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PATIENT EDUCATION TO SUPPORT THE SELF-MANAGEMENT OF PATIENTS WITH MENTAL ILLNESS

by

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ABSTRACT

This study explores areas which need to be improved to develop the quality of patient education to support self-management of patients with mental illness in psychiatric hospitals. The study was conducted in five phases during the period 2000 – 2007. First, patients' (n = 313) satisfaction with patient education were investigated. Second, patients' (n = 51) experiences of patient education were explored. Third, a national survey was conducted to investigate realisation of patient education from the staff (n = 55) viewpoint. Fourth, outcomes of patient education were investigated by evaluating the impacts of different patient education methods on patients' (n = 311) attitudes towards medication, knowledge level and importance of information. Fifth, patients' (n = 16) perceptions of different patient education methods were explored.

Patients reported poor satisfaction with patient education (Phase I), and they have considerable need to receive information during their hospital stay (Phase II). Described by staff, the content of patient education covered almost all informational areas investigated. However, discrepancies related to the realisation of patient education were found. (Phase III.) Evaluation of different patient education methods indicate that patients derived benefits from structured patient education with supportive methods (Phase IV) and patients also perceived that these methods supported their information receiving (Phase V).

In order to improve the quality of patient education to support self-management of patients with mental illness patient education should be systematically and individually provided to all patients by using different educational methods. Realisation of this should be ensured by providing written instructions, improving nurses' knowledge and skills as well ensuring operating conditions.

Keywords: patient education, self-management, psychiatric nursing, psychiatric hospital, in-patient care

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TIIVISTELMÄ

Tässä tutkimuksessa on selvitetty kehittämisalueita, joiden avulla voidaan lisätä potilaan itsehallintaa tukevan potilasopetuksen laatua psykiatrisessa sairaalassa. Tutkimus toteutettiin viidessä vaiheessa vuosina 2000 – 2007. Potilaiden käsityksiä itsehallintaa tukevasta potilasopetuksesta tutkittiin ensimmäisessä vaiheessa kuvaamalla potilaiden (n = 313) tyytyväisyyttä potilasopetukseen. Toisessa vaiheessa selvitettiin potilaiden (n = 51) kokemuksia potilasopetuksesta. Kolmannessa vaiheessa potilasopetuksen toteutumista kuvattiin hoitohenkilökunnan (n = 55) näkökulmasta kansallisessa selvityksessä. Neljännessä vaiheessa eri potilasopetusmenetelmien vaikutuksia arvioitiin liittyen potilaiden (n = 311) asenteisiin lääkehoitoon, tietotasoon ja koettuun tiedon tärkeyteen. Viidennessä vaiheessa kuvattiin potilaiden (n = 16) kokemuksia kolmesta eri potilasopetusmenetelmästä

Tutkimustulokset osoittivat potilaiden tyytymättömyyden potilasopetukseen (Vaihe I) ja tarpeen saada tietoa sairaalahoidon aikana (Vaihe II). Henkilöstö kuvasi potilasopetuksen sisältävän laajasti tutkitut tiedon alueet, mutta potilasopetuksen käytännön toteutumisessa raportoitiin myös puutteita (Vaihe III). Eri potilasopetusmenetelmien vaikutuksia arvioitaessa todettiin, että strukturoidut menetelmät, joissa käytettiin eri välineitä, hyödytti potilaita. (Vaihe IV). Lisäksi potilaat kokivat, että kaikille potilaille mahdollistetut systemaattiset potilasopetuskäytännöt tukivat heidän tiedonsaantia sairaalahoidon aikana (Vaihe V).

Potilaan itsehallintaa tukevan potilasopetuksen laadun kehittämiseksi potilasopetusta tulee tarjota systemaattisesti, huomioiden potilaan yksilölliset tarpeet sekä hyödyntäen monipuolisia tiedonsaantia tukevia menetelmiä. Potilasopetuksen toteutumisen varmistamiseksi on tuotettava kirjallisia ohjeita, lisättävä hoitajien tietoja ja taitoja toteuttaa potilasopetusta sekä varmistettava käytettävien tilojen ja välineiden toimivuus.

