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Sofia Hemle Jerntorp

Interprofessional Education in Clinical Practice

Exploring healthcare students' interprofessional competencies as well as patients' and family members' involvement in the care process at interprofessional training wards

INTERPROFESSIONAL EDUCATION IN CLINICAL PRACTICE

Interprofessional Education in Clinical Practice

Exploring healthcare students' interprofessional competencies as well as patients' and family members' involvement in the care process at interprofessional training wards

Thesis for Doctoral Degree (PhD)

By Sofia Hemle Jerntorp

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No man is an island entire of itself.
Every man is a piece of the continent,
a part of the main
John Donne, 1624

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ABSTRACT

Background: The purpose of interprofessional collaboration (IPC) is to supply comprehensive, high-quality care to patients. Although healthcare professionals are expected to contribute to IPC, interprofessional skills require training. At interprofessional training wards (ITWs), healthcare students are trained in interprofessional teams where the patients' needs are presumed to guide the work. However, previous research indicates that students' personality traits, gender and healthcare education influence how well prepared they are for interprofessional learning (IPL). Little is known about how these factors influence self-efficacy for competence in interprofessional collaborative practice (IPCP). In addition, the link between interprofessional competence and patient and family member involvement in the care process has not been clearly highlighted in empirical interprofessional education (IPE) research before.

Aim: This thesis aims to investigate healthcare students' self-efficacy for competence in IPCP before and after clinical placement at ITWs. Additionally, it explores patients' and family members' experiences of involvement in the care process at an ITW.

Method: The four studies (I–IV) included in this thesis were performed at three different ITWs in southern Sweden. In Studies I and II, the study sample comprised healthcare students required to undertake clinical placements at the ITWs across four disciplines: nursing, medicine, occupational therapy and physiotherapy. Study I had a cross-sectional design, including 598 students, and Study II had a pre-post design and included 518 students. The students participated in the studies by providing background information and completing the following questionnaires: the Interprofessional Education Collaborative Competency Self-Efficacy Tool (IPECC-Set 9), the Readiness for Interprofessional Learning Scale (RIPLS) and the Neuroticism, Extraversion, and

Openness to Experience Five-Factor Inventory (NEO-FFI). Data were analysed using IBM's Statistical Package for the Social Sciences and included descriptive statistics, correlations, multiple regression analysis, independent sample t-test, paired sample t-test and analysis of variance. The significance threshold was set at $p < 0.05$. In Study III, data were collected through individual interviews with patients admitted to an ITW. The study included 22 patients. Data were analysed following the principles of reflexive thematic analysis according to Braun and Clarke. In Study IV, data were collected through individual interviews with 19 family members of patients admitted to an ITW. The interviews were analysed using content analysis as described by Elo and Kyngäs.

Result: In Study I, no differences were found in self-efficacy for competence in IPCP between the four educational disciplines. However, medical students were less ready for IPL, and so were male students. The personality traits Extraversion and Conscientiousness were identified as positive predictors of self-efficacy for competence in IPCP. In Study II, all students, regardless of educational discipline, gender, personality traits, previous healthcare experience or whether the students reported working in healthcare during their studies, scored significantly higher in self-efficacy for competence in IPCP after attending the ITW. In Study III, the main result was that although most patients at the ITW wanted to be involved in the care process, they described being hindered by their health condition or by not being involved by the student team in care planning and decision-making. In addition, most patients said that they needed their family members' support to be involved in care planning. In Study IV, family members expressed their wish to be involved in the care process to support the patient and bridge information between the patient and the interprofessional student team. However, family members described how their contributions were seldom recognised by the student teams, and how they had to actively seek information to be involved in the care process.

Conclusion: The link between interprofessional competencies and patient and family member involvement must be emphasised, as it will enhance the quality of patient care and further develop students' interprofessional competencies. Educators must refine the IPE activities to enable patients' and family members' involvement in care planning and decision-making. Interprofessional competencies are essential skills applying to all healthcare disciplines, which justifies the development of a unified interprofessional collaborative practice curriculum.

LIST OF PUBLICATIONS

This thesis is based on the results from the following papers, which are referred to in the text by Roman numbers. The papers have been reprinted with permission from the publishers.

I. Hemle Jerntorp, S., Lundgren, J., Jakobsson, J., Aho, A. C., Carlson, E., & Axelsson, M. ( ). Healthcare students' personality traits, readiness for interprofessional learning and self-efficacy for competence in interprofessional collaborative practice. (Resubmitted after minor revisions to Nurse Education Today).

II. Hemle Jerntorp, S., Lundgren, J., Jakobsson, J., Aho, A. C., Carlson, E., & Axelsson, M. ( ). Changes in healthcare students' self-efficacy for competence in interprofessional collaborative practice after clinical placement at an interprofessional training ward. (Submitted to Journal of Interprofessional Care).

III. Hemle Jerntorp, S., Carlson, E., Axelsson, M., Aho, A. C., & Jakobsson, J. (2024). Patients' experiences of involvement at a clinical training ward: a qualitative interview study. Journal of Interprofessional Care, 38(6), 1092-1100. doi.org/10.1080/13561820.2024.2395971.

IV. Hemle Jerntorp, S., Jakobsson, J., Axelsson, M., Carlson, E. & Aho, A. C. (2025). Family members' experience of involvement in the patient care process in an interprofessional training ward. Journal of Interprofessional Education and Practice, 39, 100742. doi.org/10.1016/j.xjep.2025.100742.

ABBREVIATIONS

FFM	Five Factor Model
IPC	Interprofessional Collaboration
IPECC-Set 9	Interprofessional Education Collaborative Competency Self-Efficacy Tool
IPCP	Interprofessional Collaborative Practice
IPE	Interprofessional Education
IPL	Interprofessional Learning
ITW	Interprofessional Training Ward
NEO-FFI	Neuroticism, Extraversion, and Openness to Experience Five Factor Inventory
RIPLS	Readiness for Interprofessional Learning Scale
WHO	World Health Organization

PREFACE

From an early age, I knew I wanted to become a nurse, likely influenced by my parents, both of whom worked in healthcare. However, they never pressured me to pursue this path. In fact, my parents were always quite straightforward about the human suffering and challenging working conditions. Despite this, it sounded so exciting. I graduated as a registered nurse in January 2004. My first employment was in the emergency department at Skåne University Hospital in Malmö. It was a demanding work environment. However, I quickly realised that teamwork and collaboration were crucial in managing the overwhelming situations. This first-hand experience of what team effort can accomplish motivated me to pursue a career as an operating theatre nurse. In the operating room, collaboration between different disciplines is essential to deliver high-quality care and ensure patient safety. Furthermore, during the past two decades, I have developed a growing interest in healthcare education through supervising and teaching students in the operating theatre and as a university lecturer. When a dear friend of mine told me that Malmö University, Department of Care Science, had announced a PhD project that focused on interprofessional education, I had to apply. In this thesis, I will endeavour to explain what I have learned during the research process.

INTRODUCTION

Patients who seek healthcare today will probably meet representatives from more than one profession. Generally, several professional competencies are needed to provide patients with adequate care (1, 2). For example, registered nurses primarily focus on providing nursing care and prevention, while physicians concentrate on medical decisions and treatments. Physiotherapists specialise in movement and rehabilitation, and occupational therapists assist patients in regaining functionality in daily activities (3). These roles are essential for patient care, alongside several other healthcare professions (4, 5). In addition, patient involvement has become increasingly recognised as a crucial element of the healthcare process (6). In Sweden, the Patient Act (7) prescribes that patients should have the possibility to take an active part in discussions and decisions concerning their health. The intention of patient involvement is to include patients and their family members in discussions and decision-making related to the patients' health, treatment options and future treatment plans (6). However, patients' and family members' involvement in the care process requires that healthcare professionals understand each other and have the skills to collaborate (5, 8, 9). Interprofessional education (IPE) has been increasingly implemented and integrated into curricula and practices throughout healthcare educational programmes globally to develop interprofessional competence among healthcare students (2, 9–11). In addition, former research indicates that healthcare students enter IPE with differing prerequisites (12–14). Self-efficacy has been recognised as a crucial predictor of both academic and clinical performance (15). It refers to an individual's belief in their ability to complete a task successfully. This belief influences motivation, behaviour and how the individual handles various situations (16). Moreover, personality also seems to have some influence, as previous research shows that students with certain personalities tend to do better academically and are more prepared for interprofessional learning (IPL) (17, 18).

Former research indicates that gender and healthcare education affect how well-prepared students are for IPE (18–20). Nonetheless, little is known about how these factors influence healthcare students' self-efficacy for competence in interprofessional collaborative practice (IPCP). Furthermore, although previous studies (21–24) have concluded that IPE in hospital settings can be performed with sufficient patient safety, there is limited research on patient and family member involvement in the care process during IPE (25–27).

BACKGROUND

The following section provides an overview of the historical origins of interprofessional collaboration (IPC) and education, along with previous research within the field that has informed the rationale for this thesis.

Interprofessional Collaboration

The importance of well-functioning interdisciplinary teamwork has been widely discussed for nearly three decades as a way to maximise professional resources within healthcare organisations (5, 10, 28). The idea of IPC is that it involves two or more professional disciplines working together and contributing their specific professional competencies and knowledge to improve health outcomes (5). Previous research shows that well-functioning IPC reduces complications for hospitalised patients, shortens the length of inpatient stays, lowers healthcare costs and even decreases mortality rates (2, 26). In addition, there is also evidence showing that IPC not only enhances patient care but also promotes patient involvement and improves patient satisfaction with care (10, 29–31). Therefore, IPC has been considered crucial for ensuring patient safety and has been identified as a central competency for all healthcare professionals to acquire (2, 32).

According to previous research, healthcare professionals become more aware of their area of expertise when they are working interprofessionally (33–36). Moreover, IPC seems to broaden professional competence so that it benefits both the team and the team's objective (10, 37). The baseline for IPC is that it intends to create a collective identity and responsibility for a patient or group of patients. However, this does not mean that the importance of individual professional competencies is diminished; on the contrary, it highlights the expertise of each

profession (4). Furthermore, a significant part of healthcare is team-based, and the World Health Organization (WHO) (5, 28) has predicted that IPC will become even more important in relation to a rapidly changing demographic globally. Hence, an ageing population will possibly lead to a greater demand for healthcare professionals and put pressure on healthcare systems (5, 28). Although healthcare professionals are expected to contribute to IPC (38), previous studies imply that newly examined healthcare professionals are not always prepared for the IPC necessary for patient care (10, 26, 39). Traditionally, and because of educational differences, future physicians, nurses, physiotherapists and occupational therapists have been trained separately in their specific education programmes (10, 40). However, teamwork is important in healthcare and previous studies demonstrate that IPC skills are dependent on the experience of learning and working together, where the team itself creates knowledge through a social process (5, 41).

Interprofessional Education

The educational concept of IPE was gradually introduced during the 1980s, and Sweden was a pioneer when Linköping University in 1986 decided that their healthcare students should learn together from the very first semester (73). This type of learning became more widely known in 1988 through the WHO report *Learning together to work together.* The report described the advantage of joint training for students in the field of healthcare during their basic education to develop their ability to work in teams (42). In 2010, the WHO once again raised the importance of IPE. At that time, there was a large shortage of physicians, nurses and midwives at the global level. In the report, IPE was described as a necessity to equip healthcare students with the competencies needed for effective teamwork and to maximise professional resources in healthcare (5). Since then, IPE now rests on a solid evidence base and has been acknowledged as an important part of healthcare education (23, 26, 43, 44). The concept of IPE is internationally recognised and defined as 'those occasions when members (or students) of two or more professions learn with, from and about each other to improve collaboration and the quality of care' (5) (p.10). Each member or student contributes their specific expertise to create a holistic view of the patient's care (4, 45). An important aspect of this type of learning is reflection, openness and responsiveness (45, 46). Moreover, central to IPE is that all members of the interprofessional team engage in the same practice and learn together and from

one another (41, 47) to develop interprofessional values, roles, communication and teamwork skills (26, 48).

Former research indicates that students trained with an IPE approach are more likely to collaborate effectively. They tend to show respect and maintain positive attitudes towards one another (23, 40, 49, 50). Additionally, this training seems to enhance students' understanding of their own professional identity while also familiarising them with the roles of other professionals on the healthcare team (35, 40, 49, 51, 52). As a result, they are better equipped to work together to improve patient outcomes (39, 41). Previous studies indicate that an IPL environment strengthens students in their future professional roles and contributes to higher patient safety (26, 48, 53). Consequently, IPE has been gradually implemented into healthcare educational programmes to develop "interprofessional competencies" among healthcare students (2, 10, 11).

Interprofessional Competencies

Interprofessional competencies are about developing approaches that enable professional assessments and interventions across the professions involved in the patient's care process (4, 26, 39). Each profession contribute with specific expertise to create a holistic view of the patient's care (45). The Interprofessional Education Collaborative (IPEC) expert panel (4) defines interprofessional competencies in health care as 'Integrated knowledge, skills, values, and attitudes that define working together across the professions to improve equal health outcomes' (p. 34). In other words, interprofessional competencies refer to those competencies needed to collaborate interprofessionally (4, 45). On a theoretical level, patient and family member involvement is integrated in the interprofessional competencies described in the IPEC Core Competencies for Interprofessional Collaborative Practice framework (4, 54). The IPEC Core Competencies for Interprofessional Collaborative Practice (4, 54) have a person- and family-centred approach and aim to guide and organise IPE activities in healthcare education. The framework includes four domains: "Values and Ethics", "Roles and Responsibilities", "Communication", and "Teams and Teamwork", as visualised in Figure 1.

Figure 1. The IPEC Core Competencies for Interprofessional Collaborative Practice framework (version 3, 2023, p. 15) (4). The figure has been reproduced with permission from the publishers.

The first core competencies domain, Values and Ethics, relates to the patient's right to be involved in the care process, upholding their autonomy and dignity, and respecting individuals' preferences and privacy. It also describes the professional competencies needed to provide high-quality care to patients. The second interprofessional competencies domain, Roles and Responsibilities, focuses on understanding and applying one's own role and the expertise of other team members to provide individualised and safe care that improves health outcomes. Interprofessional Communication is the third core competency and goes beyond simply engaging in professional dialogue. It involves the ability to communicate with patients and their families in a clear, empathetic and culturally sensitive manner. The fourth core competence, Teams and Teamwork, focuses on how students share responsibility and accountability for patient outcomes within an interprofessional team. It emphasises the value of the team as an asset and highlights the importance of adapting and utilising the most relevant resources in patient care. All four interprofessional competency domains include several sub-competencies that are more specifically formulated (4).

The IPEC Core Competencies for Interprofessional Collaborative Practice framework is designed to support the development of IPE activities, although it has also been used for educational research (4). Former research indicates that healthcare students enter IPE with differing levels of preparedness (12–14). For instance, male students tend to have higher self-efficacy for competence in IPCP than female students (12, 55, 56).

Self-efficacy

According to Albert Bandura (16), self-efficacy refers to an individual's belief in their ability to complete a task successfully. This belief influences motivation, behaviour and how the individual handles various situations. Bandura proposes that a variety of experiences shape an individual's sense of self-efficacy. Key factors include the outcomes of their past experiences, where repeated successes can enhance confidence, while failures may diminish it. Overcoming challenges is another crucial aspect. Individuals often develop a stronger sense of self-efficacy when they successfully navigate obstacles, demonstrating resilience and problem-solving skills (57).

In addition to personal experiences, social support also plays a significant role in promoting self-efficacy. Encouragement and positive reactions from teachers and peers can boost self-efficacy, as recognition from others can validate a person's capabilities. Furthermore, observational learning is an important component of this process (58). By observing others who face similar challenges, individuals can gain valuable insights and strategies that help them feel more confident in their own abilities. This combination of personal experience, social support and observational learning creates the foundation for the development of self-efficacy (59). According to Bandura, an individual's level of self-efficacy plays a crucial role in determining the ambitions they set for themselves. When a person possesses a high sense of self-efficacy, they are more likely to aim for ambitious goals (60). This belief in their own capabilities not only empowers them to tackle challenges but also significantly enhances their motivation to achieve these goals. As a result, individuals with high self-efficacy are more resilient in the face of obstacles and more committed to their personal and professional growth (61).

Bandura's construct of self-efficacy addresses behavioural, cognitive and social factors that influence the learning process (58). Self-efficacy has been studied before within healthcare education. For example, a recent study showed a

significant association between medical students' self-efficacy and both academic and clinical performance (15). Furthermore, self-efficacy has also been studied within interprofessional contexts. According to another recent study, healthcare students' self-efficacy in interprofessional evaluation and feedback appears to differ by gender, with male students rating themselves higher than female students (55). Yet another recent study showed that self-efficacy in IPCP seems to be dependent on the understanding and experience of learning and working with other disciplines (62). Furthermore, Peterson et al. (12) examined the differences in self-efficacy for competence in IPCP across various healthcare disciplines. The findings revealed that nursing and medical students reported higher self-efficacy compared to physiotherapy and occupational therapy students. Additionally, the study found that male students exhibited higher levels of self-efficacy. The researchers also examined whether prior interactions with various health professions influenced these self-efficacy levels. However, no such association was found. This suggests that other factors may have contributed to the observed differences among and within the groups. One area identified for further exploration was the influence of personality. Since each person is unique, personality traits impact their thoughts, feelings and behaviours, which in turn affect how they interact within teams (63, 64).

