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Prenatal of Pregnant Adolescents Performed by Nurses in Primary Health Care

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Abstract

This study aims to identify the actions performed by nurses of the Family Health Strategy with the pregnancy cycle of adolescents and analyze if the actions developed by these nurses are focused on risk prevention in pregnancy and childbirth. It is a qualitative and exploratory research in basic health units with 12 nurses. A semi-structured interview technique was applied, and the speeches were analyzed using content analysis. In the analysis of the results, it was identified two thematic categories in which it was noted that nurses during the prenatal make the reception of pregnant adolescents differently and conduct guidelines on examination, signs and symptoms of possible complications during the pregnancy and still emphasize the importance of educational activities as groups of pregnant women to be a chance of coexistence and exchange of experiences, doubts, and anxieties among themselves. It is concluded that the care provided by nurses is fundamental for the pregnant adolescents having prenatal with more quality.

Keywords

Pregnancy in Adolescence, Nursing Care, Primary Health Care

1. Introduction

Adolescence is a period of transition between childhood and adulthood in which there is a quickly physical, cognitive, social and emotional maturation, to the extent that the boy is preparing to be a man and the girl to be a woman. It is difficult to set the limits of the adolescence, but this period is seen customarily starting with the gradual appearance

of secondary sexual characteristics, with approximately 11 or 12 years old and ending with cessation of body growth, with 18 to 20 [1].

In this complex phase of life, teenagers are susceptible to situations with the greatest exposure to conflicts, discoveries, and expectations, requiring the guidance of a multi-disciplinary team to help them overcome this important period of their lives. If it does not, there is a possibility of these adolescents be exposed to particular hardships in this age group, such as early pregnancy, sexually transmitted diseases, several accidents, illicit drug use, abuse, domestic violence, among many other problems [2].

The risk approach appears strongly associated with this age group through expressions such as pregnancy risk, for Sexually Transmitted Diseases (STDs) and AIDS and using illegal drugs. Thus, the general risk seems to define and circumscribe negatively this period of life, generating expressions, actions, and attitudes toward adolescents [3].

Adolescence is characterized by a series of transformations that characterize this complex period of transition, which can become even more difficult when a pregnancy occurs. To become a mother, the teenager interrupts the natural course of her age and faces numerous responsibilities. Teenage pregnancy becomes a transformative phenomenon that causes changes in the environment in which these young people are inserted [4].

This research sought to answer the following question: What are the health actions taken by nurses in primary care in the teenage in the pregnancy period?

Objectives

This research aimed to identify the actions performed by nurses of the Family Health Strategy with adolescents in the pregnancy cycle and analyze if the actions developed by these nurses are focused on risk prevention in pregnancy and childbirth.

2. Methods

2.1. Place

The research was conducted in the Basic Health Units in the city of Teresina that are part of the Regional Health of the southern zone of the municipality.

2.2. Inclusion and Exclusion Criteria

Inclusion criteria were nurses working in primary care in the Family Health Strategy and made a prenatal consultation for at least 1 year with adolescents and to accept joining the research. The exclusion criteria were nurses not performing prenatal consultation for at least 1 year in the Family Health Strategy and adolescents who did not accept to participate.

2.3. Risks

The research has no physical or psychological risks to participants.

2.4. Contributions of the State

Research aimed to analyze the actions developed with adolescents in primary care

appears every day to seek solutions to problems, for example, teenage pregnancy. It is hoped that this study is a reference material and contributes to direct managers on planning actions that will provide a healthy and productive life to adolescents.

2.5. Data Collection

Data collection occurred in the Basic Health Units (BHU) in Teresina. Data collection was carried out between September and October 2013. The study included twelve nurses working in the Family Health Strategy of the Teresina and monitor adolescents during the prenatal period. The sample closure was given by theoretical saturation, which is a continuous process of analyzing the data, taking place from the start of data collection. In this method the collection is closed when it is observed that little new information appears. A semi-structured interview containing a guiding question to answer the question of this study was carried out: "What are the actions that you develop with teenagers during the pregnancy period?" Accompanied by a structured form to characterize the participants, a pre-test to improve the instrument was applied previously to the collection data. The interviews were previously scheduled with nurses working in the basic health units being carried out by researchers in the nursing. The average time of interview offices took 30 minutes.

2.6. Data Analysis

For processing and analyzing the data, the thematic content analysis technique was used through three chronological poles: the pre-analysis; exploration of the material and the processing of the results; inference and interpretation [5]. Initially, there was the constitution of the corpus, the perusal of all the material, the reporting units being identified, encoding them to group them together by similarities and thus preparing the analytical categories. Respondents were referred as E1, E2, and so on to protect the anonymity of the participants.

2.7. Ethical Aspects

This project was developed by Resolution 466/12 of the National Health Council (CNS), which refers to research human beings. The project was sent to the ethics committee of the municipality of Teresina Municipal Health Foundation for authorization of collection. This survey of data was approved by the Research Ethics Committee of the State University of Ceará in the number of CAAE-11867612.0.0000.5534 Protocol on 04 September 2013. The subjects were interviewed after accepting to participate in the research by signing the Inform Agreement Consent.

3. Result and Analysis

Most nurses were female and the average age of survey participants was 30 years to 56 years old and from 12 nurses interviewed, 10 of them have 10 or more years of training and most have been working in the family health strategy for at least 10 years noticing that it is a population that already has plenty of experience in the Family Health Strategy.

Two categories were listed to facilitate the understanding of health actions carried out by the Family Health Strategy nurses with adolescents during the prenatal.

3.1. Differentiated Prenatal Care for Adolescents

In this category, it was observed that the professionals interviewed have a concern to a different prenatal care, given that it is a pregnant adolescent needing careful attention, emphasizing the importance of family support and her partner in this moment of findings and questions for them. They consider that at the time of consultation only the scientific part should not be prioritized. Listening and host for this pregnant should be involved in the consultation creating a bond with the professionals who work in the team and not abandon the prenatal as can be seen in the following excerpts from the interviews:

I try to have a view of teen life if she lives with her parents if the current pregnancy was accepted by the family. What she is going through at that time, which the living conditions are, the prospects for life if she will want to raise the child or not (E6).

It is a very time-consuming consultation because they have many questions. Even those adolescents who already have a child, they are full of doubts, very inexperienced. So, I prioritize the orientation of pregnant women. Another care I have is to make a more detailed medical history due to a requirement of the Ministry of Health saying that adolescence is a risk factor for pregnancy (E2). I try to dispense with a more careful look at this woman. I try to keep a rapprochement with a teenager to win greater trust her and her family (E7).

The nursing consultation on women pregnant gives the opportunity to treat the individual in a general context and analyze their physical, psychological and social aspects. It is an occasion for dialogue when nurses and pregnant women can set goals and objectives to be achieved, among them educational activities to a woman in pregnancy process and monitoring the development of pregnancy [6].

Adolescents feel less valued by the family, especially in cases where the family reacted badly to the news of pregnancy. Most of them have low self-esteem, high levels of stress, depressive symptoms and psychological distress. Thus, to feel understood and supported in this difficult phase of their lives, the pregnant adolescent need a space to express and share feelings, doubts, and fears, even if the idle time when waiting for prenatal consultation [7]. During the interviews, it was observed that some nurses had this concern whether the family accepted or not pregnancy of this teenager.

Doctors and nurses have a key role in the care of a pregnant adolescent with distinct characteristics of the adult pregnant. As members of the support network for women, they need to understand the physical, emotional and social changes experienced by teenagers, the resources that they have and what their ways of coping with these situations [3].

During the interview participants reported health actions that developed in prenatal

care as we can see in the following reports:

In prenatal consultation, I guide on hygiene, feeding, breastfeeding. Forward to the dentist and have scheduled leave cytology. After the 1st consultation team makes a home visit and sees the family context and from there they make the necessary interventions to make the visit because the team approaches the reality. Moreover, this visit is just done for pregnant adolescent (E8).

In the consultation, I ask all the tests, examine the mother, guide on uterine growth, speak what is the reference maternity also guiding about eating what they should do and what they should do at least six prenatal consultations is recommended by the Ministry of Health. I also speak about the indiscriminate use of medication without a prescription, the importance of using ferrous sulfate and folic acid, immunization regarding vaccines Dt and Hep B and also on the delivery signals (E12).

During the consultation, I request all routine prenatal exams. I guide on immunization, breastfeeding, danger signs such as bleeding and loss of amniotic fluid, breast care, and nutrition (E10).

So, the fact that they are teenagers, I emphasize more in the guidelines during prenatal consultations. Also, I guide on the child's card, the 1st child consultation and also on the return visit after delivery to do an evaluation (E11).

The pregnant adolescent expects prenatal care above their needs clarification on the gestational process and guides for the care to ensure a healthy pregnancy and a safe delivery. She waits still receive support for coping with personal problems and get the confidence not to be influenced by contradictory information, usually obtained in their living circle [8].

Professionals who accompany women in prenatal care, including nurses, should elaborate pregnant women care plan, according to the identified and prioritized needs, establishing interventions, guidance, and referrals to reference services, promoting interdisciplinarity of actions with medicine, dentistry, nursing, social work and psychology. It is important that health professionals communicate with pregnant women to include other professional and their need monitoring to prenatal care. This approach establishes links are transmitting confidence to women, reducing anxiety and making the mother feel valued. A multidisciplinary team with good interpersonal relationships has greater autonomy to coordinate activities aimed at pregnant women, from the beginning of prenatal care to the postpartum period [9].

3.2. Inclusion of Pregnant Teenagers in Educational Groups

When nurses reflect on their practices, they highlight the importance of educational groups of pregnant women, such as a moment of teenagers share information with other adult pregnant women and even among them, learning from the various topics discussed in groups and asking questions in a different environment that the consultation room as mentioned in the following statements:

There is a project here that is called Project Welcome to Life. A health education week is done with adolescents and this week the team focused on family planning to the issue of pregnancy and throughout the period of pregnancy that goes from labor to the postpartum period. On the last day, we took the pregnant women in the maternity ward to know the environment in which will be done the delivery and offer a trousseau as an incentive for pregnant women that attend the course (E1).

I do the inclusion of it in the pregnant group because I think that the exchange of experiences with other pregnant teens is not important, then it is included in the group of other women (E10).

At this moment, we are not having educational group activities with pregnant women. We are just doing the nursing consultation. They ask me when the pregnant group will start, and I answer soon because I think it is very important that exchange of experience between them (E11).

Unfortunately, we do not have health education groups because our physical structure does not give us the possibility to carry out a group for lack of space. I know that these health education groups are important at this time of life of pregnant women (E5).

Nurses recognize the importance of meetings of the group of pregnant women and some regret for not having a physical structure to hold these meetings in their basic health units. Although the ESF priorities promotion and recovery of health of the individual and his family, given effecting a new dynamic of work, providing comprehensive and quality care to the population, it became clear how difficult it is to conquer the audience for this process job. One obstacle that exists in the care of the nurse is the professional distance with everyday pregnant, her family and other social factors that are part of their daily lives. Thus, the reality experienced by the nurse in the prenatal context requires the creation of the link as a unique step to quality care.

Starting from the assumption that humanistic education is a dialogical-dialectical process in which all teach and learn, the relationships established between health professionals and service users, are pedagogical relationships [10]. In this sense, prenatal is shown as a field conducive to the development of education as a dimension of the care process.

Educational activities in health, developed in collective contexts and with the participation of individuals in common life situation, may be a preferred method of empowerment of individuals through a mutual process of teaching and learning. The host and the bond produced in these group interventions are also contributors to the production of the individual's autonomy in health. Promoting reflections focused on the construction, related to the meanings and reinterpretation of pregnancy experiences and the sense of responsibility of pregnant adolescents make them subject to the care process of them and their children. The wealth of this practice is to promote decision-making "conscious" for pregnant adolescents [11]. Although the ESF priorities promotion and recovery of health of the individual and her family, given effecting a

new dynamic of work, providing comprehensive and quality care to the population, it became clear how difficult it is to conquer the audience for this process. However, it is insisted on the formation of the group of pregnant women as it is in this dynamic environment that the promotion of full individual, collective health of pregnant women can be performed by the interactions and sharing among subjects with experiences/common experiences. Join group allows a woman to be pregnant-multiplier of knowledge, and this becomes an important strategy to promote healthy pregnancy and delivery and postpartum period [6].

4. Final Considerations

The study found that the actions developed by nurses were essential aspects that must exist in the relationship health professional and patients, such as conversation, listening, sharing ideas, demonstration of concern and expression of affection, attention to doubts and anxieties and also other aspects that are valued in holistic care.

The importance of educational groups as a moment of encounter where teens share their doubts, anxieties and experiences are highlighted also being a time to promote health education through the guidelines and actions performed. Nurses have a key role in the prenatal care of pregnant adolescents, to work in the family health strategy with health promotion and disease prevention, thus providing a differentiated service by creating the bond and the host promoting health care free of harm to the mother and her child.

5. Conclusion

I conclude that the care provided by nurses in primary care is very important for adolescents during the prenatal since the care and guidelines for adolescents are important to avoid complications during pregnancy, childbirth and postpartum providing quality care for mother and son. The study has the limitation of not proof of health actions reported by respondents considering that the object of study was limited to analyzing the health actions of the nurses informed through the same interview.

References

- [1] Hockenberry, M.J. (2014) Wong Pediatric Nursing Fundamentals. 9ª edição, Mosby Elsevier, Rio de Janeiro.
- [2] Malagutti, W. and Bergo, M.A. (2009) Adolescents: A Multidisciplinary Approach. 1ª edição, Martinari, São Paulo.
- [3] Buendgens, B.B. and Zampieri, M.F.M. (2012) Pregnant Teen in Doctors and Nurses Perception of Primary. *Escola Anna Nery*, **16**, 64-72.
- [4] Fernandes, A.O., Júnior, H.P.O. and Gualda, D.M.R. (2012) Teenage Pregnancy: Perceptions of Mothers of Young Pregnant Women. *Acta Paulista de Enfermagem*, **25**, 55-60. <http://dx.doi.org/10.1590/S0103-21002012000100010>
- [5] Bardin, L. (2011) Content Analysis. 4ª edição, Edições70, Lisboa.
- [6] Lima, S.S. (2013) Nursing Prenatal Low Risk in the Family Health Strategy. *Aquichan*, **13**, 261-269. <http://dx.doi.org/10.5294/aqui.2013.13.2.11>

- [7] Alves, A., Albino, A.T. and Zampieri, M.F.M. (2011) A Look of Teenagers about the Changes in Pregnancy: Promoting Mental Health in Primary Care. *Revista Mineira de Enfermagem*, **15**, 545-555.
- [8] Vieira, S.M., Bock, L.F., Zocche, D.A. and Pessota, C.U. (2011) Perception of Mothers on Assistance Provided by the Health Team Prenatally. *Texto Contexto Enfermagem*, **20**, 255-262. <http://dx.doi.org/10.1590/S0104-07072011000500032>
- [9] Melo, M.C.P. and Coelho, E.A.C.(2011) Completeness and Care to Pregnant Adolescents in Primary Care. *Revista Ciência & Saúde Coletiva*, **16**, 2549-2558. <http://dx.doi.org/10.1590/S1413-81232011000500025>
- [10] Freire, P. *Pedagogy of the Oppressed*.(2011) 50ª edição, Paz e Terra,São Paulo.
- [11] Santos, M.M.A.S., Saunders, C. and Baião, M.R. (2012) The Relationship between Health Professionals and Pregnant Adolescent: Distancing and Approximations of a Full Practice and Humanized. *Revista Ciência & Saúde Coletiva*, **17**, 775-786. <http://dx.doi.org/10.1590/S1413-81232012000300025>



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Health Care Personnel's Attitude toward Hand Hygiene in Regard to the Prevention of Health-Care Associated Infections: A Cross Sectional Study at the University Hospital Pristine

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Abstract

Background: Hand hygiene is the leading measure for preventing the spread of antimicrobial resistance and reducing healthcare-associated infections, but health care worker compliance with optimal practices remains low in most settings. **Objective:** The main aim of this paper is to determine findings and start drafting policies in implementing them into practice after finding out nurses' opinions, beliefs and attitudes toward hand hygiene (HH). **Methodology and methods:** A cross sectional descriptive and observational study during November 2009. **Results:** From the total number of 175 health care workers employed in this unit, 67 (38.3%) were observed regarding adherence to hand hygiene. Regarding the knowledge, practices and attitudes of the nurses, data were collected from 54 (50.0%) among 108 nurses in four intensive care units within the University Clinical Centre of Kosovo (UCCCK). From research findings, it was concluded that hand hygiene compliance in the intensive care units was low (51.3%). **Conclusion:** Research results show the necessity of organizing multimodal programs with intensive care units of University Clinical Centre of Kosovo (UCCCK) on increase of knowledge level on health-care associated infections (HAI).

Keywords

Health-Care Associated Infections, Hand Hygiene, Intensive Care Units

1. Introduction

Kosovo is a country with a surface of 10.877 km² and over 2.5 million population with an average age of 24 and with a gender structure slightly in a favor of males (50.5%).

More than half of the population (53%) is younger than 25 [1]. Kosovo declared its independence in February 2008 and it is one of the poorest countries of Europe. Communicable diseases in Kosovo are still the largest ongoing healthcare problem. The annual per-capita government expenditure on healthcare is only 45\$ [2].

University Clinical Centre of Kosovo (UCCCK) is the only centre of tertiary care in Kosovo. It has got 2400 beds. Three most frequent groups of diseases recorded in the UCCCK during 2005 were as following: respiratory system diseases with 11.84% of the cases, bloodstream infections with 9.80% and the third in range were infectious diseases with 8.03% [3].

Kosovo is part of the International Nosocomial Infection Control Consortium (INICC) through participation in the project: prospective, multi-centre study evaluating costs, risk factors, and rates of Hospital-acquired infections (HAI) in UCUs, which includes 75 hospitals in 24 countries from four continents [4].

2. Literature Review

The infection has to be differentiated from colonization that means continuance of the presence of microorganism in the skin, body fluids and bodily tissues however, without clinical repercussions [5]. HAIs are called those infections that a patient caught while hospitalized, while being cured for any other disease [6]. Hospital-acquired infections are called also Nosocomial Infections. In 1843 a Hungarian obstetric established foundations of the discipline of infection control and hospital epidemiology by recommending hand washing method by chlorinated water in order to prevent and reduce incidence of puerperal fevers [7]. While, in 1867 Joseph Lister, by conducting a study on the role of bacteria in infectious of surgical wounds and use of antiseptic sprays in the surgery theatres, established principles of sepsis and antisepsis [8].

Many studies have shown a positive correlation between increase of hand hygiene and reduction of hospital acquired infections [9]. Proper hand hygiene is an efficient method of prevention against spreading microorganism among health staff and the patients [10]. The risk of HAI is 2 to 20 times higher in developing than in developed countries [11]. While reviewing published reports on impact of infection control programs 1990-2002, was found that HAI can be prevented from 10% to 70% [12]. Thus, in the Intensive Care Unit in San Paulo Clinic, Brazil, was noticed a decline of 71% of all HAI following the implementation of HAI Infections Control Program, whereby were saved 2 million dollars [13].

High rate of incidence of bacterial infections in the intensive care unit might be a consequence of improper facility where is located this unit, as well as failure to meet criteria envisaged by SCCM (the society of critical care medicine) for architecture of intensive care unit. According to the criteria, intensive care unit must be a special unit within the hospital with safeguarded access. There shouldn't be allowed any possible access through this unit to the other ones [14]. In Kosovo, all microbiological tests and analysis are performed in the National Institute of Public Health that is located in a remote facility away from intensive care unit. Therefore, the great possibility for con-

tamination enhancement exists.

If implemented as it is supposed to, hand hygiene can reduce microbial pathogens and cross transmission of infections to community as well as to the health care workers [15]. Thus, it is not only the patients that are subject to hospital acquired infections however; both doctors and nurses are exposed to this risk. A research conducted in Pristine collected opinions of the nurses. Out of the total number of the respondents 78% of them stated that there exist health risk factors in their work place. 72% agreed that chemical factors are also a great risk that endangers the health of health care workers and 91% of them agreed that they were exposed to biological risk factors (bacteria, viruses, etc), while only 19% always wore gloves when dealing with body secretions [16].

To be successful in increasing compliance, a multimodal strategy should be implemented where should be included at least 5 components: education of staff; monitoring of practices; information on performance; adoption of a regulation of institutional security and finally use of alcohol based hand rub, pursuant to the new patient care [17]. Effectiveness of alcohol based hand rub compared to hands washing with soap is shown by many authors' research [18].

Data of various authors speak differently about the importance of multimodal programs on promotion of hand hygiene by measuring compliance before and after implementation of those programs. Thus "My five moments for hand hygiene" bridges the gap between scientific evidence and daily health practice and provides a solid basis to understand, teach, monitor and report hand hygiene practices [19]. Another study showed that the only motivation factor for hand hygiene compliance was training on hand hygiene [20]. Also Lam, Lee, & Lau (2004) showed that a problem based and task orientated education program can improve hand hygiene compliance [21]. Furthermore, a number of other studies have shown that educational programs can effectively increase knowledge, positive attitudes and appropriate practice to ensure compliance with international protocols and regulations for the prevention and control of NI [22] [23].

3. Methodology and Methods

A cross-sectional descriptive and observational study was used in order to cover all elements of research purposes. This research method was chosen because of its suitability to present information on current situation [24]. A structured questionnaire was designed to conduct this research and elicit written responses about attitudes, beliefs, opinions, compliance, barriers and motivation to comply with hand hygiene guidelines.

3.1. Credibility and Validity

The paper aimed implementation of a part of WHO Campaign "Clean Care is safer Care and Save Live" which so far has been implemented in 121 countries of the world, while this was the first time of such an activity to take place in Kosovo. This campaign is composed of the multimodal strategy and is split into five scopes of application as

follows:

- 1) Tools for System Change
- 2) Tools for Training/Education
- 3) Tools for Evaluation and Feedback
- 4) Tools for reminders in the workplace
- 5) Tools for Institutional Safety Climate.

I have chosen the third area “Tools for Evaluation and Feedback”, which has in total eight questionnaires, however only five of them were selected as follows:

- 1) Observation Form and Compliance Calculation Form—to monitor hand hygiene.
- 2) Ward Infrastructure Survey—to collect data about structures and resources at ward level
- 3) Soap/Hand rub Consumption Survey—to capture data on usage of hand hygiene resources
- 4) Perception Survey for Health-care Workers—to assess perceptions of health care-associated infection and hand hygiene
- 5) Hand Hygiene Knowledge questionnaire for Health-Care Workers—to assess knowledge on the essential aspects of HH.

From these questionnaires was conceived a single questionnaire to synthesize sufficient information about usage of HH resources and infrastructure; about hand hygiene actions and compliance calculation; about perception and hand hygiene knowledge of health care workers.

3.2. Sample

Participants, as a part of the research group had enough time to fill questionnaire starting from 19-27 November 2009. There was a satisfactory response corresponding to the distributed number. 54 nurses (100%) and 4 (100%) senior managers in four intensive care units of the University Clinical Centre of Kosovo volunteered to participate in the survey during November 2009. As regards knowledge, attitudes and practices of the nurses, data were collected from a sample of 54 among of 108 nurses in four intensive care units within UCKK. Also, for implementation of hand hygiene it was conducted surveillance of infrastructure of the units and the health care workers. Out of the total number of 175 health care workers employed in the units, 67 (38.3%) were observed.

Before 2006, education level of nurses in Kosovo was mainly medical high school. But after 2006, education level changed by increasing the number of nurses with higher education (bachelor degree). The four senior managers had finished high school and they had 10 to 20 years working experience on nursing. While among 54 nurses, 30 of them had finished nursing high school and 24 high school of nursing. 15 nurses had 10 - 20 years working experience, 4 nurses had over 20 years of work and 35 nurses had less than 10 years working experience.

Data collected through questionnaires were analyzed by using statistical program SPSS version 17.0. Some of them were coded from 1 to 7 point rating of Likert scale. Study design is shown in **Figure 1**.

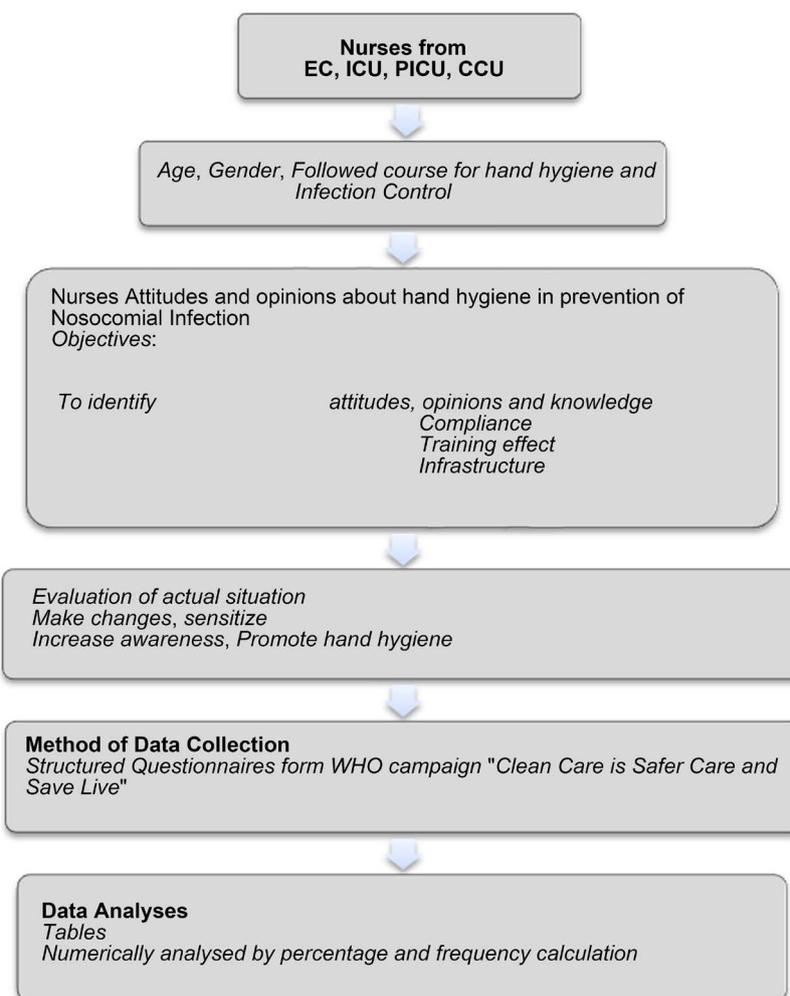


Figure 1. Design of the study.