Avain sanat: potilasopetus, itsehallinta, psykiatrinen hoitotyö, psykiatrinen sairaala, sairaalahoito

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ABBREVIATIONS

ANOVA	Analysis of variance
APA	American Psychiatric Association
CMA	Canadian Medical Association Clinical Practice Guidelines Infobase
DAI-10	Drug Attitude Inventory (Hogan et al. 1992)
ES	Effect size
ETENE	The National Advisory Board on Health Care Ethics
ICD-10	International Classification of Diseases
ICN	International Council of Nurses
IT	Information technology
LOCF	Last-observation-carried-forward
MANOVA	Multivariate analysis of variance
NICE	National Institute for Health and Clinical Excellence
NIH	National Institute of Health
OECD	Organisation for Economic Co-operation and Development
SD	Standard deviation
SIGN	Scottish Intercollegiate Guidelines Network
SPRI	Swedish Institute for Health Services Development
UMQ	Understanding of Medication Questionnaire (Macpherson et al. 1996a)
WHO	World Health Organisation

LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following publications which are referred to in the text by their Roman numerals I – V:

I Kuosmanen, L., Hätönen, H., Jyrkinen, A.R., Katajisto, J. & Välimäki, M. (2006). Patient satisfaction with psychiatric inpatient care. Journal of Advanced Nursing 55(6), 655-663.

II Hätönen, H., Kuosmanen, L., Malkavaara, H. & Välimäki, M. (2008). Patients' experiences of patient education during in-patient psychiatric care. Journal of Clinical Nursing 17(6), 752–762.

III Hätönen, H., Kuosmanen, L., Koivunen, M. & Välimäki, M. Patient education practices in psychiatric hospital wards: a national survey in Finland. Resubmitted.

IV Hätönen, H., Välimäki, M., Katajisto, J., Kuosmanen, L., Koivunen, M., Pitkänen, A., Patel, A. & Knapp M. Patient education for attitudes towards medication in schizophrenia: One-year follow-up results of a randomized controlled trial. Submitted.

V Hätönen, H., Suhonen, R., Warro, H., Pitkänen, A. & Välimäki, M. Patients' perceptions of patient education on psychiatric inpatient wards: a qualitative study. Journal of Psychiatric and Mental Health Nursing. In press.

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1. INTRODUCTION

Self-management in terms of people's ability to improve and maintain their health as well as to cope independently with their health problems is a central challenge in society and in health care (Clark et al. 1991, Levin-Zamir et al. 2001, Bonderheimer et al. 2002, Lorig et al. 2003). Especially among people with mental illness supporting self-management is considered one essential way to promote well-being and decrease the burden of illness (European Commission 2005, Jané-Llopis et al. 2005). This is important because mental illnesses are common and burdensome illnesses worldwide (WHO 2008), in European level (Alonso et al. 2007) and in Finland (The Social Insurance Institute of Finland 2008). In Finland, sick allowance spells due to mental health problems increased by 93 % between 1990 and 2003 (Järvisalo et al. 2005). At the same time, welfare costs associated with mental illness have also increased significantly. For example, schizophrenia is one of the most burdensome and costly illnesses (Andlin-Sobocki et al. 2005, The Finnish Medical Society Duodecim 2008a). It is associated with the need for assisted living, hospitalizations and medication together with productivity losses and the indirect costs (Lindström et al. 2007, Mangalore et al. 2007). Thus, actions to decrease the burden of mental illness are needed.

Patient education in addition to other psychosocial interventions and medical treatment is one method to support the self-management of patients with mental illness (NICE 2002, APA 2004, The Finnish Medical Society Duodecim 2004, 2008a, 2008b). Systematic reviews have shown that educational interventions are effective in supporting the everyday coping of patients with mental illness (Pekkala et al. 2002, Morriss et al. 2007). In psychiatric care, patient education can address the needs of patients quickly and without stigma (Shneider 2006). Information receiving is a major right of patients (European Charter of Patients' Rights 2002) and a prerequisite to patients' participation in decision-making concerning their own care (Crowe et al. 2001, Allen et al. 2003, Sung et al. 2004). To support patient education in clinical care various methods have been developed and evaluated (Lewis 2003, The Joanna Briggs Institute 2006).

Realisation of patient education to support self-management should be ensured at national level (Albada et al. 2007). In Finland, patients' right to receive information is provided for by the Act on the Status and Rights of Patients (785/1992), which states that a patient has a right to receive information on illness and treatment. The Mental Health Act (1116/1990) also defines patients' rights to receive information concerning involuntary psychiatric treatment and patients' right to complain. Together with health laws, national policies guide patient education in health care organizations. The Health 2015 - Public Health Programme (The Ministry of Social Affairs and Health 2001a) aims to ensure that everyone is able to obtain understandable information about health and health care services. Additionally, the Quality Guideline for Mental Health Services states that patients should receive information and guidance supporting everyday coping with illness (The Ministry of Social Affairs and Health 2001b).