Personality

Personality is a complex mix of characteristics that significantly influences an individual's thinking, emotions and behaviours. It includes genetic structures as well as behaviours developed through life experiences, cultural influences and social interactions that shape how individuals perceive the world, respond to challenges and engage with others. As a result, personality plays a crucial role in differentiating people within their social environments, affecting their interactions, relationships and overall life experiences (65). One way to describe personality is through the Five Factor Model (FFM) that outlines five key personality traits: Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness (63). The FFM has been well studied since the 1960s and aims to explore how personalities are structured by studying relations between traits. According to the FFM, all individuals have varied levels of the five traits that can be seen as predictors of behaviour (66, 67). For example, a person with high levels of Neuroticism is more nervous and worried, often has low self-esteem, and handles stress poorly. In comparison, a person with low

levels of Neuroticism is calmer and does not get stressed easily. Individuals who score high on Extraversion typically search for social contacts and occasions to engage with others. These individuals are often characterised as energetic, active and optimistic, typically taking the lead in a group. Furthermore, individuals with high levels of Openness to experience tend to be creative, curious and open-minded. They seek new perspectives and are adventurous. Individuals with high levels of Agreeableness are typically honest, friendly and generous (66). A person who scores high on Conscientiousness tends to be responsible and determined and often comes well prepared. They make choices wisely, want to achieve high standards and fulfil their obligations (67). Previous research indicates that there are differences between genders, where women tend to have higher levels of Neuroticism and Agreeableness than men, while men tend to have slightly higher levels of Extraversion and Openness to experience (64, 68). Nonetheless, McCrae and Costa (66) argue that the FFM is a model for organising personality traits, and should not be considered a theory of personality, as it does not explain how people see themselves or how traits affect individuals' daily lives.

In relation to educational situations, former research shows that students who score higher on Extraversion and Conscientiousness tend to achieve better academically (17). In addition, Axelsson et al. (18) concluded in their study that nursing students who were more outgoing, open-minded and rated higher on Conscientiousness seemed to be more ready for IPL. Previous research also suggests a positive connection between students' IPC abilities and the personality traits of Agreeableness, Conscientiousness and Openness to experience (69). Notably, previous research (17) indicates that personality traits can predict individual self-efficacy among students. Among the five main personality traits, Extraversion and Conscientiousness were positively correlated with higher self-efficacy, while neuroticism was negatively correlated. In turn, self-efficacy strongly predicts students' academic achievements, even more so than their motivation to learn (15, 70). However, even if students enter IPE with varying levels of preparedness, some studies suggest that healthcare students' self-efficacy in interprofessional communication and collaboration is generally enhanced through different IPE activities (12, 71).

Interprofessional Training Wards

In a clinical context, IPE is often organised at interprofessional training wards (ITWs). In these wards, students from various healthcare professions work and

learn in teams, with a substantial degree of clinical independence, while supervisors act primarily as facilitators (72). The first ITW was introduced in 1996 at Linköping University in Sweden (73). Since then, ITWs have been internationally acknowledged because of their positive influence on students' IPC competencies and attitudes (26, 39, 47). Recent studies indicate that IPE in clinical settings can be conducted while maintaining patient safety. Furthermore, that ITWs is an appropriate context for practising IPC (21, 22).

In Sweden, a variety of healthcare programmes have instituted mandatory training at an ITW, where students across different healthcare disciplines come together to collaborate in interprofessional teams (21, 72). These teams function with a considerable degree of clinical autonomy, allowing students to apply their knowledge and skills with real admitted patients. Throughout this process, they receive continuous guidance and support from clinical supervisors, who play a vital role in facilitating learning and ensuring the quality of care provided (20, 72). At the ITW, students are encouraged to work both independently and collaboratively with other students in the interprofessional team while allowing the patients' needs to guide their work. However, there is limited research exploring the patients' experiences of involvement in care planning and decision-making during IPE at ITWs.

Patient involvement

Patient involvement has been increasingly recognised as a key component in the healthcare process and is associated with improved health outcomes and higher satisfaction with care (74, 75). In addition, there is currently a global shift towards increased patient involvement, and the concept has been applied to all areas of patient care (76). The purpose is to include patients in decision-making regarding their health, treatment and further treatment plans (6, 77, 78). In Sweden, the Patient Act prescribes that patients should be actively involved in decisions concerning their health (7). In this thesis, the term 'patient involvement' is used and can be defined as increased shared decision-making that will improve the care experience and ensure patient empowerment (76, 79). However, patient involvement also has challenges. For example, previous research indicates that patients' health status, sociodemographic background, level of education and ethnicity seem to affect the willingness and ability to be involved in the healthcare processes (6, 75, 80). In addition, there is evidence indicating that patient involvement can be difficult for patients to understand (81), and most patients

perceive involvement more as an informed discussion and as agreement, often associating good care with patient involvement (82–84).

At ITWs, students are encouraged to work independently and in cooperation with other students within the interprofessional team and let the patients' needs guide the work (72). Furthermore, ITWs aim to create a student-patient relationship where students listen and respond to patients' concerns and wishes in a mutual dialogue (20). In turn, patients can provide feedback that can be beneficial for students' professional development (85). Former research within IPE settings signals that patients seem to value the opportunity to be part of interprofessional team meetings (86) and even stress their own or their family members' right to be involved (11, 87). In fact, previous studies (88, 89) show that patients often need their family members' support to be involved in the care process.

Family member involvement

Previous studies (88, 89) have stressed the advantages of family members' involvement in the patient care process. Furthermore, the WHO emphasises that patients and their families should be at the centre of all care to promote person- and family-centred care (1, 5, 30). However, if family members are presumed to be involved, healthcare professionals must enable them to participate in discussions, treatment and decisions related to patient care, provided that the patient wants the family members to be involved (88, 89). The definition of a family member for this thesis is based on who the patient or their family members identify as such. This is in line with Hansson's (90) definition: 'Family refers to two or more individuals who depend on one another for emotional, physical, and economic support. The members of the family are self-defined' (p. 34).

There are limited studies on the involvement of family members in IPE activities. However, family member' roles have been highlighted in research from other settings (91, 92). For example, a recent study (92) explored patients' and family members' experiences of involvement in acute care wards. The study revealed that family members were important for supporting the patient by communicating and handling information with healthcare professionals. Other prior studies (88, 89) have emphasised the advantages of family members' involvement in the patient care process with regard to quality and coordination of care and discharge, as well as patient safety. Former research (92–94) also indicates that patients receive better quality and continuity of care when family members are involved.

Furthermore, their involvement seems to decrease both family members' and the patients' concerns regarding care planning and reduce the duration of patient in-days and rehospitalisation (89, 92, 95). Previous studies (87, 96) show that healthcare professionals play an essential role in facilitating communication with family members and promoting their involvement. Additionally, these studies (87, 96) demonstrate that involving family members necessitates collaboration among various healthcare professions. Consequently, it can be expected that involving family members requires specific prerequisites, such as training healthcare students to adopt an inclusive approach to family member participation at ITWs. (11). However, there is limited research on family member involvement in IPE activities.

RATIONALE

Although IPE is recognised as essential for developing interprofessional competencies (5, 10), health education programmes still face challenges in adequately preparing students for IPC in clinical practice. This issue is not limited to Sweden; it seems to be a global concern (26, 97, 98). One reason for this might be that healthcare students come into IPE with different experiences and preparedness. For instance, previous research indicates that students' personality traits, gender and healthcare education influence how well prepared they are for IPL (13, 18–20, 69). However, little is known about how these factors influence self-efficacy for competence in IPCP. In addition, the link between interprofessional competencies and patient and family member involvement has not been clearly highlighted in prior empirical IPE research. At ITWs, healthcare students are trained in interprofessional teams where the patients' needs are presumed to guide the work (72, 85). Although previous studies (21–23) have concluded that IPE can be performed with adequate patient safety in hospital settings, there is insufficient evidence to draw conclusions about IPE and patient involvement in the care process (25, 26). Additionally, previous research shows that involving family members in the patient care process offers several benefits (88, 89). However, there is currently limited research on the involvement of family members during IPE activities. This thesis aims to address the identified knowledge gaps, as this is essential for developing high-quality IPE interventions for healthcare students. Moreover, the knowledge gained through the studies included in the thesis can enhance the quality of care provided to patients and the services offered to their family members during IPE and ultimately improve patient care in regular healthcare settings.

AIM

This thesis aims to investigate healthcare students' self-efficacy for competence in interprofessional collaborative practice before and after clinical placement at interprofessional training wards. Additionally, it explores patients' and family members' experiences of involvement in the care process at an interprofessional training ward.

Specific aims

Study I

To explore healthcare students' self-efficacy for competence in interprofessional collaborative practice related to readiness for interprofessional learning, personality traits, gender and type of healthcare education.

Study II

To explore changes in self-efficacy for competence in interprofessional collaborative practice in relation to demographics and personality traits after clinical placement at an interprofessional training ward.

Study III

To explore patients' experiences of being involved in the interprofessional team of healthcare students at a clinical training ward in Sweden.

Study IV

To explore how family members experience involvement in the care process on an interprofessional training ward.

METHOD

This thesis focuses on clinical based IPE within healthcare education using ITWs as the research field. In the original PhD project plan, data collection for Studies I and II was scheduled for 2022. However, due to the medical programme's decision to move the ITW placement from semester eight to semester ten during this period, the medical programme director requested a postponement of data collection to 2023. To avoid losing valuable research time, data collection for Studies III and IV was instead conducted during 2022, before Studies I and II. To maintain and align with the thesis' focus on IPE, the studies are presented as outlined in the initial project plan. Multiple methods have been applied to answer the overall research question of this thesis, consistent with a pragmatic epistemological perspective (99). The following sections describe how, when and where data were collected and how they were analysed.

Research design

This thesis comprises four studies, where both quantitative and qualitative research designs and methods have been used. To ensure trustworthiness and validity, the work has been guided by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist for cross-sectional studies (100) and the Consolidated Criteria for Reporting Qualitative Research (101). A summary of the research design and methods of the included studies is presented in Table 1.

Table 1. Overview of study design and methods for the studies (I–IV) included in the thesis

	Design	Data collection	Data collection period	Participants included	Data analysis
Study I	Quantitative Cross-sectional	Questionnaires	During the spring and autumn semester 2023	598 Healthcare students	Descriptive statistics, Multiple linear regression, ANOVA*, independent sample t-test
Study II	Quantitative Cross-sectional, pre-post design	Questionnaires	During the spring and autumn semester 2023	518 Healthcare students	Descriptive statistics, ANOVA*, independent and paired sample t-test
Study III	Qualitative	Individual interviews	During the spring semester 2022	22 Patients	Reflexive thematic analysis
Study IV	Qualitative	Individual interviews	During the spring and autumn semester 2022	19 Family members	Content analysis

*Analysis of variance (ANOVA)

Setting

The four studies were performed at three different ITWs in southern Sweden. The wards had a focus on internal medicine, and the patients were usually elderly and needed overall medical, nursing and rehabilitation care. At the training wards, medical, nursing, occupational therapy and physiotherapy students participated in a two-week compulsory clinical placement as part of their respective curricula, working and learning together as interprofessional healthcare teams. All students were in their final year of healthcare education, and this was their first clinical IPE activity. The initial shift started with a comprehensive introduction led by clinical educators. During the introduction, the students were encouraged to work with the patient at the centre of care and to value each other's different experiences and skills. Throughout the clinical placement, students engaged consistently with the same team members, which included one or two medical students, three to four nursing students and one student from either physiotherapy or occupational therapy and sometimes both. Within the ITWs, students collaborated and took a joint responsibility in essential patient care activities in combination with their designated professional responsibilities. The student

teams received instructions, timelines and checklists to organise the shift. During daytime shifts, student teams received guidance from senior supervisors representing each profession. For evening and weekend shifts, a registered nurse undertook the responsibility of supervising the entire student team. However, the pedagogical strategy was to give the students the feeling of independence as a healthcare team. Unlike traditional supervision, the supervisors acted more as facilitators. The objective was for students to turn to each other to solve difficulties. Nevertheless, the supervisors supported the student teams in challenges they encountered that they could not solve without guidance. In addition, the student teams had regularly scheduled reflection sessions during the shift to reflect on their work progress, on their contribution to the team and on specific patient issues. Furthermore, the student teams also led the ward rounds. Before the rounds, the students withdrew from the interprofessional student team and discussed with a profession-specific supervisor. Moreover, all the profession-specific supervisors were present during the ward rounds to be able to discuss the proposed suggestions from the students interprofessionally to ensure care quality and patient safety (72). The ITWs' focus was to create the opportunity for students to practise IPC with the patient and, given that the patient consented, family members at the centre of care. All patients who were admitted received information about the ward's educational nature and structure.

Samples

Studies I and II

The study sample comprised healthcare students required to undertake clinical placements at the ITWs across four disciplines: nursing, medicine, occupational therapy and physiotherapy. The students were recruited with a census sample technique (102). In total, 687 students from two universities were distributed over three different ITWs in southern Sweden. Before the start of each semester, in collaboration with the programme directors and course examiners, the nursing, occupational therapy and physiotherapy students received verbal information about the ongoing studies at their respective universities. The students also had the opportunity to ask questions at this time. Although the medical programme director authorised the study, they did not consider that their students needed to receive verbal information beforehand. Therefore, the medical students merely received information by email. All students received written information and a

pre-recorded video outlining the study via email two weeks before their ITW placement. These emails were sent out with the help of the main clinical supervisors at the ITWs. All 687 students were invited to participate in the study, and 601 students answered the pre-ITW questionnaire, and 533 students also answered the post-ITW questionnaire. Students could contact my supervisors and me, as our contact information was provided in the information letter. However, no student made contact either before or after the data collection was completed.

Study III

All patients admitted to the ITW during the data collection period, between February and May 2022, received written information about the aim and nature of the study, and that it was voluntary to participate. Patients were then recruited with support from the healthcare professionals and the student teams at the ITW in a non-random convenience sampling technique. I had regular contact with the ward personnel and the students about which patients they thought were most suitable to ask if they wanted to participate in the study. To be included in the study, patients needed to have the strength to participate in the interview, they had to be able to express themselves verbally and speak and understand Swedish. Additionally, patients must have been admitted to the ward for at least 48 hours. After confirming these criteria, suitable patients were approached. In total, 28 patients were asked to participate, five patients declined participation, and one patient first agreed but had to withdraw due to deteriorating health status. Finally, 22 patients were included in the study, eight female and 14 male patients, aged between 57 and 95 years. The interviews were performed when patients had regained their health status, often in close connection to discharge from the ward. Included patients had been admitted to the ward for 2–14 days when the interviews were performed.

Study IV

During the data collection period, all admitted patients received written information about the study that they could share with their family members. An important step in the preparation phase was defining who qualified as family members. To invite family members to participate, patients needed to provide consent and identify their closest family member. Since recruitment of family members was conducted through the patients, I was able to confirm that the patients had agreed to involve their family members in the care process. However, to be included, family members had to be able to speak and understand Swedish.

As a result, family members were recruited with the assistance of student teams and healthcare professionals at the ITW. This method of purposive sampling was considered suitable for identifying informants who possessed the required experience and could answer the research question. A total of 40 family members were invited to participate in the study. Of these, 17 declined to participate directly, while four initially accepted but later withdrew their consent before data collection took place. The primary reason for the withdrawal was a lack of time, as their family member had returned home from the ward. Ultimately, 19 family members participated in the study: eight women and 11 men, with ages ranging from 40 to 82 years. The patients related to these family members had been admitted to the ward for a period of five to 14 days, and the interviews were conducted shortly before the patients' discharge.

Data Collection

Studies I and II

Data were collected from January to December 2023 during a mandatory introduction and after the final shift by clinical educators, who acted as gatekeepers. During the introduction, the participants received pre-test questionnaires along with smaller sealed envelopes containing post-questionnaires, both coded with the same individual identification number. Students were provided with written instructions indicating that they should not open the smaller sealed envelope until after their clinical placement at the ITW. To ensure that the students received the post-questionnaire marked with the same code as the pre-questionnaire, each student wrote their name on the small, sealed envelope. These envelopes were kept in a sealed box at each ITW until the end of the clinical placement. The students answered the pre-questionnaire as the first activity, before receiving information and an introduction to the ITW concept. During the final shift, the students received their small envelopes, completed the post-questionnaire, and submitted it without including the marked envelope, so that their answers would remain anonymous. Participants were allocated approximately 45 minutes to complete the pre-test questionnaire and 10 minutes for the post-test, which was deemed adequate time. The finalised questionnaires also served as consent to participate in the study. The gatekeepers collected the completed questionnaires and stored them in a locked room. An ongoing contact was held with the ITWs who gathered the questionnaires to make sure that the

study proceeded. All questionnaires were subsequently gathered for safe storage in a locked and fireproof archive at Malmö University.

Questionnaires

The pre-ITW questionnaire included background data, that is, age, gender identity and type of healthcare education, and three questionnaires that were combined and distributed in a single survey and were gathered through self-reports. The following three validated questionnaires were used in Studies I and II:

1. The Swedish version of the Interprofessional Education Collaborative Competency Self-Efficacy Tool (IPECC-Set 9). In Studies I and II, the IPECC-Set 9 was utilised to assess healthcare students' self-efficacy for competence in IPCP. The questionnaire was developed partly based on the Core Competencies for Interprofessional Collaborative Practice framework (4, 54) and partly on Bandura's self-efficacy construct (16). The original scale (56, 103) has been translated into Swedish, tested for its psychometric properties, and proven to be a valid and reliable questionnaire in a Swedish context. The questionnaire consists of nine items using a 100-point visual analogue scale where 0 = not confident at all and 100 = confident (104). Missing data were 0.7% and occurred randomly across the nine items. No imputation or other corrective measures were applied. In Study II, among the 533 students who completed the IPECC-Set 9 questionnaires, 15 were excluded from the study due to missing values in either the pre- or the post-questionnaire.

Before conducting the statistical analysis, the grades were systematically recoded into 10 categories, ranging from 0 to 9, and the scores were summarised to one dimension, in accordance with the instructions outlined in the original version (56, 103). The IPECC-Set 9 was used in Studies I and II in both the pre- and post-ITW placement questionnaires. A summary of the obtained psychometric value, Cronbach's alpha, for Studies I and II is presented in Table 2.

