains the client-centeredness in determining common goals for achieving an achievable and qualitative interprofessional care plan.

Behavioural indicators

- Participates actively and effectively in collaboration with members of the interprofessional team.
- Provides feedback and takes responsibility in the team.
- Handles contradictions, irritations, conflicts and recognizes its own share.

Manager → ensures that the team works efficiently and effectively

Core competences

- Participates in activities that contribute to promoting quality of care.
- Organizes and coordinates tasks.
- Takes up leadership and determine priorities in planning.
- Distributes and manages resources efficiently and correctly.
- Keeps up his/her administration and plans tasks efficiently and takes into account the available time and context.
- Applies a suitable leadership style.
- Participates actively in meetings and meetings as a participant or chairman.
- Motivates and evaluates the team continuously and sends where necessary

Behavioural indicators

- Empowers and encourages the group to work constructively on the task with attention to the socio-emotional aspect.
- Always keeps time and goal in mind when working on the task.
- Acts as chairman and ensures that the administration is kept up to date and communicated in a timely manner.

Health advocate → meets the interests of the client system in an appropriate manner

Core competences

- Recognizes and benefits the interests of the patient/client.
- Recognizes and benefits of the interests of teamwork.
- Contributes to the continuous improvement of health care in general.

Behavioural indicators

- Appoints the situation in which interest representation for the client system is necessary.
- Addresses the interests of the patient / client system within the team.
- Encourages the team to work together more for the benefit of the patient/client system.

Lifelong learning → Lifelong learning is a process whereby both individuals and organizations acquire the necessary knowledge and skills in all contexts of their professional skills to better manage tasks and interprofessional cooperation in a rapidly changing society and to be able to act critically, sincerely and responsibly.

Core competences

- Is open at all times to learn, also from experience
- Maintains and improves interprofessional activities continuously.
- Critically evaluates the findings and uses it appropriately when making decisions in a team context.
- Promotes appropriate learning of clients, families, students, residents and other healthcare professionals and ensures everyone is up to date.
- Contributes, here possible, to developing better, new and other opportunities for healthcare assistance.

Behavioural indicators

- Applies professional literature and relevant knowledge and integrates them into their professional activities
- Encourages and asks others to come to (new) insights and, on the basis thereof, take effective steps to improve this functioning.

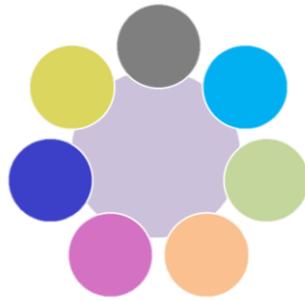
Professional → (in function of interprofessional collaboration) at all times shows 'professional behavior' aimed at improving interprofessional collaboration

Core competences

- Toont betrokkenheid met de cliënt, het cliëntsysteem, collega's en andere professionals.
- Considers his/her own possibilities and with those of others.
- Always focuses on the client.

Behavioural indicators

- Is constructive and cooperative towards the others, the assignment and themselves.
- Can put personal motives and / or goals of the own profession in perspective.



Dankwoord

Dankwoord

Het is gebeurd!

Mijn thesis is afgerond en gebundeld in een boekje. En ja, ik moet openbaar verdedigen. Terwijl ik dit nu schrijf weet ik ook niet hoe ik later ga terugblikken.

Ze hebben mij proberen wijsmaken dat het een mooi moment gaat zijn, dat ik fier zal zijn, dat ik ga genieten en ga zo maar door. Geen idee of dat allemaal klopt, ik weet alleen maar dat ik nu heel blij ben dat ik een antwoord heb op de vraag 'wanneer is jouw doctoraat nu eigenlijk af?'. Het is AF ☺.

Ik heb lang moeten wachten op mijn A1 publicaties. Dat vond ik persoonlijk nog het moeilijkste van het ganse traject. Alles ging vlot en redelijk op schema, behalve die A1 publicaties. Het doel was er drie te hebben en dan pas de definitieve afronding opstarten.

Onderweg heb ik hard genoten en heb ik heel veel interessante mensen ontmoet, veel nieuwe ervaringen opgedaan, veel nieuwe vaardigheden ontdekt en ontwikkeld. Mijn competentieprofiel is zeker op een hoger niveau geraakt.

Het is een eer dat ik mij mocht verdiepen in het thema, ik ben steeds meer en harder overtuigd van de meerwaarde van interprofessioneel samenwerken. Het is altijd aanwezig en vooral zoveel meer waard wanneer het naar de voorgrond treedt als reden van succes. Succes in betere zorg bieden, succes in een betere professional te zijn. Succes in beter begrijpen wie je bent als professional en tegelijkertijd ook beter begrijpen wie je bent als mens. Interprofessioneel samenwerken is voor mij een vorm van ZIJN geworden.