In addition to national level instructions, health care organizations have the responsibility to support the realisation of patient education in clinical practices (see The Ministry of Social Affairs and Health 2006, Albada et al. 2007). However, organisational strategies ensuring patient education in clinical practice are still lacking in Finland (Ojanlatva 2001). Moreover, although a number of national clinical guidelines have been developed to tackle problem of providing high quality and evidence-based care, specific guidance is still lacking on how patient education interventions to support patients' self-management should be integrated into care (Deccache et al. 2001, Albada et al. 2007).

Supporting patients' self-management through patient education is considered a central nursing intervention (Marcum et al. 2002, Pollock et al. 2004, Kääriäinen 2007). Ethical codes for nurses emphasis nurses responsibility to promote health, to prevent illness, to restore health and to alleviate suffering (INC 2005). Regarding patient education to support self-management this means that nurses' role is to ensure that patients receive sufficient information in a manner that respects patients' individual needs.

However, there is still a need to develop patient education practices in psychiatric hospitals to support patients' self-management. Despite the benefits of patient education (Pekkala et al. 2002, Morriss et al. 2007) and a number of recommendations aiming to ensure that patients receive information (Lahtinen et al. 1999, Ministry of Social Affairs and Health 2001b, NICE 2002, APA 2004, The Finnish Medical Society Duodecim 2004, 2008a, 2008b,), discrepancies in the realization of patient education in clinical practice have been found (Rummel-Kluge et al. 2006, Bee et al. 2008). To develop patient education and to be sure of the quality of patient education, there is a need to explore users' perspectives, involve them in the development process and develop concrete instructions to provide these interventions in clinical practice.

The overall goal of this study was to identify areas which need to be improved to develop the quality of patient education to support self-management of patients with mental illness in psychiatric hospitals. The main focus of this study is patient education. It is assumed that through patient education it is possible to support patients' self-management (Bandura 1989, 2001, 2004). In this study patient education to support self-management involves patients' perceptions of patient education; realisation of patient education practices and; outcomes of patient education (see Bandura 1989, 2001, 2004). The results of the studies contribute knowledge of nursing practices to develop and implement patient education interventions to support self-management in the psychiatric hospital setting.

This study was conducted in the area of clinical nursing science focusing to patient education to support patients' self-management. In this study self-management refers to patients' ability to improve and maintain their health as well as to cope independently with their mental illness (Clark et al. 1991, Levin-Zamir et al. 2001, Bonderheimer et al. 2002, Lorig et al. 2003). Health is understood as a mental condition in which an individual realizes his or her own potential, can cope with mental illness in everyday life, and is able to make a contribution to her or his community (see European Commission 2005, Jadad et al. 2008). In this study mental illness is defined by patients as self-reported mental condition or by professionals' evaluations and classifications of symptoms of disease (ICD-10, WHO 1992).

Patient is understood as an individual who uses or is otherwise an object of specialized medical care provided for those suffering from a medically diagnosed mental illness or other mental disorder (Specialized Medical Care Act 1062/1989, Mental Health Act 1116/1990). The patient is considered as an active participant in all phases of treatment regarding patients' own resources to participate and make decisions. However, patients with mental illness often have cognitive deficiencies in their ability to manage information and their ability assume an active role may be impaired (Medalia et al. 2004, Goodman et al. 2005, Kim et al. 2006, Wong et al. 2005). Therefore, nursing activities are needed to support patients' participation in the care.

Nursing in this study is understood as the relationship between patient and nurse in psychiatric hospitals (Peplau 1997). Patient education is considered to be interactive communication, active exchange of information and goal-orientated educational nursing activities to support patients' self-management (Lorig et al. 2003, Bäuml et al. 2006). Nurses' role is to support patients to receive, manage and adapt information to their individual life-situation taking into account patients' individual resources (Bonderheimer et al. 2002, Lorig et al. 2003, INC 2005, Bäuml et al. 2006).

The study environment is psychiatric hospitals defined as mental health services providing specialized medical care for people suffering from a medically diagnosed mental illness or other mental disorder (Specialized Medical Care Act 1062/1989, Mental Health Act 1116/1990). The study includes nationwide research results and results from individual psychiatric in-patient units.

2. LITERATURE REVIEW

The aim of the literature review was intended to gain comprehensive picture of patient education to support self-management of patients with mental illness. First, nature of severe mental illness and psychiatric hospital services were described. Second, the methods of the literature review about patient education to support self-management of patients with mental illness were determined. Third, the definitions and theoretical basis of self-management and patient education were explored. Fourth, different aspects of the patient education to support the self-management of patients with mental illness during in-patient care were identified. Finally, the definition of patient education to support self-management used in this study and theoretical assumptions were stated.