Table 2. Cronbach's alpha value (α) for the IPECC-Set 9 used in Studies I and II

Cronbach's alpha value	Pre-ITW questionnaire	Post-ITW questionnaire
Study I	α 0.892	
Study II	α 0.889	α 0.887

2. The Swedish version of the Neuroticism, Extraversion, and Openness to Experience Five Factor Inventory (NEO-FFI) consists of 60 items scaled 1–5 (1 = strongly disagree to 5 = strongly agree) (105, 106). The NEO-FFI illustrates five personality traits: Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness (63). The questionnaire was used to assess the students' personality traits in Studies I and II (in the pre-ITW placement questionnaire). A total of 183 responses were missing in the 60 items, representing approximately 0.5% of the data. Missing values were handled according to the guidelines provided in the questionnaire's instruction manual (106), stating that if a participant had up to nine missing items, these were replaced with the scale midpoint; participants with more than nine missing items were excluded from analyses for this questionnaire. Three participants were excluded due to more than nine missing items. A summary of the obtained psychometric value, Cronbach's alpha, for Studies I and II is presented in Table 3.

Table 3. Cronbach's alpha value (α) for the NEO-FFI used in Studies I and II

Cronbach's alpha value	Neuroticism	Extraversion	Openness to experience	Agreeableness	Conscientiousness
Study I	α 0.825	α 0.796	α 0.722	α 0.767	α 0.823
Study II	α 0.831	α 0.790	α 0.735	α 0.763	α 0.818

3. The Swedish version of the Readiness for Interprofessional Learning Scale (RIPLS). The scale measures attitudes toward IPL and collaboration through self-reports. The questionnaire consists of 19 items scaled 1–5 (1 = strongly disagree to 5 = strongly agree) (107). The 19 items cover three dimensions: Teamwork and Collaboration, Professional Identity and Roles and Responsibilities. In Study I, the scores for each dimension were summarised according to the original scale (108). The original scale has been translated into Swedish and tested for its psychometric properties in a Swedish context (107). There were minimal missing values (0.3%), and they occurred randomly across the 19 items. No imputation or other corrective measures were applied. The internal consistency, when applying Cronbach's alpha, of the dimensions was generally acceptable, except for the dimension Roles and Responsibilities, which was below the recommended threshold value of ($\alpha = 0.7$) (109). A summary of the obtained psychometric value, Cronbach's alpha, for Study I is presented in Table 4.

Table 4. Cronbach's alpha value (α) for the RIPLS used in Study I

Cronbach's alpha value	Teamwork and Collaboration	Professional Identity	Roles and Responsibilities
Study I	α 0.796	α 0.763	α 0.276

Study III

Data were collected through individual interviews with patients admitted to the ITW between February and May 2022. All patients received both written and verbal information about the study upon their admission to the ward, with additional details provided right before the interviews. The interviews took place on the ward, primarily at the bedside, according to the participants' preferences. Each interview was conducted in private, with only the interviewer and the participant present in the room. The interviews began with a brief conversation to collect background information. A semi-structured interview guide was used, as advocated by Braun and Clarke (110), to ensure that all matters of interest were covered. The interviews started with an open-ended question: *Can you describe your experiences of being cared for in the interprofessional training ward?* Probing questions were posed during the interviews to give the patients the possibility to develop their statements (111). The interviews lasted between 19 and 49 minutes and were digitally recorded and transcribed verbatim.

Study IV

Data were collected from February to December 2022. Before the scheduled interviews, all family members received written and verbal information about the study's purpose, as well as assurance that their participation was voluntary. This information was communicated one to three days before the interview. All interviews were conducted over the telephone at the request of the family members. Before each interview began, a brief conversation was held to gather background information regarding the family member's relation to the patient and their age. The family members had time to ask questions before providing informed consent. A semi-structured interview guide was employed to ensure that all relevant topics were addressed. Each interview commenced with the open-ended question: *Can you describe your experiences of being involved in the care of your family member at this interprofessional training ward?* Probing questions were posed throughout the interviews to encourage the family members to elaborate on their experiences. Each interview lasted between 14 and 29 minutes,

with a mean duration of 19 minutes, and was digitally recorded and transcribed verbatim.

Analysis

Studies I and II

The analysis included a variety of descriptive statistics, such as frequencies, percentages, means and standard deviations (SD), which provided an overview of the participants' characteristics. To explore the relationships between the variables, Pearson's correlation coefficients (r) were applied. In Study I, a multiple linear regression model was applied to identify predictors of the dependent variable, the IPECC-Set 9. To assess changes in self-efficacy for competence in IPCP in Study II, the difference between the mean scores from the IPECC-Set 9 pre-questionnaire and post-questionnaire was calculated, resulting in a metric referred to as the mean change in self-efficacy. Furthermore, the differences based on gender and the comparison of students with prior healthcare experience to those without were assessed by conducting an independent sample t-test. The differences based on gender and prior healthcare experience were assessed using an independent sample t-test (Study I). Moreover, a paired sample t-test was used to compare pre- and post-scores within both male and female groups, and to analyse the pre-post changes in self-efficacy for competence in IPCP within each sex (Study II). An analysis of variance (ANOVA) was employed to compare outcomes among students from four different programmes, followed by a Bonferroni post hoc test to adjust for multiple comparisons (Studies I and II). Additionally, independent sample t-tests were used again to examine differences between male and female participants.

The Pearson's correlation coefficient (r) was also used as a measure of effect size. Cohen's d was calculated when comparing student groups with or without previous healthcare experience, and when comparing gender. Cohen's d estimates the effect size, where a value less than 0.5 indicates a small effect, a value greater than 0.5 indicates a medium effect, and a value greater than 0.7 indicates a large effect (112). However, in the ANOVA, Eta squared (η^2) was used to measure the effect size (Studies III and IV). According to Cohen's guidelines (112), an effect size of 0.01 indicates a small effect, 0.06 indicates a medium effect, and 0.14 indicates a large effect. A statistical significance threshold was set at $p < 0.05$. The data collected were analysed using IBM's

Statistical Package for the Social Sciences (version 29) (113). In Study I, the analysis was driven by the following hypotheses:

1. Higher scores in readiness for IPL and higher scores of the personality traits Extraversion, Openness to experience, Agreeableness and Conscientiousness, and lower scores on Neuroticism, predict higher scores in self-efficacy for competence in IPCP.
2. Women report lower scores in self-efficacy for competence in IPCP but score higher in all dimensions of readiness for IPL, and women and men differ in personality traits.
3. There are differences in self-efficacy for competence in IPCP, readiness for IPL and personality traits among students from various healthcare programmes in the study sample.

Study III

Data were analysed following the principles of reflexive thematic analysis in six steps, according to Braun and Clarke (114). Braun and Clarke define themes as patterns of shared meanings that are connected by a central concept. Themes are, furthermore, analytical results that emerge from the analysis process (114, 115).

The analysis began during the data collection phase, which involved taking field notes, documenting reflections, and familiarising myself with the material during transcription. All transcribed interviews were read multiple times to enhance my understanding of the dataset. This was followed by a systematic inductive data coding process, where each interview was treated with equal attention. The codes were developed to reflect the content that was relevant to the study's objectives, and they were then analysed and grouped based on similar themes to identify patterns and relationships. Initially, 78 codes were generated, which included both manifest and latent descriptions. Subsequently, all relevant coded data were carefully organised into broader themes, followed by a discussion regarding the preliminary analysis with my team of supervisors to identify areas for further enhancement. These themes were then verified by revisiting the original data transcriptions. In the next step of the analysis, a story was formulated for each theme. This is in line with the 15-point checklist of criteria for good thematic analysis by Braun and Clarke (116). Braun and Clarke also state that the researcher must be active in the research process when creating themes and that the researcher's subjectivity should be seen as a resource (114, 116). Braun and

Clarke focus on reflexivity, which relates to the researcher's preunderstanding and its influence on the methodological process (114). All authors contributed to the analytical process, and reflexivity was utilised to discuss how the authors' preconceptions might have influenced the analysis. All authors are registered nurses, but none have experience working at an ITW. Reflexivity is also concerned with the social setting and context. The interviews were conducted in the ITW according to the patients´ preferences, which may have influenced their responses.

Study IV

The interviews were analysed using content analysis as described by Elo and Kyngäs (117). Since there are limited studies on the subject, the analysis had an inductive approach (117, 118). The organisation phase started with multiple readings of the transcribed interviews to familiarise myself with the dataset. This was followed by a systematic coding process, during which I identified key features relevant to the research question. Open coding involved examining the data to uncover patterns and recurring topics. This process involved taking notes at a semantic level while reading the text. After the initial reading, the text was re-read, and headings were added in the margins to label different aspects of the content. To organise the data and make them more manageable, code sheets were created (117). All codes from the entire dataset were sorted, and the process of creating subcategories began. Relevant coded data were systematically and inductively organised into preliminary subcategories. I discussed the preliminary analysis with my supervisors for further refinement. In the next step of the analysis, these subcategories werelabelled using appropriate vocabulary that accurately represented their content. Subcategories with related occurrences and similar descriptions were grouped under broader generic categories. According to Elo and Kyngäs (117, 118), the purpose of a generic category is to capture the results of the analysis, while the subcategories illustrate the variations within those results. In this study, the variations of the subcategories are presented within the generic categories. All categories were checked by revisiting the original data transcriptions to ensure that the findings were firmly linked to the analysed data. The categories were further abstracted, ultimately resulting in one main category and four generic categories (117, 118).

ETHICAL CONSIDERATIONS

The thesis adheres to the ethical principles of the Declaration of Helsinki (119). These principles are based on the understanding that all humans possess dignity and the right to make choices, which must be respected by the researcher. In line with these ethical guidelines, information about students', patients' and family members' right to privacy, right to say no to participation and to withdraw from the study at any time, was provided in writing and communicated verbally. Moreover, the participants were assured that their identity would not be revealed, and that their answers would be handled confidentially in the research articles (Studies I–IV) and the doctoral thesis.

Students who participated in Studies I and II received both written and verbal information about their privacy rights and were informed that their participation was entirely voluntary, with the option to withdraw from the study at any time. It was clearly stated that students who participated would not gain any advantages, and that there would be no negative consequences for those who chose not to participate. Before participation, students had the opportunity to ask questions via email, either to the research team (me and my supervisors) or to the designated gatekeepers on the ward. Consent to participate in the study was confirmed through the completion of the finalised questionnaires, as stated in the information letter that the students had received two weeks before via email, and again in the large envelope also containing the questionnaires (Studies I and II). Students answered the questionnaires anonymously.

Concerning Studies III and IV, the group of patients cared for in the ITWs could include individuals who had difficulty providing informed consent or understanding the information due to age, mental disability or illness. Therefore, patients and family members were recruited with support from the healthcare professionals and interprofessional student teams at the ITW. During the

recruitment process, participants were informed that their participation in the study was voluntary. All interviews were performed when patients had regained their health status, often in close connection to discharge from the ward. Consent to participate was made in writing in Study III and verbally in Study IV. Patients and family members were also reminded that the interview was recorded and would be kept safely stored in a locked archive at Malmö University (Studies III and IV). Written contact information for all involved researchers was available in the information letters for Studies I–IV. This aligns with the Swedish Act (2003:460) on the Ethical Review of Research involving Humans. The purpose of the law is to protect the individual and respect human dignity in research (7).

Ethical approval

In line with the Declaration of Helsinki statement (119), a protocol must be submitted for consideration and be granted approval by a research ethics committee familiar with the local context, before starting a research project. Ethical approval has been granted for Studies I–IV by the Swedish Ethical Review Authority (Reg. No. 2019-03761).

RESULT

The following section presents a summary of the results based on Studies I–IV. The summarised results are presented under three main headings: 1) Healthcare students' preparedness for IPE, 2) Changes in healthcare students' self-efficacy for competence in IPCP after attending the ITW, and 3) Patients' and family members' experiences of involvement in the care process at the ITW. For a more detailed description of the results from the individual studies, I refer to the original papers.

Healthcare students' preparedness for IPE

In Study I, the results showed that healthcare students' self-efficacy for competence in IPCP correlated positively with the RIPLS dimensions Teamwork and Collaboration and Roles and Responsibilities, as well as with the personality traits Extraversion and Conscientiousness. However, self-efficacy for competence in IPCP correlated negatively with Neuroticism. Extraversion and Conscientiousness were identified as predictors of self-efficacy for competence in IPCP in the multiple regression model. This indicates that each unit's increase in Extraversion and Conscientiousness increases self-efficacy for competence in IPCP (Study I).

Differences across educational disciplines

In Study I, no differences were initially found in a comparison of students across the four programmes regarding self-efficacy for competence in IPCP. However, medical students reported significantly lower scores than physiotherapy students in the RIPLS dimension of Professional Identity (28.3 vs. 30.0, $p = 0.024$), although the effect size was small ($\eta^2 = 0.02$). Furthermore, medical students

scored significantly lower than all other student groups on Roles and Responsibilities (10.4 vs. nursing students, 11.6, occupational therapy students, 11.8 and physiotherapy students, 11.9, $p < 0.001$). The effect size was medium ($\eta^2 = 0.10$). Additionally, medical students scored lower on Agreeableness compared to occupational therapy students (37.3 vs. 40.0, $p = 0.025$). However, the effect size was small ($\eta^2 = 0.02$). Conversely, medical students reported higher scores on Openness to experience compared to nursing students (29.5 vs. 27.5, $p < 0.008$), although the effect size was small ($\eta^2 = 0.02$) (Study I). In Study II, students' previous work experiences in healthcare were included as a variable, showing that 47% of nursing students reported having prior experience, while only 21% of physiotherapy students did. Most nursing and medical students indicated that they engaged in work during their studies. In comparison, only 43% of occupational therapy students and 33% of physiotherapy students reported working during their studies (Study II).

Differences between male and female healthcare students

In Study I, before the ITW, there were no significant differences in scores between female students and male students regarding self-efficacy for competence in IPCP. However, female students scored higher than male students across all dimensions of the RIPLS dimensions Teamwork and Collaboration ($p < 0.001$, Cohen's $d = 0.38$), Professional Identity ($p < 0.006$, Cohen's d = 0.26), and Roles and Responsibilities ($p < 0.001$, Cohen's $d = 0.47$). In addition, the female students scored higher than male students on the personality traits Neuroticism, Extraversion, Agreeableness and Conscientiousness ($p < 0.001$). However, no difference was found concerning the personality trait Openness to experience (Study I).

Changes in healthcare students' self-efficacy for competence in IPCP after attending the ITW

Study II revealed that regardless of previous healthcare experience or whether the students reported working in healthcare during their studies, all students scored significantly higher ($p < 0.001$) with a mean change of 10.0 points, in self-efficacy for competence in IPCP after attending the ITW. The effect size was large (Cohen's $d = - 0.97$). Furthermore, no correlations were found between the

mean change in self-efficacy for competence in IPCP and age or the five personality traits (Study II). However, differences between students with prior work experience in healthcare and between various educational groups were identified.

The effects of prior work experience in healthcare

Students with prior work experience in healthcare scored higher in self-efficacy for competence in IPCP before the ITW compared to students without work experience (66.3 vs. 63.7, $p < 0.005$, Cohen's $d = -0.23$). Nevertheless, no differences were found between the groups afterwards, indicating that the ITW placement had evened out the differences. However, the mean change in self-efficacy for competence in IPCP among students without prior healthcare experience was significantly higher than that of those with previous experience (10.7 vs 8.9, $p = 0.022$, Cohen's $d = 0.18$), demonstrating that inexperienced students had progressed more than students with prior experience. Students who worked in healthcare during their studies reported higher self-efficacy for competence in IPCP both before (65.4 vs 63.4, $p = 0.030$, Cohen's $d = -0.18$) and after the ITW compared to those who did not work during their studies (75.2 vs 73.7, $p = 0.032$, Cohen's $d = -0.18$). However, students reported equal mean change in self-efficacy for competence in IPCP regardless of whether they were working during their studies or not. When associating the length of previous work experience with the calculated variable mean change in self-efficacy for competence in IPCP, this variable was negatively correlated with the variable previous work experience in healthcare duration in months (Study II).

Differences between male and female healthcare students after the ITW placement

In Study II, both male and female students showed a significant increase in self-efficacy for competence in IPCP after the ITW placement ($p < 0.001$). However, women scored significantly higher in self-efficacy for competence in IPCP compared to men (75.3 vs. 70.0, $p = 0.006$). Regarding the mean change in self-efficacy for competence in IPCP, no significant differences were observed between men and women, however. This shows that even if female students had higher scores than men after the ITW placement, men and women reported equal mean change in self-efficacy for competence in IPCP after attending the ITW placement (Study II).

Differences in healthcare students' mean change in self-efficacy for competence in IPCP

Regarding the mean change in self-efficacy for competence in IPCP scores among the healthcare programmes, significant differences were observed between nursing students, who had the lowest score, and physiotherapy students, who achieved the highest score (9.0 vs 13.5, $p = 0.011$, $\eta^2 = 0.02$). This indicates that physiotherapy students reported the highest change in self-efficacy for competence in IPCP after the placement. However, concerning pre- and post-scores, there was a significant increase in self-efficacy for competence in IPCP among all students, irrespective of their educational discipline, following the two-week mandatory ITW placement. Neither before nor after the ITW placement were any significant differences found in self-efficacy for competence in IPCP between the four educational disciplines (Study II).

Patients' and their family members' experiences of involvement in the care process at the ITW

In Study III, patients described being in a dependent and involuntary situation when being ill, hospitalised and away from home. Although the patients felt comfortable being cared for by students and said that they felt well taken care of, they were dependent on the interprofessional student team (Study III). In Study IV, family members described seeking transparency in the care process and requested to be acknowledged as a valuable part of the patient's care. Furthermore, family members said that their involvement depended on the trust they had in the interprofessional student team (Study IV). For most patients, the importance and intention of patient involvement were not easy to understand or recognise. Nevertheless, most patients described being aware of their responsibilities in the care process and attempted to be involved. However, several patients felt hindered by their illnesses. Nearly all patients expressed the need for a family member to support them in being involved in the care process (Study III).