3.3. Ethical Issues

In order to implement those questionnaires, I have asked for permission and addressed to WHO Europe Office in Copenhagen. After obtaining the approval from WHO on 10/26/2009, I have proceeded with translation of questionnaires from English into Albanian and vice versa in order to measure validity of the questionnaire and preserve comprehensiveness of the questions. Permission for conducting this research was obtained from nursing director prior starting with collection of data since Kosovo hospitals had no ethical committees until then. Together with UCCK Nursing Director, we assigned units where to implement and conduct observation of the questionnaires.

The participants were guaranteed complete discretion. Each and every participant was informed about the aim of the research through a cover letter. Also, my signature and contact address was included in the cover letter. The questionnaire was anonymous and with instructions how to fill it out. Participants were promised that the questionnaires would be destroyed after the data analysis.

4. Results

Four intensive care units within University Hospital Pristine were included in the observation: main intensive care unit, coronary unit, post intensive unit and emergency center. In the post intensive care observation were four beds; 14 nurses and 4 doctors. During observation there were observed 6 practitioners. In the main intensive care were 14 beds; 40 nurses; 17 doctors and 4 assistants; and there were observed 16 health care workers. Emergency center had 17 beds; 40 nurses; 10 doctors and 25 assistants; and there were observed 41 health care workers. While in the coronary unit were 13 beds, 14 nurses, 5 doctors and there were observed 4 health care workers.

4.1. Infrastructure and Usage of HH Resources

Supply of those four units by hygiene products is carried out by central level on regular basis. Alcohol based hand rub (liquid) was used in all units. In the emergency center and in the main intensive center was used medical soap (average use of 100 L); in the post intensive unit and in the coronary unit was used liquid (respectively average use of 10 L and 13 L). There was available tap water in all units on regular basis. According to the senior managers, single use towels and alcohol based hand rub were available time after time, and not all rooms were equipped with them. Next to every washbasin were displayed posters of hand washing technique.

4.2. Observation Results of Hand Hygiene Actions and Compliance Evaluation

Out of 175 health care workers, 67 (38.3%) were observed during their performance. There were observed 312 actions out of which vast majority of 100 (31%) after body fluid exposure risk, 65 (21%) before touching a patient, 59 (19%) after touching a patient, 54 (18%) after touching patient surroundings and 34 (11%) before clean/aseptic procedure.

Compliance of 67 observed nurses for hand hygiene was 51.3%; the highest compliance was after body fluid exposure risk (93.0%) and gloves were used most frequently after body fluid exposure risk by 35 (53.0% of respondents). In other cases, the compliance was much lower than 50.0%. Thus, compliance after touching a patient was 44.1%; after touching patient surroundings 38.9%; before clean/aseptic procedure 23.5% and the lowest before touching a patient 18.5% (**Table 1**). To evaluate compliance was used the following formula:

$$\text{Compliance} = \text{Hand hygiene actions performed} / \text{hand hygiene action required}$$

4.3. Results Regarding Perception Survey

In this survey were involved 54 nurses as sample. Out of them 44 (81.5%) were females and 10 (18.5%) males. Average age of the involved nurses in the survey was 25.3 years old (SD \pm 5.4 yr), median 25 years. The youngest nurse was 19 years old and the oldest one was 47 years old. Intensive care unit sample of nurses was 10 (18.5%), coronary unit 9 (16.7%), post intensive unit 4 (7.4%), emergency center 10 (18.5%) and nurse

students 21 (38.9%). 19 (35.2%) nurses had taken formal training on hand hygiene. 39 (72.2% of respondents) answered positively when they were asked if they used routinely an alcohol based hand rub for hand hygiene.

Out of all the actions on improving hand hygiene mentioned in **Table 2**, 35 (64.8%) nurses agreed with hand hygiene performing as recommended (being a good example for your colleagues) as the most effective action to improve hand hygiene in institution. This is shown by the highest average of a point rating scale 5.6. Then as the second most effective action for 29 (53.7% of respondents) was “Hand hygiene posters are displayed at point of care as reminders”, followed by other actions as shown in **Table 2**.

Table 1. Compliance evaluation.

	Compliance
Before touching a patient	18.5%
Before clean/aseptic procedure	23.5%
After body fluid exposure risk	93.0%
After touching a patient	44.1%
After touching patient surroundings	38.9%
Total	51.3%

Table 2. Effective actions to improve HH.

How effective would the following actions be to improve HH permanently in your institution?		1-Not effective	2	3	4	5	6	7-Very effective	mean
Leaders and SM at your institution support and openly promote HH	N	6	6	8	10	3	5	16	4.4
	%	11.1	11.1	14.8	18.5	5.6	9.3	29.6	
The HCF makes AHR always available at each point of care	N	5	4	7	15	6	2	15	4.5
	%	9.3	7.4	13	27.8	11.1	3.7	27.8	
HH posters are displayed at point of care as reminders	N	1	5	7	5	5	2	29	5.4
	%	1.9	9.3	13	9.3	9.3	3.7	53.7	
Each HCW receives education on HH	N	6	3	10	10	5	5	15	4.5
	%	11.1	5.6	18.5	18.5	9.3	9.3	27.8	
Clear and simple instructions for HH are made visible for every HCW	N	3	3	9	5	4	5	25	5.2
	%	5.6	5.6	16.7	9.3	7.4	9.3	46.3	
HCW regularly receive feedback on their HH performance	N	6	1	15	9	2	4	17	4.5
	%	11.1	1.9	27.8	16.7	3.7	7.4	31.5	
You always perform HH as recommended (being a good example for your colleagues)	N	3		9	5	2		35	5.6
	%	5.6		16.7	9.3	3.7		64.8	
Patients are invited to remind HCW to perform HH	N	15	4	11	9	1	1	13	3.6
	%	27.8	7.4	20.4	16.7	1.9	1.9	24.1	

Vast majority of nurses, 30 (57.4%) answered that their hands tolerate very well alcohol based hand rubs. 27 (50% of respondents) perceived hand hygiene observation in their ward as a helpful tool to improve hand hygiene for themselves and their colleagues. Regarding the question “Has the fact of being observed made you paying more attention to your hand hygiene?” 26 nurses or 48.1% of respondents answered very much.

4.4. Results Regarding Hand Hygiene Knowledge

45 (83.3%) participants were aware that health care workers hands when not clean are the main route of cross-transmission of potentially harmful germs between patients in a health care facility. The others answered: on air circulating in the hospital only 3 (5.6%), on patients’ exposure to colonized surfaces only 2 (3.7%), on sharing non-invasive objects 4 (7.4%).

Vast majority of respondents 31 (57.4%) chose hospital environment as the most frequent source of germs responsible for health care associated infections, followed by other answers as “germs already present on or within the patient” from 12 (22.2%), hospital’s water system from 8 (14.8%) and hospital air only 3 (5.6%).

Regarding the hand hygiene actions that prevent transmission of germs to patient, 46 (85.2% of respondents) answered correctly “before touching a patient”, 7 (13%) answered correctly “No, immediately after a risk of body fluid exposure”, 44 (81.5%) answered correctly “after exposure to the immediate surroundings of a patient” and 8 (14.8%) answered correctly “No, immediately before a clean/aseptic procedure”. This means that a considerable number of nurses not knew the right answer.

Level of knowledge on use of alcohol hand rubbing and hand washing was rather low. On statement “hand rubbing is more rapid for hand cleansing than hand washing” 21 (38.9%) answered correctly (True statement); on statement “ hand rubbing causes skin dryness more than hand washing”, 17 (31.5%) answered correctly (False statement); on statement “ hand rubbing is more effective against germs than hand washing”, 12 (22.2%) answered correctly (True statement) and on the last statement “hand washing and hand rubbing are recommended to be performed in sequence” only 5 (9.3%) answered correctly (False statement).

Regarding the minimal time needed for alcohol hand rubbing to kill most germs on hands, 12 (22.2%) answered correctly (20 seconds).

Level of knowledge on hand hygiene methods that should be used in different situations is not satisfactory. Only 18 (33.3%) gave the right answer regarding before palpation of the abdomen (rubbing), before giving an injection only 6 (11.1%) gave the right answer rubbing, after emptying a bedpan (rubbing) only 3 (5.6%) answered correctly, after removing examination gloves (rubbing) only 8 (14.8%) answered correctly, after making a patient’s bed” (rubbing) only 3 (5.6%) answered correctly and the last one regarding “after visible exposure to blood” 33 (61.1%) answered correctly (washing).

5. Discussion

Another topic on the attitudes of health care workers related to hand hygiene in

prevention of intra hospital infections has not been surveyed earlier in the University Clinical Center of Kosovo. Those circumstances make impossible comparison of the research findings to the institutional preliminary data. Results of the research show that in the intensive care units within University Hospital in Pristine exists a very weak infrastructure with a very poor supply of hand hygiene maintenance products, low level of knowledge on HAI, routes and transmission possibilities of those infections associated with low scale of hand hygiene compliance.

Furthermore, it's been registered a low level of knowledge on hand washing techniques. Nurses involved in the study think that the managers have an important role to play as regards increase of hand hygiene compliance, observation and educational programs. Also, research results show the necessity of organizing multimodal programs with intensive care units of UCCK on increase of knowledge level on HAI and importance of hand hygiene for prevention of those infections. Data analysis yielded valuable information about the key elements like attitudes, beliefs, opinions and knowledge of the phenomenon studied. Those accomplishment are very important, because so far in Kosovo, has never been implemented the strategy "Clean hands are safer hands".

From research findings it is concluded that hand hygiene compliance in the intensive care unit was low (51.3%). Findings revealed that the highest compliance was 93.0% after body fluid exposure risk. In other cases the compliance was lesser than 50.0%. However, there is poor compliance with hand hygiene regulations by healthcare workers all over the world, and all studies conducted in hospitals suggest that the frequency of compliance is lower than 50.0% of the opportunities in which the practice is considered a priority [25]. Thus, Saint, *et al.* (2009) reported low compliance of hand hygiene (56.0%) in one region in Italy (Tuscany) similarly to my data [26]. The data highlighted that nurses were conscientious in their approach to infection prevention and control. Referring to the results, majority of the respondents 45 (83.3%) considered hand hygiene as necessary measure to prevent infection. Very small number is aware about the most frequent source of infection 12 (22.2%). Only 8 (14.8%) knew that they had to perform hand washing immediately before a clean/aseptic procedure. There are different factors contributing to low levels of hand hygiene compliance such as: lack of knowledge of the importance of preventing HAIs, heavy workload, lack of understanding the appropriate techniques involved, etc.

Research conducted in the University Hospitals are individual researches for studying purposes and are not organized by the management, therefore in most cases there is no feedback. Most of the respondents 45 (83.3%) were aware that health care workers hands when not clean are the main route of cross-transmission of potentially harmful germs between patients in a Health Care Facility. The right answer, the germs already on or within the patient was given only by 12 (22.2%). According to Boyce, (2001) hand cleansing with alcohol solutions can cause irritant and dry skin based on the products where alcohol based products did not contain emollients since products containing emollients cause less damage to the skin [27]. Thus, based on these findings, 30 (57.4%) nurses involved in the study answered that their hands tolerate quite well alcohol based

solutions. That means that UCCK health care workers either do not perform regular alcohol based hand rub or they use alcohol solution containing emollients.

Gloves were used most frequently 35 (53.0%) after body fluid exposure risk, while in a study of Nobile, Montuori, Diaco, & Villari (2002) 165 (60%) wore gloves while providing health care [28].

6. Conclusions

The results of this study show that we should get started with policy drafting and their implementation into practice with a scope to sensitize health care workers aiming enhancement of hand hygiene compliance in the hospital. Health care workers' hands are the most common transmission source of healthcare-associated pathogens from patient to patient and within the healthcare environment.

Moreover, research findings show that there is a shortage of regular supply with hygiene adherence means and the architectonics of intensive care units does not meet conditions according to the standards. As well would be beneficial organizing short-term trainings on hand hygiene and infection control with participation of nonmedical staff (cleaners and kitchen service).

Besides novelties that brought this paper to local literature, the study had several limitations. One of the limitations was the sample size, which was very small (54 nurses). In order for the findings to be representative of the entire population of health care workers, it is necessary to take into account a greater sample and representative. Another limitation was the time period in which observation was conducted. It would be preferable to extend the time period in order to get fruitful results.

Referred to the research data of this study one recommendation to increase hand hygiene among nurses in the hospital is drafting policies and guidelines in order to regulate the necessity of hand hygiene in medical settings. Education of nurses on promoting hand hygiene washing should be conducted consecutively each year. Health care workers should be supplied all the time with hygienic stuff in all places in the hospital. These supplies should include liquid soap, paper towels for hand drying, etc. Infection control committee should monitor nurses during their daily work. Research results showed that full implementation of WHO campaign "Clean Care is Safer Care and Save lives" is the indispensable for Kosovo. To date the campaign has been implemented over 121 countries of the world.

References

- [1] SOK (2005) Vital Statistics in Kosovo for Year 2004. Statistical Office of Kosovo, Pristine.
- [2] Raka, L., Zoutman, D., Mulliqi, G., Krasniqi, S., Dedushaj, I., Raka, N., *et al.* (2006) Prevalence of Nosocomial Infections in the High Risk Units at the University Clinical Center of Kosova. *Infection Control*, **27**, 421-423. <http://dx.doi.org/10.1086/503387>
- [3] NIPHC (2006) Morbidity Registered on Health Institutions in Kosova on 2005. National Institute of Public Health of Kosova, Prishtinë.
- [4] Raka, L., Mulliqi, G., Dedushaj, I., Krasniqi, S., Gjergji, T., Krasniqi, A., *et al.* (2009) Denial, Media and Endurance in Infection Control in Kosova. *International Journal of Infection*

- Control*, **5**, 1-5. <http://dx.doi.org/10.3396/ijic.V5i1.007.09>
- [5] Marino, P.L. and Sutin, K.M. (1998) The ICU Book (Vol. 2). Williams & Wilkins, Baltimore.
- [6] Cika, V. (2001) Infeksionet brendaspitaleve dhe masat parandaluese. DRIER, Tiranë, 283-329.
- [7] Skopec, M. and Wykticky, H. (1983) Ignaz Philipp Semmelweis, the Prophet of Bacteriology. *Infection Control*, **4**, 367-370. <http://dx.doi.org/10.1017/S0195941700059762>
- [8] Alexander, J.W. (1985) The Contributions of Infection Control to a Century of Surgical Progress. *Annals of Surgery*, **201**, 423-428. <http://dx.doi.org/10.1097/00000658-198504000-00004>
- [9] Mediã, A.K. (2008) A Comparative Analysis of Two Cross-Sectional Surveys of Healthcare Workers' Hand Hygiene Knowledge, Intentions, Access and Product Preferences between Two University Hospitals, One in Norway and One in Canada. <http://hdl.handle.net/10037/1805>
- [10] French, G., Lynch, P., Hambraeus, A., Mehtar, S., Heeg, P., Saint, S. and Kolmos, H.J. (2003) Infection Control: Basic Concepts and Training. 2.udgave Edition, International Federation of Infection Control (IFIC), USA. [http://findresearcher.sdu.dk/portal/en/publications/infection-control-basic-concepts-and-training\(24cacc80-6fd1-11db-81a9-000ea68e967b\).html](http://findresearcher.sdu.dk/portal/en/publications/infection-control-basic-concepts-and-training(24cacc80-6fd1-11db-81a9-000ea68e967b).html)
- [11] Pittet, D. (2005) Clean Hands Reduce the Burden of Disease. *The Lancet*, **366**, 185-187. [http://dx.doi.org/10.1016/S0140-6736\(05\)66886-9](http://dx.doi.org/10.1016/S0140-6736(05)66886-9)
- [12] Harbarth, S., Sax, H. and Gastmeier, P. (2003) The Preventable Proportion of Nosocomial Infections: An Overview of Published Reports. *Journal of Hospital Infection*, **54**, 258-266. [http://dx.doi.org/10.1016/S0195-6701\(03\)00150-6](http://dx.doi.org/10.1016/S0195-6701(03)00150-6)
- [13] Cavalcante, M.D., Braga, O.B., Teofilo, C.H., Oliveira, E.N. and Alves, A. (1991) Cost Improvements through the Establishment of Prudent Infection Control Practices in a Brazilian General Hospital, 1986-1989. *Infection Control & Hospital Epidemiology*, **12**, 649-653. <http://dx.doi.org/10.2307/30146897>
- [14] O'Connell, N.H. and Humphreys, H. (2000) Intensive Care Unit Design and Environmental Factors in the Acquisition of Infection. *Journal of Hospital Infection*, **45**, 255-262. <http://dx.doi.org/10.1053/jhin.2000.0768>
- [15] Pittet, D., Hugonnet, S., Harbarth, S., Mourouga, P., Sauvan, V., Touveneau, S., *et al.* (2000) Effectiveness of a Hospital-Wide Programme to Improve Compliance with Hand Hygiene. *The Lancet*, **356**, 1307-1312. [http://dx.doi.org/10.1016/S0140-6736\(00\)02814-2](http://dx.doi.org/10.1016/S0140-6736(00)02814-2)
- [16] Kryeziu, B. (2009) Opinionet e infermierëve për rrezikuesit shëndetësore në vendet e tyre të punës. Prishtinë.
- [17] WHO (2006) WHO Guidelines on Hand Hygiene in Health Care (Advanced Draft): Global Safety Challenge 2005-2006: Clean Care Is Safer Care. World Health Organization, Geneva.
- [18] Elola-Vicente, P., Aroca-Palencia, J., Huertas-Paredero, M.V., Díez-Sebastián, J., Rivas-Bellido, L., Martínez-Martínez, G., *et al.* (2007) A Hand Hygiene Education Program. Comparison between Handwashing and the Use of Alcohol Solutions. *Enfermería Clínica*, **18**, 5-10. [http://dx.doi.org/10.1016/S1130-8621\(08\)70687-9](http://dx.doi.org/10.1016/S1130-8621(08)70687-9)
- [19] Sax, H., Allegranzi, B., Uckay, I., Larson, E., Boyce, J. and Pittet, D. (2007) "My Five Moments for Hand Hygiene": A User-Centred Design Approach to Understand, Train, Monitor and Report Hand Hygiene. *Journal of Hospital Infection*, **67**, 9-21. <http://dx.doi.org/10.1016/j.jhin.2007.06.004>
- [20] Zimakoff, J., Kjelsberg, A.B., Larsen, S.O. and Holstein, B. (1992) A Multicenter Questionnaire Investigation of Attitudes toward Hand Hygiene, Assessed by the Staff in Fifteen

- Hospitals in Denmark and Norway. *American Journal of Infection Control*, **20**, 58-64.
[http://dx.doi.org/10.1016/S0196-6553\(05\)80002-1](http://dx.doi.org/10.1016/S0196-6553(05)80002-1)
- [21] Lam, B.C., Lee, J. and Lau, Y.L. (2004) Hand Hygiene Practices in a Neonatal Intensive Care Unit: A Multimodal Intervention and Impact on Nosocomial Infection. *Pediatrics*, **114**, e565-e571. <http://dx.doi.org/10.1542/peds.2004-1107>
- [22] Gould, D. and Chamberlain, A. (1997) The Use of a Ward-Based Educational Teaching Package to Enhance Nurses' Compliance with Infection Control Procedures. *Journal of Clinical Nursing*, **6**, 55-67. <http://dx.doi.org/10.1111/j.1365-2702.1997.tb00284.x>
- [23] Huang, J., Jiang, D., Wang, X., Liu, Y., Fennie, K., Burgess, J., *et al.* (2002) Changing Knowledge, Behavior, and Practice Related to Universal Precautions among Hospital Nurses in China. *The Journal of Continuing Education in Nursing*, **33**, 217-224.
- [24] Olsen, C. and St George, D.M. (2004) Cross-Sectional Study Design and Data Analysis. College Entrance Examination Board, New York.
http://cdn.physioblcasts.org/f/public/1355667773_1_FT0_4297_module_05.pdf
- [25] O'Grady, N.P., Alexander, M., Dellinger, E.P., Gerberding, J.L., Heard, S.O., Maki, D.G., *et al.* (2002) Guidelines for the Prevention of Intravascular. Centers for Disease Control and Prevention, Atlanta.
- [26] Saint, S., Bartoloni, A., Virgili, G., Mannelli, F., Fumagalli, S., di Martino, P., *et al.* (2009) Marked Variability in Adherence to Hand Hygiene: A 5-Unit Observational Study in Tuscany. *American Journal of Infection Control*, **37**, 306-310.
<http://dx.doi.org/10.1016/j.ajic.2008.08.004>
- [27] Boyce, J.M. (2001) Antiseptic Technology: Access, Affordability, and Acceptance. *Emerging Infectious Diseases*, **7**, 231. <http://dx.doi.org/10.3201/eid0702.010216>
- [28] Nobile, C.G., Montuori, P., Diaco, E. and Villari, P. (2002) Healthcare Personnel and Hand Decontamination in Intensive Care Units: Knowledge, Attitudes, and Behaviour in Italy. *Journal of Hospital Infection*, **51**, 226-232. <http://dx.doi.org/10.1053/jhin.2002.1248>



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Lebanese Student's Experience of Benefits of High Fidelity Simulation in Nursing Education: A Qualitative Approach

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Abstract

Background: Simulation is perceived as an important part to the nursing clinical educational experience since it can offer a safe learning environment for the students' clinical practice. **Objective:** The purpose of this study was to explore the Lebanese student's experience of benefits of high fidelity simulation in nursing education. **Design:** A qualitative study using open-ended questionnaire. **Setting:** This study was implemented at private university in Lebanon between January and April 2015. **Participants:** A purposive sample was sought from those who have a simulated experience. **Methods:** Qualitative data were collected via interviews and analysed using a thematic approach. **Findings:** Four major themes were identified: "Bridging Theory to Clinical Practice", "Developing Critical Thinking and Decision-making", "Practicing Safely Leads to Enhancing Confidence", "Teamwork Spirit and students' motivation to earn and practice more". **Conclusion:** Simulation was found to be an acceptable learning strategy for novice nursing students. The use of simulations is a useful and effective learning strategy. Students with a higher positive attitude towards the simulation experience displayed better learning outcomes. Thus, the integration of simulation into the learning experience of nursing students will bridge the gap between theory and practice; enhance their critical thinking and motivation aptitudes along with traditional clinical practice by sparing them a safe milieu.

Keywords

High-Fidelity Simulation, Nursing Students, Personal Experience

1. Introduction

Nursing educators are challenged to implement teaching techniques that enhance the

clinical performance of students while reinforcing their clinical judgment and critical thinking skills [1]. As a matter of fact, in its position statement on teaching modernization, the National League for Nursing (2003) stated that nurse pedagogues have to make “learning environment that facilitate students’ critical thinking [and] self-reflection” and train “graduates for practice in a complex, dynamic health care environment” [2]. This challenge is powered by advances in technology; expanded levels of patient acuity, issues identified by patient safety, and mandates by accreditation agencies [3] [4]. This would be a response and proposed solution for another global nursing problem; the shortage of nursing workforce [5] [6].

Positive learning experience in clinical practice can be an establishment for attaining successful practice. This can help supporting students to become qualified nurses [7] [8]. In clinical practice, the learning experience needs to include adequate preparation for practice, the hospital atmosphere and healthy communication-based relationship between the students and their clinical preceptors. Exchange of learning is a complex and systemic process that is affected by various elements. For instance, the educational design and working environment do affect student’s ability to perform in the clinical training settings [9]. Such factors are assumed also to negatively influence intrinsic motivation for learning and knowledge acquisition among nursing students [10]. While real and hands on teaching for nursing students seems beneficial and have significant impact on their clinical competency, workplace environment and risks concerning clinical demonstration on patients would urge finding less risky solution with equal benefits. Posing control over nursing students’ clinical training had invited using high fidelity simulation into clinical training [11] [12]. This will not be a substitutional strategy, and rather, a preparatory stage.