Het is dan ook fijn dat wanneer het over IPSIG gaat, velen dit met mij associëren. Fijn gevoel, maar niet helemaal juist. Het is niet ik, het is ook niet van mij, het is iets van, voor en over ons allemaal. Wij zijn allemaal IPSIG, interprofessioneel samenwerkers in de gezondheidszorg.

Voor mij begon het IPSIG-avontuur lang geleden in 2003. Nadine Callewaert, mijn collega van de opleiding ergotherapie vroeg mij mee op een vergadering als vertegenwoordiger vanuit de opleiding kinesitherapie. Geen enkele uitdaging was te groot en dus ging ik uiteraard in op de uitnodiging. Direct bij mijn eerste vergadering bleek ik het jongste lid te zijn (toen 30 jaar) van de stuurgroep module interdisciplinaire samenwerking. Zo heette het in het begin. Na een tweetal vergaderingen en nog steeds geen verslag van de eerste vergaderingen, bood ik aan om het verslag te schrijven. IJverig als ik was, had ik mijn laptop bij en nog voor iedereen het lokaal verlaten had, was het verslag in hun mailbox.

De naam van het project was ondertussen ook verder ontwikkeld naar interprofessionele samenwerking in de gezondheidszorg. Dus quasi idem aan wat het nu is. Ik kan niet snel typen en dus werd al snel de verkorte naam "IPSIG" gelanceerd. Dat deze afkorting nog steeds bestaat en gebruikt wordt, daar ben ik best fier op.

IPSIG is niet altijd even positief onthaald geweest in alle opleidingen. Het is een project waarbij er een zeer groot engagement wordt gevraagd van de deelnemende opleidingen. Het werd daarom ook steeds belangrijker om te staven wat de meerwaarde van een expliciete interprofessionele onderwijsmodule betekende. Ik hoop oprecht dat dit onderzoekproject een steentje bijdraagt om het belang van leren interprofessioneel samenwerken aan te tonen.

Dat was uiteraard niet mogelijk geweest zonder de hulp en het engagement van heel veel mensen.

In de eerste plaats wil ik toch wel een bijzondere dank betuigen aan prof. Paul Van Royen.

Ik leerde jouw kennen als een collega van de IPSIG-stuurgroep. Jij zei dat het "Paul" was en niet "professor". Paul, jij bent een zeer bijzondere promotor. Eerst werden wij samen de auteurs van het IPSIG-boek. Daarna werd ik junior-researcher in het KCE-project omtrent specifieke nekpijn. Daarna was je mijn promotor voor dit doctoraatsproject. Ondertussen was je ook mijn diensthoofd en later mijn decaan geworden. Het is een eer jouw doctoraatstudente te mogen zijn geweest. En ja ik mocht dat heel lang zijn ☺. Het is een eer om voor en met jou te mogen werken. Door jou heb ik mijn eerste 'echte' onderzoekservaringen opgedaan en mijn schrik voor schrijven toch kunnen verkleinen. Jouw geduld, deskundigheid en aanmoedigende woorden hebben mij geholpen te staan waar ik vandaag sta als doctoraatstudent, maar nog meer als professional. Onder jouw leiderschap heb ik mij mogen ontplooiën tot een onderwijs ontwikkelaar, coördinator, mijn eigen leiderschap verder mogen laten groeien, de durf te vinden om mijn expertise te delen met anderen. Een welgemeende hartelijk dank!

Prof. Meulemans Herman, ik kende jou niet. Ik had nog nooit van jou gehoord tot de dag dat Paul voorstelde om jou mee als promotor op te nemen. Hij garandeerde mij dat ik veel aan jou zou hebben. Niets was minder waar. Jij hebt een zeer bijzondere indruk op mij gemaakt. Je gaf steeds opmerkingen die voor mij compleet out of the box waren. Dat heeft mij zo sterk geholpen om nog meer en beter te begrijpen waar ik naartoe wilde. Jij moedigde me aan en gaf mee dat ik echt wel fier mag zijn. Jouw feedback was steeds to the point en tegelijk zacht. Bedankt voor jouw wijze woorden en coaching!

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Dit doctoraatsproject gaat niet enkel over interprofessioneel samenwerken, het is ook een product van interprofessioneel samenwerken. In mijn onderzoeksteam waren veel mensen betrokken, ik hoop niemand te vergeten. Maar weet dat ik jullie allemaal apprecieer.

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en kan ook openlijk boos, blij, bang en verdrietig zijn. Jij ben er eentje uit duizend. Dankjewel voor jouw oprechtheid en om er altijd onvoorwaardelijk voor mij te zijn. Jij weet dat dit wederzijds is. Dit is ook een beetje jouw doctoraat. Merci!