Sharing information

In Study IV, the family members described feeling obligated to be involved in the patient's care process, so that they could support the patient and bridge

potential knowledge gaps between the patient and the interprofessional student team. However, family members argued that a lot of responsibility was placed on the patient to update them on the care plan. In Study III, several patients claimed that it was burdensome to inform their family members. They often had difficulty remembering or clearly recounting the information that had been shared (Study III). In line with what patients described in Study III, family members said that they mainly wanted to be involved in the care process because they perceived that the patient needed their support to assimilate information. Family members argued that their involvement was even more important if the patient had memory problems or if it was difficult for the patient to convey their wishes to the interprofessional student team. Family members wanted the interprofessional student team to recognise their knowledge about the patient and that they could be a reference to what had changed in the patient's health condition. Furthermore, several family members described being worried, or having witnessed, that the interprofessional student team did not always observe the patient's needs, was not responsive to the patient's abilities, and did not seem familiar with the patient's health and social situation (Study IV).

Most patients and family members emphasised the importance of having a conversation with a physician or medical student. They wanted to talk about the symptoms and ask questions related to treatment and the care plan (Studies III and IV). However, several patients had not had that opportunity and were disappointed by the physician's or medical student's absence. Furthermore, several patients described how the interprofessional student team communicated in a way that excluded them from the conversation. Some patients said that they did not understand the information the interprofessional student team provided. Some patients even argued that they sensed that some details were being concealed (Study III). From their perspectives, the family members argued that if they had been involved in the conversations, they could have filled in the information gaps that the interprofessional student team did not have and helped the patient assimilate the information (Study IV).

Engaging in care planning

Family members stated that they wanted to be involved in the patient's care process to influence healthcare and maintain control of the situation (Study IV). Furthermore, both patients and family members expressed the need for their joint involvement in the care process (Studies III and IV). However, based on the results from Studies III and IV, the interprofessional student team often did not

involve or inform patients and family members regularly. Most patients did not see themselves as active members of the interprofessional student team or consider that they could influence decisions concerning their treatment or care planning. On the other hand, some patients expressed a wish not to be involved in or interfere in the care process. They preferred to let the interprofessional student team make decisions, believing that the professionals knew better, and found being involved in decision-making challenging because they lacked medical expertise (Study III).

Although some family members said that they had been involved in care planning and decision-making, only a few had been contacted by the interprofessional student team. Most family members had to actively seek information to be involved in the care process. Several family members described how the interprofessional student teams did not recognise their close relationship with the patient, and they were disappointed to be excluded from important care discussions. Some family members even expressed feeling ignored when being present at the ITW. Several family members stated that if the interprofessional student teams had been more open, they could have provided valuable input for care planning and decision-making. Family members wanted to be a resource for the interprofessional student team and the patient, as they possessed a unique knowledge important for patient care and homecoming (Study IV). This was also confirmed in Study III, when the patient described the need to involve a family member in planning for homecoming.

DISCUSSION

This thesis aimed to investigate healthcare students' self-efficacy for competence in IPCP before and after clinical placement at ITWs. Additionally, the aim was to explore patients' and family members' experiences of involvement in the care process at an ITW.

To assess healthcare students' self-efficacy for competence in IPCP, the IPECC-Set 9 (104) was used (Studies I and II). As described before, the questionnaire is partly based on the IPEC Core Competencies for Interprofessional Collaborative Practice framework (56). In the framework, interprofessional competencies are theoretically linked to the ability to engage and collaborate with patients and their family members (4). However, the link between interprofessional competence and patient and family member involvement has not been clearly highlighted in prior empirical IPE research. By contrasting the results from the four underlying studies (Studies I–IV), this thesis reveals new empirical insights into IPE. From an educational perspective, these insights can be used to inform the development of curricula and IPE activities in both theoretical and clinical settings within healthcare education. In the following section, the main results will be discussed in relation to the four domains of the IPEC Core Competencies for Interprofessional Collaborative Practice (4): "Values and Ethics", "Roles and Responsibilities", "Communication", and "Teams and Teamwork".

Values and Ethics

The interprofessional competence domain Values and Ethics is concerned with acknowledging the importance of other health professionals' expertise and knowledge (4). One of the main findings in Study I was that medical students reported lower scores on the RIPLS dimensions Professional Identity and Roles

and Responsibilities, indicating that they had less positive attitudes towards and were less ready for IPL than the other student groups. This is consistent with previous research (14, 120), in which medical students reported a limited understanding of other professions and a primary focus on their own field. The reason behind this might be hierarchical structures or stereotypical roles in healthcare, shaped already during medical education (121, 122). Previous research (35, 48, 123) shows that introducing IPE early in healthcare education fosters positive attitudes towards IPL. For example, a recent study by Kvarnström et al. (35) explored how first-year healthcare students, including medical students, reflected on interprofessional competencies after participating in various IPE activities. The IPE activities included problem-based learning discussions, seminars and individual reflections. In the study, students described how the activities made them aware of the importance of understanding different professions and addressing prejudice to prevent misinterpretations. In addition, the students had gained an understanding of the essentials of interprofessional competencies in their professional development. Furthermore, another recent study by Guinat et al. (123) showed that even a shorter, three-and-a-half-day interprofessional course improved healthcare students' attitudes towards IPL. Based on the findings of Kvarnström et al. (35) and Guinat et al. (123), introducing IPE early in healthcare education may be feasible and can both foster more positive attitudes towards IPE and progressively develop interprofessional competencies.

The core competence domain Values and Ethics also addresses the patient's right to be involved in the care process, with respect for individuals' preferences, in order to provide high-quality care to patients (4). However, by exploring patients' and family members' experiences of involvement in the care process in Studies III and IV, it became evident that patient involvement was not prioritised during the placement. The results in Studies III and IV contradict a recent study by Schlosser-Hupf et al. (124), in which patients reported that they were actively involved in decision-making during IPE at an ITW in Germany. A key difference may be that the patients in Schlosser-Hupf et al.'s (124) study were actively engaged during bedside ward rounds. In contrast, the ITWs in Studies I–IV did not conduct ward rounds at the bedside, which may have affected the experiences of patients and their family members regarding involvement in decision-making.

On the other hand, in Study III, some patients said that they could not be involved due to a lack of medical knowledge, while other patients claimed that it was their health status that prevented their involvement in the care process. This is in line

with what medical and nursing students described in a recent study (125) focusing on patient involvement in bedside ward rounds from the students' perspective. Furthermore, previous research (82, 83, 125) indicates that patients often find it challenging to understand the concept of their involvement in care. Moreover, some research (83) suggests that most patients perceive involvement as an informed discussion and agreement. Patient involvement in the IPE setting raises ethical aspects of IPC, such as respect for autonomy, cultural awareness and shared decision-making, which are central values in healthcare (4, 54). However, involving patients and their family members is a complex process (125, 126), and research (6, 80) indicates that health status, sociodemographic background, level of education and ethnicity influence patients' capability to be involved. Therefore, students may require additional support to navigate patient and family member involvement effectively, which is why it is essential to provide students with a clear structure and guidelines. For instance, the ward should establish routines that encourage the involvement of patients and family members, for example, including them in ward rounds. Additionally, during reflection seminars, students can consider core competency values and ethics (4) in relation to the patients they are responsible for together as a team. This will allow students to experience the complexities of balancing professional reasoning with patient preferences.

Roles and Responsibilities

The interprofessional competence domain Roles and Responsibilities emphasises the importance of understanding and applying both one's own role and the expertise of other team members to deliver individualised and safe care and thereby improve individual health outcomes (4). Based on the results from Studies III and IV, the roles and responsibilities of the interprofessional student team were not visible to patients and family members. According to recent literature (97, 127–129), IPE activities diminish hierarchy and enhance shared responsibility among health professionals, enabling students to understand one another's roles and responsibilities. On the other hand, this shared responsibility might be confusing for patients. Previous research (130) shows that when patients are unsure of a student's role, they often struggle to understand what to expect during their encounter. One evident example in Studies III and IV was that while most patients and family members emphasised the importance of having a conversation with a physician or medical student (Studies III and IV), several

patients were disappointed by their absence (Study III). As the student teams always included a medical student or physician, it is possible that the patient had difficulty differentiating between the students' professional roles. One explanation could be that during the ITW placement (Studies II–IV), students collaborated to provide and share all basic patient care, which may contradict the patients' expectations of how a physician should traditionally act, as described in previous research (130). Professional roles and responsibilities are central in IPE (4), and students must clearly define their roles in the interprofessional team and recognise the contributions of other professions to meet the patient's needs (2, 130). On a practical level, students need to be fully transparent and talk to the patient, describe their role and competence, as this will build trust and understanding between the patient and the interprofessional team, as well as enabling patient involvement in the care process.

However, another explanation for the patients' perception that physicians or medical students were absent from the ward might be related to some of the findings from Study I, showing that medical students had significantly lower scores on the RIPLS dimension Roles and Responsibilities than the other student groups. Woermann et al. (14) revealed in their study that medical students expressed hesitation regarding the benefits of IPE for their professional development.

It might be that the patients' statement regarding not interacting with any medical students in Study III was related to medical students' disengagement or difficulties in understanding their roles and responsibilities within the interprofessional team. Although the ITW had a positive effect on the medical students' interprofessional competencies (Study II), it might be that they need to be exposed to IPE earlier during their education to understand the benefits of and their role and responsibility in the interprofessional team, as described in recent studies (35, 50, 131). To facilitate IPC, educators within all healthcare educational disciplines should emphasise that while IPE seeks to promote a shared responsibility for patients or groups of patients, it is not intended to undermine professional competencies; rather, it aims to strengthen professional identity (4).

In Study II, all four disciplines reported significant improvements in self-efficacy for competence in IPCP following the ITW placement. The results of Study II are in line with previous studies, which indicate that IPE strengthens students in their future professional roles (26, 48, 132, 133). However, some disparities were

identified. For example, physiotherapy students' mean change in self-efficacy for competence in IPCP was the highest among the groups, while that of nursing students was the lowest. It could be that the ITW did not have the same impact on the nursing students as on the rest of the students, since 50% of nurse education in Sweden includes clinical placement. Nonetheless, the results from Study II indicate that the ITW placement was well-suited for both novice and more experienced students. On the other hand, the more experienced students might have needed even more complex learning activities to stay motivated. Further research is needed to evaluate the learning activities that the students encounter at ITWs.

Communication

Communication is the third core competence and goes beyond simply engaging in professional dialogue. It involves the ability to communicate with patients and their families in a clear, empathetic and culturally sensitive manner (4). Although the patients and family members in Studies III and IV described feeling comfortable being cared for by the interprofessional student team, the students seldom included them in the interprofessional dialogue. Patients and family members found this problematic, particularly when the interprofessional team lacked a thorough understanding of patients' medical conditions and physical abilities, or when patients were dissatisfied with the decisions made (Studies III and IV). Previous research (37) shows that excluding patients can lead to the loss of important information essential for decision-making. Although patient interactions have been identified as the most essential element of IPE in previous research (134), it may be that the ITWs place more emphasis on students' collaboration. Hence, the reasons for not including the patients and family members in the interprofessional dialogue (Studies III and IV) could perhaps be found on a more structural level, as the ward rounds were not conducted bedside, since this was not part of the ward's routine. The reasons may, furthermore, be both logistical and ethical: bedside rounds might be considered time-consuming, and patients share rooms with other patients. However, according to previous research, bedside rounds are more time-efficient than non-bedside rounds (135). Another important aspect is that previous research indicates that patient involvement in daily ward rounds reduces medical errors and shortens hospital stay (136–138).

Further, former research (139, 140) demonstrates that involving patients in interprofessional ward rounds leads to more individualised care. It also provides an opportunity for the interprofessional team to discuss and inform patients and their family members about various aspects of their care, not just medical decisions (139). In addition, it enables students to learn about patients' capabilities, adapt to patients' individual needs, and create strategies to promote patient involvement (37, 136). Moreover, patients tend to appreciate seeing the team collaborate regarding their care and treatment, which contributes to higher patient satisfaction (86). However, former research shows that medical decisions can be confusing for patients (125, 135). When students involve patients in discussions about care plans, they must explain medical conditions so that it is easy for patients and family members to understand, and they must listen actively and address their concerns (4). If the students had engaged with patients in decision-making, they could have learned how to negotiate diverse perspectives on patient care, adapt their communication styles and clarify professional roles.

Although the ITW placements appeared to align well with the needs of various disciplines, as shown in Study II, the primary objective of IPE is for students to develop IPCP competencies to provide high-quality care to patients and support their family members (5, 26, 39). Therefore, patient and family member involvement needs to be a priority during IPE. Involving patients in daily ward rounds may enhance patient involvement, as seen in previous research (124), and further deepen healthcare students' interprofessional competencies regarding values and ethics, roles and responsibilities, and communication. Thus, the ITWs should focus more on pedagogical strategies that foster patient interaction and dialogue.

Teams and Teamwork

The core competence Teams and Teamwork focuses on how students share responsibility and accountability for patient outcomes within an interprofessional team. It emphasises the value of the team as an asset and highlights the importance of adapting and utilising the most relevant resources in patient care (4). Thus, the results from Studies III and IV imply that family member involvement and support are important for patients and should be considered an asset for the interprofessional team in ITWs. In Study III, most patients wanted their family members to be involved in care planning and decision-making, especially when receiving important information. In Study IV, the main result

showed that family members also wanted to be involved in care planning, as they possess valuable knowledge that can help connect patients with interprofessional student teams, bridging any potential information gaps. Recent studies (93, 141) have shown that including family members in hospital care improves care coordination and reduces the frequency and duration of rehospitalisation. However, healthcare professionals play a significant role in facilitating interaction with family members and encouraging their involvement in the patient care process (27, 87, 96). Including family members in the team and teamwork has several benefits and can potentially improve patient outcomes (87, 92, 96). However, as the student teams did not seem to recognise this, it may indicate that the students may require more active supervision and guidance on the benefits of involving family members in the care process. Establishing a routine in the ward to involve family members in the patient care process could serve as a reminder for both professionals and students.

Personality seems to have some influence on the students' self-efficacy for competence in IPCP. Study I showed that the personality traits Extraversion and Conscientiousness were identified as positive predictors of self-efficacy for competence in IPCP. The results are in line with former research showing that students who score higher on Extraversion and Conscientiousness tend to demonstrate higher self-efficacy in various situations (17). These personality traits have also been identified as positive predictors of higher scores in Teamwork and Collaboration in previous research (18). However, a former Swedish study (142) found no association between personality, learning style or attitude towards IPE among medical students. Nevertheless, from an educational standpoint, students share responsibility and accountability for the patient's outcome within the interprofessional team. Students who score low on Extraversion may be more reserved and less likely to speak up, making them hesitant to actively participate in group discussions. This can limit their contributions and reduce their visibility within the interprofessional student team. Students who score low in Conscientiousness may struggle with planning, organisation and the completion of tasks. These students can benefit from clear and structured instructions, breaking tasks into smaller steps, and receiving concrete feedback to help them complete their tasks.

Furthermore, in Study I, female students scored higher than men in Neuroticism, Extraversion, Agreeableness and Conscientiousness. Differences in personality traits between men and women were anticipated and align with previous research using the Five-Factor Model (63). However, female students scored higher than

men across all dimensions of the RIPLS. Similar results have been reported in previous studies (18, 50, 51, 143). For example, in one of these studies, it was revealed that female nursing students were more positive towards IPL than male nursing students (18). Furthermore, in Study II, female students had higher scores in self-efficacy for competence in IPCP than men after the ITW placement. The results from Study II contradict earlier studies from Australia and the United States, where male students rated their self-efficacy in interprofessional competencies higher than female students (12, 55). This disparity might be related to cultural differences. However, it can also indicate that Swedish male healthcare students are less confident in their capability to collaborate. A contributing factor could be that men are often a minority within various healthcare programmes. This underrepresentation might lead to feelings of being an outsider, as highlighted in previous research (144). Another potential explanation for this observation is that women exhibit personality traits that are more aligned with the collaborative and communicative demands of IPC. Although several studies (18, 51, 143) show similar results, I have found no clear explanation in the literature as to why male students have more negative attitudes towards IPE. As male healthcare students contribute to diversity among future healthcare professionals, further research may be necessary to understand why male students are often less prepared for IPE and to identify strategies to support them during IPE. Nevertheless, despite students having different levels of preparedness, all students, regardless of educational discipline, gender, personality traits, previous healthcare experience, or whether they reported working in healthcare during their studies, scored significantly higher in self-efficacy for competence in IPCP after attending the ITW (Study II).

This thesis highlights the benefits but also the shortcomings of IPE in a clinical context. Over the last decade, IPE research has provided numerous research articles showing unmistakable evidence for the benefits of IPE interventions (2, 35, 131, 145). So, it is not a question of whether IPE is necessary in healthcare education. Rather, the focus should be on how to integrate and refine IPE (146, 147), as well as ensuring high-quality IPE in clinical practice by focusing on educators' and clinical supervisors' interprofessional mentoring competence, which can be challenging (148). Recent research (149–152) focusing on pedagogical strategies within healthcare education highlights that a great responsibility lies with the educators and clinical supervisors to progressively introduce the students and build a positive and safe learning environment. At the same time, they must facilitate critical thinking and gradually enable students'

autonomy (151). Furthermore, ongoing confirmation and constructive feedback appear to be a crucial element in the students' learning process (59, 149). According to Bandura (58), motivation is a vital component of self-efficacy. In turn, an individual's motivation is significantly shaped by their attitudes and expectations (16). Previous research (35, 46, 147) shows that problem-based activities can facilitate positive attitudes towards IPE and support critical thinking. In addition, it can be applied to a variety of learning activities early in healthcare education. One way to support educators pedagogically is by utilising an IPE framework. The framework can be used to guide IPL activities and IPE course objectives, as well as when forming curricula (146, 153). Future research should investigate how the IPEC Core Competencies for Interprofessional Collaborative Practice framework (4) can be applied to strategically develop an IPE curriculum that can be integrated into all healthcare educational programmes.