Simulation is identified as an innovative educational approach that attempts to mimic vital aspect of clinical cases [13], and as a pedagogical methodology, changes or strengthens experiences that mimics concepts of the genuine world in an interactive method [14]. A simulation-based learning strategy is a selection of planned activities that correspond to present or prospective situations in education and practice. It permits students to improve information skills and behaviors, evaluate and react to authentic scenarios in simulated settings by case studies [15]. This type of safe milieu could support student learning in simulation, which is often recognized as a “safe” learning setting. The ability of the student to integrate knowledge, skill, and judgment elevates students’ autonomy to make assessments and develop critical thinking, which lead to competent decision-making. The greater values of using the HFS are also concerned with the creation of reflective learning environment for students that enable them to control their anxiety to newly learned experiences prior to their entry into practice [16].

Educators, nursing graduates and healthcare employers stand to benefit from the blending of simulation with clinical hours; nursing educators gain added flexibility and autonomy in the design, development and evaluation of learning experiences and curricula. Graduate nurses can integrate the immediacy and real word quality of simulation with the discipline and rigor of traditional clinical hours. Moreover, understanding

the mechanisms of how simulation cultivates transfer of learning may encourage educators to use simulation more frequently as a teaching and learning technique. Thus, nursing students obtain the skills of patient care, professional communication, and the capabilities of problem-solving, psychomotor skills, and critical thinking. They also improve their socialization and professional role confidence [17].

In the light of the stated advantages, High Fidelity Simulation activities has been adopted as a part of the clinical practice of first year baccalaureate nursing (BSN) program in one nursing school in Lebanon. Nevertheless, to date, there is no qualitative data that explores the perception of BSN students of employing HFS as part of their program. Therefore, the purpose of this study is to investigate the Lebanese nursing student's perception of benefits of simulation in nursing education.

2. Material and Methods

Design: This study is part of larger study aimed at exploring the impact of high-fidelity simulation on the development of clinical judgment and motivation among Lebanese nursing students. This study used a phenomenological approach. Data were collected from one of the largest universities in the capital city Beirut through interviewing the students individually, using unstructured interview. Beirut Arab University (BAU), situated in the vital capital of Lebanon, is a center of culture and education. With more than 300 higher educational programs, BAU offers a productive educational environment to approximately 15,000 students every year in Lebanon and abroad. BAU has been committed, since its establishment in 1960, to offer outstanding educational programs and to provide an embracing environment for academic creativity and the development of leadership skills, instilling the concept of social responsibility, while respecting diversity and multicultural understanding. BAU comprise 10 faculties, 44 undergraduate programs, 95 postgraduate programs. 9037 undergraduate students, 1199 postgraduate students were registered per year. Data collection started in January 2015 until April 2015, by the primary researcher who is a lab and clinical instructor in the faculty of Nursing. Prior to data collection, the primary investigator obtained ethical approval for conducting the study.

Sample and setting: A purposive sample was recruited from the first year undergraduate nursing students with no prior simulation experience. Eight nursing students, out of a total 24 students representing the whole class, were interviewed from one major university in the capital city Beirut. Using a calculated effect size of 0.30 based on assumption of expected difference of squared standard deviation of 1.0 and a maximum expected difference in the confidence interval of 0.5, the power of 0.80 results in a sample of 24 subjects per group. Inclusion criteria included: 1) nurse student registered in first adult health nursing course, 2) nurse student completed the simulation intervention and be willing to share personal experiences related to simulation. Students were provided with the consent form, which was explained, to read and sign prior to the commencement of the interviews. Prior to signing consent forms, the researcher answered students' questions, and assured them of the confidentiality and privacy of the

study. Students were informed that they will have the right to withdraw from the research at any point and that their participation is voluntarily.

3. Data Collection

Data were collected using unstructured interviews with students after the simulation and after clinical training. The purposive sizes of the samples among those who agreed to participate in the qualitative part that took the form of a focus group. This approach provides significant in-depth information of simulation experience. Willing students participated in two focus group interviews conducted a week after the students completed their clinical placement experience. The purpose of the first focus group interview was to gain an understanding of the students' perception of high-fidelity simulation, their experience of participating in the simulation exercise, and to explore their perceptions of impact of HFS on their learning and clinical training. In the second focus group, students were asked to reflect broadly on their practice experience in light of participating in the high-fidelity simulation-based learning scenario. Prior to signing consent forms, the researcher answered participants' questions, and assured them of the confidentiality and privacy of the study. The focus group session was in the Nursing Simulation Lab, where the participating students observed and debriefed simulation experiences in their clinical courses. The location for the focus group was carefully chosen, with the intent of bringing students into the setting where they exhibited their simulation observations and debriefing. The time of the focus group was arranged according to the convenience of the students. Data collection was conducted by using student's interviews. An unstructured interview was used in this study to encourage participants to produce their own experience; open-ended questions encouraged them to build-up and elaborate their own narrative. The Co-researcher (faculty member who teaches in the simulation lab) maintained records and noted the session. To avoid feeling that some interviewees are put off by the presence of the tape-recorder, the researcher assured them that the recording is only for the research purpose and nobody except her would have access to the interview tape-records and will be kept in a closed cabinet at the Faculty of Health Sciences-Nursing Department, Beirut Arab University. The interviews lasted for 2 hours. The interviews were recorded and transcribed verbatim. After review, the themes of meaningful learning, evidenced by the students were identified.

4. Data Transcribing, Coding and Analysis

Interviews were audio-taped and transcribed verbatim. Detailed field notes were reviewed and typed promptly. Discussions among the research team that were related to coding, interpreting, and conceptualizing of the data were documented in memo form for auditability. The researcher used these questions to serve as prompts in order to explore the Lebanese student's experience of benefits of high fidelity simulation in nursing education.

- 1) How did simulation help to develop your clinical judgment abilities?

- 2) Was simulation helpful or not in your clinical practical experiences? How?
- 3) Thinking through the four phases of the Clinical Judgment Model, how did simulation help you to notice what was going on with the patient?
- 4) How did your experience with simulation improve or reduce from your clinical experiences?
- 5) During what part of the HFS experience did you mostly learn concerning clinical judgment?
- 6) Is there anything else you would like to discuss that we haven't covered or asked about regarding the simulation experience?

The interviews were recorded and transcribed verbatim. Each account was read and reread using the participants own words. Significant statements were highlighted and the meaning of statements was extracted. The qualitative analysis included reviewing all interviews' transcripts and coding any behaviors and quotes that are related to students' perception. The transcribed data was then analyzed for further investigation. The transcribed documents were coded and categories of responses were identified. Content analysis was used to address qualitative data available from the group session's discussions. Codes were then collapsed into categories to identify student's perceptions.

5. Trustworthiness

Trustworthiness of the results was enhanced through method triangulation. Two unstructured methods, namely focus group interviews and documents, were used to collect data on the same phenomenon [18]. Furthermore, the credibility of the facilitator raised the trustworthiness of the results. Dependability was heightened by the supporting and contrasting literature corroboration in the discussion of the results. The dense description of the process and results allow for transferability [18].

6. Results

The descriptive analysis showed that the majority of the samples in the intervention group were females (65.4%) while male students formed 34.6%. The mean age for the sample was 18.8 years. The age of the students ranged from 18 to 21 years. The analysis of the accounts resulted in the following four major themes: (1) Bridging theory to clinical practice, (2) Developing critical thinking and decision-making, (3) Practicing safely leads to enhancing confidence, and (4) Developing teamwork spirit and students' motivation to learn and practice more. All themes were identified with their frequencies and a quotation was taken for each theme (minor) showing how it is expressed verbatim (see **Table 1**).

Bridging theory to clinical practice: The HFS provides the students with an exceptional opportunity to practice realistic scenarios in the learning in situ without any harmful risk to patients. Students acknowledge how the HFS can advance the "practice theory linkage" as they gain a wider picture of patients' conditions.

Developing critical thinking and decision-making: Students perceived that simulation allowed them to build up their theoretical knowledge, and permit them to

Table 1. Students’ perceptions of e simulation: an exemplary quotes.

Themes	Selected exemplary quote
<p>Bridging Theory to Clinical Practice</p>	<p>“The real opportunity that we passed through was when we connect what we had learned from simulation to advance our clinical experience. Just I will remember what I did in the simulation laboratory and I will follow the same when I’m dealing with the real patient as if it was not my first time in doing the procedure or diagnosing the case.”</p> <p>“The HFS laboratory gave me the sense of hospital atmosphere... it contains the same equipment, and indeed, with the scenario that the instructor used, I felt that I’m in real-life situation”.</p> <p>“I went back over my notes that I took in the lecture and had a look at the way that I can deal with a CHF patient, actually it was a good experience to link the lectures to simulation and the simulation to clinical practice”.</p> <p>“from this training... from the simulation... I can learn how to assess a patient’s condition... it is like a realistic method to practice nursing procedures and patients diagnoses”.</p> <p>“The simulator permitted me to convert what I learned... the theory... into practice and work with my hands... I’m feeling that I started to be a nurse... beautiful feeling for the first time”.</p>
<p>Developing Critical Thinking and Decision-making</p>	<p>“Simulation imitated what I have been taught in the classroom”.</p> <p>“I implemented the knowledge that I have learned previously to interpret the data, it helped me to realize the needs of the patients identified the abnormal signs and symptoms”.</p>
<p>Practicing Safely Leads to Enhancing Confidence</p>	<p>“it is safer for me to do mistakes here on the manikin for several times than to do them out there in the real hospital life”... this experience gave me the confidence to face the reality of patients in their units”.</p> <p>“simulation helped me more to be more confident and trust my abilities”.</p> <p>“what I went through in the scenario offered me confidence... I already recognized the sequence of the steps that I have to perform in advance... it augmented my confidence in practice</p>
<p>Developing Teamwork Spirit and Students’ Motivation to Earn and Practice More</p>	<p>“the group work forced me to discuss some issues in the group, introduce and pose my ideas and seek help from-my classmates. Negotiations were going on throughout the group work between the group members”.</p> <p>“It really motivated me to work hard as I felt self-confident to work between the group members where no fear from harm to human beings existed. This was a beneficial experience because it is like a real working experience within the health care teams”.</p>

recognize what was happening with the patients so that they can make an appropriate judgment. Learning in context that gives the students the impression of working in a hospital atmosphere as well as reflecting on practice with immediate discussion in a precise plan are touted to be as means for practicing critical thinking.

Practicing safely leads to enhancing confidence: Students have the chance to practice what they have learned in the classroom without any risk to the patient as they can see the techniques and learn from their mistakes.

Developing teamwork spirit and students’ motivation to earn and practice more: Students described this kind of learning experiences as a new method to enhance their teamwork that leads them to increase their motivation. The productive teamwork that was shown in communication, negotiation, and cooperation between the students was a positive learning experience.

7. Discussion

Themes abstracted in this study displayed a favorable experience with the simulation offering the sentiments that High-Fidelity Simulation (HFS) has become a prerequisite to the start of actual clinical practice.

Bridging theory to clinical practice was the most repeated theme. Students reported that they could transfer their classroom knowledge because they can apply their knowledge and skills from simulated work setting in the training. This indicates that they were able to correlate between different theoretical views and implement the earned information in their clinical practice in the real-life clinical area. Leigh (2008) describes simulation as the vehicle for translating classroom knowledge into a safe “clinical” learning environment [19].

Developing critical thinking and decision-making was reported many occasions by the students indicating that clinical simulation enabled them to employ the theoretical information and skills presented in the classroom in their clinical practice and specifically enhanced their sense of clinical judgment. Critical thinking and decision-making are exercised during simulation and imply that students are capable to convey their classroom learning in clinical practice simulation. Thus, High Fidelity Simulation (HFS) offered students the opportunity to strengthen their theoretical knowledge enabling them to perceive what the patient was encountering in order to formulate a suitable judgment. Kaddoura (2015) asserted that simulation cultivates clinical judgment, self-confidence, and theory-practice merging dexterity [20].

Practicing safely leads to enhancing confidence, the third theme, was repeated also in many occasions. Students perceived that HFS is an essential technique of learning that can promote self-confidence. Simulation serves as a highly effective strategy for developing confidence and entry into practice creating a learning environment that promotes safety, knowledge, skills and confidence. Kaddoura (2015) reported that HFS has been displaying an affirmative outcome on increasing nursing students’ confidence attitudes [20].

The fourth theme **Developing teamwork spirit and students’ motivation to learn and practice more**, indicates that nursing students were empowered as they were perceived as learners and team members during their clinical experience. Students recognized High Fidelity Simulation as a helpful technique of learning that promotes collaboration and teamwork. Receiving moral support and constructive feedback as well as being able to cooperate with others on directed acts improved their sense of motivation and facilitated learning in clinical practice. On the other hand, motivation to learn and to transfer classroom knowledge is strengthened when students encounter patients in the clinical practice with conditions similar to those portrayed in simulation. The fact that students enjoy the learning experience contributes to the motivation to be transferred. It has been reported that nursing students, similar to working nursing staff, were empowered when perceived as learners and member of team during their clinical experience [21] [22]. Students thus prefer to learn within teams rather than merely observing, as they need to grasp knowledge and correlate it in clinical practice. Thus, working

through teamwork is vital to prepare future student nurses in various interpersonal relationships within different healthcare settings [23] [24].

8. Limitations of the Study

The study had a comparatively small sample size which hinders the generalization of results. It is recommended that similar studies be carried out at various settings and with large sample size.

9. Conclusions

Qualitative data were collected through two focus group interviews and standard evaluation forms. The open-ended question on the form was the same as the one asked during the focus group interviews. Open coding of the data revealed four themes, namely bridging theory to clinical practice, developing critical thinking and decision-making, practicing safely leads to enhancing confidence, and developing teamwork spirit and students' motivation to learn and practice more. The participating students perceived simulation to be a tool that bridges the theory-practice gap. They mentioned that they could apply their theoretical knowledge; thus, transfer of learning occurred. Confidence to engage in delivering care to patients during work-integrated learning augmented since the participants perceived what they were to expect and what was expected from them.

Experiencing a High-Fidelity Simulation learning opportunity is a strong motivator to learn and to apply in practice what has been learnt in the classroom. It is therefore equally important in the educational design factor because it spotlights the pertinence of the content in the spectrum of courses that is integrated into a nursing degree program. Moreover, HFS enables students to productively participate with the learning material which, according to the respondents of this study, supports the retention of knowledge.

References

- [1] Gaba, A. (2015) Teaching Clinical Judgment: A Review with Consideration of Applications for Health Professions. *The Open Nutrition Journal*, **9**, 53-56.
- [2] National League for Nursing. Position Statement (2003) Innovation in Nursing Education: A Call to Reform. <http://www.nln.org/docs/default-source/about/archived-position-statements/innovation-in-nursing-education-a-call-to-reform-pdf.pdf?sfvrsn=4>
- [3] Halabi, J. and Hamdan-Mansour, A. (2012) Attitudes of Jordanian Nursing Students towards Nursing Research. *Journal of Research in Nursing*, **17**, 363-373. <http://dx.doi.org/10.1177/1744987110379782>
- [4] Hamaideh, S. and Hamdan-Mansour, A. (2014) Psychological, Cognitive, and Personal Variables That Predict College Academic Achievement among Health Sciences Students. *Nurse Education Today*, **34**, 703-708. <http://dx.doi.org/10.1016/j.nedt.2013.09.010>
- [5] Jeffries, P.R. and Rizzolo, M. (2006) NLN-Laerdal Project Summary Report, Designing and Implementing Models for the Innovative Use of Simulation to Teach Nursing Care of Ill Adults and Children: a National Multi-Site Study. National League for Nursing, New York.

- [6] Tri-Council for Nursing (2007) Letter to the National Governor's Association, 8/13/07. http://www.nln.org/docs/default-source/advocacy-public-policy/nga_final.pdf?sfvrsn=2
- [7] Yang, H., Thompson, C. and Bland, M. (2012) The Effect of Clinical Experience, Judgment Task Difficulty and Time Pressure on Nurses' Confidence Calibration in a High-Fidelity Clinical Simulation. *BMC Medical Informatics and Decision-Making*, **12**, 113. <http://dx.doi.org/10.1186/1472-6947-12-113>
- [8] Fawaz, M. and Hamdan-Mansour, A. (2016) Effect of Using HFS on Motivation and Clinical Judgment among Nursing Students in Lebanon. *Nurse Education Today*, **46**, 36-42. <http://dx.doi.org/10.1016/j.nedt.2016.08.026>
- [9] Botma, Y. (2014) Nursing Student's Perceptions on How Immersive Simulation Promotes Theory-Practice Integration. *International Journal of Africa Nursing Sciences*, **1**, 1-5. <http://dx.doi.org/10.1016/j.ijans.2014.04.001>
- [10] Kudo, Y., Hayashi, S., Yoshimura, E., Shibuya, A. and Aizawa, Y. (2013) Nursing Students' Learning Motivation toward Technical Knowledge and Their Ethics Regarding Patients' Rights. *The Tohoku Journal of Experimental Medicine*, **230**, 33-42. <http://dx.doi.org/10.1620/tjem.230.33>
- [11] Hamdan-Mansour, A., Constantino, R, Farrell, M., Doswell, W., Gallagher, M.E., Safadi, R. Shishani, K. and Banimustafa, R. (2011) Evaluating the Mental Health of Jordanian Women in Intimate Partner Abuse. *Issues in Mental Health Nursing*, **32**, 614-623. <http://dx.doi.org/10.3109/01612840.2011.580494>
- [12] Almadi, T., Cathers, I., Hamdan Mansour, A. and Chow, C.M. (2012) The Association between Work Stress and Inflammatory Biomarkers in Jordanian Male Workers. *Psychophysiology*, **49**, 172-177. <http://dx.doi.org/10.1111/j.1469-8986.2011.01296.x>
- [13] Buckley, T. and Gordon, Ch. (2011) The Effectiveness of High-Fidelity Simulation on Medical-Surgical Registered Nurses' Ability to Recognize and Respond to Clinical Emergencies. *Nurse Education Today*, **31**, 716-721. <http://dx.doi.org/10.1016/j.nedt.2010.04.004>
- [14] Gaba, D.M. (2004) The Future Vision of Simulation in Health Care [Electronic Version]. *Quality and Safe Health Care*, **13**, i2-i10. <http://dx.doi.org/10.1136/qshc.2004.009878>
- [15] Meakim, C., Boese, T., Decker, S., Franklin, A.E., Gloe, D., Lioce, L. and Borum, J.C. (2013) Standards of Best Practice: Standard I: Terminology. *Clinical Simulation in Nursing*, **9**, 3-11. <http://dx.doi.org/10.1016/j.ecns.2013.04.001>
- [16] Morgan, R. (2006) Using Clinical Skills Laboratories to Promote Theory-Practice Integration during First Practice Placement: An Irish Perspective. *Journal of Clinical Nursing*, **15**, 155-161. <http://dx.doi.org/10.1111/j.1365-2702.2006.01237.x>
- [17] Karayurt, O., Mert, H. and Beser, A. (2009) A Study on Development of a Scale to Assess Nursing Students' Performance in the Clinical Settings. *Journal of Clinical Nursing*, **18**, 1123-1130. <http://dx.doi.org/10.1111/j.1365-2702.2008.02417.x>
- [18] Polit, D.F. and Beck, C.T. (2004) *Nursing Research: Principles and Methods*. 7th Edition, Lippincott Williams & Wilkins, Philadelphia.
- [19] Leigh, G.T. (2008) High Fidelity Patient Simulation and Nursing Students' Self-Efficacy: A Review of the Literature. *International Journal of Nursing Education Scholarship*, **5**, 1-17. <http://dx.doi.org/10.2202/1548-923x.1613>
- [20] Kaddoura, M., Vandyke, O., Smallwood, Ch. and Gonzalez, K. (2015) Perceived Benefits and Challenges of Repeated Exposure to High-Fidelity Simulation Experiences of First Degree Accelerated Bachelor Nursing Students. *Nurse Education Today*, **36**, 298-303. <http://dx.doi.org/10.1016/j.nedt.2015.07.014>
- [21] Matchim, Y. and Kongsuwan, W. (2015) Thai Nursing Students' Experiences When At-

- tending Real Life Situations Involving Cardiac Life Support: A Phenomenological Study. *Nurse Education Today*, **35**, 1186-1189. <http://dx.doi.org/10.1016/j.nedt.2015.05.010>
- [22] Hamdan-Mansour, A., Marmash, L., Elayyan, R. and Hyarat, S. (2014) Difference in Perception between Nurses and Patients Related to Patients' Health Locus of Control. *International Journal of Nursing Practice*, **20**, 242-249. <http://dx.doi.org/10.1111/ijn.12132>
- [23] Hamdan-Mansour, A.M., Al Abeiat, D.D., Alzogaibi, I.N., Ghannam, B.M. and Hanouneh, S.I. (2015) Psychosocial and Sociodemographic Correlates of Life Satisfaction among Patients Diagnosed with Cancer in Jordan. *Journal of Cancer Education*, **30**, 31-36. <http://dx.doi.org/10.1007/s13187-014-0678-y>
- [24] Attallah, M., Hamdan-Mansour, A., Al-Sayyed, M. and Aboshaiqa, A. (2013) Patient Satisfaction with Quality of Nursing Care Provided at Saudi Arabia. *International Journal of Nursing Practice*, **19**, 584-590. <http://dx.doi.org/10.1111/ijn.12102>



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Why Is Case Management Effective? A Realist Evaluation of Case Management for Frail, Community-Dwelling Older People: Lessons Learned from Belgium

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Abstract

Despite many attempts to evaluate the effectiveness of case management for frail older people, systematic reviews including experimental designs show inconsistent results. Starting from the view that case management is a complex intervention occurring in multilayered realities, we conducted a realist evaluation of case management in Belgium, where this type of intervention is new. Realist approaches are particularly well suited to evaluate complex interventions as they seek to investigate iteratively the literature and empirical data to uncover mid-range theories underpinning the intervention under study. As such, realist evaluations are works in progress which provide tools to describe how, why and for whom an intervention is supposed to work. In this paper, we describe two mid-range theories that can explain why case management can help frail older people to remain at home, through the lens of capacity and social support.

Keywords

Realist Evaluation, Frail Older People, Case Management, Home Care

1. Introduction

Frail older people often have complex care needs, especially when frailty is the result of

the co-existence of two or more chronic conditions [1] and involves receiving care from different healthcare professionals such as general practitioners, home care organisations (nurses, nurse assistants, social workers) and medical specialists. During exacerbations of their condition or new diagnoses, additional involvement of emergency care and other specialisms may be needed [2]. Allowing older people to stay at home has become a universal aim of health and social care agencies across the Western world, to address the combined factors of growing numbers of frail older people and the strain on the health care budgets. Agencies are tackling these problems through the drive for innovative approaches to care. To overcome this fragmentation, the concept of integration of care has been widely “reintroduced” and is central to health and social care policy in many countries [3]. This in itself has introduced more layers of complexity, as there are many ways of defining, explaining or implementing the concept through frameworks. For example, several definitions of integrated care exist, from an operational perspective through to a more person-centred approach. Taking the person perspective, it is widely agreed that this should be at the heart of any discussion about integrated care [4]. Achieving integrated care requires that those involved with planning and providing services should “impose the patient’s perspective as the organising principle of service delivery” [5]. National Voices (2013) offer user-based definitions of integrated care such as “My care is planned with people who work together to understand me and my carer(s), put me in control, co-ordinate and delivery services to achieve my best outcomes” that not only serve to create a better understanding between service providers and users of integrated care, but are increasingly being used as outcome measures [6].

When it comes to frameworks and theoretical underpinnings, integrated care has synergy with the chronic care model [7]. This model focuses on six major requirements needed to provide integrated care for people living with chronic conditions, *i.e.* a tailored system redesign, an appropriate workforce, an appropriate budget and financial incentives, processes to support quality of care, knowledge management and decision support, and clinical information tools. In addition, Vlayen *et al.* [8] put forward notions of high-quality care which encompass seven dimensions: safety, clinical effectiveness, patient centeredness, timeliness, equity of care, efficiency of care and finally, continuity and service integration. Caring for the frail population in itself enhances the opportunity for continuity and service integration to happen because of the fragmentation of care. Such frameworks have however failed to connect to integrated care delivery in a meaningful and pragmatic way creating a gap between theory and practice [9].

A further consideration is the method of care delivery, and how the service should best be configured to deal with small numbers of frail older people who have a very high level of complex care needs where regular care by the primary care team may not be adequate. Case management is suggested to be an important means to help to achieve integrated care to help this population to remain in better health and, if possible, at home [10]. Case management is defined by the Case Management Society of America ([11], p. 10) as “a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an

individual's and family's comprehensive health needs through communication and available resources to promote quality, cost-effective outcomes". Case management is brought about in highly diverse ways according to its intensity (frequency and duration of the contacts), its embeddedness in the local care network, the profile and training of the case managers (e.g. nurse-led case management versus social worker-led case management) working either alone or in a team, benefiting or not from reflexive group meetings with peers or supervisions, the inclusion criteria or triggers to identify the population likely to benefit from case management (prompted by routinely collected data or on request of the care provider, the informal caregiver or the beneficiary himself) [12].

However, evidence of the effectiveness of case management for frail older people is hard to establish. Hard outcomes may encompass, among others, delay of institutionalisation, impact on the number of emergency room visits, healthcare consumption, mortality rates, etc. while the impact on so-called "soft", patient-reported outcomes include, for instance, satisfaction or perception of coordination of care [13]. In other words, case management is more likely to have an impact on better quality of care as a process as this is conducive to better outcomes and, at the same time "hard outcomes" are more likely to be influenced in this population by determinants which are not related to the quality of care, such as the negative interactions within long-term illnesses and treatments [14].