2.1 Patients with severe mental illnesses and psychiatric hospital services

In order to identify areas which need to be improved to develop the quality of patient education to support self-management of patients with mental illness, it is necessary to understand the situation and environment these patients are living in today. It is well recognized that mental illnesses are a significant contributor to the burden of disease (European Communities 2008, WHO 2008). Mental illnesses are related loss of quality of life causing human suffering, disability, increased social exclusion and mortality (WHO 2008). Burden of mental illnesses is increased also because of the chronic nature (Bertelsen et al. 2009). About 14% of the global burden of disease has been attributed to mental illnesses (Prince et al. 2007) and it is estimated that about 10% of the adult population worldwide have some type of mental health problems at any time (WHO 2001).

Although mental illnesses are widespread, the main burden occurs among a smaller proportion of the population suffering from serious mental illnesses such as psychosis, severe depression or drug dependence (OECD 2008). Moreover, severe mental illnesses are main reason for admissions to psychiatric in-patient hospital care (Lay et al. 2006). For example, in Finland the most common mental illnesses from the public health point of view, include depressive disorders (7%), alcohol use disorders (5%) and anxiety disorders (4%) (Pirkola et al. 2005). The most common diagnosis in psychiatric hospitals was schizophrenia (35%) and mood disorders (31%) in 2007 (National Research and Development Centre for Welfare and Health 2008). In addition, treatment periods of these patients were long. The average length of hospital stay was 58 days for schizophrenia and 26 days for mood disorders (National Research and Development Centre for Welfare and Health 2008). Among patients with schizophrenia hospitalization is associated with social deprivation (Peen et al. 2001), a low level of education, and living alone (Lay et al. 2006).

Severe mental illnesses, such as schizophrenia, are considered one of the most burdensome mental health problems. Although the prevalence of schizophrenia is about 1-1.5% (Mueser et al. 2004, Perälä et al. 2007), it accounts for about 30% of the total cost of mental illnesses (Andlin-Sobocki et al. 2005). The economic burden of schizophrenia is driven by the direct treatment costs and the intangible costs (Lindström et al. 2007, Mangalore et al. 2007). For example, the annual cost of schizophrenia in Finland is approximately one billion euros (Duodecim 2008a) where the costs of psychosis medication were 92 million Euros in 2007 (The Social Insurance Institute of Finland 2008). Moreover, the costs of particularly expensive treatments for schizophrenia were 22% of all costs of particularly expensive treatments in 2004 (Snellman et al. 2005).

In generally, schizophrenia causes disturbances in thought, emotion and behaviour (Mueser et al. 2004). Patients with schizophrenia have cognitive deficits, such as problems in attention, memory and executive functioning. These cognitive impairments may make it difficult for individuals to benefit from the various kinds of interventions that they are offered. (Medalia et al. 2004.) Prognosis of schizophrenia is poor (Bertelsen et al. 2009). Patients often lack compliance to care (Nose et al. 2003) and they have repeating hospital stays (Lay et al. 2006). Moreover, schizophrenia is characterized by impaired occupational and social functioning and impaired ability to cope in daily life (Rossler et al. 2005). In society patients with schizophrenia suffer isolation, a loss of social relationship and they have poor employment prospects (Nikkonen 1996, Graf et al. 2004, Thornicroft et al.2004). They also have poor physical conditions (Mackin et al. 2007) and schizophrenia is associated with mortality rates that are two to three times higher than the general population (Auquier et al. 2006, Rantanen et al. 2009). Facts described above underline the need to provide appropriate treatment programmes and access to care for patients with severe mental illnesses such as schizophrenia.

Psychiatric health care system has already faced changes in recent decades. Internationally many countries have changed their approach to mental health services, moving away from in-patient hospital care and developing out-patient services (Becker et al. 2006, OECD 2008). Also in Finland since the early 1990s, there has been a major shift away from institutional inpatient care for psychiatric patients toward out-patient community care (Lehtinen et al. 2001, Ministry of Social Affairs and Health 2005). Evaluations have shown that the process of de-institutionalisation have been successful (Pirkola et al. 2007, 2009). Despite of these changes, discrepancies related to psychiatric in-patient services have been revealed. Patients have experienced psychiatric hospital care unstructured (Koivisto et al. 2004) and a lack of activities they can undertake during hospitalisation (Radcliffe et al. 2007). Moreover, patients have reported inadequate information provision, poor inter-professional communication, a lack of opportunities for collaborative care and they have perceived nurses in psychiatric hospitals as particularly inaccessible (Bee et al. 2008).