METHODOLOGICAL CONSIDERATIONS

As described in the method section, both quantitative and qualitative methods have been employed to explore the overall research question. In this section, the methodological choices made in this thesis will be critically discussed.

Studies I and II

In this section, the methodological considerations in Studies I and II will be discussed in relation to validity (102). According to Shadish, Cook and Campbell (154), the term validity refers to 'the approximate truth of an inference' (p. 34). Validity examines whether the measurements assess what they are intended to measure, how external factors interfere, and how reliable the results and conclusions are. This concept will be explored through the four types of validity proposed by Shadish et al. (154): statistical conclusion validity, internal validity, construct validity and external validity.

Statistical conclusion validity

Statistical conclusion validity concerns how strong the evidence is for, for example, the cause and effect of an interference and how strong a correlation is between variables (154). There are several potential methodological threats related to statistical conclusion validity. One important aspect is the sample size. If the sample is too small, it reduces statistical power and increases the uncertainty of effect size estimates. Additionally, this influences the risk of a Type II error, which occurs when a false null hypothesis is not rejected (155). In Studies I and II, the students were recruited using a census sampling technique (102), and both studies had high response rates, 88% (Study I) versus 77% (Study II), which strengthened the statistical conclusion validity related to sample size.

Another potential methodological threat related to statistical conclusion validity is choosing an inappropriate statistical analysis (102). In both Studies I and II, the assumption of normality in the independent sample t-test and ANOVA was assessed using the Shapiro–Wilk test, and Q–Q plots were used, while homogeneity of variances was tested with Levene's test. Overall, visual inspection of the histograms and Q–Q plot suggested that the residuals were approximately normal, and multicollinearity was not an issue. For the IPECC-Set 9, visual inspection of Q-Q plots suggested that the data were approximately normally distributed, although Shapiro-Wilk tests were significant ($p < 0.04$), likely due to the large sample size (156). According to the literature (155), parametric tests are considered robust to modest abnormalities. Moreover, parametric tests are generally preferred due to higher statistical power and the capacity to estimate effect sizes, and because they can provide confidence intervals and be used in more advanced statistical analyses than non-parametric tests. Furthermore, recent research (157) highlights the benefits of using Likert scales as continuous variables in parametric analysis. Parametric statistical methods were considered appropriate because none of the relevant assumptions was violated (155) (Studies I and II).

Effect size is also a highly central measurement to determine the statistical conclusion validity of the results when comparing groups, as was done in both Studies I and II. Effect size provides information about how strong or meaningful an observed effect is, regardless of whether it is statistically significant (102). Effect size complements a significant *p*-value by calculating how strong the difference is, when taking the sample size into account (154). Study I showed several statistically significant results, but the effect sizes were generally small, indicating that while the large sample size ensured enough power to detect minor differences, the practical significance of the findings may be limited. Although ANOVA makes it possible to compare differences between all the student groups in Studies I and II, performing multiple ANOVA tests can increase the risk of a Type I error (a false positive), especially when having several outcome variables. A Type I error occurs when you incorrectly reject the null hypothesis and consider there is an effect or a difference, even though none exists (155). To reduce the risk of a Type I error, the Bonferroni post hoc test was applied. However, while Bonferroni is effective in controlling Type I error, it can increase Type II error (a false negative) by reducing statistical power (155). Although the risk of Type I error was low due to strong statistical evidence, the small effect sizes suggest that the explanatory power of the relationships tested is limited.

Furthermore, in Study I, a multiple regression analysis was conducted, and the personality traits Extraversion and Conscientiousness were identified as predictors of self-efficacy for competence in IPCP among the healthcare students. The model was significant $F(5, 566) = 11.12$, $p < 0.001$, $R^2 = 0.09$, indicating a small effect size. The adjusted R^2 was 0.081, explaining only 8.1% of the variance of the dependent variable self-efficacy for competence in IPCP. This implies that there are other explanatory factors than personality, which limits and influences the statistical conclusion validity. However, some of the findings displayed a higher statistical conclusion validity. In Study I, medical students scored significantly lower than all other groups in Roles and Responsibilities, with a medium effect size ($\eta^2 = 0.10$). Additionally, in Study II, all students demonstrated a significant increase in self-efficacy for competence in IPCP after attending the ITW, with a large effect size (Cohen's $d = - 0.97$).

Internal validity

In quantitative research, the term 'internal validity' refers to whether the results represent the truth and are not affected by methodological oversights (102). One important aspect for internal validity is the sampling technique and sample size. In Studies I and II, the students were recruited with a census sample technique (102). Furthermore, all students from the four different healthcare educations were included at the three specific ITWs over two semesters. According to Polit and Beck (102), the risk of bias is substantially reduced when all available participants during a specific time and context are invited to participate. Both Studies I and II had a high response rate. To strengthen validity, several strategies were applied. For instance, all students received the same verbal and written information about the aim of the studies. Furthermore, only validated and reliable questionnaires that were tested in a Swedish context were used. The use of validated and reliable questionnaires greatly strengthens internal validity, according to Polit and Beck (102).

One limitation was that all data were collected through self-reports. In addition, there was a risk of social desirability bias, given that the data collection was handled by clinical educators on the wards, which could have influenced participants to respond in ways perceived as socially acceptable (158). To protect students' privacy, the questionnaire was completed anonymously. In terms of privacy, utilising digital solutions could have been a valuable alternative. However, it could be that the high response rate was related to the fact that the questionnaire was in paper form, as described in previous research (159). Another

limitation, and a potential methodological threat, is if the intervention is not the same for all participants (154). In Studies I and II, all students participated in the clinical placement for two weeks. However, there are some confounding variables to consider. For example, some students participated at the beginning of the semester and some at the end, which might have had an influence on the results and the internal validity, as students had the opportunity to improve their professional and interprofessional skills during regular clinical placements. The date of students' participation at the ITW was not reported in the questionnaire. Furthermore, there were three different ITWs, and even if the wards had a similar pedagogical structure, there might have been local differences between them. In addition, participants' adherence to the intervention (how students committed to the ITW as a learning activity) has not been documented.

Construct validity

Construct validity is concerned with the degree to which instruments or questionnaires actually measure what they are intended to measure (154). With regard to the questionnaires used for Studies I and II, all of them have been translated into Swedish, tested for their psychometric properties, and proven to be valid and reliable questionnaires in a Swedish context. As recommended by Polit and Beck (102), reliability was tested for the questionnaires in relation to the specific study sample (Studies I and II). An important aspect of evaluating a questionnaire's reliability is internal consistency. Internal consistency addresses an individual's answers to multiple questions (items). Furthermore, a questionnaire is internally consistent if the items measure the same underlying construct within a dimension or trait. The most common way to statistically evaluate internal consistency is the coefficient alpha, also called Cronbach's alpha value (102, 160). Cronbach's alpha value of the questionnaires used in Studies I and II was generally acceptable, except for the dimension Roles and Responsibilities in the RIPLS in Study I, which was below the recommended level at 0.7 (160). Previous research has reported instability in this dimension (18, 161). This is a limitation in Study I and contributes to the lower reliability of the study result concerning the dimension Roles and Responsibilities.

External validity

External validity relates to whatever observed relationships will hold over modifications, for example, a different population, another setting, or another time period (102). One important aspect of external validity is the representativeness of the study population. Cross-sectional studies can estimate prevalence and identify associations between variables. However, since data are collected at a single point in time, it is not possible to determine causality for each individual in Study I. Although Study II had a pre-post design and allowed comparisons, it was not a longitudinal study. Measuring the same variables at two points in time strengthens internal validity. However, it does not increase external validity or generalisability, as the sample remains limited to the three ITWs and the students at the ITWs. Coordinated ITWs occur all over Sweden as well as globally and have varied pedagogical structures and include diverse educational disciplines. Generalisability mainly depends on the representativeness of the sample rather than the number of measurement occasions (102). The samples in Studies I and II are representative regarding gender distribution and the number of students from the included educational programmes in Sweden, which strengthens the external validity (154). Although the studies were conducted within a specific local educational context, which limits the extent to which the results can be generalised, several healthcare educational programmes offer clinical practice at ITWs, in Sweden and globally. Furthermore, the fact that the data were collected during two semesters at three different ITWs with students from two universities enhances generalisability.

Study III and IV

According to Lincoln and Guba (162, 163), truth value is a key aspect that relates to how methodological choices influence the result and how accurately the results reflect and represent reality. For Studies III and IV, Lincoln and Guba's (162, 163) description of trustworthiness, which includes criteria for the qualitative methodological considerations, such as credibility, transferability, dependability and confirmability, will be discussed (102).

Credibility

Credibility refers to how well the research represents the participants' perspectives and experiences, and the social reality under study (162). To ensure credibility in the study, a purposeful sampling technique was used to recruit participants with relevant experiences and perspectives in relation to the research question (118, 164). In Study III, a convenience sample technique was used. However, as efforts were made to ensure variation in gender and age among the patients, it might be more accurate to state that maximum variation sampling was used. According to Patton (164), maximum variation sampling is a type of purposeful sampling technique aimed at identifying patterns of common experiences among a variety of individuals. The same approach was used when recruiting family members (Study IV). Patton (164) states that this kind of sampling technique strengthens credibility in qualitative research.

Although the interviews (Studies III and IV) were conducted in a setting chosen by the participants, credibility in relation to external elements that may have influenced the participants' answers during the data collection needs to be discussed. In Study III, all patient interviews were conducted at the patients' bedsides at the ITW. Even if the interviews were conducted in private, with only the patient and me in the room, there might have been a risk that patients were reluctant to complain about the care. To try to distance myself from the interprofessional student team and supervisors on the ITW, I dressed in private, neutral clothes and informed the patients that I was not employed at the ITW and that their answers would be handled confidentially. In Study IV, all interviews were conducted over the telephone according to the family members' wishes. Although the participants' body language was lost, research shows that participants often feel more comfortable being interviewed over the telephone, and that it can be an effective way of collecting research data (165, 166). The participants in Studies III and IV were varied in terms of age and gender. Furthermore, in Study IV, the relationships with the patient being admitted to the ITW varied, which enhances the credibility of the results (162). However, the exclusion of patients and family members who do not speak Swedish has consequences for credibility, as their experiences have not been considered. Nevertheless, several participants did not have Swedish as their first language.

In Study III, a reflexive thematic analysis according to Braun and Clarke (116) was used. In terms of credibility, Braun and Clarke focus on reflexivity, which relates to the researcher's preunderstanding and its influence on the methodological process, where transparency of the process strengthens

credibility (114). The analysis included repeated readings of the transcripts to ensure immersion in the data. To enhance credibility, the coding and analysis process was discussed with the rest of the research team, namely, my supervisors.

Transferability

Transferability refers to how useful and relevant the results are in other contexts. Guba and Lincoln (162) use the term *thick description* and refer to a way of enhancing the transferability of the findings by providing the reader with a detailed description of the research process. By being provided with a 'thick description' of the research setting, data collection and analysis, the reader can evaluate if the conclusions can be transferable to other settings (162). Elo and Kyngäs (118) also highlight the importance of reporting all steps in the analysis process, as well as giving clear descriptions of the setting, the data collection and the participants' characteristics. In relation to patient and family member involvement, the results and conclusions from Studies III and IV yield important aspects for enhancing IPE. However, the insights and educational implications can be of value also in other educational settings within healthcare, for example, during clinical training at regular wards as well as in primary care.

Dependability

According to Lincoln and Guba (162), dependability refers to the trustworthiness of data over time and under varying conditions. It focuses on the consistency and repeatability of the results, as well as on a logical and documented research process. Without dependability, credibility will not be achieved. In both studies, all interviews were audio-recorded and transcribed verbatim to preserve the authenticity of the data. Braun and Clarke (116) advocate semi-structured interviews with open-ended questions. In both studies (III and IV), a semi-structured interview guide was used to ensure consistency while allowing flexibility for participants to elaborate on topics of importance to them, as recommended by Elo and Kyngäs (117, 118). The analysis was conducted systematically, following Braun and Clarke's (116) reflexive thematic analysis in Study III and qualitative content analysis as described by Elo and Kyngäs (117) in Study IV. To provide the readers with accurate reporting details, the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist for interviews and focus groups (101) was used in both Studies III and IV.

Confirmability

Lincoln and Guba (162) define confirmability as ‘a degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest’ (p. 290). To enhance confirmability in Studies III and IV, representative quotes from participants were presented in the published articles (Studies III and IV) to support the results (118). Reflexivity was maintained throughout the research process, with continuous reflection on my position as a researcher and its potential influence on data collection and interpretation (114, 116). For example, my clinical profession as a registered nurse with many years of experience might have influenced my interpretation of the participants’ responses. Additionally, as a novice researcher, I reflected on how I managed the interview process. Cultural competence is the ability to interact, understand and communicate with people across cultures (167) and are important skills for me as a researcher to ensure effective communication and interaction with research participants. Showing mutual respect and flexibility in the usage of language and time for data collection has been considered important in Studies III and IV for confirmability (168).

CONCLUSION

This thesis has presented new evidence-based knowledge that can provide a rationale for the following:

- The link between interprofessional competencies and patient and family member involvement must be even more emphasised, as interprofessional competencies are theoretically linked to the ability to engage and collaborate with patients and their family members.
- Involving patients and their family members in care planning and decision-making will enhance the quality of patient care and further develop students' interprofessional competencies as well as their professional identity.
- Educators must refine the IPE activities so that involving patients and their family members in care planning and decision-making is possible, for example, by including patients and their family members in ward rounds.
- Designing engaging IPE activities that challenge and motivate individuals with diverse curricula, course objectives and personalities is complex but essential for maintaining educational quality.
- The differences among students from various healthcare disciplines highlight the need for an overview of IPE activities within their respective curriculum, and educators from the different disciplines need to collaborate.
- Interprofessional competencies are essential skills applying to all healthcare disciplines, which justifies the development of a unified interprofessional collaborative practice curriculum.

FUTURE RESEARCH

In this thesis, the focus has been on the students' interprofessional competencies and the patients who have experienced being cared for by the interprofessional student teams, as well as the patients' family members' perspective. The four studies can be seen as pieces of the enormous puzzle of IPE research. However, in the studies and in the thesis summary, some knowledge gaps have been identified with regard to fostering interprofessional competencies among future healthcare professionals:

- Future research should investigate how the IPEC Core Competencies for Interprofessional Collaborative Practice framework can be applied to strategically develop an IPE curriculum that can be integrated into all healthcare educational programmes.
- Future research should explore if patient and family member involvement is adequately visible for students and educators within the IPEC Core Competencies for Interprofessional Collaborative Practice framework.
- Future research should explore which IPE activities enhance students' perception of patient involvement and acknowledge the essential role of family members.
- Further research should explore why male students are often less prepared for IPE and what can be done to support them during IPE.
- Future research should explore how healthcare students' self-efficacy for competence in IPCP develops over time, with both quantitative and qualitative methods.

POPULÄRVETENSKAPLIG SAMMANFATTNING

Blivande hälso- och sjukvårdspersonal behöver träna interprofessionellt samarbete, det vill säga samarbete mellan olika yrkesgrupper, för att kunna ge säker och effektiv vård. Interprofessionell utbildning har därför fått ökad uppmärksamhet och genomförs ofta på kliniska utbildningsavdelningar (KUA). Forskning visar att studenter utvecklar interprofessionella kompetenser genom interprofessionell utbildning, men kunskapen är begränsad om hur faktorer som utbildningsprogram, kön, tidigare erfarenhet och personlighet påverkar denna utveckling. Dessutom saknas kunskap om patienters och närståendes delaktighet i diskussioner kring planering och beslut rörande patientens vård på KUA. Detta är av betydelse då interprofessionella kompetenser även innefattar förmågan att involvera patienter och närstående i vårdprocessen.

Avhandlingens syfte var att undersöka studenters självtillit (*self-efficacy*) när det gäller interprofessionell kompetens före och efter verksamhetsförlagd interprofessionell utbildning på KUA, samt att utforska patienters och närståendes delaktighet i vårdprocessen på KUA.

Resultaten visade att studenternas förutsättningar för interprofessionell utbildning varierade mellan professionerna. Kvinnliga studenter rapporterade mer positiva attityder till interprofessionellt lärande jämfört med manliga studenter. Vidare var läkarstudenter generellt mindre positiva till interprofessionellt lärande än blivande sjuksköterskor, fysioterapeuter och arbetsterapeuter. Dessutom identifierades personlighetsegenskaperna Utåtriktning (Extraversion) och Målmedvetenhet (Conscientiousness) som positiva prediktorer (alltså prognosfaktorer) för självtillit avseende kompetens inom interprofessionell samverkan (IPCP). Detta innebar att studenter som hade en högre grad av dessa personlighetsegenskaper tenderade att skatta sig högre på självtillit avseende

kompetens inom IPCP. Däremot noterades inga skillnader i självtillit i fråga om kompetens inom IPCP mellan de fyra utbildningsprofessionerna. Ett framträdande resultat var att samtliga fyra utbildningsdiscipliner rapporterade signifikanta förbättringar i självtillit gällande kompetens inom IPCP efter verksamhetsförlagd utbildning på KUA. Resultaten visade dessutom att oavsett studenternas erfarenhetsnivå vid den verksamhetsförlagda utbildningens start och oavsett personlighetsegenskaper, kön eller utbildningsdisciplin, bidrog KUA-placeringen till att stärka självtilliten, vilket resulterade i en utjämning av initiala skillnader i självtillit avseende kompetenser inom IPCP. Dock rapporterade fysioterapistudenter den största genomsnittliga förändringen i självtillit, medan sjuksköterskestudenter hade den lägsta. Det framkom också att sjuksköterske- och läkarstudenterna generellt hade mer erfarenhet av att arbeta kliniskt inom hälso- och sjukvård, både före utbildningsstart och under utbildningen, än fysioterapi- och arbetsterapistudenterna.