It is also important to highlight that because of the high level of interaction between community-dwelling frail older people and their informal caregivers, they are considered here as a dyad [15]. This is the reason why in most instances case managers' interventions will target the dyad instead of each one of them separately, thus making this a more holistic form of care provision.

Because of the heterogeneity of case management's characteristics and interacting contextual components, traditional evaluation designs are ill-suited to evaluate the effectiveness of this type of complex intervention [12] [16]. A realist evaluation may help to respond to our research question, which was to understand the how and why of the effectiveness of case management, and shed light on specific conditions and why approaches with case management could be effective in health care. The main focus will therefore be about the development of mid-range theory to create explanations for these research questions with the help of empirical data gathered in Belgium.

2. Methods

A realist approach was used to evaluate the effectiveness of case management in the Belgian context. Described by Pawson and Tilley in 1997 [17] realist evaluations are particularly useful for the evaluation of complex interventions because they take into account the interactions between an intervention and its context. Indeed, case management can be seen as a complex intervention occurring within a complex system because multiple, interacting agents are involved. These agents interact with their environment and these interactions are non-linear and interdependent. In the community

and the home care setting variables may not be easily controlled and during an intervention many interactions make standardisation not possible. Without central control, emergent behaviours can be observed and the information about the interactions is assimilated by the agents. Finally, as the system evolves over time the partners in care processes learn and evolve. The health system may be expected to improve as a result of this process [18].

The epistemological stance of realist evaluations is rooted in critical realism [19]. Although realists acknowledge an “objective” reality existing outside of the observer, there is a certain level of interaction with the observer (so-called recursivity). This means the interpretation of reality is moderated by the observer. Moreover, the focus lays on mechanisms, which are contextualised, *i.e.* mechanisms are only triggered under specific conditions or in specific contexts and lead to specific outcomes. Mechanisms are the causal forces, powers, processes or interactions that generate change, combining the use of resources and reasoning that people make [20]. The overall aim of a realist evaluation is to come up with an explanatory mid-range theory about the effectiveness of an intervention, in order to allow theoretical replication.

Typically, a realist evaluation of an intervention starts with the identification of the logic of the intervention (also called programme theory). This seeks to describe the logical link between the objective of an intervention, the resources used, the activities carried out and the expected results. Second, CMOC (Context-Mechanisms-Outcomes Configurations) are looked for, in order to identify underlying mechanisms explaining why a specific outcome was achieved in a specific context. This can be seen as a mid-range theory. Third, candidate mid-range theories are searched in the literature, amongst experts and researchers in order to provide an explanatory framework for these CMOC. Fourthly, adjudication between rival theories or refining of existing theories is done through testing them with the empirical data and iterative consultation of the literature and with experts [21].

Case study design was also employed alongside this realist evaluation approach. These two methodological stances have much synergy and potential in studies of this kind (George and Bennett 2005), an aspect explained further below.

We followed the recommendations of the RAMESES II project for the reporting of realist evaluations [22].

2.1. Bottom up Projects in Belgium: Setting and First Steps for the Realist Evaluation

The National Institute of Health and Disability Insurance (NIHDI) created funding in Belgium to identify which alternative interventions of care or support of care were the most effective to maintain frail older people at home at a reasonable cost. This prompted a large-scale programme implementation and evaluation. Amongst other pilot projects, 22 new bottom-up designed case management projects started in April 2010. They were selected by the NIHDI and were financed over four years. Inclusion criteria for the older people to benefit from these projects were defined by Royal Decree (7 July 2009): to be aged 60 or more, living at home, being frail and willing to participate in the scien-

tific evaluation of the pilot projects. Frailty was defined as (1) to have a score of six or over on the Edmonton Frail Scale [23] or (2) to be dependent for ADL or IADL, as defined by a Katz lump sum [24] or (3) to have a diagnosis of dementia made by a neurologist, geriatrician or psychiatrist. Moreover, care providers of the projects should assess whether the person was likely to benefit from case management during a baseline interview, *i.e.* have a sufficient level of complex care needs. A consortium of four universities (Université catholique de Louvain, KULeuven, UAntwerpen and Université de Liège) was asked to evaluate the cost benefits and effectiveness of these projects as a programme evaluation.

The protocol describing the overall design of this evaluation has been described previously [25]. Six researchers were involved in this part of the evaluation. The data collection relied mainly on project data, which were collected during four years and comprised official documents, such as the submission files of the projects, administrative databases from NIHDI, websites, yearly questionnaires about the organisational functioning, adaptation strategies for the implementation and embeddedness of the projects. This data collection was completed by yearly interviews with the coordinators and case managers of the projects. Because of the number of researchers involved, an audit trail was agreed upon and followed, in order to ensure the similarity of the data collection and first descriptive analyses. The process was discussed and refined during iterative group sessions amongst researchers. Moreover, to be sure that the results would be useful for the civil servants of the NIHDI, they were also involved repeatedly in the discussion. This helped to define the breadth and depth of the analysis within the given timeframe.

2.2. First Step: Description of the Logic of the Interventions

As recommended by Wong *et al.* [26] [27], we chose to start from the outcomes to describe the logic of case management. These outcomes should reflect meaningful results for the older people and, in some cases, their informal caregiver. Therefore, we chose to use I-Statements as a starting point. I-Statements are patient-reported outcomes and reflect the users' perspective about coordinated care: "My care is planned with people who work together to understand me and my carer(s), put me in control, co-ordinate and deliver services to achieve my best outcomes" and reflect a nationwide commitment in the UK to let the users' perspective guide the quality improvement strategies in this country [6].

2.3. Second Step: Confrontation with the Empirical Data

Some authors, such as George and Bennett strongly advise the use of realist approaches in case studies [28]. At the interplay of both approaches lays the focus on looking extensively for causal pathways between phenomena. In *case study* terms, this is called process tracing, *i.e.* looking for causal chains, to uncover evidence of causal mechanisms at work or to explain outcomes. In *realistic* terms, this can be phrased as "causal mechanisms are central to causal explanation" [29]. Process-tracing is therefore an opera-

tional procedure for attempting to identify and verify the observable within-case implications of causal mechanisms [30]. At an epistemological level, the two approaches share the view that social facts exist independently of the observer and can be the subject of defensible causal inferences [28].

A multiple, embedded case study design was thus carried out among seven projects to identify explanatory theories about what made a project successful in its given context and why. Cases were chosen based on the diversity of their components [28] [31] [32] [33], such as the profile of the case manager(s), the location (urban versus rural), the structural partnerships with general practitioners, the caseload per full-time equivalent (FTE) case manager, the systematic use of the results of a tool for making a comprehensive geriatric assessment (BelRAI, the InterRAI-HC instrument validated for Belgium [34] for making a care plan, the existence of an electronic patient record-or the absence of these characteristics. The choice was validated by a scientific steering committee, at the request of the NIHDI. Thematic content analysis and looking into the logic of the intervention as described by the project engineers within each project and constant comparison amongst projects allowed the identification and testing of the logic of the interventions in their own context [35]. This led to the further refinement of context-mechanisms-outcomes configurations explaining the success-or not-of the interventions in their contexts.

2.4. Third Step: Identification of Mid-Range Theories in Literature

In the meanwhile, a literature review was carried out to identify candidate mid-range theories likely to support the logic of the interventions. The process of this review is described in another paper, under submission [36]. These candidate theories were then confronted with the empirical data coming from the case studies and discussed within the group of researchers who helped to adjudicate between rival theories or, in some cases, to refine or expand existing theories in order to apply them to case management interventions under study.

2.5. Fourth Step: Adjudication between Rival Theories or Refinement of Existing Theory

Here again, iterative discussions with the members of the consortium involved in the data analysis provided insight into the theories capable of explaining the results coming out of the empirical analysis and the literature review. The findings of these discussions were then submitted to the civil servants of the NIHDI, case managers and project coordinators.

3. Results

3.1. Programme Theory of the Interventions

The logic of the interventions is described per case in the overall report [37]. Summarised, professional case management is expected to organise care in a meaningful way and anticipate the negative consequences of adverse events, such as a new illness or

exacerbations, by the means of a structured, yet highly individualised approach including close monitoring of the care plan and the individual situation at home. To achieve this, the following activities were carried out: comprehensive standardised geriatric assessment at intake and at least every six months (more if the situation worsened), regular home visits, consultation and coordination meetings with healthcare providers involved, together with the older person and his informal caregiver, use of the results of the standardised assessment for making and prioritizing the goals of the care plan, follow-up and evaluation of this care plan by the means of a (preferably shared) patient record, use of (a) evidence-based and interdisciplinary agreed protocols and (b) Registry (list of beneficiaries of the projects)-including prompts for care plan implementation and finally, interventions to discuss the activities of the case managers and the possible strategies for improvement. Finally, the type of case management provided should be linked to the profile of the beneficiary: the higher the dependency level (*i.e.* cognitive and functional), the higher the need for clinical case management. Reversed, frail older people whose functional impairment is lower than 3 on the ADL and 24 on IADL scale could in most cases manage their care on their own. Only if this is not possible, coordination of their care could be supported effectively by a coordinator from a coordination agency, such as GDT/SEL in the Dutch-speaking part of Belgium (“Geïntegreerde Dienst voor Thuiszorgverzorging/Samenwerkingsinitiatief Eerstelijnsgezondheidszorg”) or their French-speaking counterpart, CCSSD (“Centre de Coordination de Soins et de Services à Domicile”), who only coordinates the required care, without the intensity and means included in clinical case management [38]. In between those two extreme situations, social case management would be recommended, in which the case manager is most often a social worker and/or a psychologist.

3.2. Confrontation with the Empirical Data

During the four years of the evaluation, 4711 frail older people were included in the 22 case management projects. Their median age was 81 years (76 - 86); 68.2% were women and 53.1% lived alone. Among them, 17.5% had a low level of deficiency (defined by having CPS and ADL scores below the cut-off of three on both scales), 35.18% had a mean level of deficiency (defined as having ADL or CPS ≥ 3 but no hospitalisation during the three months preceding the inclusion in the case management process) and 9, 78% had a severe level of deficiency (defined as having a ADL or CPS ≥ 3 and a hospitalisation during the three months preceding inclusion). Some features of the seven cases under study are shown in **Table 1**.

Table 1. Some features of the seven projects of the case studies.

	Project 1	Project 2	Project 3	Project 4	Project 5	Project 6	Project 7
Profile of the case managers							
Nurses		Yes		Yes	Yes		Yes
Social workers	Yes		Yes	Yes		Yes	

Continued

Occupational therapists			Yes			Yes	Yes
Psychologists					Yes	Yes	
Educators	Yes						
Active caseload per FTE case manager	1:63	1:67	1:37	1:17,4	1:37	1:20	1:21
Area	Rural	Urban	Urban	Rural	Urban	Rural	Urban
Region	German speaking	Flanders	Flanders	Flanders	Wallonia	Brussels	Flanders
Formal agreements with a coordination centre	Yes	Yes	No	No	Yes	Yes	Yes
Use of the results of BelRAI for the care plan	No	Yes	Yes	No	No	No	Yes
Use of an electronic health record	Yes	Yes	Yes	Yes	Yes	Yes	No

(*) FTE = full time equivalent.

3.3. Identification of Theories in the Literature

Firstly, we found an overall theory of the likely effectiveness of case management to help frail older people to stay at home, in the different levels of integration in the rainbow model of Valentijn *et al.*, as is shown in **Figure 1** [39].

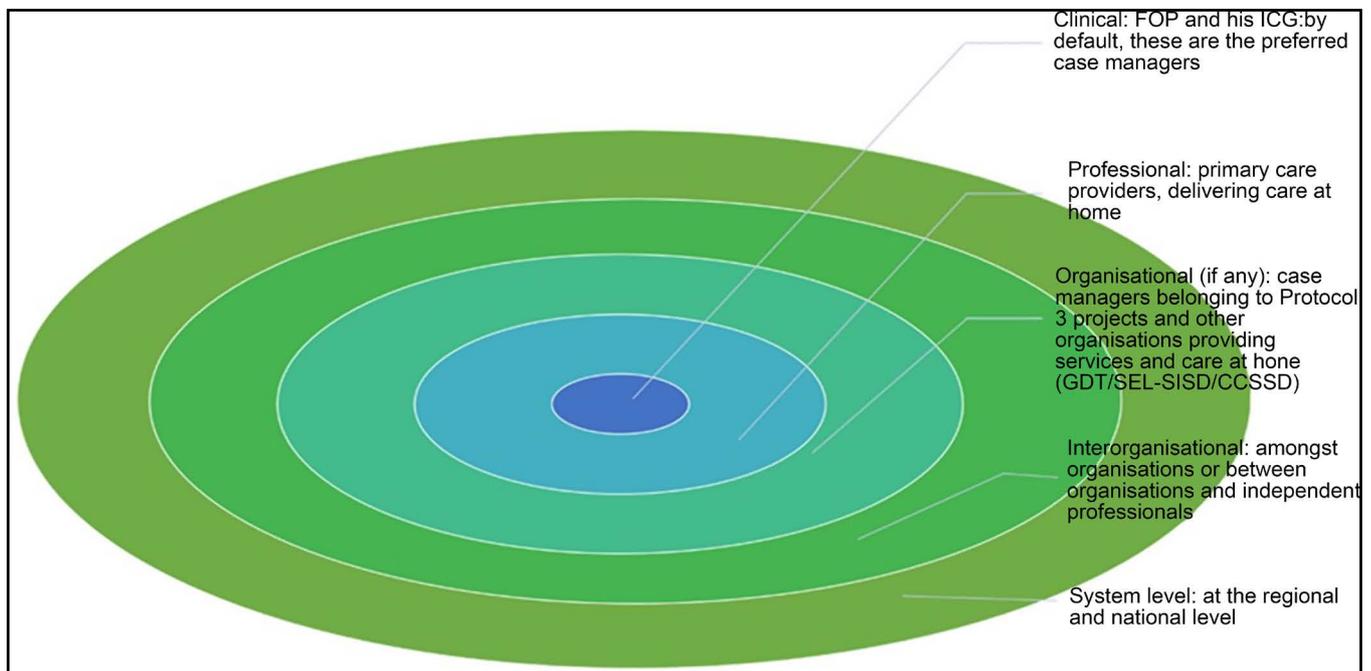


Figure 1. Situation of case management in Belgium within the different levels of care provision. (FOP: Frail Older person; ICG: Informal Caregiver; GDT: Geïntegreerde Dienst voor Thuiszorgverzorging; SEL: Samenwerkingsinitiatief Eerstelijnsgezondheidszorg; CCSSD: Centre de Coordination de Soins et de Services à Domicile).

The care is provided at the individual level, to the frail older people and their informal caregivers (if any), but in coherence with the care provided by primary care providers, which is consistent with the rules of their own organisations (the case management team and the umbrella organisation to which they belong), dependent of existing rules and conventions between organisations (if these exist) and their own corporations (e.g.

nurse, psychologist, physician, social worker, etc.), in accordance with regional and national regulations and paid by NIHDI. Because of this, case management starts at the clinical level but transcends all levels.

Secondly, Wagner's Chronic Care Model was chosen as candidate theory, potentially capable to explain how the components of the interventions interacted with each other to lead to meaningful results for the older people receiving case management.

3.4. Identification of Two Candidate Theories to Refine the Initial Programme Theory of the Interventions

Context-mechanism-outcomes configurations (CMOCs) can be seen as mid-range theories. In this paper, the outcomes of the CMOC are presented from the users' perspective. Enabling contexts will trigger mechanisms leading to positive outcomes. Conversely, hindering contexts will not trigger them, leading to negative outcomes. These contexts can be elements from the inside or the outside of the interventions. Only the CMOCs of the two most frequently reported outcomes are presented in here.

The two main mid-range theories are that the frail older people are staying at home despite their frailty because they (1) feel *capable* of this and (2) they feel *socially supported*. **Table 2** shows in which contexts and by which mechanisms these outcomes are made possible. Mainly, the resources needed by frail older people to trigger reasonings leading to the feeling of capability are linked to their initial status (=context). Findings suggested that the more severe the cognitive impairment, the more the need for clinical case management. Two examples are provided in **Figure 2** and **Figure 3**.

Table 2. First mid-range theory: perception of the frail older person and his informal caregiver about having the capacity—are auto-determined to remain at home—or not.

CONTEXT	MECHANISM		OUTCOMES
	RESOURCES	REASONING	
Having neither ADL nor cognitive impairments	Care coordination provided by a coordination centre	The focus is on facilitation of the access to the care and support needed. "If any crisis situation appears I am, or my informal caregiver is, able to call for adequate help."	Feeling capable to remain at home
Having only a low impairment in ADL (lowADLonly),	Care coordination provided by a coordination centre	In this situation also, the focus is on facilitation, especially through adequate utilisation of information by the frail older person and his informal caregiver	Uncertainty about feeling capable to remain at home or not
Having a high level of ADL impairment (highADLonly)	Social case management	Exacerbations and worsening of the situation are anticipated and prevented.	Not feeling capable to remain

Continued

Having a high level of cognitive impairment (highCPS)	Clinical case management	Exacerbations and worsening of the situation are anticipated and prevented and, in most cases, cared of.
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3.4.1. First Mid-Range Theory: The Frail Older People Are Staying at Home Because They Feel Capable of It

The first context where case management with a professional case manager is likely to affect the perceived capability of the frail older people to remain at home: older persons with a high level of *functional* impairment. In this case, social case management seems more relevant. **Figure 2** shows the configuration of several mechanisms sitting within the CMOCs and can be seen as finer hypotheses about specific causal links and processes within them.

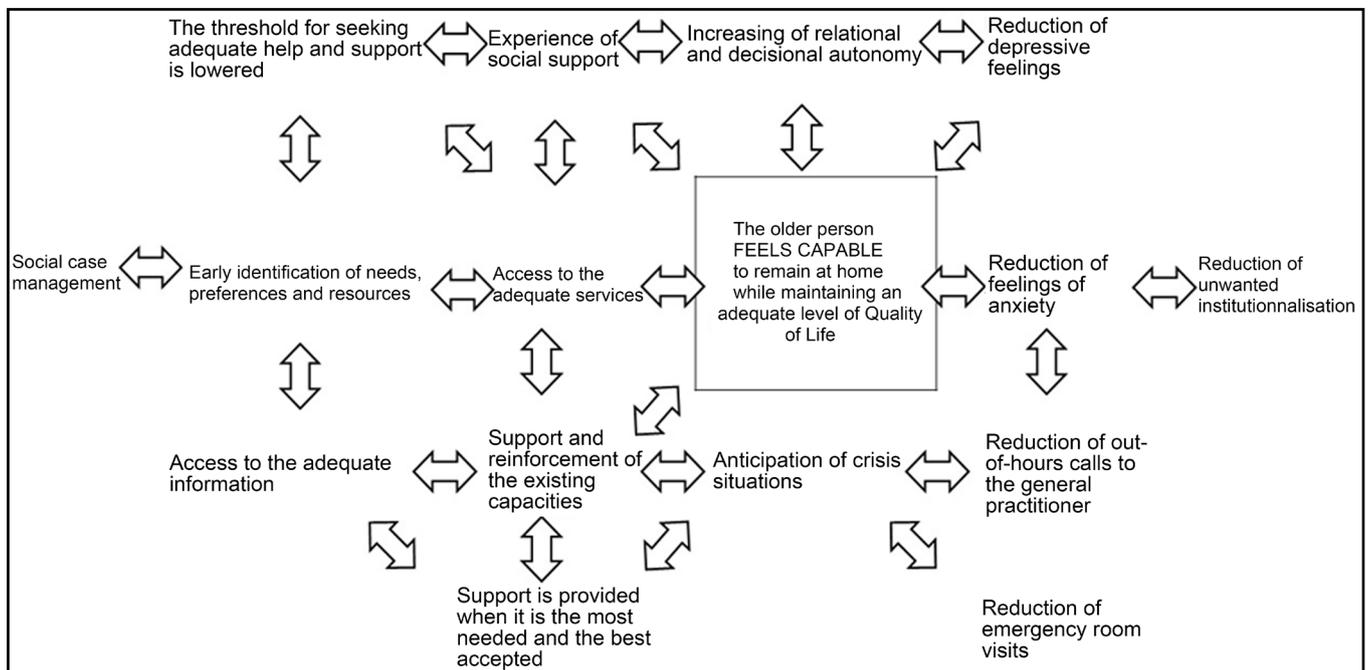


Figure 2. Likely effectiveness of social case management for frail older people (FOP) with a high level of functional impairment on their perceived capability to stay at home.

The second context is where a professional case manager is likely to affect the perceived capability of the frail older people to remain at home for older persons with a high level of cognitive impairment. Findings showed that older people with high cognitive impairment could not live at home without an informal caregiver and therefore, clinical case management for this population systematically concerned the older person-informal caregiver dyad. In comparison with **Figure 2** reflecting social case management, changes appear in bold in **Figure 3**.

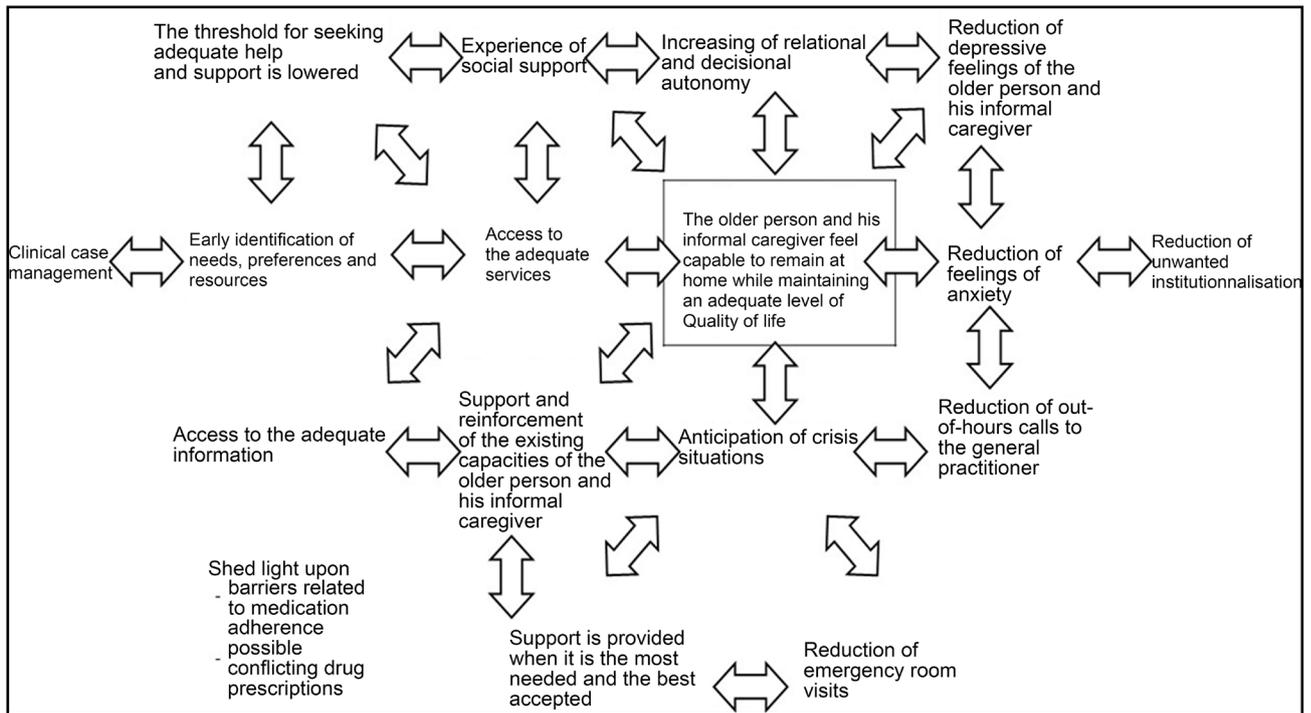


Figure 3. Likely effectiveness of clinical case management for frail older people and informal caregiver with a cognitive impairment on their perceived capability to stay at home.

However, case management can also trigger negative reactions, such as the perception by the beneficiaries that the care is too intrusive, including the care recommended by the case managers. “My home has become a renovated church, in which everyone can enter and I don’t recognize it any more” (older person, benefiting from case management). This is the case with any type of case management, as is shown in **Figure 4**.

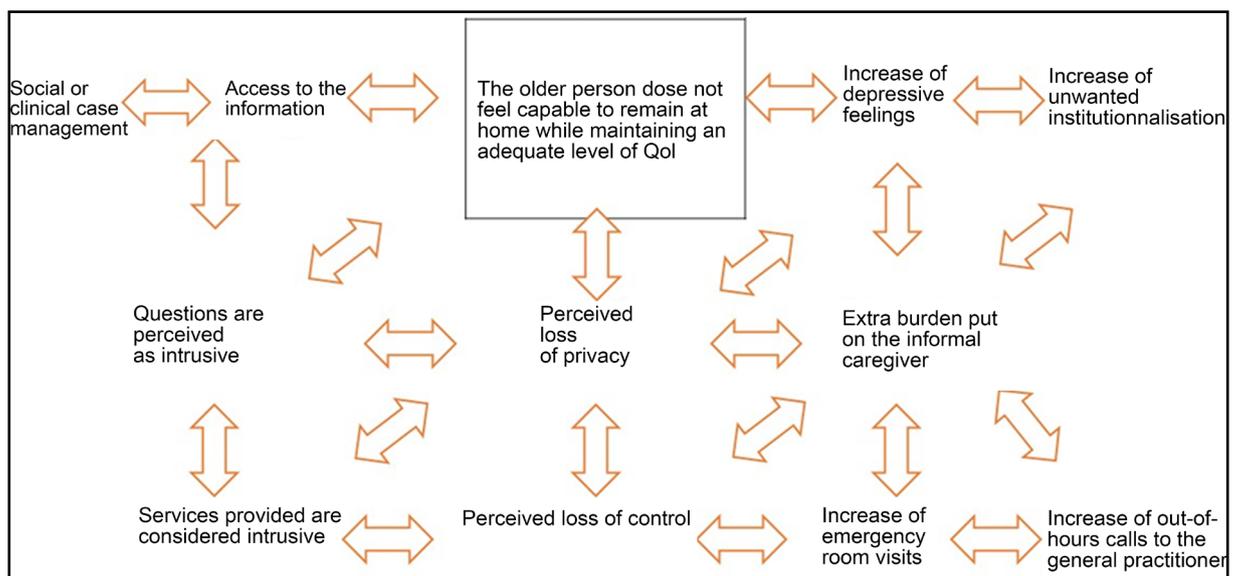


Figure 4. Risk of possible adverse effects of case management for frail older people having a high level of impairment regarding ADL.