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IPSIG 1

Dit doctoraat was er nooit geweest, indien er geen IPSIG 1 was. Mijn bijzondere dank gaat naar de kerngroep die de belangrijke eerste fundamenten heeft gelegd voor IPSIG. Joke Denekens, Leo Bossaert, Anita Jorens, Ann Goffin, Piet Van Meel, Jos Geenen, Ann Van Put, Nadine Callewaert en Paul Van Royen, dank jullie wel allemaal!

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Lucky Botteldooren. Lucky, eerst was je gestart als IPSIG 1 tutor, later als stuurgroeplid en nu behoort je tot het kernteam van IPSIG 1, of beter gezegd ons IPSIG-angels team 😊. Jij noemt me steeds Mieke en bijouke en niet omdat je mijn naam niet kan onthouden, maar omdat je steeds tracht zacht te zijn wanneer de druk het hoogst is. Het is niet altijd even gemakkelijk om met mijn directheid om te gaan, maar ik ben je heel dankbaar dat je me nog altijd apprecieert en dat ik mag zijn wie ik ben bij jou. Merci voor alle mooie IPSIG-momenten en wij gaan er binnenkort echt werk van maken om met ons mannen samen te gaan eten! Merci voor alles!

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Hop naar de 15^{de} editie in 2019!

IPSI 2

Ook het IPSIG 2 team wil ik niet vergeten. IPSIG 2 is in 2010 van start gegaan. Het was een mooie interprofessionele uitdaging. Wij hebben getracht een antwoord te bieden aan de behoefte die deelnemers van IPSIG 1 hadden geuit over diepgang en persoonlijke ontwikkeling. Aan het huidige IPSIG 2 - team, Ellen Jeursen, Peter van Bogaert, Greta Moorkens, Erik Franck, Dirk Ysebaert, Olaf Timmermans, Jos Geenen, Nadine Callewaert, Jo De Puydt, Jacquéline Sturm, Marc Verschuere, Didier Boost, Kris Ides, Jo Lebeer, Evi Matthys, Martijn Verspuy, Sandrine Meynendonckx, Lieve Peremans, Stijn Sloomans, Kris Van den Broeck en Paul Van Royen, dank jullie wel allemaal.

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Zoi en Dimitri Tsakitsidis. Lieve zus en lieve broer. De afgelopen jaren hebben wij elkaar door ons druk leven niet veel gezien, maar we wisten elkaar altijd te vinden als wij elkaar nodig hadden. Ons telepatische verbinding is sterker dan eender welk wetenschappelijk onderzoek kan aantonen. Jullie zijn supergeweldig en ik zie jullie super mega graag XXX !

Agata, Nikolas, Johan, Tristan, Mathis en Zara, ook jullie zie ik uiteraard heel graag X !

Paul Kiebooms en Anna Willems. Liefste schoonouders, jullie hebben mij in 1995 mee opgenomen in jullie gezin alsof ik een van jullie eigen kinderen was. Wij, Roel en ik, konden steeds op jullie rekenen en ik heb veel van jullie geleerd. Initieel was het raar om jullie boma en oma te noemen, maar dat was wat jullie wensten en het klinkt als muziek in mijn oren. Jullie zijn dan ook zeer bijzondere schoonouders. Roel is jullie jongste zoon van zeven kinderen en ik heb het geluk gehad met hem mijn leven te mogen delen. Het is mij steeds bijgebleven dat jullie zowel Dafne als Ilias, respectievelijk kleinkinderen nummer 13 en 14 verwelkomden alsof het telkens de eerste keer was dat jullie grootouders werden. Dank jullie wel om mij een tweede thuis te geven!

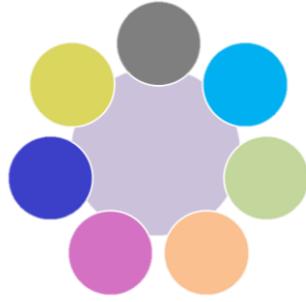
Konstantina Kalavris en Antonios Tsakitsidis. Allerliefste mama en papa, ik wil jullie een dikke proficiat wensen met hoe jullie erin geslaagd zijn alle drie jullie kinderen alle kansen te bieden om zich ten volle te kunnen ontwikkelen. Jullie zijn steeds in ons, in mij, blijven geloven en hebben ons steeds door dik en dun bijgestaan. Ik heb zoveel mooie waarden en normen van jullie meegekregen. Er moest altijd hard gewerkt worden, maar er moest ook altijd tiède gemaakt worden voor familie en feestjes. Genieten van het leven hier en nu en apprecieer wat je hebt en deel je geluk. Ik kan volmondig zeggen dat ik uit een warm nest kom. Ik wil jullie met heel mijn hart bedanken voor alles wat jullie voor mij, Roel, Dafne en Ilias hebben gedaan en nog steeds doen. Σας αγαπώ πολύ, xxx !