I studie III och studie IV framgick att patienterna kände sig väl omhändertagna av studenterna och uppskattade den vård som de erbjöds. Vidare beskrev patienterna att studenternas vänliga sätt underlättade deras delaktighet i vårdprocessen. Majoriteten av patienterna uttryckte en önskan om att vara delaktiga i studentteamets diskussioner kring deras behandling och vård. Dock beskrev patienterna att de ibland kände sig hindrade från att vara delaktiga på grund av sitt hälsotillstånd, men många gånger också därför att studenterna inte involverade dem i diskussioner kring planering och beslut. Samtidigt framkom att de flesta patienter ansåg sig behöva stöd från närstående när de tog emot betydelsefull information. Närstående å sin sida beskrev att de ville vara delaktiga både för sin egen skull och för att kunna stödja patienten. De ville bli sedda som en viktig resurs och fungera som en informationsbrygga mellan patienten och det interprofessionella studentteamet. Men närståendes kunskaper och vilja att vara delaktiga i vårdprocessen uppmärksammades sällan av studentteamen.

Denna avhandling stödjer tidigare forskning kring behovet av att integrera interprofessionell utbildning i alla hälso- och sjukvårdsutbildningar, eftersom det utvecklar studenters tillit till sin förmåga att samarbeta interprofessionellt – en förmåga och kompetens som studenter behöver i sin framtida yrkesroll. Dock kan de förutsättningar och skillnader som resultaten åskådliggör vara betydelsefulla för planering och vidareutveckling av utbildningsplaner, kursplaner och interprofessionell utbildning. Tidigare forskning visar att interprofessionell utbildning har flera positiva effekter på patientsäkerheten. Likväl visar avhandlingens resultat att patienters och närståendes delaktighet i det

interprofessionella teamet behöver tydliggöras och ges större fokus eftersom deras delaktighet i sig bidrar till ökad vårdkvalitet och patientsäkerhet. En gemensam interprofessionell kursplan med kursmål som är tydligt kopplade till patienters och närståendes delaktighet förordas, då den teoretiska grundtanken, som nämnts, är att interprofessionella kompetenser även omfattar förmågan att involvera patienter och närstående i vårdprocessen.

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Patients' experiences of involvement at a clinical training ward: a qualitative interview study

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ABSTRACT

Interprofessional education aims to foster healthcare students' ability to collaborate in interprofessional teams with the patients at the center of care as active participants. However, little is known about how patients experience this collaboration. Therefore, this study aimed to explore patients' experiences of being involved in the interprofessional team of healthcare students at a clinical training ward in Sweden. A descriptive design with a qualitative approach was used. Data were collected through semi-structured individual interviews with 22 patients. Braun and Clarke's reflexive thematic analysis was used. The main finding was that patients were only included as passive participants. Although most patients wanted to be involved, they were hindered due to their health condition or excluded from care planning and decision-making. The patients needed family members' support to be involved. However, this need was not recognised by the interprofessional team of healthcare students. Patient involvement must be highlighted as an important component of interprofessional education initiatives. Further research is needed to explore family members' perspectives on involvement in interprofessional training ward settings.

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Introduction

Patients' involvement in their care has been associated with improved health outcomes (Bombard et al., 2018). Previous studies suggest that patient involvement is necessary to optimise patient care and to uphold patient satisfaction with care and medical decision-making (Bombard et al., 2018; Vahdat et al., 2014). However, several studies also stress that to enable patient involvement, patients must be regarded as team members in the interprofessional healthcare team, and healthcare professionals need to recognise how patients experience their involvement (Hewitt et al., 2015; Källén et al., 2021; Kvarnström et al., 2012). Research shows that interprofessional collaboration (IPC) is central to utilising all professional resources needed in patient care, ensuring patient safety, and facilitating patient involvement (Frenk et al., 2010; Källén et al., 2021; Wen et al., 2014). Interprofessional education (IPE) has been identified as a requirement to equip healthcare professionals with sufficient IPC practice skills (Frenk et al., 2010; Wen et al., 2014). However, additional research is needed to understand patients' experiences in terms of their involvement in the care process during IPE that, for example, can be organised in an interprofessional training ward (ITW) (Bombard et al., 2018).

Background

Patient involvement

Over the past decades, patients' position in healthcare has been strengthened by global recommendations leading to the implementation of patient involvement (World Health Organization [WHO], 2007). The World Health Organization (WHO, 2007) describes how patient involvement can promote patients' compliance to treatment as well as their satisfaction with received care. Additionally, it emphasises that patients and their families should be at the centre of all care to promote person- and family-centered care (World Health Organization [WHO], 2015). Patient involvement can be defined as increased shared decision-making that will enhance the care experience and ensure patient empowerment (Halabi et al., 2020). Patient involvement in healthcare considers patients' abilities, requests, and expectations to guide and individualise their care and treatment (Dent & Pahor, 2015). Additionally, it ensures that patients understand and agree with the advice provided by the healthcare team (Bombard et al., 2018).

Due to the international recognition of patient's unique knowledge and expertise of their illness, the involvement of patients in health professional education is increasing (Rowland et al., 2019). Highlighting patient involvement within IPE creates opportunities for healthcare students to understand patients' individual needs (Källén et al., 2021; Rowland & Kumagai, 2018; Shakhman et al., 2020). However, despite theoretical efforts to involve patients in interprofessional teams, recent studies reveal that care planning and decision-making are often made without direct patient involvement (Källén et al., 2021; Wolf et al., 2017).

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Interprofessional training wards

IPE can be exercised in a clinical setting and is often organised in interprofessional training wards (ITWs). The general structure of ITWs is that students from different healthcare educational programs work together with a high degree of clinical independence within patient care, including care planning and ward rounds. However, the students have continuous supervisor support to guide the work and promote reflection among the students (Brewer & Stewart-Wynne, 2013; Carlson et al., 2011). ITWs have been internationally recognised because of their positive impact on students' learning outcomes regarding IPC competencies regarding knowledge, skills, and attitudes (Mink et al., 2021; Oosterom et al., 2019). Furthermore, the ITW as an IPE initiative seems to have positive short- and long-term effects among healthcare students in terms of interprofessional socialization, cooperation, and coordination (Mink et al., 2021).

In Sweden, several healthcare programs offer compulsory training at an ITW (Carlson et al., 2011; Falk et al., 2013). Falk et al. (2013) described how all students in the interprofessional team shared the responsibility for caring for patients, which created openings to learn from and about other professions. When students work with patients as participants of the team, they establish a relationship that involves active listening and mutual dialogue to address patient concerns and preferences. In turn, patients can provide feedback that is valuable for students' professional development (Suikkala et al., 2021).

Recent studies have shown that IPE in hospital settings can be performed with adequate patient safety and that ITW is an appropriate context to practice IPC (Hallin et al., 2018; Jakobsen et al., 2021). Although patient involvement has been strengthened through laws and global strategies (Swedish Patient Act [SFS], 2014; WHO, 2015), few studies measure the impact of IPE on patient outcomes (Oosterom et al., 2019) or its contribution to patient involvement in the interprofessional team (Jensen et al., 2022b; Reeves et al., 2017; Rutherford-Hemming & Lioce, 2018). Jensen et al. (2022a), used an ethnographic approach to explore how interprofessional student teams and patients interacted in ITWs. Their results showed that even though the students did collaborate with the patient in focus, the patients did not always feel involved and heard. Nevertheless, after getting feedback from the patients, the students adjusted their approach. The study provides a good example of the benefits of patient involvement in IPE activities. Although the study included both students and patients as participants, it mainly focused on the student's perspective. Previous research within the IPE field rarely focuses on patient involvement from the patient's perspective. Therefore, little is known about the different views patients have on their role as interprofessional team members (Dahlke et al., 2020; Jensen et al., 2022b; Reeves et al., 2017; Rutherford-Hemming & Lioce, 2018).

Aim

This study aimed to explore patients' experiences of being involved in the interprofessional team of healthcare students at a clinical training ward in Sweden.

Method

Research design

This study used a descriptive research design with a qualitative approach. To ensure procedural rigor, the authors considered the Consolidated Criteria for Reporting Qualitative Research during the whole process (Tong et al., 2007). Data were collected through semi-structured individual interviews with patients admitted to an ITW.

Research setting

The study was performed at an ITW in Southern Sweden. Patients admitted to the ward needed general medical, nursing, and rehabilitation care. When patients were admitted to the ITW, they received verbal and written information about the IPE organisation and that they would be cared for by students.

At the ITW, medical, nursing, physiotherapy, and occupational therapy students engage in a two-week compulsory clinical placement. This occurs in the final year of the respective educational programs. The ITW is organised so that patients are cared for by student teams involving one or two medical students, three to four nursing students, and one physiotherapy and/or occupational therapy student. The students share all basic patient care in addition to their specific profession-related responsibilities. The student teams are supervised during the day shifts by senior supervisors from each profession. On evenings and weekend shifts, one registered nurse supervises the whole student team (Carlson et al., 2011). The clinical placement aims to provide opportunities for IPC while emphasising patient involvement in the care process.

Participants and sampling

A convenience sampling procedure was used based on patient accessibility during the data collection period, which took place between February and May 2022. Patients admitted to the ITW were eligible for inclusion if they were able to express themselves verbally in Swedish and had been admitted to the ward for at least 48 hours. Patients were recruited by the first author in consultation with gatekeepers at the ITW. Upon admission, all patients received written information about the study attached to the ward's welcome letter, distributed by the interprofessional team. Eligible patients were approached by the first author, who gave additional information and an opportunity to ask questions.

Data collection

Patients who agreed to participate were allowed to decide the time and place for the interview. Before the interviews started, the patients received information about the aim of the study one more time, had an additional opportunity to ask questions, and gave their written consent to participate. As per the patients' wishes, all interviews were conducted at the ward and took place in privacy with only the patient and the first author present. Each interview started with a brief conversation and gathering of background data, for example, age and former hospital experience. As recommended by Braun and Clarke (2013) a semi-structured interview guide was used to ensure that all questions of interest were covered. The interviews started with an open-ended question to get the conversation going: "Can you describe your experiences of being cared for in the interprofessional training ward?" Then, more directed questions were formulated, for example, "Can you describe how you want to be involved in care?" There were often follow-up questions, such as "Can you elaborate more about . . . ," to give patients the possibility to expand on their descriptions. All interviews were conducted by the first author, who had no relationship with the patients or clinical context. The interviews lasted between 19 and 49 minutes with an average of 35 minutes and were digitally recorded and transcribed verbatim by the first author.

Analysis

The interviews were recorded, transcribed, and analysed using reflexive thematic analysis according to Braun and Clarke (2006, 2019). Themes were generated through familiarisation with the data and coding. Braun and Clarke (2006, 2019) conceptualise themes as patterns of shared meanings, united by a core concept and not summaries of data. Coding refers to the process of labeling similar types of data with key features that might be relevant to the research question to make them more manageable. Braun and Clark have developed a 15-point checklist for good thematic analysis, which guided the researchers of this study during the whole analysis process to structure and increase the traceability and verification of the analysis (Braun & Clarke, 2006, 2013). The analysis took an inductive approach, searching for repeated patterns in the collected data and followed Braun & Clarke's (2006, 2013, 2019) principles of reflexive thematic analysis in the following six steps: The first step, familiarisation with the content, started already during data collection by taking field notes, writing down reflections, and transcribing the interviews. All transcribed interviews were then read numerous times for further acquaintance with the dataset. The second step was systematic data coding in which each interview and code were given equal attention in the process. The coding was on both a semantic and a latent level. In step three, all coded data relevant to the aim were thoroughly sorted to generate preliminary themes and subthemes using an inductive approach. In step four, the first and the last authors took a collaborative and reflexive approach, aiming to reach richer interpretations. To make sense of themes and subthemes, the first author discussed the preliminary analysis with all senior coauthors. Braun and Clarke's advice for researchers to be active was followed by going back and forth between coding and thematisation as part of the process of questioning and refining initial themes. Furthermore, the themes were checked by comparing them to the generated codes and by going back to the original data transcriptions (Braun & Clarke, 2006). All authors read the transcribed interviews and reviewed the coding and the themes. Afterward, the themes were reformulated and reorganise. In step five, the themes and subthemes were refined, and a story was formulated for each theme (Braun & Clarke, 2006, 2019).

Trustworthiness

To ensure credibility, recorded interviews were transcribed verbatim by the first author and reread multiple times during the analysis. The transcribed interviews were also reread after the analysis was finalised to make sure that the results were generated from the original data. To ensure confirmability, all authors were involved in the analytical process. Reflexivity was used to address and discuss the influence that authors might have had on the analysis and results related to preunderstanding (Grbich et al., 2008). All authors are registered nurses, which might have influenced the creation of interview questions and the subsequent analysis. However, none had experience with an ITW. For transparency, this was communicated to all patients, and the first author described her role and personal interests before the interviews were performed.

Reflexivity also refers to an awareness of the social setting and context that might influence patients' descriptions. Hence, the interviews were performed at the ward in accordance with the patients' wishes, which may have influenced how the patients responded as they were in constant need of care. To ensure the reliability of the results, every step of the data analysis was described.

Ethical considerations

This study adheres to the ethical standards of good research conduct as expressed in the Declaration of Helsinki (World Medical Association, 2013). The authors provided written and verbal information about patients' right to privacy and their right to decline participation or withdraw from the study at any time. Written contact information for all involved researchers was available in the information letters. In addition, when performing the interviews, the authors considered the participating patients' vulnerability due to their health status, especially about timing of the interviews. Therefore, the patients were recruited with support from and in consultation with gatekeepers at the ITW, and the interviews were performed when patients had improved their health status. Ethical approval was received from the Swedish Ethical Review Authority (No 2019–03761).

Results

A total of 28 patients were asked to participate; five patients declined, and one patient first agreed but had to withdraw due to poor health. Thus, the study included 22 patients,

Figure 1. Main theme and related subthemes.

comprising 8 females and 14 males between 57 and 95 years old. Twelve patients had prior hospitalisation experience. The participating patients had been admitted to the ITW between 2 to 14 days and were close to being discharged from the ward when the interviews took place.

The analysis generated one main theme and four subthemes that together describe patients' experiences of being involved in the interprofessional team of healthcare students at a clinical training ward (Figure 1).

Being an involuntarily passive participant in the interprofessional student team

The patients experienced being ill, hospitalised, vulnerable, and reliant on the interprofessional team as being in a dependent and involuntary situation. Furthermore, the patients were aware of their responsibility in the care process and tried to engage. However, for most patients, the meaning and purpose of patient involvement were difficult to grasp and understand. Nevertheless, some patients wanted to be more engaged but were hindered by their health conditions; consequently, this decreased their motivation and capability to participate. Most patients did not see themselves as active members of the interprofessional team or believe that they could influence and be active in decisions concerning their treatment and care planning, describing being in the hands of the interprofessional team. Several patients also expressed pressure to report adequate information and news about their health status to relatives because they were not involved either.

Wanting to take responsibility and engage in care

Most patients emphasised the importance of their responsibility and engagement in care. Patients with former medical contacts and knowledge of their medical situation participated more actively in their care than less experienced patients. Furthermore, they experienced a need to keep track of their situation to be involved in treatment and decisions. The patients described feeling involved when they were given the chance to tell their stories. Most patients had experienced and appreciated that the interprofessional team took the time to talk to them. They also stated that a friendly attitude was an important motivator for involvement and health recovery. Several patients explained that involvement also meant being active themselves, for example, by asking about medicines and test results.

> Many people may think it is nice to avoid information, but I think that information is essential for you to be able to help yourself. I mean, if I don't know, how am I going to help? Because I'm the only one in charge of my life. (Patient number 21)

Some patients also felt obligated to motivate themselves and expressed that they wanted to take advantage of the good care and treatment that the interprofessional team offered. Several patients described wanting to follow the advice and directives given by the interprofessional team.

Most patients said that they perceived patient involvement as doing what the "doctor ordered" or doing their best to help the interprofessional team. Some patients even expressed that they had to do exactly as the interprofessional team recommended, arguing that they had to cooperate and not object or go against better knowledge. Some patients experienced being involved in

care as mentally taxing but also stressed their responsibility to minimise the workload for the interprofessional team, expressing concern for their burden. Consequently, the patients did not always ask for help when needed.

Abdicating involvement when lacking motivation and capability

Some patients expressed wanting to be more engaged but abdicated involvement for different reasons. One was related to illness: namely, some patients expressed not having the energy, and several patients argued that they were too old to be involved.

> I would say that in my case this has been a pretty tough ordeal, and I may not have had the energy and the opportunity to participate in any other way or more than I have. (Patient number 3)

Another reason for patients to abdicate involvement was that some did not want to be part of the team. Some patients expressed not wanting to interfere, and others just trusted and let the interprofessional team decide, arguing that they knew better. Several patients also explained that being involved in decision-making was difficult when lacking medical expertise.

> Care and decisions, how am I supposed to know? I don't know what it is. What they think is good, I think is good. (Patient number 22)

However, all patients expressed needing guidance, support, and motivation from the interprofessional team to be able to take a more active part and to be involved in care.

Not being involved in the decision process made patients feel unable to influence care and treatment

Most patients experienced not being able to control their care and treatment. The patients discussed how the rehabilitation plan was often presented without dialogue, and some patients expressed frustration over "poor" assessment instruments that were not suited for them. Furthermore, the rehabilitation was not always settled at the right level or adapted to their precise needs.