3.4.2. Second Mid-Range Theory: The Frail Older People Are Staying at Home Because They Feel Socially Supported

The second most cited intermediate outcome in the findings was related to the *experienced social support*. Four elements of the contexts were identified to trigger positive mechanisms in this domain: the access to adequate training for the case managers, physical accessibility of adequate day care centres, financial and physical access to the relevant services and an adequate caseload for the case managers (*i.e.* less than 40 beneficiaries simultaneously per full time equivalent case manager). In **Figure 5**, the interacting components are shown, starting with the case management providing by a professional having access to adequate training and leading to the outcome of perceived social support. These same mechanisms are triggered by the other contexts mentioned in **Table 3**, highlighting the importance of the accessibility of meaningful activities, often delivered in day care centres. Also, a caseload under 40 per full time equivalent case manager is essential because sufficient time is needed to identify significant others who can support these meaningful activities.

Table 3. Second mid-range theory: The frail older person can remain at home because he and his informal caregiver experience social support and feel they have a place in the community.

CONTEXT	MECHANISMS		OUTCOMES
	RESOURCES	REASONING	
Existing training (including supervisions) to enhance case manager's skills	The case manager has the skills to recognise the signs of social isolation, based on the multidimensional geriatric assessment and clinical judgment during regular home visits.	The older people and their informal caregivers feel recognized in their needs of meaningful social contacts	The older person experiences social support
Physical accessibility of adequate day care centres	The case manager encourages meaningful activities to the older person, such as weekly visits to day care centres	The proposed activities make sense to the frail older people and their informal caregivers The proposed activities induce a feeling of social utility because of the reciprocity of the social interaction. The older people feel they are able to access these activities and anticipate they can benefit from them	
Financial and geographical accessibility to services	The case manager identifies barriers to access the meaningful activities and proposes services to address them (financial, geographical)	Observing peers with similar conditions strengthen the older people's and their informal caregivers' belief that they can succeed in remaining at home	
Adequate caseload of the case manager (< 40 frail older person/FTE case manager) allows for sufficient time spent to identify significant others	The case manager identifies significant others who can support meaningful social interactions with the frail older persons	The older people and their informal caregivers feel socially and emotionally supported by significant others	The older person does not feel supported socially

Figure 5 shows the configuration of several mechanisms embedded within the CMOCs and, as done for the first mid-range theory, can be seen as finer hypotheses about specific causal links and processes within them.

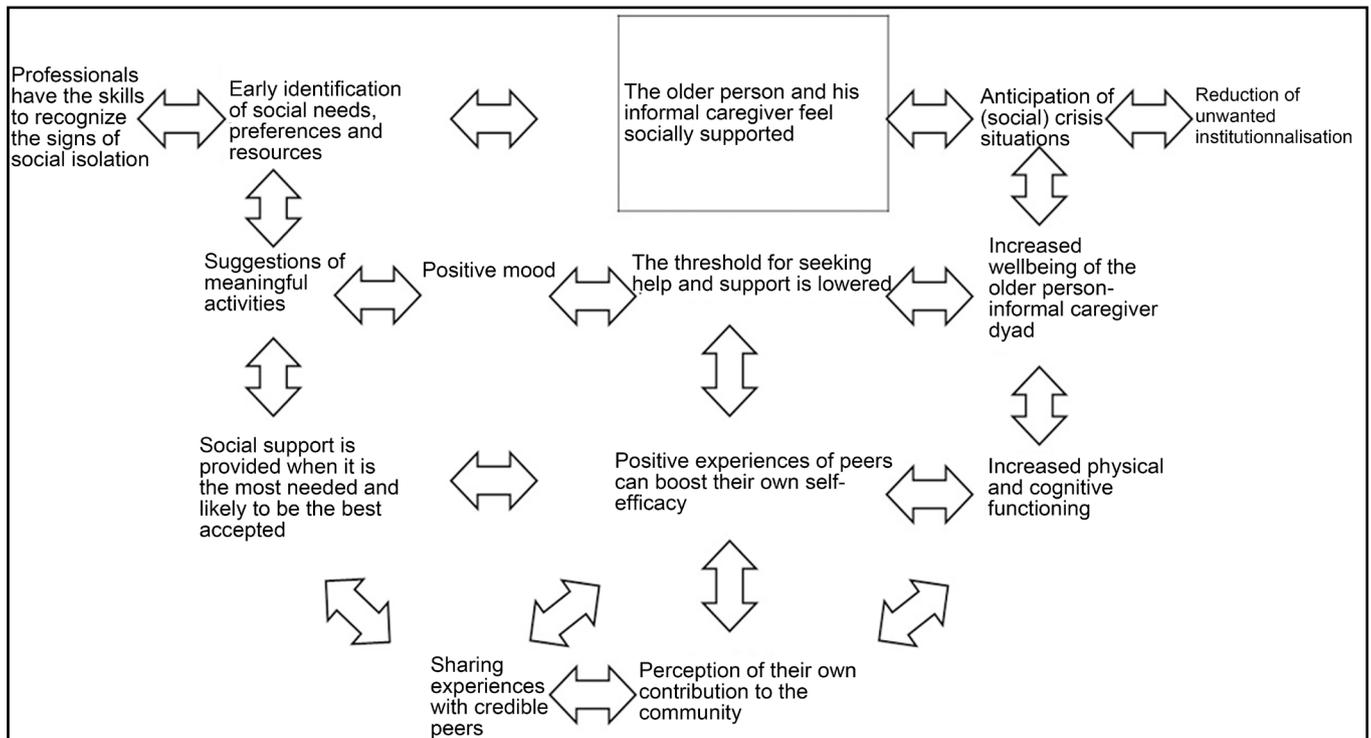


Figure 5. Likely effectiveness of case management providing by professionals having access to adequate training for older people with a cognitive impairment on their perception of social support.

4. Discussion

In this paper, we described how two mid-range theories could foster an adequate framework explaining how and why case management can be effective for frail community-dwelling older people with complex care needs and under what conditions.

First, the older person's perception of its own capability, along with the perception of the informal caregiver can lead to desired outcomes because they can influence the choice of activities (e.g. accepting the services and care offered) and the belief in possible success (remaining at home). It can also influence coping efforts once they are initiated. This is very close to the self-efficacy beliefs of Bandura [40]. Indeed, these efficacy expectations will modulate how much effort will be needed by frail older people and their informal caregivers and how long they will persist to face the difficulties inherent to their complex care needs. Even small adverse events, such as a phone failure, can lead to chain reactions of negative events, leading in turn to self-debilitating expectations (as opposed to self-efficacy beliefs) and feelings of helplessness. This capability can be successfully supported by an adequate type of case management, as severely cognitively impaired frail older people are more likely to be helped by clinical case management, in which case the intervention also encompasses support to medication

adherence and a strong focus on the capabilities and needs of the informal caregiver.

Second, perceived social support identified as a mediator for helping frail older people to stay at home. This can be successfully influenced by the skills of the case manager, who should have access to adequate training and sufficient time to fulfil this important function. Moreover, there is also a need for access to meaningful activities, which in turn can support the need for the feeling of belonging to a community, by learning from each other's shared experiences and contributing to others. This notion of reciprocity in care is absolutely crucial, and can be seen as a "manifestation of mutual respect, which recognises that there is the potential for virtually all kinds of caring relationship to be of mutual benefit" [41].

This does not imply that capability and perceived social support are the only determinants of desirable outcomes for this population. Other skills and resources are also important. However, this analysis showed that beliefs about capability and social support can be an important part of older people's actions and decisions, such as the acceptance of services or activities, how much effort they will expend and how long they will sustain the effort in dealing with the stressful situation inherent to living at home during the old age with complex care needs.

To support these outcomes, some contextual elements are shown to be important. First, there is the crucial point of the identification of the correct beneficiaries, in order to support their care with the adequate level of management. Our results have shown that beneficiaries having neither ADL nor cognitive impairments nor a low level of ADL impairments can sufficiently be supported by coordinators, hired by coordination centres, such as GDT/SEL or CCSSD and do not need the input of professional case managers. Conversely, beneficiaries with a high level of ADL impairment could adequately be helped by a more social type of case management, while beneficiaries having a high level of cognitive impairment need clinical case management. Therefore, careful assessment of the situation, which can evolve rapidly in this population, should be assessed and monitored constantly by primary care providers, if not by the case managers themselves. Second, case managers should be aware that their intervention is also likely to lead to adverse outcomes and take actions to prevent these and, if needed, address them timely. Third, case managers and care coordinators should have access to adequate training in order to provide them with the skills to function as case managers and be able to, among other skills, recognize the situations of social isolation. This is an issue in Belgium, where no specific training for case managers is organised. Part of these skills could be acquired through continuous professional development or service-based training, especially if these are supported by cross-training of health professionals through multidisciplinary education opportunities [42]. Fourth, access to the recommended services should be made possible in a timely manner, especially access day care centres, which can act as an important starting point to (re)connect beneficiaries to their social network, while offering them the opportunity to conduct meaningful activities. Unfortunately, these centres currently have long waiting lists despite their efforts to open their services to as much beneficiaries as possible, e.g. by admitting beneficiaries with cognitive problems immediately, even for only one day per week, while the

average frequentation is three times a week. Furthermore, some regions in Belgium do not have such day care centres (e.g. in German-speaking Belgium). In this study, we only acknowledged the importance of these centres because of the social-related outcome but other studies have shown the benefits of these centres on the burden of the informal caregiver, especially in patients with cognitive impairment [43]. Finally, case managers should have a caseload that does not exceed 40 frail older people-as defined in our study-per full time equivalent case manager. Indeed, the constant monitoring of the situation, directly or by the means of primary care providers who are already in contact with their patient on a daily basis [44]. The latter are also called “sentinel” professionals, who can contact the case manager immediately in case of need of their intervention. This is important to be able to follow-up the situation of the patient on a social level, but of course also on the biomedical and psychological level.

The iterative four-stepped approach recommended by Pawson *et al.* proved very useful to identify and refine two mid-range theories likely to explain why, how and for whom case management could be effective for this population. The strength of this method lays in the possibility to zoom in on context-and-outcome-related mechanism in a highly structured way to unveil explanations about why case management can lead to desired outcomes. The weakness is closely related to this strength. Indeed, because of time constraints, we were only able to unveil a part of the process, *i.e.* those related to the most cited outcomes. This is the case for most of the realist evaluations, can be most frustrating, has to be seen as work-in-progress and calls for further research to unveil the other CMOC in this area [27]. However incomplete, the approach used to identify and refine mid-range theories can be of use for evaluation teams of other bottom-up projects.

Study limitations include the indirect report of the perspective on frail older people, as perceived by the care providers included in the case management projects, as we did neither collect data directly from the beneficiaries of case management nor from their informal caregivers. These results will be confronted when the second part of the evaluation will be carried out, as the evaluation is still ongoing. For this, we plan to interview dyads of older people benefiting from case management and their informal caregivers, along with other care providers at the primary care level, in order to include their point of view on what is it about case management that causes desirable outcomes, for which frail older people, under which conditions and why.

5. Conclusions

As a result of a realist evaluation of case management’s effectiveness to yield desirable outcomes for frail, community-dwelling older people, we used the capability and perceived social support framework as a mid-range theory. Unlike systematic reviews including solely experimental designs, this approach enabled us to explain that case management is likely to foster positive outcomes if the type of case management is focused on the capability and the perceived social support of the beneficiaries. It should be able to guide professionals, teachers and case management supervisors to strengthen case

management teams and individual case managers' skills to support beneficiaries' beliefs about their own capabilities and perceived social support, as an important means to help them to remain at home in good conditions for as long as they wish.

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References

- [1] van Kempen, J.A.L., *et al.* (2014) Construct Validity and Reliability of a Two-Step Tool for the Identification of Frail Older People in Primary Care. *Journal of Clinical Epidemiology*, **67**, 176-183. <http://dx.doi.org/10.1016/j.jclinepi.2013.08.008>
- [2] Paulus, D.v.d.H., K. and Mertens, R. (2012) Chronic Care in Belgium: Development of a Position Paper. Belgian Healthcare Knowledge Centre (KCE), Brussels. https://kce.fgov.be/publication/report/position-paper-organisation-of-care-for-chronic-patients-in-belgium#.V_tNvFSLSt8
- [3] Leichsenring, K., Billings, J. and Nies, H. (2013) Long-Term Care in Europe: Improving Policy and Practice. Palgrave Macmillan, Basingstoke, 1-416.
- [4] Goodwin, N. (2013) Understanding Integrated Care: A Complex Process, a Fundamental Principle. *International Journal of Integrated Care*, **13**, . <http://dx.doi.org/10.5334/ijic.1144>
- [5] Lloyd, J.W. (2005) Suzanne, Integrated Care: A Guide for Policy Makers, in Alliance for Health and the Future. http://www.ilcuk.org.uk/images/uploads/publication-pdfs/pdf_pdf_7.pdf
- [6] National Collaboration for Integrated Care and Support (2013) Our Shared Commitment. National Collaboration for Integrated Care and Support. <https://www.gov.uk/government/publications/integrated-care>
- [7] Wagner, E.H., Austin, B.T. and Von Korff, M. (1996) Organizing Care for Patients with Chronic Illness. *Milbank Quarterly*, **74**, 511-544. <http://dx.doi.org/10.2307/3350391>
- [8] Vlayen J, V.D.W.G., Camberlin, C., Paulus, D., Leys, M. and Ramaekers, D. (2006) Clinical Quality Indicators. Belgian Healthcare Knowledge Centre (KCE), Brussels.
- [9] ElZarrad, M.K., Eckstein, E.T. and Glasgow, R.E. (2013) Applying Chronic Illness Care, Implementation Science, and Self-Management Support to HIV. *American Journal of Preventive Medicine*, **44**, S99-S107. <http://dx.doi.org/10.1016/j.amepre.2012.09.046>
- [10] Nolte, E. and McKee, M. (2008) Caring for People with Chronic Conditions: A Health System Perspective (European Observatory on Health Systems and Policies). European Observatory on Health Systems Policies Series. Vol. 1, Open University Press, Maidenhead.
- [11] CMSA—Case Management Society of America (2011) Definition of Case Management. <http://www.cmsa.org/PolicyMaker/ResourceKit/AboutCaseManagers/tabid/141/Default.aspx>
- [12] AHRQ (2013) Outpatient Case Management for Adults with Medical Illnesses and Complex Care Needs, R.Q. Agency for Healthcare, Editor.
- [13] Bernabei, R., Onder, G. and Landi, F. (2010) Comprehensive Care for Older Adults: Case Management Approach. *Journal of the American Geriatrics Society*, **58**, 1202-1203. <http://dx.doi.org/10.1111/j.1532-5415.2010.02884.x>
- [14] May, C.R., Eton, D.T., Boehmer, K., Gallacher, K., Hunt, K., MacDonald, S., *et al.* (2014) Rethinking the Patient: Using Burden of Treatment Theory to Understand the Changing

- Dynamics of Illness. *BMC Health Services Research*, **14**, 281.
<http://dx.doi.org/10.1186/1472-6963-14-281>
- [15] Barbic, S., Mayo, N.E., White, C.L. and Bartlett, S.J. (2014) Emotional Vitality in Family Caregivers: Content Validation of a Theoretical Framework. *Quality of Life Research*, **23**, 2865-2872. <http://dx.doi.org/10.1007/s11136-014-0718-4>
- [16] Lamont, T., Barber, N., de Pury, J., Fulop, N., Garfield-Birkbeck, S., Lilford, R., et al. (2016) New Approaches to Evaluating Complex Health and Care Systems. *BMJ*, **352**, i154.
<http://dx.doi.org/10.1136/bmj.i154>
- [17] Pawson, R. (2012) Evidence-Based Policy: A Realist Perspective. Sage Publication, London.
- [18] Mitchell, M. (2011) Complexity: A Guided Tour. Oxford University Press, New York, 368.
- [19] Greenhalgh, T., Kristjansson, E. and Robinson, V. (2007) Realist Review to Understand the Efficacy of School Feeding Programmes. *BMJ*, **335**, 858-861.
<http://dx.doi.org/10.1136/bmj.39359.525174.AD>
- [20] Puntun, M. (2016) Reflections from a Realist Evaluation in Progress: Scaling Ladders and Stitching Theory. *IDS Bulletin*, **18**, 12.
- [21] Wong, G., Greenhalgh, T., Westhorp, G., Buckingham, J. and Pawson, R. (2013) RAMESES Publication Standards: Realist Syntheses. *BMC Medicine*, **11**, 21.
<http://dx.doi.org/10.1186/1741-7015-11-21>
- [22] Wong, G., Westhorp, G., Manzano, A., Greenhalgh, J., Jagosh, J. and Greenhalgh, T. (2016) RAMESES II Reporting Standards for Realist Evaluations. *BMC Medicine*, **14**, 96.
<http://dx.doi.org/10.1186/s12916-016-0643-1>
- [23] Rolfson, D.B., Majumdar, S.R., Tsuyuki, R.T., Tahir, A. and Rockwood, K. (2006) Validity and Reliability of the Edmonton Frail Scale. *Age and Ageing*, **35**, 526-529.
<http://dx.doi.org/10.1093/ageing/af041>
- [24] Buntinx, F., Paquay, L., Fontaine, O., Ylief, M. and De Lepeleire, J. (2004) Options for a New Procedure for Determining Care Needs in Belgium: An Initial Exploration. *Archives of Public Health*, **62**, 173-184.
- [25] de Almeida Mello, J., Van Durme, T., Macq, J. and Declercq, A. (2012) Interventions to Delay Institutionalization of Frail Older Persons: Design of a Longitudinal Study in the Home Care Setting. *BMC Public Health*, **12**, 615.
<http://dx.doi.org/10.1186/1471-2458-12-615>
- [26] Wong, G., Greenhalgh, T. and Pawson, R. (2010) Internet-Based Medical Education: A Realist Review of What Works, for Whom and in What Circumstances. *BMC Medical Education*, **10**, 12. <http://dx.doi.org/10.1186/1472-6920-10-12>
- [27] Wong, G., Greenhalgh, T., Westhorp, G. and Pawson, R. (2012) Realist Methods in Medical Education Research: What Are They and What Can They Contribute? *Medical Education*, **46**, 89-96. <http://dx.doi.org/10.1111/j.1365-2923.2011.04045.x>
- [28] George, A. and A. Bennett (2005) Case Studies and Theory Development in the Social Sciences. MIT Press, Cambridge, MA.
- [29] Pawson, R., Tilley, N. (2013) Realistic Evaluation. Sage, London.
- [30] Collier, D. (2011) Understanding Process Tracing. *PS: Political Science and Politics*, **44**, 823-830.
- [31] Eisenhardt, K. (1989) Building Theories from Case Study Research. *The Academy of Management Review*, **14**, 532-550.
- [32] Gerring, J. (2007) Case Study Research: Principles and Practices. Cambridge University Press, Cambridge.

- [33] Yin, R. (2009) Case Study Research: Design and Methods. Sage, Thousand Oaks.
- [34] InterRAI (2016) Instruments: An Overview of the InterRAI Suite. <http://interrai.org/instruments.html>
- [35] Rycroft-Malone, J., et al. (2012) Realist Synthesis: Illustrating the Method for Implementation Research. *Implementation Science*, 7, 33. <http://dx.doi.org/10.1186/1748-5908-7-33>
- [36] Van Durme, T., Billings, J., Cès, S., Schmitz, O. and Macq, J. (2016) A Realist Synthesis of Case Management for Community-Dwelling Older People: An Overview. *The 2nd International Conference on Realist Evaluation and Synthesis: Strengthening Principles, Advancing Practice*, London.
- [37] Van Durme, T., Schmitz, O., Maggi, P., Delye, S., Gosset, C., Lopez-Hartmann, M., Remmen, R. and Macq, J. (2014) Scientific Evaluation of Projects of Alternative Forms of Care or Support of Care for Frail Elderly, in Order to Allow Them to Maintain Their Autonomy and to Live Independently in Their Homes: “Protocol 3”—Contextual Description of Projects’ Components and Implementation Analysis. National Institute of Health and Disability Insurance, Brussels, 320.
- [38] Van Durme, T., et al. (2015) A Comprehensive Grid to Evaluate Case Management’s Expected Effectiveness for Community-Dwelling Frail Older People: Results from a Multiple, Embedded Case Study. *BMC Geriatrics*, 15, 67. <http://dx.doi.org/10.1186/s12877-015-0069-1>
- [39] Valentijn, P.P., Schepman, S.M., Opheij, W. and Bruijnzeels, M.A. (2013) Understanding Integrated Care: A Comprehensive Conceptual Framework Based on the Integrative Functions of Primary Care. *International Journal of Integrated Care*, 13, e010. <http://dx.doi.org/10.5334/ijic.886>
- [40] Bandura, A. (1977) Self-Efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review*, 84, 191-215. <http://dx.doi.org/10.1037/0033-295X.84.2.191>
- [41] Draper, H. (2014) Care, Reciprocity and Being Valued. B.P. Commission, Birmingham.
- [42] Langins, M. and Borgermans, L. (2015) Strengthening a Competent Health Workforce for the Provision of Coordinated/Integrated Health Services. Working Document, WHO.
- [43] Mello, J.A., Macq, J., Van Durme, T., Cès, S., Spruytte, N., Van Audenhove, C. and Declercq, A. (2016) The Determinants of Informal Caregivers’ Burden in the Care of Frail Older Persons: A Dynamic and Role-Related Perspective. *Aging & Mental Health*, 1-6. <http://dx.doi.org/10.1080/13607863.2016.1168360>
- [44] Somme, D., Trouve, H., Dramé, M., Gagnon, D., Couturier, Y. and Saint-Jean, O. (2012) Analysis of Case Management Programs for Patients with Dementia: A Systematic Review. *Alzheimer’s & Dementia*, 8, 426-436. <http://dx.doi.org/10.1016/j.jalz.2011.06.004>

Managing the Needs of Older Patients with Multimorbidity—A Systematic Review of the Challenges Faced by the Healthcare Services

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Abstract

Research fails to provide an overview of the challenges involved in caring for older patients with multimorbidity. Multimorbidity is defined as the presence of two or more chronic conditions in the same person, leading to a high risk of care dependency. The aim of this review was to illuminate the challenges faced by the healthcare services in managing the needs of older patients with multimorbidity. A systematic review was performed, a total of 1,965 abstracts were read and nine quantitative studies included. Data were analysed by thematic synthesis, revealing six themes: A frequent problem in older female patients; High healthcare expenditure and costs, Medication management problems, Social inequities, Complex healthcare and consultation needs and High mortality. The study highlights that healthcare professionals struggle to obtain suitable guidelines for the care of patients with multimorbidity while trying to respond to their needs. Patient-centred integration across settings and coordination in clinical practice are necessary. The healthcare system today does not seem to focus on patient safety and preventing harm. Older patients should be reviewed by a healthcare professional responsible for coordinating their care. To ensure safe and effective care for elderly persons with multimorbidity, the healthcare services should abandon the current focus on managing innumerable individual diseases and conditions.

Keywords

Healthcare Services, Multimorbidity, Older Patients, Systematic Review, Thematic Synthesis

1. Introduction

The healthcare needs of older patients with multimorbidity are described as one of the

challenges for healthcare systems across the world in the 21st century [1]. However, research fails to provide an overview of the challenges involved in caring for older patients with multimorbidity. Multimorbidity is defined as the presence of two or more chronic conditions in the same person, leading to a high risk of care dependency [2]. In the last decade some studies have focused on the healthcare needs of older patients with multimorbidity. In nursing research, Summer Meranius and Engstrom [3] explored medication self-management among older people with multimorbidity. The participants experienced uncertainty that increased with their experience of side effects, leading to concern that the medication might be harmful. Four other qualitative studies investigated perceptions and experiences of older patients with multimorbidity, mainly from the perspective of physicians [4]-[7]. Bayliss *et al.* [4] revealed that the patients wanted easy access to healthcare, individualized care plans, support from one care coordinator and continuity of relationships with healthcare professionals who had a caring attitude, listened to them and appreciated that their needs were unique and fluctuating. Fortin *et al.* [5] demonstrated that patients with multimorbidity were open to the participation of nurses in primary care practice. They expected greater accessibility for both themselves and for other patients. Grundberg *et al.* [6] described the variation in how older persons with multimorbidity perceived their mental health and what influences it. Mental health was defined as how a person feels and included a positive as well as a negative aspect. Social contacts, physical activity and optimism may improve mental health, while social isolation, ageing and chronic pain may cause it to deteriorate [6]. Gustafsson *et al.* [7] found one theme; Challenging current professional identity based on three sub-themes; 1) Adjusting to familiar work in an unfamiliar role; 2) Striving to improve the health system through a new role; 3) Trust is vital for advocacy [7]. A cross-sectional study by Noël *et al.* [8] compared the self-management learning needs and willingness to encounter non-physician care providers of patients with multimorbidity and those with a single chronic illness. They concluded that the self-management learning needs of patients with multimorbidity are extensive and that they prefer team-based primary care [8].