Thus, it is essential to develop psychiatric hospital care to offer patients with severe mental illnesses effective and comprehensive treatment, and in a manner which respects their personal preferences and supports their self-management (European Commission 2005, Hautala-Jylhä et al. 2006, European Communities 2008). An adequate and well-trained health workforce is a prerequisite to provide these services. Despite total health spending in Finland was a slightly lower share than the average in OECD countries in 2007, professional staff recourses in the field of psychiatric services are good (WHO 2007, OECD 2008). To utilize these recourses and respond increasing needs of patients with mental illness there is still need to develop effective interventions also in psychiatric hospitals. Supporting patients' self-management is considered one important way to promote well-being and decrease the burden of mental illness (European Commission 2005, Jané-Llopis et al. 2005). However, further research is needed on patient education to support patients' self-management in psychiatric hospitals.

2.2 Methods of the literature review

The literature review of this study was conducted based on methods described by Khan et al. (2003). The literature searches were conducted in three different electronic recourses: scientific databases, clinical guidelines and dictionaries. Then a selection of the literature found was carried out through the several phases described below (Figure 1).

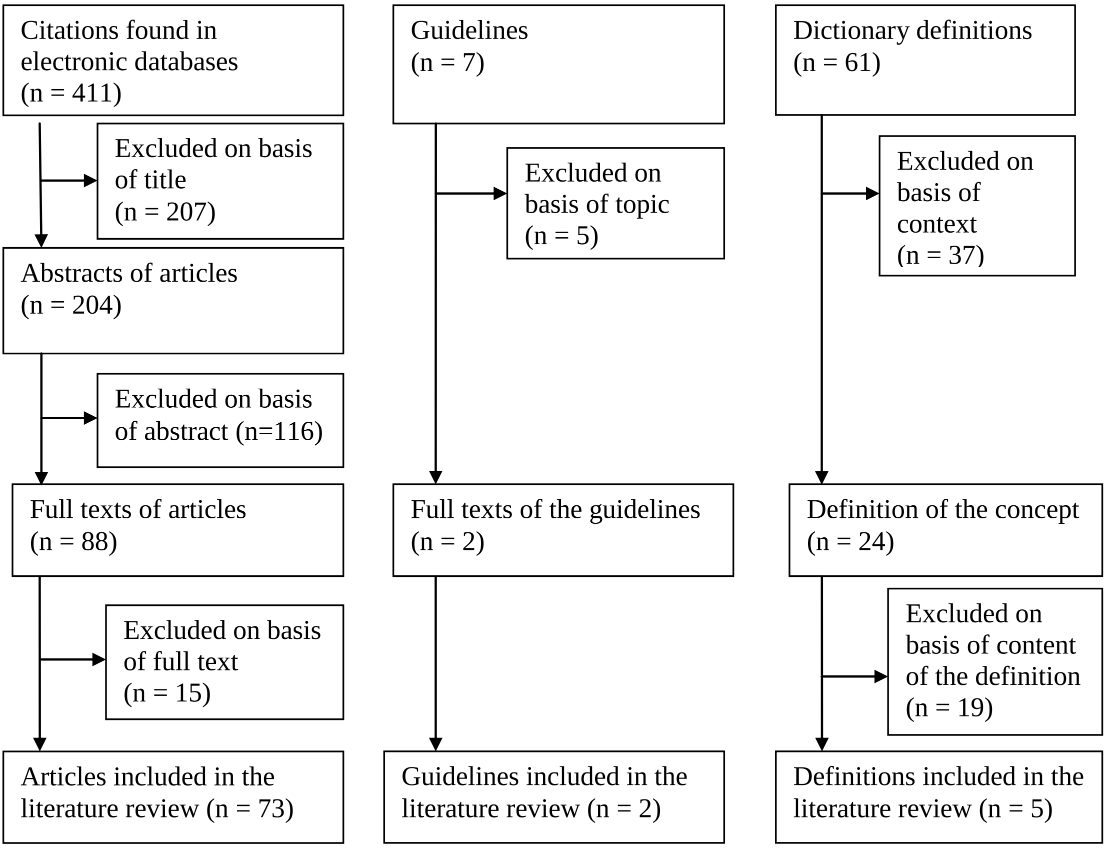


Figure 1. Selection process of the results of the literature searches

Scientific databases

The aim was to identify all relevant scientific literature on the topic. The following electronic databases were searched: CINAHL - Cumulative Index to Nursing & Allied Health Literature 1982 to July Week 3 2008, Ovid MEDLINE(R) 1950 to July Week 3 2008, EBM Reviews - Cochrane Central Register of Controlled Trials 3rd Quarter 2008 and EBM Reviews - Cochrane Database of Systematic Reviews 2nd Quarter 2008. Searches were limited to the period 1973-2008. Search terms are described in Table 1.