Most patients often experienced being excluded from decision-making or having any influence on decisions concerning their health, leading to uncertainty regarding illness conditions and care planning. In addition, this made patients dependent on physicians' decisions.

> No, it is the doctor who decides that. The decision is not mine. (Patient number 1)

Most patients described wanting to be more involved in discussions but were lacking a dialogue with physicians. Furthermore, patients with former healthcare experience expressed the need to be knowledgeable about their medicine and illness to be involved in discussions and decisions, and they argued that they had to speak up if they wanted to be involved; otherwise, they were not given that opportunity.

> If you're going to be very involved, then you have to scream. You have to be knowledgeable about your medicine and illness, then you have to speak up for them to sit down and discuss. Otherwise, there will be nothing. (Patient number 17)

All patients said that meetings and medical rounds took place without involving them. Instead, they experienced that decisions were made and merely communicated to them.

> You have nothing to decide; rather, they have had their meeting, and they have agreed. (Patient number 11)

This was sometimes problematic since some patients had also experienced that the interprofessional team lacked knowledge of their medical condition and physical ability. One patient described a situation when the interprofessional team came to him with "empty hands," not knowing why he was hospitalised and wanted to send him home. Furthermore, some patients were not content but felt they had to accept decisions made by the interprofessional team. Several patients expressed concerns about being sent home with short notice, before feeling that they had regained their health, and argued that healthcare must become more personalised.

Needing individualised and adequate information about care plans to enable involvement

Information was experienced as adequately conveyed, but sometimes the patients would have wanted the information sooner so they could mentally prepare. The patients often had to wait for the interprofessional team to share information. However, they did not want too many details because they did not have sufficient medical skills to be able to make sense of them. Moreover, several patients had experienced having a hard time remembering what had been said.

Some patients described situations where they perceived that they were not supposed to understand the information given, feeling as if some information was hidden or as if the interprofessional team was using a secret language and did not include them in the discussion. Several patients were disappointed in the contact with the responsible physicians, feeling that they did not take the time to provide information themselves.

> Today they are sending the nurses. They are their frontline soldiers. Nothing wrong with that, but there can be a lot of errors as well. (Patient number 16)

The personal dialogue with the responsible physician was important for all patients. They wanted to describe how they felt and where they had pain and to have the chance to ask questions. The physicians' absence made some patients worried that they were withholding information about their illnesses.

Most patients experienced that family involvement was important during their hospital stay. However, they also experienced that family members were passively involved in decisions concerning treatment and further care plans as they often received information through the patients themselves, not through dialogue with the interprofessional team. This was occasionally a problem, particularly when patients had trouble retelling the information, which led to stressful conversations with family members.

> When you're this old, it's very hard to take in all the information. I try my best because then my sons ask how I have it. I say I don't think I can take in all the information right now. (Patient number 9)

Most patients also expressed wanting some of their family members to be present when receiving important information because they needed their support to avoid forgetting or misunderstanding what had been said. One patient explained that she wanted her daughter to be present because she considered her questions to be important for care planning. Another patient said she was used to bringing her daughter when seeing healthcare professionals, but at the ITW, she had to cope on her own. This was problematic since she did not know Swedish very well.

Discussion

This study aimed to explore patients' experiences of being involved in the interprofessional team of healthcare students at a clinical training ward in Sweden. The main finding was that patients were often passively involved in the interprofessional team. Although most patients wanted to be involved, they were hindered due to their health condition or because they were excluded from care planning and decision-making. Furthermore, family members rarely had direct dialogue with the interprofessional team even though the patients needed them to be involved.

The patients in our study both emphasised the importance of being responsible in their care and displayed a more passive stance, relying on the healthcare professionals. Similar results were found by Wolf et al. (2017), where patients trusted professionals to have the expertise and competence to make healthcare planning and decisions. Furthermore, Wolf et al. (2017) described how patients seemed to value having a positive and personal interaction with healthcare professionals and being informed rather than taking an active part in care planning and decision-making. There seems to be an imbalance between, on the one hand, the intention of lawmakers and healthcare professionals to strive for patient involvement and, on the other hand, the patients' rejection of that opportunity because of a perceived lack of knowledge or experience in being a patient. Both Wolf et al. (2017) and our results correspond with the results of the Buljac-Samardzic et al. (2022) study, in which chronically ill patients described that their former healthcare experiences contributed to seeing the advantages of active involvement. Our results and those of previous research (Buljac-Samardzic et al., 2022; Wolf et al., 2017) in a way also indicate that it could be difficult for less experienced patients to be involved in their care. Furthermore, Hewitt et al. (2015) described how challenging it was for the interprofessional teams in their study to involve patients, mainly since patients did not seem to be interested in the processes of care, only in receiving the care they expected. Our results indicate that not all patients understand how to be involved, see the benefits of an active role, or know about their right to be involved in the interprofessional team. The reason for this could be that they were not actively and sufficiently invited by the care team. Suikkala et al. (2021) concluded that to promote healthcare students' ability to involve patients in a clinical learning environment, supervisors must encourage partnership with patients. Furthermore, our results also imply that a positive interaction between the patients and the interprofessional team enabled patient involvement, as also revealed in previous research (Wolf et al., 2017). Therefore, ITWs should focus even more on having a pedagogical strategy that promotes student-patient interaction and partnership so that the interprofessional team of students can learn about patients' capabilities, adapt to the individual patient, and train in how to promote patient involvement.

Some patients in our study abdicated involvement due to illness or, as they described, being too old, which affected their motivation and capacity to be involved. In contrast to our result, when studying patients' perspectives on factors that affected involvement in interprofessional teams, Buljac-Samardzic et al. (2022) revealed that the severity of the illness was seen as the most important contributor to active patient involvement. One reason for this difference in results could be that in the Buljac-Samardzic et al. (2022) study, the patients were not hospitalised and were not in an acute medical condition. Another reason could be that most of their patients had plenty of experiences with healthcare and could see the gains of being involved, as described earlier. The patients in our study sometimes described involvement as doing their best to help the interprofessional team. This was also shown in the Wolf et al. (2017) study, where patients described involvement more as participating as much as they felt able to physically. However, if the patients had been invited to decision-making, the meaning and purpose of being involved might have been easier for them to understand.

Nevertheless, there was a variation in opinions regarding involvement in care. Some patients chose to abdicate while others strived for involvement, especially being heard and seen. Regardless, previous research (Blanck et al., 2021; Buljac-Samardzic et al., 2022) has shown that an interaction between healthcare professionals and patients enables involvement. However, healthcare professionals need to be responsive to patients' capacity and willingness to be involved. Even though the patients in our study seemed to be content being in the hands of the interprofessional student team, patient involvement could achieve better outcomes for patients regarding compliance with treatment and satisfaction with care (WHO, 2007; Wolf et al., 2017). Our results and former research (Blanck et al., 2021; Buljac-Samardzic et al., 2022) also indicate that patients need to be recognised as individuals and depend on interprofessional teams' guidance and support to be active in care planning and decision-making. Most patients in our study expressed that they had no control over their care and treatment. Furthermore, they stated that ward rounds were organised without their presence and that decisions were delivered as a matter of fact. One reason for this could be that the ITW had more focus on the student's collaboration than on patient involvement. Similar circumstances were described by Jensen et al. (2022a), who

studied how interprofessional student teams interacted with patients in interprofessional clinical placements. The study showed that even though patients were at the centre of care, they were not always given the chance to ask questions or the opportunity to be heard in care planning. In the current study, this was sometimes problematic, especially if the patients felt that the interprofessional team lacked knowledge of their medical condition and physical ability or if they were not content with the decisions made. Several patients described that they did not have enough contact with physicians. One reason might be that when student teams were supervised by senior supervisors from each profession during dayshifts, they were mainly supervised by registered nurses on evenings and weekends. Therefore, the specific responsibilities of physicians in their profession may have been overlooked and become less apparent to the patients.

Our results can also be compared to the Källén et al. (2021) study, where the exclusion of direct patient involvement also led to the loss of important information in care planning and decision-making. When describing professionals' perspectives on IPC and patient-centered care, Dahlke et al. (2020) showed that daily rounds supported patient-centered care. Furthermore, in Jensen et al. (2022a) study, patient encounters were considered the most important aspect of IPE in learning to work with patient involvement. Additionally, our results suggest that patients need to be invited by the interprofessional team to support their involvement. Based on previous research (Dahlke et al., 2020; Källén et al., 2021) and our results, including the patients in the daily ward rounds might be the obvious and first-hand solution to enable patients' involvement at ITWs.

In the current study, the patients wanted their family members to be involved in care planning and decisions as well as when receiving important information. However, this was not recognised by the interprofessional team. Recent studies have shown that the inclusion of family members in hospital care improved the coordination of care and reduced the frequency and duration of rehospitalisation (Yildirim & Özlü, 2018). Moreover, Blanck et al. (2021) argued that patients received better quality and continuity in care when healthcare professionals involved the family and shared the decision-making with them. Similar results were identified by Buljac-Samardzic et al. (2022), who found that support from family members also appeared to enable patient involvement. In line with previous research, our results highlight the benefits of involving the family, such as supporting patients when receiving important information, in care planning, and especially in planning for homecoming. Moreover, the WHO has stated that patients and their families should be at the centre of IPC to promote person- and family-centered care (World Health Organization, 2010, 2015). Therefore, the interprofessional team must focus more on involving family members in patient care. This could be done by encouraging the student team to communicate with the family and promote their involvement by allowing them to be involved in discussions, treatment, and decisions related to patient care to make use of their potential contribution to the interprofessional team.

Limitations

The results were based on a limited convenience sample of patients from one single ITW. In addition, the patients were recruited in consultation with gatekeepers at the ITW, and there is a risk that more favourable patients were selected. Moreover, the ethical application did not cover the collection of patient's medical information, which might limit the generalisability of the results. The interviews were rather short. However, some patients did not have the energy for longer elaborations. Additionally, the interviews were performed at the ward and may have influenced how the patients responded. Further, as all authors were registered nurses this may have influenced both the construction of the interview questions and the subsequent analysis, thereby affecting reflexivity and rigor (Braun & Clarke, 2019; Grbich et al., 2008). Furthermore, the patients had to be able to express themselves verbally in Swedish. This, of course, led to the loss of important aspects and experiences from people who do not speak the native language. Moreover, in the current study, patients were sometimes unable to differentiate between students and supervisors. Additionally, the student´s learning objectives are different due to the specific professional program which was not considered in the study. These limitations might influence the transferability of the results (Grbich et al., 2008).

Conclusion

This study showed that the patients were passive participants even though they had the right to be involved. In conclusion, patients need to be invited by the interprofessional team to be involved in planning and decision-making. In turn, students need directions on inviting patients and their family members. It would be beneficial if supervisors took a more active role in guiding the interprofessional student team to involve patients. It may be favourable if all profession-specific supervisors were more available to student teams, as their presence seems to influence the students' priorities. This might assist the interprofessional student team in prioritising patient involvement and recognising the vital role of family members. IPE activities in ITWs should primarily focus on collaboration that includes patient involvement. Furthermore, including patients in the daily ward round might be one step forward toward enabling patients' involvement at ITWs. Since patients emphasised the importance of their family members' involvement, future research is needed to explore family members' experience of involvement in ITW settings to increase the usability of the results.

Disclosure statement

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

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Author's contribution

The first author was responsible for recruiting the patients, data sampling, transcribing the interviews, analysing the data, and writing the manuscript. The manuscript was written together with the last author. However, all authors have made substantial contributions to the study plan, research design, ethical application, analysis, and interpretation of data. Further, all authors have continuously given valuable intellectual contributions during the working process, and they have critically revised the manuscript. Moreover, all authors approved the final manuscript to be published and can be held accountable for all aspects of the study.

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Family members' experience of involvement in the patient care process on an interprofessional training ward: A qualitative interview study

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ABSTRACT

Background: Involving family members in the care process leads to higher-quality patient care. However, this requires collaboration among various healthcare professionals. At interprofessional training wards, healthcare students learn to work together across different disciplines. However, there is limited knowledge about family member's involvement in the patient care process during interprofessional education in clinical settings.
Aim: This study aimed to explore family members' experience of involvement in the patient care process on an interprofessional training ward.
Method: An inductive content analysis was applied on data from individual interviews with 19 family members of patients admitted to an interprofessional training ward.
Results: Family members experienced that they had to be involved in the patient care process to bridge knowledge between the patient and the interprofessional student team in order to influence healthcare and have control over the situation. Moreover, they wanted to be acknowledged as family members and needed transparency in the patient care process. Family members' involvement was governed by the patient's needs and influenced by the degree of trust in the interprofessional student team.
Conclusion: Interprofessional education activities should focus more on family members' involvement in the interprofessional training ward.

1. Introduction

Previous research shows that patients receive better quality of care when healthcare professionals involve family members in care planning and decision-making.[1,2] Involving family members reduces the duration of patients' hospital stay and frequency of rehospitalisation as family members have a unique knowledge of the patient's health needs.[2] Interprofessional collaboration (IPC) is central to utilising all professional resources needed in patient care to ensure patient safety and facilitate patient and family members' involvement in the care process.[3–5] However, to practise IPC, healthcare professionals need to acknowledge each other and have the skills to collaborate. Therefore, interprofessional education (IPE) has been implemented into healthcare educational programmes to equip forthcoming healthcare professionals for IPC.[6,7] Nevertheless, recent reviews highlight insufficient evidence to draw any conclusions about how IPE influences family members' involvement in the care process.[7,8] Thus, research is needed to explore this aspect in IPE.

The term *family member* used in the current study refers to Hansson's[9(p34)] definition of family: "Family refers to two or more individuals who depend on one another for emotional, physical, and economic support. The members of the family are self-defined." The World Health Organization[10] promotes person- and family-centred care, emphasising that patients and their families should be at the centre of all care.[11] Previous studies have also emphasised the benefits of family members' involvement in the patient care process.[12,13] Further, in a recent study by van Dongen et al.[14] patients emphasised the importance of involving themselves and their family members in the patient care process. However, results from another recent study indicate that patients perceive that their family members lack opportunities to be involved in care planning and decision-making.[2]

Including family members in patient care requires that healthcare professionals and patients allow them to be involved in discussions, treatment plans, and decisions.[12,13] Healthcare professionals play an

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important role in facilitating communication with family members and promoting their involvement.[14,15] Furthermore, family member involvement requires collaboration between different professions in healthcare. Therefore, the inclusion of family members has certain prerequisites, for example, training healthcare students at Interprofessional Training Wards (ITW) to adopt an inclusive approach to family members' involvement in the care process. In Sweden, several healthcare programmes offer training at ITWs, where students from diverse healthcare professions learn in interprofessional student teams to improve patient- and family-centred IPC.[15,16] In hospital settings, the general structure of ITWs in Sweden and globally is that students from at least two different healthcare educational programs collaborate. Furthermore, students often have a high level of clinical independence in patient care activities, such as care planning and ward rounds. However, to ensure patient safety, students receive continuous support from supervisors, who guide their work and encourage reflection among the students.[16,17] That is, the ITW is an arena where healthcare students can practice collaboration, increase interprofessional competence, and correspondingly practice involving patients and family members in the interprofessional teamwork.[17]

Previous research has emphasised the benefits of involving family members in care.[12,13] However, recent studies have shown that patients expressed concerns regarding the limited opportunities for such involvement.[2,18] Interprofessional education at ITWs should focus on the practical application of involving family members in care. Therefore, research is needed to explore family members' experiences of involvement in the care process on an ITW.

2. Aim

This study aimed to explore how family members experience involvement in the care process on an Interprofessional Training Ward.

3. Method

The study used a descriptive qualitative approach to analyse data collected through semi-structured individual interviews with family members of patients admitted to an ITW. The interviews were recorded, transcribed, and analysed using content analysis as described by Elo and Kyngnäs.[19]

3.1. Setting

The study was performed on an interprofessional training ward in southern Sweden. The patients at the ITW are commonly elderly and in need of general medical, nursing, and rehabilitation care. At the ward, medical, nursing, physiotherapy, and occupational therapy students in their final year participate in a two-week clinical placement, learning together as interprofessional healthcare teams. Students share all basic patient care in addition to their profession-specific duties. The ITW's focus is to create the opportunity for students to practice interprofessional collaboration with patients and their family members. Senior supervisors from each profession supervise the interprofessional student teams during the day shifts. On evenings and weekend shifts, one registered nurse supervises the whole interprofessional student team.[18]

3.2. Sample

Data were collected between February and December 2022. During this period, all admitted patients received written information about the study to share with their family members. The written information was handed out by the healthcare professionals working at the ward. To be able to ask family members to participate, the patient needed to give their consent and reveal who their closest family member was. To be included, the family members had to be able to express themselves verbally and understand Swedish. Eligible family members were then approached by the first author with support from the healthcare professionals at the ITW. This kind of purposive sampling is appropriate when searching for informants who have the most knowledge of the topic.[20,21] A total of 40 family members were asked to participate, 17 of which directly declined participation and four initially accepted but withdrew their consent before data collection. The main reason for withdrawing participation was stated to be a lack of time as their family member had returned home from the ward. Finally, the study included 19 family members, eight women and 11 men, aged between 40 and 82 years. Their relation to the patient was mainly sons, daughters and wives. Other relations were being a close friend or a nephew. The related patients had been admitted to the ward between five and 14 days, and the interviews were performed in close connection to the patient's discharge. All participating family members received written and verbal information about the aim of the study, and they were given the chance to ask questions before giving informed consent; they were also informed that participation was voluntary.

3.3. Data collection

All interviews were conducted over the telephone as per the family members' wishes. Before each interview, there was a brief conversation and gathering of background data regarding age and relation to the patient.