According to Salisbury [9], the management of patients with multimorbidity is now the most important task facing health services in developed countries, which presents a fundamental challenge to the single-disease focus. The aging population means that the proportion of people with several coexisting health problems is increasing rapidly. Thus, while multimorbidity is not only a problem for older people, the prevalence is much higher in older age groups, with 65% of people aged 65 - 84 years and 82% of people aged 85 years and over suffering from coexisting illnesses [10]. Older people with multimorbidity have a higher degree of disability, psychological distress, risk of mortality and utilization of healthcare services than if one considered one of their chronic conditions in isolation [11]. The relationship between different chronic diseases and conditions can increase risk factors referred to as patient complexity [12]. Older people need to maintain autonomy despite reduced health, for which they require social support and high quality healthcare services [12]. There is an urgent need to describe the characteristics of older people with multimorbidity, such as their demographic and

cultural background, earlier crises and trauma at personal and/or social level [12] [13].

Healthcare systems and models need clinical guidelines related to self-management for older people [14]. According to Salisbury [9], healthcare professionals should focus more on learning how to promote patient self-management, including how different physical and mental health problems and diseases interact and how to help the patient to make healthcare decisions in the face of competing priorities. Older people with depression and physical diseases need self-management ability to prevent stigma and social exclusion [15]-[17].

Nursing research on older persons with multimorbidity from a health and home care perspective is lacking. Nursing care is essential in both home and primary care. In the healthcare services the involvement of different healthcare professionals can increase the risk of competing demands in treatment and care, resulting in reduced coordination and communication [17], as well as fragmentation of the healthcare system [18].

Aim

The aim of this study was to illuminate the challenges faced by the healthcare services in managing the needs of older patients with multimorbidity.

2. Methods

A systematic review method was used to investigate the quality of the included studies [19].

2.1. Inclusion and Exclusion Criteria

The studies, which were published between January 2005 and December 2015, included older adults aged 50 years and over. The inclusion criteria were: published in the English language in peer-reviewed journals, multimorbidity, house-bound elderly individuals, healthcare, home healthcare. The exclusion criteria were: review studies, qualitative studies, theoretical studies, studies of younger persons, studies published before 2005 and studies without multimorbidity, health, healthcare, health utilization or healthcare services in the title.

2.2. Literature Search

Electronic searches were performed in Academic Search Premier (290), Ovid Medline (1), PubMed (812), CINAHL (90) and ProQuest (772) for the period January 2005-December 2015 (see **Table 1**). A total of 1965 abstracts were read and 30 studies retrieved for further investigation. A manual search yielded an additional two studies. The retrieval and selection process, which is presented in **Figure 1**, resulted in a total of nine quantitative studies.

2.3. Evaluation of the Included Studies

A systematic evaluation was conducted on the studies that met the inclusion criteria, which comprised an assessment of the validity and a systematic presentation of the

findings. Similar evaluations have been done of in earlier systematic reviews [20] [21]. In this study the PRISMA checklist was employed [22], **Table 2**.

The studies included a broad spectrum of content, measurements and statistical analyses across varying time periods, making a meta-analysis impossible [23]. An important aspect of systematic reviews is examination of the methodologies of the primary studies [19] [21]. The PRISMA checklist was used to review methodological aspects of the design, sample size, response rate, causality, measurements, generalization and ethical approval [20], in addition to other methodological literature [19] [23]-[25].

Design; Five of the studies were described as having a cross-sectional design [26] [28]-[30]. One study took the form of a survey [31], while one was part of a longitudinal

Table 1. The search process in databases.

Academic Search Premier	Search words	Results
	multimorbidity, elderly	219
	AND healthcare	57
	AND/OR home healthcare, healthcare services	14
Ovid Medline	multimorbidity, elderly	1
PubMed	AND/OR home healthcare	533
	AND/OR healthcare services	279
CINAHL	multimorbidity, elderly	89
	AND/OR home healthcare, healthcare services	1
ProQuest	multimorbidity, elderly	772
	AND/OR home healthcare, healthcare services	0

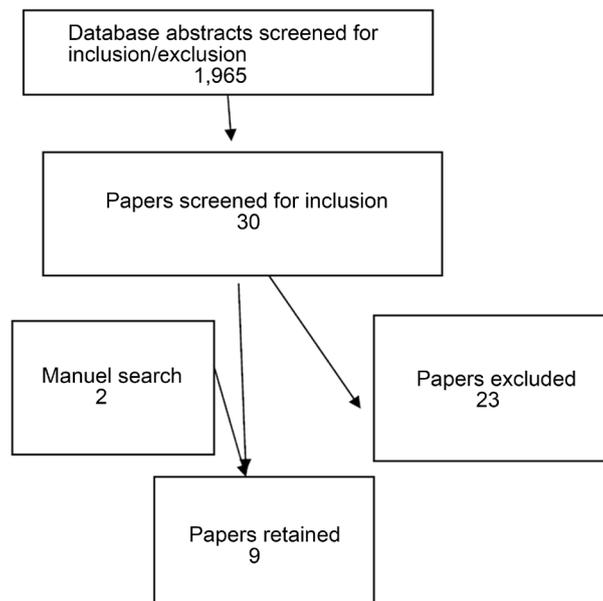


Figure 1. Search and retrieval process.

Table 2. Summary of articles on the healthcare services and older patients with multimorbidity.

Author Year, Country	Aim	Design Measurements	Statistical Analysis	Conclusion
1. Bähler <i>et al.</i> (2015) SWITZERLAND	To examine the association between multi-morbidity, healthcare utilization and costs in the community.	Quantitative, cross-sectional. PCG.	Descriptive statistics.	The burden of multi-morbidity is a fundamental aspect the management of patients in health service delivery systems and for healthcare policy debates about resource allocation. Strategies for better coordination of multi-morbid patients are urgently needed.
2. Glynn <i>et al.</i> (2011) IRELAND	To examine the prevalence and associated healthcare utilization and cost of patients with multimorbidity.	Quantitative ICPC-2, HSU, HCC.	Binary Logistic regression.	Multi-morbidity is common in primary care and in a system with strong gate-keeping is associated with high healthcare utilization and cost. Interventions to address quality and cost associated with multi-morbidity must focus on primary as well as secondary care.
3. Holzhausen <i>et al.</i> (2011) GERMANY	To develop a conceptual framework and a set of standardized instruments and indicators for continuous monitoring of multi-morbidity and associated healthcare needs in the population.	Quantitative, longitudinal. ADL, BSSS, DSST, CAPI, CATI, IPANAS, OMAHA, MILVA, PCI, PHQ, SWLS, QoL, FLQM. Self-administered questionnaire.	Not reported.	This study added methodological and content-specific discourses on human resources for maintaining quality of life and autonomy throughout old age, even in the face of multiple health complaints.
4. Jowsey <i>et al.</i> (2013) AUSTRALIA	To identify how much time people with multiple chronic conditions spend managing their health that will help policy makers and health service providers make decisions about areas in which patients need support.	Quantitative, cross sectional survey. Recall questionnaire COPD, NDSS, NSA.	Descriptive analyses.	Multi-morbidity imposes considerable time burdens on patients. Ageing is associated with increasing rates of multi-morbidity. Many older adults experience high demands on their time to manage their health in the face of decreasing energy and mobility. Their time use must be considered in health service delivery and health system reform.
5. Nunes <i>et al.</i> (2015) BRAZIL	To verify the prevalence and distribution of multi-morbidity in Brazilian older adults.	Quantitative. Cross-sectional. Face-to-face interviews. Structured self-reported questionnaires.	Stat version 12.	Multimorbidity frequency was high in the sample studied. The social inequities identified increased the challenges faced by the health system in the management of multimorbidity, requiring comprehensive and multidimensional care. The combinations of diseases can provide an initial reason for including multimorbidity in Brazilian clinical protocols.
6. Orueta <i>et al.</i> (2014) USA	To present an overview of the prevalence and costs of multi-morbidity by socio-economic levels in the whole Basque population.	Quantitative cross-sectional.	Descriptive statistics.	Multi-morbidity is common and its prevalence increases with age and an unfavorable socio-economic environment. The costs of care for patients with several chronic conditions cannot be described as the average sum of their individual pathologies. Given the ageing population, multi-morbidity and its consequences should be taken into account in healthcare policy, the organization of care and medical research.
7. Perruccio <i>et al.</i> (2012) CANADA	To investigate the association between multi-morbidity—a construct comprising several health domains—and overall self-rated health (SRH), an important chronic disease health outcome.	Quantitative survey. SRH.	Bivariate analyses.	The findings suggested that focus on one domain in health research may limit the researchers' ability to understand health outcomes for which SRH is a predictor.

Continued

8. Tooth <i>et al.</i> (2008) AUSTRALIA	To develop indexes of multi-morbidity based on self-reported data, to predict mortality, health service use, help with activities of daily living (ADL) and health-related quality of life (HRQOL) in older women.	Quantitative, cross-sectional survey. Self-reported questionnaires. ADL, HRQOL.	Multiple linear regression.	These multi-morbidity indexes predict mortality, health service use, help with ADL and HRQOL in older women. The indexes could be used as covariates in research, with weighted scores having a better chance of discriminating between patient groups than unweighted scores.
9. Van Oostrom <i>et al.</i> (2014) THE NETHERLANDS	To examine the relationship between having multiple diseases and the number of contacts with general practice.	Quantitative LINH.	Negative binomial regression analyses with a log-link function.	Multi-morbidity is associated with increased healthcare utilization in general practice, yet the increase declines per additional disease. Nevertheless, with the expected rise in multi-morbidity in the coming decades more extensive health resources will be required.

ADL, Activities of Daily Living. B.IPQ, Brief Illness Perceptions Questionnaire. BSSS, Assessment of subjective social support. CAPI, CATI, Computer Assisted Interviews. Nationwide population sample of men and women aged 65 years and older who participated in previous German Health Telephone Surveys. DSST, Digit Symbol Substitution Test. FLQM, Fragebogen zur Lebensqualität multimorbider älterer Menschen. HSRQOL, Health Related Quality of Life. ICPC, International Classification of Primary Care. HSU, Health Services Utilization. HCC, Health Care Costs. IPANAS, International Positive and Negative Affect Schedule. LINH, the Netherlands Information Network of General Practice. NDSS, National Diabetes Services Scheme. NSA, National Seniors Australia. PCG, Pharmacy-based Cost Group. OMAHA, population-based longitudinal epidemiological study of multimorbidity in population aged 65 years and older. PACIC, Patient Assessment of Chronic Illness Care. PCI, Proactive Coping Inventory. PHQ, Patient Health Questionnaire. SRH, Self-Rated Health.

design [30]. There was no information about the design in two of the studies [33] [34]. *Causality*; It was stated in one cross-sectional study that the design made it impossible to draw any causal conclusions [29]. Four of the other cross-sectional studies did not discuss any problems related to causality or internal validity [26] [28] [30]. Holzhausen *et al.* [32] reported that their longitudinal study provided opportunities for analyses of health trajectories, longitudinal relationships of outcome determinants and most importantly, causal relationships between conditions and trajectories over an 18 month period. Perruccio *et al.* [31] stated that their survey intended to convey theorized causal pathways and not longitudinal evolution. *Selection bias*; It was reported in one study that the findings could be subject to selection bias [29]. Nunes *et al.* [30] stated that the probability of selection bias in their population-based study was low due to the small number of drop outs and refusals [30]. Holzhausen *et al.* [32] recommended that a strategy of oversampling underrepresented, yet notably prevalent and politically important groups, could serve as a means of minimizing selection bias in future studies [32]. In one study it was suggested that the low response rate might have introduced selection bias because responders could have been more health conscious and hence more likely to report better self-rated health [31]. Three studies provided no information about selection bias [26] [28] [34]. However, Tooth *et al.* [26] stated that their sample was randomly selected with purposive oversampling in rural and remote areas [26]. The *sample size* of the studies ranged from N = 9958 to N = 229,493 (Table 2). In two studies the sample was described as relatively small [27] [33]. Four studies presented no information about selection bias related to sample size [26] [28] [31] [34]. *Measurements*; In one study it was stated that no standardized measure of multimorbidity exists for epidemiological surveys [29]. Different countries and research groups

employ a variety of coding systems for chronic diseases, which means that results cannot be directly compared between countries [29]. One study reported the lack of a validated instrument for administration and that the assessment of subjective social support was restricted to one cohort [32]. Holzhausen *et al.* [32] stated that after completion of the analyses related to the validity and reliability of adaptations of existing measurement tools and a newly developed quality of life assessment, they would be able to provide a comprehensive set of instruments for face-to-face and telephone assessment in population-based health surveys. Seven studies provided no description of the validity or reliability of the measurements used [26]-[29] [31] [33] [34]. One study reported a limitation due to self-reported data [26]. *Statistical analysis*; Seven studies contained information about the statistical analysis used (Table 2), while two did not [30] [32]. Holzhausen *et al.* [32] explained that no power calculation was considered and that a statistician supervised, validated and, where necessary, corrected the data throughout the data collection process. Nunes *et al.* [30] described using Stata version 12. *Generalization*; In one study it was stated that generalizability was limited to elderly community dwelling individuals [31]. Another study used definitions to enhance the precision and generalizability of findings [33]. Three studies had samples that were predominantly female [26] [30] [31]. Seven studies did not mention anything about generalization to other older persons [26]-[30] [32] [34].

Demographic data; All the included studies contained some demographic data (see Table 3).

2.4. Data Analysis

The authors of the present review investigated the healthcare received by older patients with multimorbidity using a qualitative analysis to produce a thematic synthesis. The first author identified, grouped and summarized the findings as described by Pope *et al.* [35]. The thematic synthesis emerged by reading and re-reading the studies in order to synthesize the findings [19] [36]. Different patterns and concepts were identified across the data, leading to common meanings and concepts that were considered descriptions of the healthcare received by older patients with multimorbidity. The three authors discussed the emerging themes on several occasions before reaching consensus on the labelling.

3. Findings

The six themes pertaining to the needs of older patients with multimorbidity in the healthcare services were: A frequent problem in older female patients; High healthcare expenditure and costs, Medication management problems, Social inequities, Complex healthcare and consultation needs and High mortality (see Table 4).

3.1. A Frequent Problem in Older Female Patients

Six studies stated that multimorbidity was high and constituted a significant problem in older adults [28]-[32] [34]. Orueta *et al.* [28] added that the distribution of the population

by age group, as well as the average number of chronic diseases per patient, was 0.97 overall. Multimorbidity affected more than half of the population over 65 years and more than three quarters of those aged between 80 and 84 years [28].

Table 3. Multimorbidity and demographic characteristics.

1 st author, year	Sex/Age	Sample size	Ethnicity	Multimorbidity (chronic diseases/conditions)
1. Bähler <i>et al.</i> (2015) SWITZERLAND	58.4 % female 46.4% male. 65 years and older.	N = 229,493	German 75.9%, French 15.2%, Italian 8.7%, Rhaeto-Romansh 0.2%	76.6% of the sample had two or more chronic diseases, specified as; Acid related disorders, Osteoporosis, Cancer, Cardiovascular diseases, Dementia, Diabetes mellitus, Epilepsy, Glaucoma, Gout/Hypereuricemia, HIV, Hyperlipidemia, Intestinal inflammatory diseases, Iron deficiency anemia, Migraines, Pain, Parkinson's disease, Psychological disorders, Psychoses, Respiratory illness (asthma, Chronic Obstructive Pulmonary Disease, COPD), Rheumatologic conditions, Thyroid disorders and Tuberculosis.
2. Glynn <i>et al.</i> (2011) IRELAND	50.9% female 49.1% male. 50 years and older.	N = 3309	Predominantly white 99%	66.2% of the total sample had two or more chronic diseases (>4). The diseases were not specified.
3. Holzhausen <i>et al.</i> (2011) GERMANY	Sex not reported. 50 years and older.	N = 1481 N = 1552	Not reported.	The sample was specified as having; Operations, Regular medication, Depression, Falls, Fractures, Medical care, Blood pressure, Weight, Height, Circumference of waist, calf, arm.
4. Jowsey <i>et al.</i> (2013) AUSTRALIA	Sex not reported. 50 years and older.	N = 10,600	Not reported.	The sample were specified with; Diabetes 2, Chronic heart failure and Chronic obstructive pulmonary disease.
5. Nunes <i>et al.</i> (2015) BRAZIL	62.8% female, 37.2% male. 60 years and older.	N = 1593	White 78.6%, Black 8.7%, Brown/yellow/indigenous 12.7%.	The sample was specified as having; High blood pressure, Diabetes, Lung problems/disease, Stroke, Rheumatism, Arthritis or arthrosis, Disease in spinal column, Cancer, Kidney, Cognitive impairment, Depression, Urinary incontinence, Amputation, Poor eyesight, Impaired hearing, Difficulty chewing food, Falls.
6. Orueta <i>et al.</i> (2014) SPAIN	1,151.648 female, 1,111.050 male. 65 years and older.	N = 2,262,698	Not reported.	23.6% of the sample had two or more chronic diseases, but the diseases were not specified.
7. Perruccio <i>et al.</i> (2011) USA	62.2% female, 37.8% male. 65 years and older.	N = 958	Not reported	The sample was specified as having; Stroke, Cancer, Heart attack, Congestive heart failure, High blood pressure, Diabetes, Kidney disease, Asthma, Bronchitis, Emphysema, or other Lung disease, Ulcer or Stomach disease, Anemia or other Blood disease, Rheumatoid arthritis.
8. Tooth <i>et al.</i> (2008) AUSTRALIA	100% female. 73 years and older.	N = 10,434	Not reported.	The sample was specified as having; Heart disease, Chest pain, Stroke, Hypertension, Fall causing serious injury, Fall requiring medical attention, Fall causing fractures, Urinary incontinence, Low iron, Arthritis, Osteoporosis, Bronchitis/emphysema, Asthma, Diabetes, Skin cancer, Other cancers, Depression, Anxiety, Alzheimer.
9. van Oostrom <i>et al.</i> (2014) NETHERLANDS	Sex not reported. 55 years and older.	N = 8,346 N = 32,583	Not reported.	The sample was specified as having; Diabetes, Coronary heart disease, Osteoarthritis, Chronic Obstructive Pulmonary Disease (COPD), Chronic back or Neck disorder, Cancer, Stroke, Depression, Heart failure, Anxiety disorder.

Cancer Surveillance Program (CSP); Breast Cancer Treatment Fund (BCTF); Self Reported Health (SRH).

Table 4. Themes that emerged of the included studies.

<i>A frequent problem in older female patients</i>	<i>High healthcare expenditure and costs</i>	<i>Medication management problems</i>	<i>Social inequities</i>	<i>Complex healthcare and consultation needs</i>	<i>High Mortality</i>
Worse self-rated health [31] [32].	Healthcare resources increased over five times in patients with multimorbidity [28] [33]. Increasing costs in women aged 75 years and older [29].	A relationship between medications and time use [27]. High number of prescriptions [34].	Patients were poor, less well educated with no private health plan [30]. Low purchasing power of a community decreasing in consultations [29].	Consultations was larger in older women suffering from high blood pressure, spinal column diseases, high blood pressure, heart problems [29] [30] [33]. More face-to-face and, telephone consultations, home visits, prescribing medications [34]. Over five times more hospitalized [29].	Patients with heart disease, stroke, low iron, emphysema, diabetes, cancer, Alzheimer [26].

Four studies revealed that multimorbidity was higher in women than in men [28]-[31]. Perruccio *et al.* [31] found that increasing age and female sex were associated with worse self-rated health. In contrast, Glynn *et al.* [33] revealed that gender had no significant effect.

Nunes *et al.* [30] stated that the higher frequency among women may be attributed to survival bias as men tend to die earlier and those who survive are usually the healthiest.

3.2. High Healthcare Expenditure and Costs

Three studies reported that patients with multimorbidity have high healthcare expenditure and costs [28] [29] [33].

Orueta *et al.* [28] stated that multimorbidity was responsible for 80.57% of total healthcare expenditure. 23.61% of patients with multimorbidity accounted for 63.55% of total healthcare expenditure. The total healthcare cost per person was higher in more socially deprived areas. The same trend was seen in patients with multimorbidity. These differences were statistically significant in all health expenditure categories, both for the general population and for patients with multimorbidity. For patients with 10 or more chronic diseases, the only statistically significant difference was expenditure on medications [28]. Orueta *et al.* [28] found it was not only the number of chronic diseases that matter when investigating the increased cost, but which chronic diseases the patients suffered from and especially what was considered to be their primary disease. Chronic obstructive pulmonary disease, diabetes mellitus, heart disease and heart failure increased the cost in line with the number of other coexisting diseases. Orueta *et al.* [28] demonstrated that on average, the use of healthcare resources by patients with multimorbidity grew with the number of chronic diseases. This increase was not linear but tended to be progressive, which was the most common pattern in such patients. Exceptions were depression and anxiety, as patients with either of these conditions and with more than two other chronic diseases used less resource than if they only had the other chronic health problems [28].

Bähler *et al.* [29] stated that outpatient services accounted for 50.8% of the total costs,

inpatient services for 24.1% and medication for 25.1%. The mean total healthcare costs were 5.5 times higher in patients with multimorbidity compared to those with no or only one chronic condition. There were considerably higher mean costs for patients with multimorbidity in both the inpatient and outpatient subgroups. The total health-care cost per year was related to nursing dependency and total health care cost in the preceding year, followed by the number of chronic conditions. Costs increased by 32.6% for each additional chronic condition and almost doubled in patients who required home care nursing services [29]. In the analysis by Bähler *et al.* [29], the mean total costs were 5.5 times higher in the multimorbid compared to the non-multimorbid sample. The high standard deviations are consistent with the standard deviations in the cited articles, suggesting great variance and heterogeneity in the sample. Gender differences were found in health expenditure and costs, where costs were consistently higher in men aged 70 years or older, whereas in women costs decreased with increasing age [29]. A comparison between age and gender revealed that total costs increased by 9.10% in men aged 70 to 84 years compared to men aged 65 - 69 years [29]. A slight increase of 5.7% was found for the oldest age group. Overall, female gender was associated with lower costs, whereby costs decreased with increasing age for women aged 75 years and older [29]. The lowest total health care costs were therefore found in women aged 85 years and older, which represented a decrease of 12.1% compared to women in the youngest age group [29].

Glynn *et al.* [33] added that primary and secondary care was influenced by the need for multiple healthcare professionals. The impact of gatekeeping on healthcare utilization merits further consideration. According to Glynn *et al.* [33], there is a need to focus on coordinating the patient's journey through the healthcare system, while at the same time promoting "self-management" among patients with multimorbidity. Pairwise comparisons showed that the mean total cost increased significantly for patients with a number of chronic conditions compared to those with no chronic conditions [33].

3.3. Medication Management Problems

Two studies focused on medication management problems in patients with multimorbidity [27] [34]. Jowsey *et al.* [27] revealed that an alternative view of healthcare complexity was medication management. The patterns in the targeted samples were broadly in the expected direction, with the unexpected values pertaining to those in the small sample categories. There was a strong relationship between medications and reported time use [27]. The one really clear statistically significant item was the number of conditions related to time use in all sub-samples. Illness management was time consuming for patients with multimorbidity [27]. Van Ooström *et al.* [34] demonstrated that patients with multimorbidity had a higher number of prescriptions and more referrals to specialized care than those with one or no chronic disease.

3.4. Social Inequities

Two studies highlighted the social inequities in the health and care services [29] [30].

Bähler *et al.* [29] found a small but significant socio-economic gradient: the lower the purchasing power of a community, the lower the number of consultations. The decrease was 7.8% in patients living in a community with the lowest compared to the highest purchasing power. The lower the purchasing power of a community, the lower the costs per patient: the decrease was 3.4%, 6.6%, 9.5% and 13.4% with each reduction in the purchasing power quintile, compared to patients living in a community with the highest purchasing power [29]. Compared with the German-speaking part, the Italian-speaking part of Switzerland was associated with slightly lower costs of 2.3%. No significant differences in the French and the Romansh speaking parts were found [29]. Choosing a higher deductible was significantly and negatively associated with total costs, amounting to a decrease of almost one fifth, where no association was found between the total costs and being in a managed care model [29]. Nunes *et al.* [30] confirmed the impact of social inequities as the elderly participants in their study were poor, less well educated and had no private health plan. While acknowledging that these factors might have been confused with socio-economic indicators, Nunes *et al.* [30] were of the opinion that an adjusted analysis would not make sense in view of the aims of their study and the fact that their sample had more diseases and greater social and financial vulnerability. Thus, health interventions related to the treatment and monitoring of chronic conditions should prioritize these individuals [30]. The occurrence of multimorbidity was higher among those with black or brown/yellow/indigenous skin, those with less education, less purchasing power, those who are bedridden, those who did not have an individual health plan, those who had medical consultations and visited emergency services, those who had been hospitalized and those living in community care [30] areas.