Table 1. Search terms used in scientific databases

Concept	Search terms
Self-management	self-management.mp. or exp Self Care/
Patient education	exp Patient Education/ or (patient$ adj1 (educat$ or counsel$ or teach$ or learn$ or inform$ or guidance$ or guideline? or instruction$ or support$ or empower$ or leaflet?)).ti,ab.
Patients with mental illness	(mentally ill or mental disorder? or psychiatric patient?).ti,ab. or exp Mental Disorders/ or Psychiatric Patients/ or Mentally Ill Persons/

The searches in the electronic databases showed that a large number of matches were found for the terms self-management, patient education and patients with mental illness. Moreover, combined searches for these terms showed that patient education to support self-management of patients with mental illness had been subject of increasing interest during the past ten years. (Table 2.)

Table 2. Number of hits for search terms from electronic databases between 1973-2008

Years	S-Man	PE	Psych	S-Man+ PE	S-Man+ Psych	S-Man+ PE+ Psych	S-Man+ PE+ Psych; Duplicates removed
1973-1978	719	1950	58333	46	190	2	**2**
1979-1984	2825	6228	72274	491	378	21	**17**
1985-1990	5330	10718	98938	959	585	44	**41**
1991-1996	6826	18326	124862	1448	811	73	**65**
1997-2002	10991	30629	176843	2383	1230	91	**80**
2003-2008	18223	38595	257824	4085	2219	236	**206**
1973-2008	**44914**	**106446**	**789074**	**9412**	**5413**	**467**	**411**

S-Man = Self-management; PE = Patient education; Psych = Patients with mental illness

The results of the searches in the electronic databases were then assessed on the basis of criteria related to setting, patient population and intervention (Table 3). First, the titles of 411 articles were read and 207 articles were excluded. Then abstracts of the remaining 204 articles were read through. Of these 116 were excluded, abstracts without full texts in English were also excluded in this phase. This left 88 articles, and the full texts of these were read. Of these articles 15 were excluded and 73 were included in the literature review. (Figure 1.) To ensure that all relevant literature was included in the literature review, reference lists of articles were read through and the references addressing definitions of the concepts and theoretical background of the patient education to support self-management were included in the literature review. (Khan et al. 2003.)

Table 3. Inclusion and exclusion criteria used to select the literature from electronic databases

Facet	Inclusion criteria	Exclusion criteria
Setting	Psychiatric or mental health care services or health care in general	Specific field of health care other than psychiatric or mental health care services
Patient population	Adult patients with mental illness or chronic disease in general	Children, adolescents and elderly patients, patients with specific illness (e.g. diabetes, asthma ect.) other than mental illness
Intervention	Educational intervention to support self-management	Other than educational intervention to support self-management

Clinical guidelines

The aim was to find existing clinical guidelines addressing the topic. A manual search was conducted for clinical guidelines for treatment, patient education and self-management of patients with mental illness. The following www-resources were included to the search: Canadian Medical Association Clinical Practice Guidelines Infobase (CMA), Finnish Current Care Guidelines (Duodecim), National Health and Medical Research Council (NHMRC), National Institute for Health and Clinical Excellence (NICE) and Scottish Intercollegiate Guidelines Network (SIGN). A manual search produced a large number of guidelines. However, only seven guidelines for patient education or self-management of patients with mental illness were found. (Table 4.)

Table 4. Number of clinical guidelines found in searches for literature on treatment, patient education and self-management of patients with mental illness

Recourse	Psych	PE	S-Man	Psych + PE	Psych + S-Man
CMA	74	41	1	0	0
Duodecim	4	0	0	0	0
NHMRC	5	4	0	0	0
NICE	14	1056	5	5	1
SIGN	7	2	0	1	0
Total	**104**	**1101**	**6**	**6**	**1**

Psych = Psychiatry/Mental health care; PE = Patient education; S-Man = Self-management/Self-care

Regarding the guidelines on patient education and self-management of patients with mental illness, the titles of the guidelines (n=7) were read. Guidelines only for patients with other than mental illness were excluded. This left two sets of guidelines, both of which were considered relevant for inclusion in this literature review. (Figure 1.)