A semi-structured interview guide was used to ensure that all issues of interest were covered. The interviews started with an open-ended question: "Can you describe how you have been involved in the care process of your family member at this interprofessional training ward?" Probing questions were posed during the interviews to gain a deeper understanding of the family members' statements. All interviews were conducted by the first author, who had no relation to the family member or clinical context. The interviews lasted between 14 and 29 min, with a mean time of 19 min. They were all digitally recorded and transcribed verbatim by the first author. (See Supplementary File 1 for additional data).

3.4. Analysis

The interviews were analysed using inductive content analysis according to Elo and Kyngäs's approach.[19] The organisation phase began with reading the transcribed interviews several times to get well acquainted with the dataset. This was followed by a systematic data coding to identify important features relevant to the research question. Open coding was performed to identify patterns in the data by writing notes on a semantic level in the text while reading it.[19] Next, the text was reread, and labels were written in the margins to categorise various aspects of the content. Code sheets were made to organise and manage the data, as recommended by Elo et al.,.[19] Thereafter, all codes from the whole dataset were sorted, and the process of creating sub-categories began. All coded data relevant to the aim were systematically and inductively sorted under preliminary sub-categories. The preliminary analysis was discussed with the co-authors for further abstraction. In the next step, the sub-categories were named with content-representative vocabulary. Subcategories with related occurrences and similar descriptions were grouped under generated generic categories. The generic category's purpose is to reflect the result of the analysis, and the subcategories represent the variations of the result.[19] In this study, the variations are demonstrated within the generic categories. The generic categories were further abstracted and finally generated one main category. All categories were checked by going back to the original data transcriptions to ensure that the result had a solid association with the analysed data.[19,20]

4. Trustworthiness

To ensure the trustworthiness of the result a purposive sampling

technique was used to recruit family members as it was the most appropriate sample strategy to address the research question.[20] The participants varied in age and biological sex, which strengthens the credibility of the study. Reflexivity was used amongst all authors to discuss the influence of the first author on the interview situation. The authors also reflected on the participants' social context, which might have influenced their responses.[21–23] Nevertheless, research shows that informants are more likely to participate and feel more comfortable doing interviews over the telephone.[24] Furthermore, telephone interviews as a research tool have been evaluated and recognised as an effective way to generate high-quality research.[24,25] To avoid misinterpretation, the first author summarised and reiterated the participants' responses throughout the interview.[24,25] To ensure confirmability, the first and last authors worked together on the analytical process; however, all authors were involved in reading and making contributions to the analysis.[21] The transcribed interviews were also reread after the analysis was finalised to make sure that the results were generated from original data as recommended by Elo et al.[19,20] In addition, every step of the research process was described both to enhance transferability and to strengthen the trustworthiness of the study results.[20] With regards to preunderstanding, all authors are registered nurses and have years of clinical experience. However, none of them had the experience of working at an interprofessional training ward.

5. Ethical approval

Ethical approval was received from the Swedish Ethical Review Authority (No 2019–03761).

6. Results

The analysis generated one main category and four generic categories to describe how family members were involved in the care process, as visualised in Fig. 1.

7. Bridging knowledge between the patient and the interprofessional student team

Family members' involvement in the care process was governed by the patient's needs, often taking the form of bridging knowledge between the patient and the interprofessional student teams. Family members expressed that they were involved in the care process mainly because they perceived that the patient needed their support to assimilate information. Furthermore, they argued that they could fill in the information gaps that the interprofessional student teams had and inform them of changes in the patient's health condition. Their involvement was considered even more important if the patient had memory problems or a diagnosed cognitive impairment that made it difficult for the patient to convey their wishes to the interprofessional student teams.

> It means a lot to her that I understand the plan and what's going on. She feels old and has trouble remembering, she values my involvement and awareness of what is happening. (Family member number 19, a son)

However, to be able to bridge knowledge and be involved in the care process, family members sought transparency in the care process and requested to be acknowledged as a valuable part of patient care. Family members sometimes worried because they had witnessed that the interprofessional student teams did not always observe the patient's needs, were not responsive to the patient's physical or cognitive abilities, nor seemed familiar with the patient's health and social situation. The degree of trust in the interprofessional student teams influenced how the family members bridged the knowledge between them and the patient. Family members wanted to be a resource for both the interprofessional student teams and the patient as they possessed a unique knowledge important for patient care and discharge.

7.1. Requesting to be acknowledged as a family member

All 19 family members who participated in the study described the importance of being acknowledged as an important part of patient care and being allowed to be involved in care planning and decision-making. For instance, family members argued that it was important to feel involved, to be heard, and to feel seen as a family member.

> So that I would have felt acknowledged as a person who is important to [patient name] so that I would be informed. (Family member number 10, a wife)

Only a few family members expressed that they had been contacted by the interprofessional student teams and were involved in treatment and care planning. However, most family members expressed that the interprofessional student teams did not acknowledge their close relationship with the patient, and they were disappointed at being excluded from discussions of important care decisions. Two family members felt like the interprofessional student teams did not involve them even though they were physically present. They argued that if the interprofessional student teams had been more open, they could have contributed with valuable input.

> It would have been great if they had asked me. I've known him for a long time. I have some background information about him. If they're interested in it. (Family member number 18, a close friend)

Not having a dialogue with the interprofessional student teams was frustrating, particularly when the family members knew they could have made a difference. A few even pointed out that the interprofessional student teams were making wrong decisions due to a lack of information.

Moreover, all 19 family members expressed a need to stay informed for their own sake. They wanted to know that the patient was being well taken care of and argued that it was their responsibility as a family member to be actively involved in the patient's care.

> Obviously, when you live together, you want to know what's going on – how he experiences it, what treatment he gets, and things like

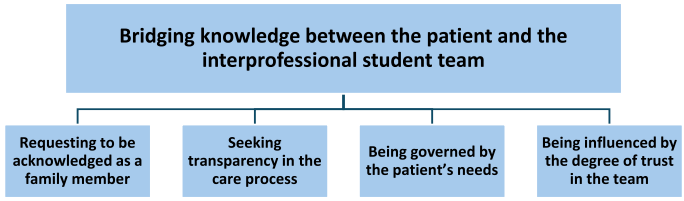

Fig. 1. Main category and related generic categories visualising how family members experience involvement in the care process on an Interprofessional Training Ward.

that. So I'm quite involved in this, actually. (Family member number 8, a wife)

7.2. Seeking transparency in the care process

All the interviewed family members expressed the need for transparency in the care process to facilitate their involvement and enable them to bridge knowledge between the interprofessional student teams and the patient. Family members expressed that they wanted to be involved to influence the patient's healthcare and be in control of the situation. Namely, they stressed the need for transparency in healthcare to be able to plan for the patient's return home and their care after discharge. Family members argued that, above all, receiving information from the interprofessional team was necessary to facilitate their involvement.

I think it's really important because there may be details he [the patient] has missed, either things that are going to happen or things that he's going to think about when he gets home or something. I think it's very important that a relative has been involved and listened. (Family member number 17, a son)

Moreover, family members expressed that seeking transparency in the care process was not just about receiving information; they had to be given the chance to ask questions as well, for instance, regarding the causes behind the patient's condition and hospitalisation.

You kind of want to know what's going on and why they think he's being readmitted all the time. (Family member number 3, a daughter)

When actively seeking information about the patients' care planning, family members said that it felt natural to ask the interprofessional student teams, and the students were always available. Family members described how the calm environment at the ward promoted their involvement, as they did not hesitate to interrupt the interprofessional student teams to ask them questions. This way they could bridge knowledge between the patient and the interprofessional student teams.

However, nearly all family members explained that their involvement in the patient's care was through dialogue with the patient, not with the interprofessional student teams. It was often the patient who conveyed all the details and kept family members informed. In addition, family members did not feel sufficiently informed and often had some unanswered questions. For instance, they complained that the decision to send the patient home came suddenly, with short notice, and it was made without dialogue or their involvement in the decision-making. Not being included in the discharge process was difficult in practical terms because they were not prepared.

It would have been helpful to know that he was going home, so to speak. This is partly because he is old and fragile, and he has difficulty walking, so he needs assistance to get home. If I had known, I could have offered to help him. (Family member number 6, a son)

7.3. Being governed by the patient's needs

The interviewed family members described their involvement as being governed by the patients' needs. They argued that since the patients did not always know what they needed or had difficulty conveying themselves, they had to be involved in the care process to bridge knowledge between the patients and the interprofessional student teams. Furthermore, they wanted to provide support when the patients did not have the energy to be involved or had difficulty keeping track of what was said. They did not believe that the patients could communicate and discuss decisions with the interprofessional student teams without their support.

Mother is old and has bad hearing, and there is too much information. So it's incredibly important as a family member to listen, and to be allowed to get involved in the care. (Family member number 15, a son)

The family members described their involvement as a security for the patient, as both practical and mental support. According to them, a lot of responsibility seemed to be placed on the patient despite having difficulties making informed decisions about their health. Therefore, the family wanted to be available for the patient since they were aware of the patient's vulnerable situation.

My involvement in her care is very important, both for me and for her. Always will be. (Family member number 1, a daughter)

I think it's surely quite positive that I get a little involved. (Family member number 8, wife)

All the interviewed family members expressed that they wanted to respect the patient's will. However, a few were afraid that the interprofessional student teams may have misinterpreted the patient's signals and that the patient did not receive the necessary care and treatment because of it. Nevertheless, when the family members tried to advocate for the patient, they sometimes experienced that the interprofessional student teams did not want them to interfere.

My only interest is to receive information about what is happening, not to interfere with the care being given. (Family member number 14, a son)

7.4. Being influenced by the degree of trust in the team

The degree of trust in the interprofessional student teams influenced the family members' involvement in bridging their knowledge. On the one hand, most family members described the interprofessional student teams as helpful and service-minded, and they gave adequate information about care plans. For instance, the interprofessional student team were described as making eye contact during conversations or when just passing by in the corridor. This conduct promoted the family members' involvement; it encouraged them to trust that the patient received accurate care. It allowed them to be involved and focus on the overall care process and support the patient.

Now I feel that I can both practically and tangibly take part in and simply access information. (Family member number 7, a daughter)

Most family members had experienced that the students did their best and contributed with good ideas in patient care. This made them trust that the patient was in good hands.

I need to know that she's okay and that she's not in pain. That's what's important to me. (Family member number 15, a daughter)

On the other hand, not every family member felt confident with the interprofessional student teams. Instead, they stated that although there seemed to be numerous persons in the interprofessional student teams, it was sometimes unclear and difficult to find who was responsible for the patient. Several family members reported that they had had minimal contact with the interprofessional student teams and that they also had difficulty reaching them via telephone. Having to put so much effort to be updated on the care process was burdensome. For instance, they were managing their daily job or taking care of their children, but they had to put the patient's needs above their own. One family member argued that it was challenging to be involved when they were not physically present at the ward. However, it was difficult to visit often because of ward routines and visiting hours, which hindered their involvement.

So, no, I don't feel like I'm on board with any decision. I'm just a receiver. (Family member number 10, a wife)

Not being able to contribute to and influence the care was

frustrating, and several family members were concerned that the patient was not receiving adequate care.

8. Discussion

Our main finding illustrates that family members perceive that they carry specific knowledge that can bridge the information gap that may be present between patients and the interprofessional healthcare student team. Nevertheless, our results also show that family members' valuable contribution to patient care is not always acknowledged by the interprofessional student teams. This is particularly noteworthy as the patients were admitted to an ITW with a focus on IPC. Previous research within other clinical settings[14,26] has suggested that family member's involvement in the care process requires collaboration between different healthcare professions and inadequate IPC has been recognised as a barrier to patient and family involvement in care.[8,14,26] This may indicate that the pedagogical approach at the ITW in this study did not sufficiently facilitate the family members' involvement. The reason for this could be that family members' contribution to patient care during IPE is not that well known yet.[18,27] However, family members' role has been highlighted in several other settings.[2,26] For example, Mackie et al.[2] explored patients' and family members' experiences of involvement in acute care wards and revealed that family members were important for supporting the patient by sharing information with healthcare professionals. In addition, the current study's results are concordant with previous research within a primary care context,[28] emphasising that family members are indeed important for patient care. Therefore, students at interprofessional training wards might need more active supervision and guidance to recognise the benefits of involving family members. This implies that the ITWs might need a pedagogic strategy to implement a routine for family member involvement in the patient care process. For example, a framework for interprofessional competency in patient- and family-centred care could help to guide and organise IPE activities.[29] The Core Competencies for Interprofessional Collaborative Practice framework[30] has a clear patient- and family-centred approach and might be beneficial when implementing and developing IPE activities to promote family involvement at ITWs. This framework can be used to give structure to ward rounds and reflection sessions, providing valuable opportunities for interprofessional student teams to discuss with family members and reflect on their involvement in the care process.

A previous study on family members' involvement and interprofessional teams in a primary care setting concluded that organising educational sessions for family members about the patient's treatment plans could be beneficial.[28] Implementing educational sessions for family members on ITWs could be a feasible IPC activity. In these sessions, students can share information about the patient's condition, treatment, and care planning to encourage family involvement. Additionally, it creates valuable pedagogical benefits for the healthcare students' interprofessional and professional development.

Moreover, participants in this study expressed that they wanted to be acknowledged as family members. When acknowledged, they could easily contribute to care planning. Additionally, family members described that friendly and straightforward communication with the interprofessional student teams reduced their concerns. Previous studies[15,16] have shown that healthcare professionals play a substantial role in facilitating communication with family members and supporting their involvement. Xyrichis et al.'s study[8] on interventions to promote family involvement found that including family members in decision-making led to high satisfaction with care. In this study, family members felt that the interprofessional student teams did not always acknowledge their important role. Additionally, family members expressed frustration when patients were discharged from the hospital without their involvement. This lack of involvement made the discharge process stressful and problematic, as patients often required support from their family members when returning home. To resolve these issues, educators at ITWs could adopt an educational strategy that involves structured IPE activities that focus on including family members in the care process. For example, Jensen et al.[31] described IPE activities where the patients gave students feedback on their experiences of different kinds of situations in the care process. This feedback could also be provided by family members, preferably during ward rounds and when planning for the patient's discharge. By receiving feedback, students' ability to engage and recognise family members' valuable contributions to the care process could be enhanced.

Furthermore, all the family members in the current study wanted to be involved to be able to influence the patient's care and have control of the situation. Their ambition was to provide support to the patient and be fully prepared for their discharge and return home. However, they reported that a lot of responsibility seemed to be placed on the patients themselves. This aligns with the study by Mackie et al.,[2] which underscored the stress patients experienced when they had to handle information themselves without their family members' presence. Despite the patients being too ill to handle the situation, family members were not actively invited by the interprofessional student team. Moreover, in the current study, a few family members said they had witnessed how the interprofessional student teams sometimes misinterpreted the patient's signals, and they expressed worry that the interprofessional student teams have consequently made the wrong decisions. Thus, the current study results and previous studies within other clinical settings,[2,14,26] indicate that family members' involvement is important in preventing misunderstandings and alleviating family members' concerns.

Therefore, in line with recent research,[32] we argue that educational activities, such as ward rounds and reflection sessions, in IPE can provide an opportunity for the interprofessional student teams to reflect on family member's involvement in the care process. Previous research[33,34] has shown that IPE is an ongoing process, and learning IPC is dependent on the students' experience of working together; furthermore, identity and identification within the group are essential for the interprofessional learning process. Therefore, the ITW has thus far focused more on collaboration between the students as they needed to get to know each other, which might explain why collaboration with family members appears to be deprioritised. Looking at learning from a sociocultural perspective, extending the clinical placement at ITW can offer advantages. Students can gain more experience in working together, which can help in improving IPC.[33,34] Additionally, they can also get sufficient time to work on involving family members in the care process.

9. Limitations

The results were based on a limited sample of family members in one ITW and the participants had to be able to understand and speak Swedish to be included in the study. In addition, the interviews were rather short and potentially lacked sufficient depth to explore the participant's experience fully. However, they all lasted for as long as the family members needed or were able to talk, and their descriptions were thorough enough to answer the research question. However, as communication through gestures and movements is lost via telephone, this method may have influenced how the participants responded and how the first author perceived their answers.[21,24] Furthermore, the exclusion of family members who do not speak Swedish may have led to the loss of valuable experiences and consequently reduced the trustworthiness and transferability of the result.[22]

10. Conclusion and educational implications

The result of this study can contribute to improving IPE. They indicate that IPE needs to place more focus on involving family members in the ITWs. For example, the Interprofessional Education Collaborative's Core Competencies framework[30] has a visible patient- and family-centred approach and might be useable when implementing IPE activities in ITWs. Since IPC is aimed at optimising the patient care

process through using all available resources and necessitating the involvement of all care professionals with the patient and each other, we need to consider family members as partners and make use of their potential contribution to the patient care process. Therefore, IPE activities need to be implemented within several courses and clinical placements throughout healthcare programmes to foster IPC and interprofessional habits in all patient care and treatment, including family members' involvement. However, more research is needed to develop IPE methods to improve family involvement in patient care at ITWs.

CRediT authorship contribution statement

Sofia Hemle Jerntorp: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Jenny Jakobsson:** Writing – review & editing, Supervision, Methodology, Data curation, Conceptualization. **Malin Axelsson:** Writing – review & editing, Supervision, Methodology, Data curation, Conceptualization. **Elisabeth Carlson:** Writing – review & editing, Supervision, Project administration, Methodology, Data curation, Conceptualization. **Anna Carin Aho:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Formal analysis, Data curation, Conceptualization.

Author's contribution

The first author recruited and interviewed the family members, transcribed and analysed the interviews, and wrote the manuscript together with the last author. However, all authors contributed to the study plan, research design, ethical application, and analysis. Further, all authors made valuable intellectual contributions and critically revised the manuscript. All authors approved the final manuscript to be published, and they share responsibility for all aspects of the study.

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Conflict of interest

There is no conflict of interest.

Appendix A. Supplementary data

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