3.5. Complex Healthcare and Consultation Needs

Four studies revealed a trend of complex healthcare and/or consultation needs in patients with multimorbidity [29] [30] [33] [34]. Bähler *et al.* [29] reported that complex home nursing services and being in a managed care model were significantly associated with a higher number of consultations, an increase of 11.5% and 2.9% respectively. Living in the French or Italian speaking parts of Switzerland was associated with a lower number of consultations [29]. The effect of age on the increase in the number of consultations was greater in females compared to males. However, the number of consultations increased with advancing age in men, but the increase was less in women, although the results did not differ significantly for the last age group (women aged 84 to 89 years compared to 65 - 69 years). Women aged 85 years or older exhibited a significant decrease of 5.1% in the number of consultations, whereas an increase of 7.6% was found in men of the same age. 98.5% of patients with multimorbidity had at least one consultation in 2013 compared with 68.7% of patients without multimorbidity [29]. The sample of patients with multimorbidity was almost twice as likely to have had a consultation with a primary care physician and with a specialist. Approximately 22% of the patients with multimorbidity were seen by more than one primary care physician

and over 54% consulted more than one specialist over the same time period. Patients with multimorbidity were 5.6 times more likely to be hospitalized compared to the patients without several diseases [29]. The mean number of consultations per year amounted to 15.7 in the patients with multimorbidity compared to 4.4 in the patients without multimorbidity [29].

Nunes *et al.* [30] found that the number of individuals requesting healthcare was significantly higher in the multimorbid group compared to the non-multimorbid sample. The most prevalent dyads of morbidities were high blood pressure and spinal column diseases (23.6%) and high blood pressure and heart problems (22.3%) [30]. Four of the dyads did not have a frequency that was statistically higher than expected. In the triads, this only occurred with the HBP/spinal column disease/cognitive impairment triplet. In the dyads, the highest ratio between observed and expected frequency was found for rheumatism and spinal column disease [30].

More specifically, Glynn *et al.* [33] found a significant interaction between age and gender, where the effect of age on the increase in the mean number of primary care consultations was larger in females compared to males. There is evidence of a linear trend for primary care consultations and hospital admissions, while a trend also exists for hospital outpatient visits [33].

Van Ooström *et al.* [34] found that patients with multimorbidity had significantly more face-to-face consultations, telephone consultations, home visits, diagnostics or minor surgery and contacts for prescribing medications in general practice than patients with one or no chronic disease. The number of chronic diseases was linearly associated with the number of contacts in general practice. The number of general practice contacts increased with the number patients with multimorbidity [34]. Patients with heart failure and comorbid diseases had the most contacts with general practice. The number of contacts per disease decreased with each extra disease. van Ooström *et al.* [34] demonstrated a significantly lower number of contacts in general practice for those with specific combinations of two chronic diseases than would be expected on the basis of the contact frequency associated with each individual chronic disease. The confidence interval indicated that the number of contacts per year was lower than expected on the basis of the number of yearly contacts for diabetes and for coronary heart disease separately. There were no disease pairs where the number of contacts was higher than expected on the basis of the contact frequency associated with the separate diseases [34].

3.6. Higher Mortality

Tooth *et al.* [26] developed and validated multimorbidity indexes to predict mortality, visits to general practitioners and specialists, hospitalization and Ability for daily living (ADL) in a population-based sample of older Australian women. Seven types of chronic condition such as cancer and stroke were significantly associated with the risk of mortality, different use of healthcare services and predicted a high frequency of contact with general practitioners [26]. Seven of the 19 explanatory variables were statistically

significant in the stepwise proportional hazards regression analysis of mortality; these were heart disease, stroke, low iron, bronchitis/emphysema, diabetes, all forms of cancer other than skin and Alzheimer's disease [26]. Several chronic conditions were strongly associated with all health care service use outcomes. The presence of Alzheimer's disease was very strongly associated with the need for assistance. The regression coefficients from these models were used to produce the weights for each of the outcomes, after which the weights were employed to construct weighted scores [26]. Mortality had an essentially linear relationship with both the weighted and unweighted scores [26].

4. Discussion

The aim of this study was to illuminate the challenges faced by the healthcare services in managing the needs of older patients with multimorbidity. Six themes emerged; A frequent problem in older female patients; High healthcare expenditure and costs, Medication management problems, Social inequities, Complex healthcare and consultation needs and High mortality.

A frequent problem in older female patients, The findings revealed that multimorbidity often increases with higher age and is more common in women. This was partly supported by Schäfer *et al.* [37] in relation to higher age. However, in the same study they suggested that there might be no gender differences in multimorbidity based on their findings that a larger number of patients with multimorbidity were male, which is in contrast to other studies in which multimorbidity was found to be more common in females and that female gender seems to be associated with multimorbidity [37] [38].

Some decades ago Feinstein [39] introduced the term multimorbidity and comorbidity (the previously used concept). Today, there seems to be little consensus on which chronic diseases and conditions should be considered and how exactly they should be assessed, summarized and weighted in order to arrive at some overall measure of burden. Many of the health complaints in old age are chronic and multiple conditions interact. There is an ongoing debate within health sciences on how to define these constructs and which instruments should be used to ensure standardized assessment of study results [40] [41]. A questionnaire to assess multimorbidity in primary care was developed and validated in an Indian study [42]. The authors demonstrated that the Multimorbidity Assessment Questionnaire for Primary Care (MAQ-PC) is a valid and reliable measure of multimorbidity in primary care practice [42].

High healthcare expenditure and costs was another finding in patients with multimorbidity. The number of chronic disorders/diseases in one person results in financial burden and pressure on the healthcare system. Many older patients have several diseases, which has a range of implications for how the healthcare system provides and assesses health care [9]. Findings from the USA show that multimorbidity accounts for up to 75% of all healthcare expenditure [43]. In Europe, multimorbidity is estimated to account for 70% - 80% of healthcare expenditure in countries such as Denmark [43]. Older patients with chronic mental health conditions are a challenge because they are

often unwilling to reach out for help from the health services. Sometimes general practitioners are not aware that in addition to other chronic diseases, older patients also suffer from anxiety and/or depression.

Medication management problems were found in patients with multimorbidity. The participants in the study by Summer Meranius and Engstrom [3] experienced uncertainty about side effects, leading to concern that the medication might be harmful [3]. The uncertainty seemed to be reinforced by a fear of medical error when several physicians were involved. This meant living with ambivalence when taking medication, which required a trade-off between symptom relief and reduced side effects. The healthcare system has a traditional view of the patient-doctor relationship, where the nurse is viewed as an assistant to the doctor [5]. Changing the roles of the healthcare professional and the patient to one that involves shared decision-making has been outlined in several studies [21]. Shared decision-making can enhance the care relationship as it involves a better balance of power between the patient and the healthcare professional [21].

Social inequities were revealed in this review, often related to low socio-economic status. Other studies that are not included in the present review have also demonstrated that socio-economic status has an impact on both prevalence rates and healthcare utilization rates [10] [43] [44]. Kuo and Lai [44] found that cases of patients with multimorbidity varied according to socio-economic status and demographic characteristics. In terms of socio-economic status, patients with multimorbidity included farmers, fishermen and others on low incomes. Demirchyan *et al.* [45] revealed that stressful life events and poor social support were among the psychosocial determinants of patients with multimorbidity. However, the mean age of those participants was 58.4 years and several were under 50 years old. The authors concluded that there were social inequities in their study population, indicating that inequities pose a serious threat to both individual and public health outcomes. Such social inequities could be reduced by a healthier lifestyle and by strengthening social networks in order to reduce the burden of multimorbidity. Older patients with several physical complaints and diseases in addition to depression have been described as experiencing stigma [16] because they perceived that physicians only focused on their depression and did not take their physical diseases and complaints seriously, which left them feeling neglected and uncertain, as reported in the study by Summer Meranius and Engstrom [3].

Complex healthcare and consultation needs were described as characteristic in several studies and can be a challenge for the healthcare services. Research has revealed that factors related to patients' experiences of healthcare and treatment impact on various types of self-management. Patient perceptions of multimorbidity do not seem to be a critical predictor of self-management, but can indicate how these patients view their health in the short term [49] and why healthcare becomes increasingly complex due to more specialist consultations. Self-management has been defined as "the care taken by individuals of their own health and well-being" and comprises the actions they take to lead a healthy lifestyle; to meet their social, emotional, psychological and physical needs; to care for their long-term condition; and to prevent further illness or accidents

[50]. According to Kenning *et al.* [49], innovations and redesign of the healthcare system or the delivery system are necessary. Older patients require better support to cope with the emotional consequences of multimorbidity. Healthcare professionals need to change their traditional authoritative role to one that allows them to form partnerships with their patients within a shared decision-making perspective [21]. However, self-management does not always fulfil the aim of autonomy or empowerment. Redman [51] holds that self-management can lead to an unreasonable shift of responsibility.

High mortality was a characteristic described in this review. However, research on older patients with multimorbidity and mortality in the elderly has reported contradictory results [46]. Epidemiological studies that compared data from various European countries such as Finland, Italy and The Netherlands found that patients with multimorbidity were significantly associated with an increased risk of death [47]. This supports the results of Tooth *et al.* [26] in the present review. Do such patients suffer more than other older patients with a single disease or chronic condition? Landi *et al.* [46] examined the combined effect of multimorbidity and disability, where the effect of disability on the risk of death was higher than that of multimorbidity. The results showed that disability exerts an important influence on mortality, independent of age and other clinical and functional variables. Many studies demonstrate that anxiety and depression are common in patients with multimorbidity [47]. In other words, multimorbidity such as cardiovascular disease, diabetes, as well as pulmonary and neurological disorders, is common in patients who suffer from psychiatric disorders/conditions [48]. Patients with two or more chronic diseases, in addition to mental health conditions such as depression and anxiety, are at risk of high mortality because of the seriousness of their physical and mental health disorders.

4.1. Limitations of the Included Studies

Risk of bias will be discussed in this section, as suggested by Schneider *et al.* [24] and Polit and Beck [19]. Bias is defined as influence that produces a distortion of the results, thus threatening validity and trustworthiness [19].

The design of five studies was described as cross-sectional, one study took the form of a survey, while one study was part of a longitudinal design (Table 2). Cross-sectional studies, surveys and longitudinal studies can employ an observational design. Two studies contained scarce information about the design [32] [34]. Observational designs can have limitations in their ability to determine “causality” ([24], p. 163), which was mentioned in one study [29]. The implications of studies with an observational design can be weakened by the fact that the participants may change over time, which Polit and Beck ([52], pp. 246-247) called the “history and/or maturity threat”. A longitudinal design typically requires the participants to retrospectively summarize the extent to which they employed various strategies over a long period and is more likely to produce inaccurate results due to memory bias, compared to measurements that focus on a shorter timeframe. However, none of the included studies stated that the retrospective design could decrease validity and/or trustworthiness. A prospective design starts with a presumed cause and continues with a presumed effect [52]. It was stated in two studies

that self-reported data were used [26] [30]. Tooth *et al.* [26] mentioned that the limitations of self-reported data must be acknowledged. Self-reports can increase the likelihood of response bias [25]. The two studies that employed self-reports described this method as a limitation that can decrease validity and lead to bias [26] [30]. There was no reference to methodology in any of the included studies.

Statistical power depends on sample and effect size, while non-significant implications must be interpreted with caution [24] [25]. Failure to show significance was described as due to lack of power. However, this information was not related to methodological literature. Two studies described having a relatively small sample size (Table 2), but did not mention selection bias as a limitation. The use of only one group was not referred to as decreasing validity in these two studies. In the opinion of the authors of this review (ALH, AB, ES), the lack of common measurements and definitions of the concept of multimorbidity is the most serious limitation.

4.2. Limitation of this Review

A limitation of this review is the fact that one of the studies comes from Switzerland, one from Ireland, one from Germany, one from The Netherlands (four from Europe), one from USA, one from Canada and one from Brazil (three from south and north America), and two from Australia (see Table 2). The different cultures in these parts of the world must be taken into consideration; for example, the various countries seem to have different way of registering and defining multimorbidity in clinical settings. Further studies are required, as is the development of measures and common strategies for deciding which chronic diseases and conditions should be included in samples. Researchers need to strengthen the design, validity and reliability of quantitative studies on multimorbidity.

5. Conclusion

Patients should have their chronic diseases reviewed by a clinician with responsibility for coordinating their care. The fragmentation of the healthcare system must be stopped and steps be taken to ensure that each patient has a so-called healthcare plan. In order to reduce the burden of several chronic diseases, healthcare professionals need to focus more on the patients' experiences, physical and mental health, as well as their social functioning. To ensure safe and effective care for elderly persons with multimorbidity, healthcare services should move away from the current focus on managing innumerable individual diseases.

6. Implications for Clinical Practice

Healthcare services need innovation, including a redesign of care, patient-centred integration across settings and coordination of primary care [53]. Today, there seems to be little focus on patient safety and preventing harm when caring for a patient with multimorbidity. According to Tinetti *et al.* [53], none of the healthcare services address necessary aspects of healthcare such as decision making across conditions appropriate for

patients with multimorbidity. Healthcare professionals seem to struggle to obtain suitable guidelines pertaining to caring for patients with multimorbidity while responding to patient needs [54] [55]. To promote adequate healthcare for older people with multimorbidity, innovative ways must be found to integrate and coordinate the care across conditions and between different healthcare professional categories. Such a healthcare model should be person-focused instead of disease focused [53]. Person-centred healthcare might be an alternative form of care and treatment to promote shared decision making [56]. Today, various healthcare providers do not address the treatment burden and potential harm involved in caring for a patient with several diseases [53]. To promote adequate healthcare for older people with multimorbidity, innovative strategies must include a plan of how to coordinate the healthcare system. Consulting a different specialist for each chronic disease is confusing [57]. There is an urgent need for a coordinator with expertise and experience in caring for older patients with multimorbidity to supervise the provision of care within the context of each patient's health goals and priorities. Older people with multimorbidity require coordinated input from an interdisciplinary or a multidisciplinary healthcare team that is able to meet each patient's needs [58].

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References

- [1] Banerjee, S. (2015) Multimorbidity—Older Adults Need Health Care That Can Count Past One. *The Lancet*, **385**, 587-589. [http://dx.doi.org/10.1016/S0140-6736\(14\)61596-8](http://dx.doi.org/10.1016/S0140-6736(14)61596-8)
- [2] Koller, D., Schon, G., Schafer, I., Glaeske, G., van den Bussche, H. and Hansen, H. (2014) Multimorbidity and Long-Term Care Dependency—A Five-Year Follow-Up. *BMC Geriatrics*, **14**, 70. <http://dx.doi.org/10.1186/1471-2318-14-70>
- [3] Summer Meranius, S. and Engstrom, G. (2015) Experience of Self-Management of Medications among Older People with Multimorbidity. *Journal of Clinical Nursing*, **24**, 2757-2764. <http://dx.doi.org/10.1111/jocn.12868>
- [4] Bayliss, E.A., Edwards, A.E., Steiner, J.F. and Main, D.S. (2008) Processes of Care Desired by Elderly Patients with Multimorbidities. *Family Practice*, **25**, 287-293. <http://dx.doi.org/10.1093/fampra/cmn040>
- [5] Fortin, M., Hudson, C., Gallagher, F., Ntetu, A.L., Maltais, D. and Soubhi, H. (2010) Nurses Joining Family Doctors in Primary Care Practices: Perceptions of Patients with Multimorbidity. *BMC Family Practice*, **11**, 84. <http://dx.doi.org/10.1186/1471-2296-11-84>
- [6] Grundberg, A., Ebbeskog, B., Dahlgren, M.A. and Religa, D. (2012) How Community-Dwelling Seniors with Multimorbidity Conceive the Concept of Mental Health and Factors That May Influence It: A Phenomenographic Study. *International Journal of Qualitative Studies on Health and Well-Being*, **7**, 19716. <http://dx.doi.org/10.3402/qhw.v7i0.19716>
- [7] Gustafsson, M., Kristensson, J., Hols, G., Willman, A. and Bohman, D. (2013) Case Managers for Older Persons with Multi-Morbidity and Their Everyday Work—A Focused Ethnography. *BMC Health Services Research*, **13**, 496. <http://www.biomedcentral.com/1472-6963/13/496>
<http://dx.doi.org/10.1186/1472-6963-13-496>

- [8] Noël, P.H., Parchman, M., Williams Jr., J.W., Cornell, J.E., Shuko, L., Zeber, J.E., Kazis, L.E., Lee, A.F.S. and Puch, J.A. (2007) The Challenges of Multimorbidity from the Patient Perspective. *Journal of General Medicine*, **22**, 419-424. <http://dx.doi.org/10.1007/s11606-007-0308-z>
- [9] Salisbury, C. (2012) Multimorbidity: Redesigning Health Care for People Who Use It. *The Lancet*, **380**, 7-9. [http://dx.doi.org/10.1016/S0140-6736\(12\)60482-6](http://dx.doi.org/10.1016/S0140-6736(12)60482-6)
- [10] Barnett, K., Mercer, S.W., Norbury, M., Watt, G., Wyke, S. and Guthrie, B. (2012) Epidemiology of Multimorbidity and Implications for Health Care, Research, and Medical Education: A Cross-Sectional Study. *The Lancet*, **380**, 37-43. [http://dx.doi.org/10.1016/S0140-6736\(12\)60240-2](http://dx.doi.org/10.1016/S0140-6736(12)60240-2)
- [11] Boyd, C.M. and Fortin, M. (2010) Future of Multimorbidity Research: How Should Understanding of Multimorbidity Inform Health System Design? *Public Health Reviews*, **32**, 451-474. <http://search.proquest.com/openview/638d283bbbd682359b8479823765fbc/1?pq-origsite=gscholar>
- [12] Valderas, J.M., Starfield, B., Sibbald, B., Salisbury, C. and Roland, M. (2009) Defining Comorbidity: Implications for Understanding Health and Health Services. *Annals of Family Medicine*, **7**, 357-363. <http://dx.doi.org/10.1370/afm.983>
- [13] Starfield, B. (2006) Threads and Yarns: Weaving the Tapestry of Comorbidity. *Annals of Family Medicine*, **4**, 101-103. <http://dx.doi.org/10.1370/afm.524>
- [14] Yeung, A., Feldman, G. and Fava, F. (2010) Self-Management of Depression: A Manual for Mental Health and Primary Care Professionals. Cambridge University Press, Cambridge.
- [15] Holm, A.L., Lyberg, A., Lassenius, E., Berggren, I. and Severinsson, E. (2013) Older Persons' Lived Experiences of Depression and Self-Management. *Issues in Mental Health Nursing*, **34**, 757-764. <http://dx.doi.org/10.3109/01612840.2013.809829>
- [16] Holm, A.L., Lyberg, A. and Severinsson, E. (2014) Living with Stigma: Depressed Elderly Persons' Experiences of Physical Health Problems. *Nursing Research and Practice*, **2014**, Article ID: 527920. <http://dx.doi.org/10.1155/2014/527920>
- [17] Holm, A.L., Lyberg, A., Aström, I. and Severinsson, E. (2014) Social Capital and Depressive Ill-Health—An Evaluative Approach to the Implementation of the Chronic Care Model (CCM). *Open Journal of Nursing*, **4**, 683-694. <http://www.scirp.org/journal/ojn> <http://dx.doi.org/10.4236/ojn.2014.410073>
- [18] Gress, S., Baan, C.A., Clanan, M., Dedeu, T., Groenewegen, P., Howson, H., Maroy, L., Nolte, E., Redaelli, M., Saarelma, O., Schmacke, N., Schumacher, K., van Lente, E.J. and Vrijhoef, B. (2009) Co-Ordination and Management of Chronic Conditions in Europe: The Role of Primary Care. Position Paper of the European Forum for Primary Care. *Quality of Primary Care*, **17**, 75-86.
- [19] Polit, D.F. and Beck, C.T. (2012) Nursing Research: Generating and Assessing Evidence for Nursing Practice. Wolters Kluwer Health/Lippincott Williams & Wilkins, Philadelphia.
- [20] Holm, A.L. and Severinsson, I.E. (2016) Intuition—A Way of Knowing in Clinical Nursing? A Systematic Review. *Open Journal of Nursing*, **6**, 412-425. <http://dx.doi.org/10.4236/ojn.2016.65043>
- [21] Holm, A.L., Berland, A. and Severinsson, I.E. (2016) Older Patients' Involvement in Shared Decision-Making—A Systematic Review. *Open Journal of Nursing*, **6**, 170-185. <http://dx.doi.org/10.4236/ojn.2016.63018>
- [22] Liberati, A., Altman, D.G., Tetzlaff, J., Mulrow, C., Götzsche, P., Ionnidis, J.P., Clarke, M., Devereaux, P.J., Kleijnen, D. and Moher, D. (2009) The PRISMA Statement for Reporting

- Systematic Reviews and Meta-Analyses of Studies That Evaluate Healthcare Interventions: Explanation and Elaboration. *BMJ*, **339**, b2700.
<http://www.prisma-statement.org/2.1.1%20-%20PRISMA%202009%20Checklist.pdf>
<http://dx.doi.org/10.1136/bmj.b2700>
- [23] Jesson, J., Matheson, L. and Lacey, F. (2011) *Doing Your Literature Review: Traditional and Systematic Techniques*. SAGE, London.
- [24] Schneider, Z., Whitehead, E., Elliott, D., Lobiondo-Wood, G. and Haber, J. (2007) *Nursing & Midwifery Research Methods and Appraisal for Evidence-Based Practice*. Elsevier, New York.
- [25] Shadish, W.R., Cook, T.D. and Campbell, D.T. (2002) *Experimental and Quasi-Experimental Designs for Generalized Causal Reference*. Houghton Mifflin, Boston.
- [26] Tooth, L., Hockey, R., Byles, J. and Dobson, A. (2008) Weighted Multimorbidity Indexes Predicted Mortality, Health Service Use, and Health-Related Quality of Life in Older Women. *Journal of Clinical Epidemiology*, **61**, 151-159.
<http://dx.doi.org/10.1016/j.jclinepi.2007.05.015>
- [27] Jowsey, T., McRae, I.S., Valderas, J.M., Dugdale, P., Phillips, R., Bunton, R., Gillespie, J., Banfield, M., Jones, L., Kljakovic, M. and Yen, L. (2013) Time's Up. Descriptive Epidemiology of Multi-Morbidity and Time-Spent on Health Related Activity by Older Australians: A Time Use Survey. *PLoS ONE*, **8**, e59379. <http://dx.doi.org/10.1371/journal.pone.0059379>
- [28] Orueta, J.F., Garcia-Alvare, A., Garcia-Goni, M., Paolucci, F. and Nuno-Solinis, R. (2014) A Population Based Study Using Health Administrative Databases. *PLoS ONE*, **9**, e89787.
<http://dx.doi.org/10.1371/journal.pone.0089787>
- [29] Bähler, C., Huber, C.A., Brüngger, B. and Reich, O. (2015) Multimorbidity, Health Care Utilization and Costs in an Elderly Community-Dwelling Population: A Claims Data Based Observational Study. *BMC Health Services Research*, **15**, 23.
<http://dx.doi.org/10.1186/s12913-015-0698-2>
- [30] Nunes, B.P., Thume, E. and Facchini, L.A. (2015) Multimorbidity in Older Adults: Magnitude and Challenges for the Brazilian Health System. *BMC Public Health*, **15**, 1172-1183.
<http://dx.doi.org/10.1186/s12889-015-2505-8>
- [31] Perruccio, A.V., Katz, J.N. and Losina, E. (2012) Health Burden in Chronic Disease: Multimorbidity Is Associated with Self-Rated Health More than Medical Comorbidity Alone. *Journal of Clinical Epidemiology*, **65**, 100-106.
<http://dx.doi.org/10.1016/j.jclinepi.2011.04.013>
- [32] Holzhausen, M., Fuchs, J., Busch, M., Ernert, A., Six-Merker, J., Knopf, H., Hapke, U., Gaertner, B., Kurzawe-Seitz, I., Dietzel, R., Schödel, N., Welke, J., Wiskott, J., Wetzstein, M., Martus, P. and Scheidt-Nave, C. (2011) Operationalizing Multimorbidity and Autonomy for Health Services Research in Aging Populations—The OMAHA Study. *BMC Health Services Research*, **11**, 47. <http://dx.doi.org/10.1186/1472-6963-11-47>
- [33] Glynn, L.G., Valderas, J.M., Healy, P., Bruke, E., Newell, J., Gillespie, P. and Murphy, A.W. (2011) The Prevalence of Multimorbidity in Primary Care and Its Effect on Health Care Utilization and Cost. *Family Practice*, **28**, 516-523.
<http://dx.doi.org/10.1093/fampra/cmr013>
- [34] Van Oostrom, S.H., Picavet, H.S., de Bruin, S.R., Stirbu, I., Schellevis, F.G. and Baan C.A. (2013) Multimorbidity of Chronic Diseases and Health Care Utilization in General Practice. *BMC Family Practice*, **15**, 61. <http://dx.doi.org/10.1186/1471-2296-15-61>
- [35] Pope, C., Mays, N. and Opat, J. (2007) *Synthesizing Qualitative and Quantitative Health Evidence: A Guide to Methods*. McGraw-Hill Open University Press, Maidenhead.