Dictionaries

The aim was to identify how the concepts self-management and patient education were defined in dictionaries. Dictionary definitions were retrieved from English Dictionaries in Oxford Reference Online and Medical Subject Headings (MeSH) descriptions from the National Library of Medicine of the concepts of self-management, self-care and patient education. The dictionary searches showed that self-management is not as a concept included in the MeSH terms (Table 5).

Table 5. Number of dictionary definitions found for the concepts of the study

Recourse	**S-Man**	**S-Care**	**PE**
English Dictionaries in Oxford Reference Online	31	14	6
Medical Subject Headings (MeSH) descriptions	NA	4	6
Total	**31**	**18**	**12**

S-Man = Self-management; S-Care = Self-care; PE = Patient education; NA = Not available

The dictionary definitions (n = 61) were read. Those related to the political or management context (n = 31) were excluded. This left 24 definitions which were read more carefully. Of these 19 were excluded on the basis of content. Definitions concerning other than patients, health care professionals and health care interventions were excluded. This left 5 dictionary definitions for inclusion in the literature review. (Figure 1.)

The items included in the literature review were used to clarify the study concepts; self-management and patient education and also to describe the different aspects of patient education to support the self-management of patients with mental illness during in-patient care. However, the literature retrieved did not include items on patients' satisfaction with patient education and there was a need to complement searches about the topic.

Updated literature for patients' satisfaction with patient education

The updated literature on patients' satisfaction with patient education was added to the literature review. This was necessary because investigation of the patients' satisfaction with psychiatric care focusing to satisfaction with patient education was the first step for the whole study (Paper I) and the literature found during earlier searches described above did not include relevant literature on this topic.

The search terms used are described in Table 6. The following databases were used for searches: CINAHL - Cumulative Index to Nursing & Allied Health Literature 1982 to July Week 3 2008, Ovid MEDLINE(R) 1950 to July Week 3 2008 and EBM Reviews - Cochrane Database of Systematic Reviews 2nd Quarter 2008. Searches were limited to the period 2000-2008.

Table 6. Search terms used in electronic databases for patients' satisfaction with patient education

Concept	**Search terms**
Patient satisfaction	Patient satisfaction or consumer satisfaction
Patient education	exp Patient Education/ or (patient$ adj1 (educat$ or counsel$ or teach$ or learn$ or inform$ or guidance$ or guideline? or instruction$ or support$ or empower$ or leaflet?)).ti,ab.
Patients with mental illness	(mentally ill or mental disorder? or psychiatric patient?).ti,ab. or exp Mental Disorders/ or Psychiatric Patients/ or Mentally Ill Persons/

The selection process for the results of the literature search for items on patients' satisfaction with patient education is described in Figure 2. The inclusion criteria were as follows: study concerned patients with mental illness satisfaction with patient education and full text was available in English. First, the titles of 166 articles were read and 80 articles were excluded. Then abstracts of the remaining 86 articles were read through. Of these 49 were excluded. This left 37 articles, and the full texts of these were read. Of these articles 12 were excluded and 25 were included in the literature review. (Khan et al. 2003.)

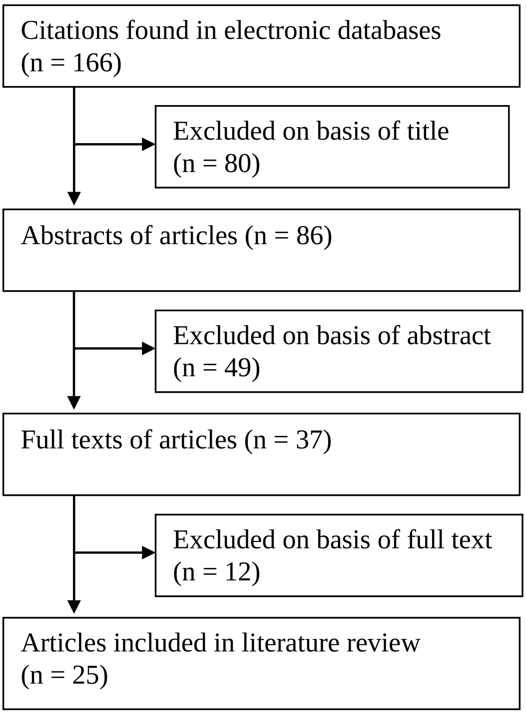


Figure 2. Selection process of the results of the literature searches on patient with mental illness satisfaction with patient education

2.3 Definition and theoretical basis of patient education to support self-management

Despite the large amount of relevant literature there was no clear definition of patient education to support self-management. Therefore, the concept of self-management was first defined on the basis of dictionary definitions and definitions used in earlier studies. Second, the definition of patient education was described. Third, the theoretical bases of patient education to support self-management were introduced.