Dafne en Ilias Kiebooms. Mijn hartdiefjes 

Soms worden jullie mini-Giannoula en mini-Roel genoemd. Ik hoop dat jullie daar blij mee zijn ☺. Ik ben in ieder geval supertrots, blij en ongelooflijk gelukkig met jullie als mijn kinderen. Jullie hebben zoveel talenten en kwaliteiten dat ik niet anders kan dan alleen maar goeds over jullie vertellen. Jullie dagen mij ook steeds uit met jullie gevoel voor humor, vooral droge humor, hé Ilias. Het is niet altijd even duidelijk voor mij als moeder of ik het goed doe, maar ik weet dat jullie het in ieder geval fantastisch doen als mijn kinderen. Ik kan jullie wel doodknuffelen en vind het leuk dat jullie dat ook nog steeds leuk vinden. Ik weet dat ik heel veel weg ben voor mijn werk of voor de handbal, maar ik probeer er steeds te zijn wanneer jullie mij nodig hebben. Het boekje is eindelijk af. Dus tijd om city-trips te beginnen plannen ☺! Jullie zijn mijn alles, ik zie jullie graag xxx.

Roel Kiebooms. Roeleke, mijn allerliefste schat. Hoe kan ik jou ooit bedanken voor alles dat jij voor mij doet en betekent. En nee, het is nu niet de moment voor flauwe grapjes ☺, ik weet wat jij spontaan zou zeggen. Jij maakt van elke dag een fantastisch mooie dag. Ik verveel me nooit met jou, en je blijft me nog elke dag verrassen. Ik ben zo blij dat wij binnenkort zelfs ons 20 jarig huwelijk kunnen vieren. Moest ik opnieuw mogen beginnen, ik zou nog veel vroeger met je trouwen. Jij bent het beste dat mij ooit is overkomen, jij roept het beste in mij op. Wij hebben een tijdje samen een praktijk gehad, jij bent mijn trainer geweest, maar je bent bovenal mijn levenspartner. Alles wat ik ben geworden is dankzij jou. Je geeft me vrijheid, maar je wijst me ook op de grenzen. Vanaf het begin hebben wij alles samen gedaan en nog steeds is alles wat wij samen doen het beste dat wij doen. Roeleke, ik zie je graag en wil samen met jou stokoud worden xxx 





Curriculum Vitae

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Personal details

Giannoula Tsakitzidis
°05-07-1973, Maaseik

Married to Roel Kiebooms since 1998
Mother of Dafne (°21-03-2001) and Ilias (°27-12-2002)

Contact details at the University of Antwerp

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Education

Master in Physiotherapy (Lic. Motorische revalidatie en kinesithérapie) – KULeuven – 1998
Master in education (Aggregaat in de motorische revalidatie en kinesithérapie) – KULeuven – 2001

Specializations

Teacher - International classification of functioning disabilities and health - ICF- teach the teacher – 2012
Postgraduate bachelor: Reflective learning methods: supervision, coaching, intervision – Plantijn Hogeschool - 2007
Psychomotor therapist for children – IRSK- 2004
Kritische ontwikkelingsbegeleiding methode Hendrickx – 2003
Manual Therapist -VWMT- 2001

Clinical experience

Independent physiotherapist 1998- 2004
Physiotherapist for Belgian national handball team women 'Black Arrows' – since 2012

Educational activities

From 2001 to 2008 on : basic courses for the education programs bachelor and master in Physiotherapy and rehabilitation sciences (taping, communication, group dynamics, teambuilding, relaxations, functional anatomy)
From 2003 on: teacher of the tutors in the Interprofessional collaboration in health care module
From 2012 on: teacher in the international summer and winter course of Qualitative Research in Health Care
From 2014 on: teacher for the competence of collaborator for the education program for medicine and pharmacy students

Scientific activities

2017

A1 Publication

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Tsakitzidis Giannoula, Anthierens Sibyl, Timmermans Olaf, Truijten Steven, Meulemans Herman, Van Royen Paul

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[c:irua:143929]

Investigating empathy in interpreter-mediated simulated consultations : an explorative study

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MA3 author/co-author

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2012

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het kader van evidence-based medicine Jaarboek fysiotherapie/kinesithérapie - ISSN 0929-5062 - (2012), p. 103-112

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2011

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2009

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Tsakitzidis Giannoula, Remmen Roy, Peremans Lieve, van Royen Paul, Duchesnes Christiane, Paulus Dominique, Eyssen

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2008

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2002

A3 Publication

Nijs Jo, **Tsakitzidis Giannoula**, Lambeets G., Van de Velde B., Roussel Nathalie.- Academisering van de kinesitherapie : gevolgen voor het onderwijs en de kinesitherapeutische praktijk Tijdschrift voor fysieke therapie - 3(2002), p. 2-9

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