- [36] Holopainen, A., Hakulinen-Viitanen, T. and Tosavaine, K. (2008) Systematic Review—A Method for Nursing Research. *Nurse Researcher*, **6**, 72-83. <http://dx.doi.org/10.7748/nr2008.10.16.1.72.c6754>
- [37] Schäfer, I., Hansen, H., Schön, G., Höfels, S., Altiner, A., Dahlhaus, A., Gensichen, J., Riedel-Heller, S., Weyerer, S., Blank, W.A., König, H.-H., von den Knesebeck, H., Scherer, M., van den Bussche, H. and Wiese, B. (2012) The Influence of Age, Gender and Socio-Economic Status on Multimorbidity Patterns in Primary Care. First Results from the Multicare Cohort Study. *BMC Health Services Research*, **12**, 89. <http://www.biomedcentral.com/1472-6963/12/89> <http://dx.doi.org/10.1186/1472-6963-12-89>
- [38] Salisbury, C., Johnson, L., Purdy, S., Valderas, J.M. and Montgomery, A.A. (2011) Epidemiology and Impact of Multimorbidity in Primary Care: A Retrospective Cohort Study. *British Journal of General Practice*, **61**, 12-21. <http://dx.doi.org/10.3399/bjgp11X548929>
- [39] Feinstein, A.R. (1970) The Pre-Therapeutic Classification of Co-Morbidity in Chronic Disease. *Journal of Chronic Diseases*, **23**, 455-468. [http://dx.doi.org/10.1016/0021-9681\(70\)90054-8](http://dx.doi.org/10.1016/0021-9681(70)90054-8)
- [40] Haywood, K.L., Garratt, A.M. and Fitzpatrick, R. (2005) Quality of Life in Older People: A Structured Review of Generic Self-Assessed Health Instruments. *Quality of Life Research*, **14**, 1651-1668. <http://dx.doi.org/10.1007/s11136-005-1743-0>
- [41] Moons, P., Budts, W. and De Geest, S. (2006) Critique on the Conceptualisation of Quality of Life: A Review and Evaluation of Different Conceptual Approaches. *International Journal of Nursing Studies*, **43**, 891-901. <http://dx.doi.org/10.1016/j.ijnurstu.2006.03.015>
- [42] Pati, S., Akhtar Hussain, M., Svain, S., Salisbury, C., Metsemakers, J.F.M., Knottnerus, J.A. and van den Akker, M. (2016) Development and Validation of a Questionnaire to Assess Multimorbidity in Primary Care: An Indian Experience. *BioMed Research International*, **2016**, Article ID: 6582487. <http://dx.doi.org/10.1155/2016/6582487>
- [43] World Health Organization (WHO) (2006) Tackling Europe's Major Diseases: The Challenges and the Solutions. World Health Organization, Copenhagen.
- [44] Kuo, R.N. and Lai, M-S. (2013) The Influence of Socio-Economic Status and Multimorbidity Patterns on Healthcare Costs: A Six-Year Follow-Up Under a Universal Healthcare System. *International Journal of Equity in Health*, **12**, 69. <http://www.equityhealthj.com/content/12/1/69> <http://dx.doi.org/10.1186/1475-9276-12-69>
- [45] Demirchyan, A., Khachadourian, V., Armenian, H.K. and Petrosyan, V. (2013) Short and Long Term Determinants of Incident Multimorbidity in a Cohort of 1988 Earthquake Survivors in Armenia. *International Journal for Equity in Health*, **12**, 68. <http://www.equityhealthj.com/content/12/1/68> <http://dx.doi.org/10.1186/1475-9276-12-68>
- [46] Landi, F., Liperoti, R., Russo, A., Capoluongo, E., Barillaro, C., Pahor, M., Bernabei, R. and Onder, G. (2010) Disability, more than Multimorbidity, was Predictive of Mortality among Older Persons Aged 80 Years and Older. *Journal of Clinical Epidemiology*, **63**, 752-759. <http://dx.doi.org/10.1016/j.jclinepi.2009.09.007>
- [47] Van den Brink, A.M., Gerritsen, D.L., Voshaar, R.C. and Koopman, R.T. (2013) Residents with Mental-Physical Multimorbidity Living in Long-Term Care Facilities: Prevalence and Characteristics. A Systematic Review. *International Psychogeriatrics*, **25**, 531-548. <http://dx.doi.org/10.1017/S1041610212002025>
- [48] Lyketsos, C.G., Dunn, G., Kaminsky, M.J. and Breakey, W.R. (2002) Medical Comorbidity in Psychiatric Inpatients: Relation to Clinical Outcomes and Hospital Length of Stay. *Psychosomatics*, **43**, 24-30. <http://dx.doi.org/10.1176/appi.psy.43.1.24>

- [49] Kenning, C., Coventry, P.A., Gibbons, C., Bee, P., Fisher, L. and Bower, P. (2015) Does Patient Experience of Multimorbidity Predict Self-Management and Health Outcomes in a Prospective Study in Primary Care? *Family Practice*, **32**, 311-316. <http://dx.doi.org/10.1093/fampra/cmz002>
- [50] Department of Health (2006) Our Health, Our Care, Our Say: A New Direction for Community Services. The Stationary Office, London.
- [51] Redman, B.K. (2005) The Ethics of Self-Management Preparation for Chronic Illness. *Nursing Ethics*, **12**, 361-369. <http://dx.doi.org/10.1191/0969733005ne801oa>
- [52] Polit, D.F. and Beck, C.T. (2006) Essentials of Nursing Research: Methods, Appraisal, and Utilization. Lippincott Williams & Wilkins, Philadelphia.
- [53] Tinetti, M.E., Fried, T.R. and Boyd, C.M. (2012) Designing Health Care for the Most Common Chronic Condition-Multimorbidity. *JAMA*, **307**, 2493-2494. <http://dx.doi.org/10.1001/jama.2012.5265>
- [54] Bower, P., Macdonald, W., Harkness, E., Gask, L., Kendrick, T., Valderas, J.M., Dickens, C., Blakeman, T. and Sibbald, B. (2011) Multimorbidity, Service Organization and Clinical Decision Making in Primary Care: A Qualitative Study. *Family Practice*, **28**, 579-587. <http://dx.doi.org/10.1093/fampra/cmz018>
- [55] Fried, T.R., Tinetti, M.E. and Iannone, I. (2011) Primary Care Clinicians' Experiences with Treatment Decision Making for Older Persons with Multiple Conditions. *Archives of Internal Medicine*, **171**, 75-80. <http://dx.doi.org/10.1001/archinternmed.2011.424>
- [56] Boyd, C.M., Boulton, C., Shadmi, E., Leff, B., Brager, R., Dunbar, L., Wolff, J.L. and Wegener, S. (2007) Guided Care for Multimorbid Older Adults. *The Gerontologist*, **47**, 697-704. <http://dx.doi.org/10.1093/geront/47.5.697>
- [57] Burgers, J.S., Voerman, G.E., Grol, R., Faber, M.J. and Schneider, E.C. (2010) Quality and Coordination of Care for Patients with Multiple Conditions: Results from an International Survey of Patient Experience. *Evaluation of Health Professionals*, **33**, 343-364. <http://dx.doi.org/10.1177/0163278710375695>
- [58] Holm, A.L. and Severinsson, E. (2014) Perceptions of the Need for Improvements in Healthcare after Implementation of the Chronic Care Model. *Nursing and Health Sciences*, **16**, 442-228. <http://dx.doi.org/10.1111/nhs.12136>



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Longitudinal Care Evaluation in Child Healthcare

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Abstract

Objective: To evaluate the essential attribute of Primary Health Care, longitudinal care, care directed at children from birth to two years old. **Methods:** This is a descriptive and exploratory study of evaluative character and quantitative approach, conducted with parents/caregivers of 186 children, younger than two years old, patients of primary health care services in the city of Santa Cruz/RN, Brazil. For data collection, the instrument Primary Care Assessment Tools (PCA Tools) was used, and the results of the questions dealing with longitudinal attribute were evaluated. The data were stored and processed in Statistical Package for Social Sciences (SPSS). The study was approved by the Research Ethics Committee of the Health Sciences School of Trairí, under number 348896. **Results:** The mean age of children in months was 8.21; 84.4% (n = 157) were assisted by the same doctor/nurse every time; in 81.7% (n = 152) of cases the doctor/nurse know the full medical history of the child; 73.7% (n = 137) answered that the professional know their child more as a person than just as someone with a health problem; 48.9% (n = 91) stated that the doctor/nurse do not know their family very well; 86.6% (n = 161) reported finding the doctor/nurse understands what is saying or questioning; 96.2 (n = 179) of respondents said the doctor/nurse answers the questions so that they understand; 96.2% (n = 179) of the interviewed said they feel comfortable telling the concerns or problems of their child to the doctor/nurse; 66.7% (n = 124) claimed that they would not change the service/doctor/nurse to another health service. **Conclusion:** It is concluded that the attribute was well rated by the mothers of children seen in primary health care services and that they can establish good communication and relationship with the health professionals who treat their children.

Keywords

Primary Health Care, Child Health, Health Services Evaluation

1. Introduction

The Primary Health Care (APS) is the set of functions that coordinate the input in health systems, basing its importance for the development of disease and injury prevention activities, as well as promotion, protection, and recovery of health, working together with the other levels of assistance [1]. The Family Health Strategy (ESF) is one of the proposals of the Ministry of Health to strengthen primary health care in Brazil, prioritizing the actions of the APS integral and continuously centered on the family and not just the individual [2].

The Basic Units of Health set (UBS) and ESF configure the care services that integrate primary health network within the public system in Brazil, entitled Health Unic System (SUS). In UBS healthcare professionals need to perform the assistance respecting a set of attributes: first contact access, longitudinality, coordination and integrality.

The structure of these attributes, this study will be made around the longitudinality, which consists in building a personal relationship of long stay between health professionals and users in your community, and this relationship the link that allows increased knowledge about patients by professionals and vice versa. In addition, the promotion of longitudinality is related to various benefits such as reduced demand for services, the most effective preventive measures, greater ease in identifying the problems of patients and total spending with lower health [1]. It emphasizes the importance of effective longitudinality the actions of APS by the fact that it provides a better service, as it allows the professionals develop a more accurate and effective plan for each user/patient [3].

The effective longitudinal care in the context of primary care happens by building a personal relationship of long stay between health professionals and patients in their health units; this relationship is the link that allows increased knowledge about patients by professionals and vice versa [1].

Thus, longitudinal care constitutes a fundamental attribute that characterizes the APS since in its configuration, ESF, and UBS work from the perspective, so that the registered population can be cared in the same place, by the same team and by the same professional during his life, while living there.

The field of child health, above all, deserves qualification in public health care as it is during the childhood that several human potential is determined so that the disturbances of that stage influence the development of negative characteristics to the individual and society [3] [4].

On the longitudinal exercise in the child health care, this attribute is implemented necessarily from the contact established between parents/caregivers and health professionals for the knowledge of history and the child's family context [5]. Therefore, it optimizes the monitoring of growth and development in APS.

For these reasons, and understanding the importance of the child health sector-based in SUS principles and guidances, this study aims to evaluate the essential attribute of Primary Health Care, longitudinally, in care directed at children from zero to two years old.

2. Methodology

This study is part of the research entitled Development and validation of scale in the Childcare services: an evaluation study in Primary Health Care, which is a descriptive exploratory study of evaluative character and quantitative approach, performed with parents/caregivers of children under two years old using the Basic Units of Health services (UBS) in the city of Santa Cruz/RN, Brazil.

The sample was chosen for convenience, based on the record of the Family Health Units (USF) and the proportionality of registered patients, adopting allowable error of 5% and confidence level of 95%, plus an 80% power by signing children's mothers to accept, with a sample of 186 children.

For data collection, the instrument Primary Care Assessment Tools (PCA Tools) was used, developed and validated by the Ministry of Health⁶ in the version for children, according to the foundations of APS, understood from the attributes of the health care system: first contact access, comprehensiveness, longitudinally, coordination, family and community orientation and cultural competence¹. Thus, in this study, there are results concerning matters that deal with the longitudinal attribute.

Enrolled undergraduate students in Nursing at the Federal University and previously trained to conduct the interviews applied the questionnaires. The list of suitable participants for the sample was obtained from the City Health Department and, shortly after that, in the USF accompanying children. Interviews were conducted in USFs, with parents/caregivers who were in units for conducting childcare consultation, after explanation of the research objectives by the researchers, as well as reading and signing the consent form (TCLE) by parents/caregivers.

The collected data were stored and processed in Statistical Package for Social Sciences (SPSS) version 22.0, with serial number: 10101141047. Descriptive analysis (absolute-relative frequencies, mean, median, standard deviation) and chi-square test were held, considering a confidence interval (CI) of 95%. The study was conducted after approval of the Research Ethics Committee (CEP) of the Trairi Health Sciences School, according to advocating Resolution 466/2012 of the National Health Council (CNS), on the research with human beings under number 348,896.

3. Results

There were 186 parents/caregivers interviewed of children between zero and two years old, 106 male (57%) and 80 female children (43%). The average age of children in months was 8.21; the median was 7.00, and the standard deviation was 6.31. Regarding the mother's education, the average was 10.46 and the median of 9.00 years of study.

There were satisfactory values, according to **Table 1**, when asked if the child was assisted by the same doctor/nurse at all times, where most of the sample said yes. About the doctor/nurse know the full medical history of the child, most of them said yes. Regarding the doctor/nurse know about all medications the child is taking, a large portion of the respondents said definitely yes.

Most of the respondents answered positively about the doctor/nurse having know-

ledge about the family and socio-economic context of the child, and said that the professional knows the child as a person than only like someone with a health problem.

According to data in **Table 2**, the answers if the doctor/nurse would meet with members of the family, if necessary, revealed that just over half of the sample believes so; Almost half of respondents said the doctor/nurse do not know the family well, and a slightly less said the doctor/nurse do not know what are the most important problems for them.

A considerable portion said the doctor/nurse do not know about the work or employment of child's family members and; just under half said that certainly, yes, the doctor/nurse would know if they had problems getting or paying for medications that the child needs.

The data in **Table 3** show that concerning the question if they could call and talk to the doctor/nurse if they had any questions about the health of the child, most of the participants responded negatively. Most of the interviewed found that the doctor/nurse understand what they say or ask. For an even larger portion of the interviewed, the

Table 1. Results of the validation of the longitudinal attribute construct (Knowledge of the children information) in Primary Health Care. Brazil, in 2015.

Variables	Answers			
	Certainly, no	Probably, no	Probably, yes	Certainly, yes
Same doctor/nurse assisting the child	7.0% (n = 13)	2.2% (n = 4)	5.4% (n = 10)	84.4% (n = 157)
The doctor/nurse know the full medical history	8.1% (n = 15)	3.8% (n = 7)	4.8% (n = 9)	81.7% (n = 152)
The doctor or nurse knows all medications the children are taking	13.4% (n = 25)	0.5% (n = 1)	5.4% (n = 10)	75.3% (n = 140)
The doctor/nurse know the child more as a person than as someone with health problems	8.6% (n = 16)	4.3% (n = 8)	9.7% (n = 18)	73.7% (n = 137)

Table 2. Results of construct validation of the longitudinal attribute (professional and family relationship) in Primary Health Care. Brazil, in 2015.

Variables	Answers			
	Certainly, no	Probably, no	Probably, yes	Certainly, yes
The doctor/nurse would meet with the family if necessary	13.4% (n = 25)	5.4% (n = 10)	18.3% (n = 34)	55.9% (n = 104)
The doctor / nurse knows the family well	48.9% (n = 91)	10.8% (n = 20)	7.5% (n = 14)	32.8% (n = 61)
The doctor/nurse knows the most important problems of the family	45.7% (n = 85)	7.0% (n = 13)	10.8% (n = 20)	32.3% (n = 60)
The doctor/nurse know about the work and employment of the family members	63.4% (n = 118)	4.3% (n = 8)	5.9% (n = 11)	26.3% (n = 49)
The doctor/nurse would know the problems of getting or paying for medicines	33.9% (n = 63)	4.3% (n = 8)	11.3% (n = 21)	47.3% (n = 88)

Table 3. Results construct validation of longitudinal attribute (communication and trust between professionals and parents/caregivers) in Primary Health Care. Brazil, in 2015.

Variables	Answers			
	Certainly, no	Probably, no	Probably, yes	Certainly, yes
Can call the doctor/nurse to ask questions	61.3% (n = 114)	7.0% (n = 13)	7.0% (n = 13)	20.4% (n = 38)
The doctor/nurse understand what is said	2.2% (n = 4)	2.2% (n = 4)	8.6% (n = 16)	86.6% (n = 161)
The doctor/nurse answer questions	1.1% (n = 2)	5.0% (n = 1)	2.2% (n = 4)	96.2% (n = 179)
They have enough time to talk about concerns and problems	1.1% (n = 2)	1.1% (n = 2)	1.6% (n = 3)	96.2% (n = 179)
They feel at ease telling concerns and problems	1.6% (n = 3)	0.5% (n = 1)	1.1% (n = 2)	96.2% (n = 179)
They would change the service/doctor/nurse to another	66.7% (n = 124)	2.2% (n = 4)	2.7% (n = 5)	28.0% (n = 52)

doctor/nurse answer the questions for them to understand.

When asked if the doctor/nurse give enough time to talk about their concerns or problems, a large majority said yes, as well as a large portion of respondents said they feel comfortable telling the concerns or child-related problems to the doctor/nurse and; almost half of respondents claimed they would not change the service/doctor/nurse to another health service.

4. Discussion

This study considered the care provided to children in Primary Health Care from the evaluation of longitudinal attribute, according to the perception of parents/caregivers of children from 0 to 2 years old since it is important the estimate of performance of APS in the growth and development of the child, which contributes to the detection and prevention of future disorders as well as improvement in children quality of life.

The sample has characteristics similar to other studies [5] [6], which assessed children aged zero to two years old, concerning the proportion of female children and male and having higher mean age than the current study, 12.7 and 13.3 months, respectively.

From the average educational level of mothers, there is a good perspective on the understanding of these regarding the importance of childcare consultations and provides greater ease of communicating with health professionals. According to a study [7] conducted with 19 families of children treated at the APS service, some family members are not aware of the importance and purpose of the consultations. This factor can positively or negatively influence the effectiveness of longitudinal health of children.

In other studies evaluating the attribute in different APS services, there were satisfactory values in longitudinal actions [5] [6]. The data in **Table 1** show that, also in this study, the longitudinal care is well characterized when considering the relationship

established between professional and child, evidenced by the consultations held by the same professional, knowledge of the clinical history of the child by that professional, knowledge about the medications the child is taking and if professional knows the child more as a person than in a pathological aspect.

The construction of adequate health care to the child demands a greater interaction with the family, which provides information on experiences, present and plans regarding the child's life story [5] [8]. However, in **Table 2**, data show that in the aspect of the relationship between the professional and the child's family, the longitudinal care already becomes more difficult, as evidenced, for example, by the fact that almost half of the sample say that the health professionals do not know the family quite well, and more than half noted that they have no knowledge about the occupation of the family of the child they assist.

According to Smith *et al.* [9] this relationship is facilitated when there is common ground between the parents and professionals and when this professional takes a posture of non-judgment, informality, and solidarity because parents feel more comfortable and confident when they are at the "same level" of health professionals.

It is also emphasized that in situations where the bond established between the family and professionals is not satisfactory, the family have discomfort for the search for resolution of the child's health problem, however, they prefer the service with professionals able to understand them and to establish a closer and pleasant bond [10].

This confirms the importance of the interest by the professional to know the family and social context of the child and the health status, to maintain the bond and promotion of longitudinal care, since when it is not real, patients seek care with other professionals.

Therefore, some practices can be used for effective longitudinal care as speaking, listening, relationship and negotiation between professionals and patients, directing care to the population's needs [2].

Thus, it is important to allow parents/caregivers talk about their doubts, fears, desires and interests, giving enough time and instructed as to their questions because each child and each family has its peculiarities [8].

In this study, it was observed that communication between parents/caregivers and health professionals positively influence the longitudinal care. It is noticed that communication by telephone is possible for a minority of respondents. However, when it comes to the quality of communication-based face-to-face, this is well assessed by the vast majority of respondents, who report having enough time to report their questions, get clear answers from professionals as well as have enough time and feel free to talk about their concerns and problems, which demonstrates the inherent trust, favoring longitudinal care.

In a study of professionals and patients of primary health care services, it was found that the population recognizes the health units as responsible for providing their care and, therefore, health team feels responsible for presenting solving the health problems of the population [11]. For health professionals, the factors that favor the implementation

of longitudinal care are: the need to provide comprehensive and resolute support-according to the SUS premises-focused on the family, which also brings the patients, gaining their trust and establishing more lasting bonds; Another point made by nurses is that teamwork favors the development of a long-term care, especially in the complementarity of actions among professionals [12].

In this study, for most parents/caregivers, APS service used meets the demand of health of the family, since when asked about the possibility of switching to another service, 66.7% responded that they would not change. The rest of the sample are not sure or said that would change to another health service if they could, looking for easier access to consultations, exams, and treatments, which is still a step to overcome in public health services.

Thus, it appears that the correlation between the actions of different professionals working in APS (Community health agents, dentists, nursing staff and doctors), also determines the true longitudinal practice, as a complement to thereby achieving the improvement in the quality of health and life of individuals.

In addition, longitudinal care is related to the host, which is a strategy to achieve it because the host sets up the good communication, which tends to encourage continuity of care, attracting the patient to the APS service and allowing to be a nice place for the establishment of a therapeutic, preventive care and health education [2].

5. Conclusions

It appeared that the longitudinal care is something that goes beyond the establishment of a long relationship between health professionals and patients, since it determines the building of a professional-patient relationship that promotes solving assistance to problems that interfere with the growth and development of children, from the knowledge of the socioeconomic and health family background.

Thus, it is concluded that this attribute was highly rated by the mothers of children seen in primary health care services and that they can establish good communication and relationship with the health professionals who treat their children.

Regarding the limitations of the study, there is the fact that it is a local study. However, it may represent the reality of other municipalities, serving to guide the completion of other studies with the same approach. The fact that the interviews were held at UBS, it may have induced some positive responses from the interviewees. However, it is observed, from the results, that even in this situation the sample said negative aspects of several questions.

References

- [1] Starfiel, B. (2002) *Atenção primária. Balancing Health Needs, Services and Technology*. UNESCO, Ministério da Saúde (Brasília).
- [2] Oliveira, M.A. and Pereira, I.C. (2013) Essential Attributes of Primary Care and the Family Health Strategy. *Revista Brasileira de Enfermagem*, **66**, 158-164.
<http://dx.doi.org/10.1590/S0034-71672013000700020>
- [3] Brazil. Ministry of Health. Secretary of Health Care. Basic Care Department (2009)

- Children's Health: Infant Nutrition: Breastfeeding and Complementary Feeding. Ministry of Health (Brasília).
- [4] Brazil. Ministry of Health. Secretary of Health Care. Basic Care Department (2012) Children's Health: Growth and Development. Ministry of Health (Brasília).
- [5] Leão, C.D., Caldeira, A.P. and Oliveira, M.M. (2011) Attributes of Primary Care in the Health Care of Children: Evaluation of Caregivers. *Revista Brasileira de Saúde Materno Infantil*, **11**, 323-334. <http://dx.doi.org/10.1590/S1519-38292011000300013>
- [6] Filho, M.M., Luz, B.S. and Araújo, C.S. (2014) Attention Primary Health Care and Their Attributes: The Situation of Children under Two Years after Their Caregiving. *Ciênc Saúde Coletiva*, **19**, 2033-2046.
- [7] Malaquias, T.S.M., Gaíva, M.A.M. and Higarashi, I.H. (2015) Perceptions the Family of Children on Child Care Consultation in the Family Health Strategy. *Revista Gaúcha de Enfermagem*, **36**, 62-68. <http://dx.doi.org/10.1590/1983-1447.2015.01.46907>
- [8] Mello, D.F., Furtado, M.C., Fonseca, L.M. and Pina, J.C. (2012) Follow Children's Health and Care Longitudinality. *Revista Brasileira de Enfermagem*, **65**, 675-679. <http://dx.doi.org/10.1590/S0034-71672012000400018>
- [9] Smith, E., Koerting, J., Latter, S., Knowles, M.M., McCann, D.C., Thompson, M., *et al.* (2014) Overcoming Barriers to Effective Early Parenting Interventions for Attention-Deficit Hyperactivity Disorder (ADHD): Parent and Practitioner Views. *Child: Care, Health and Development*, **41**, 93-102. <http://dx.doi.org/10.1111/cch.12146>
- [10] Baltor, M.R.R., Matos, A.P.K., Wernet, M., Ferreira, N.M.L.A. and Dupas, G. (2013) Family Perceptions of Children with Chronic Illness Face Relations with Health Professionals. *Revista da Escola de Enfermagem da USP*, **47**, 808-814. <http://dx.doi.org/10.1590/S0080-623420130000400006>
- [11] Guiggi, L.A., Barreto, D.S. and Fajardo, A.P. (2014) Reflections of a Health Care Team and its enrolled population about Longitudinality of Care. *Journal of Primary Health Care*, **17**, 244-254. <http://aps.ufjf.emnuvens.com.br/aps/article/view/2155/809>
- [12] Baratiere, T. and Marcon, S.S. (2011) Identifying Work Conditions on the Nurse's Job for the Development of Longitudinal Care. *UERJ Nursing Journal*, **19**, 212-217. <http://www.facenf.uerj.br/v19n2/v19n2a07.pdf>



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