2.3.1 Definition of self-management

Self-management is a commonly used concept in relation to patient education and health promotion programmes (Barlow et al. 2002). Self-management is defined in The Oxford Dictionary of English (2005) as ‘management of or by oneself; the taking of responsibility for one's own behaviour and well-being’. Despite the wide use of the concept, self-management is not included in the Medical Subject Headings (MeSH) descriptions (National Library of Medicine 2008).

In earlier studies, self-management has been defined in terms of an individual’s ability to manage in living with a chronic condition (Clark et al. 1991, Levin-Zamir et al. 2001). The efficacy self-management encompasses the ability to monitor one’s condition and to achieve the cognitive, behavioural and emotional responses necessary to maintain a satisfactory quality of life (Barlow et al. 2002). In this definition, self-management may occur without professional or other assistance. On the other hand, in the concept analysis by Embrey (2006) self-management is regarded as a health care intervention, which increases a patient’s power and responsibility for making decisions, and helps to ensure that the necessary health-care measures are taken. According to this definition, individuals are informed by technical knowledge and skills derived from health care professionals. Lorig et al. (2003) also emphasised that self-management is about enabling people to make informed decisions, to adapt new perspectives, skills and behaviours that can be applied to individuals’ situations, and to maintain emotional stability either with or without the participation of professionals. The definition considers the patient’s role as active in decision making concerning their own condition.

In addition, there are other concepts used for similar purposes as self-management, for example term ‘self-care’ is one used commonly (Department of Health 2005). Self-care is defined in the Canadian Oxford Dictionary (2004) as ‘the practice of activities that are necessary to sustain life and health, carried out by individuals for themselves’. The MeSH description defines self-care as the ‘performance of activities or tasks traditionally performed by professional health care providers.’ The concept includes care of oneself or one's family and friends. (National Library of Medicine 2008.) Moreover, self-care is defined as part of daily living to prevent illnesses, to enhance health as well to copy after an acute illness and with long-term condition. Self-care is taken by individuals towards their own health and includes the care extended to family and others in communities. (Department of Health 2005, 2007). However, few studies directly examine self-management or self-care in the field of psychiatric care (e.g. Department of Health 2007, Table 2).

Terms ‘adherence’ and ‘compliance’ are more commonly used terms to describe self-management in psychiatric care and they have been important components of different educational programmes. Several definitions also exist for these terms (Kyngäs et al. 2000, Murphy et al. 2001). However, the terms ‘adherence’ or ‘adherent’ are not included in the

Oxford Dictionary of English (2005) or in the MeSH descriptions (National Library of Medicine 2008). In the research literature adherence is defined by Haynes et al. (2008) as ‘the extent to which patients follow the instructions they are given for prescribed treatments’. Adherence is not the same as ‘concordance’, which includes a consensual agreement about treatment taking established between patient and practitioner. (Haynes et al. 2008.) In addition, compliance is described as ‘the action or fact of complying with a wish or command’ in the Oxford Dictionary of English (2005). In MeSH vocabulary compliance is described in terms of ‘voluntary cooperation of the patient in following a prescribed regimen’ (National Library of Medicine 2008). In the research literature ‘compliance’ is used to describe patients' behaviour related to their self-care responsibilities, their role in the treatment process and their collaboration with health care providers (Kyngäs et al. 2000).

To summarise, in this study the term self-management will be used to refer to patients’ ability to improve and maintain their health as well as to cope independently with their mental illness (Clark et al. 1991, Levin-Zamir et al. 2001, Barlow et al. 2002, Lorig et al. 2003). Self-management occurs with health care professionals’ assistance when patients are informed by health care professionals (Embrey 2006). Patient education is considered one method to support patients’ self-management.

2.3.2 Definition of patient education

Patient education is a concept used in relation to the educational activities directed at patients (Deccache et al. 2001, Bellamy 2004). Education is defined in the field of health care as ‘the process of receiving or giving systematic instruction, and transfer of knowledge, ideas, concepts, methods, techniques between a teacher or educator and a learner or student (Dictionary of Public Health 2007). The MeSH description defines patient education as ‘the teaching or training of patients concerning their own health needs’ (National Library of Medicine 2008).

Patient education focuses on interventions aiming to support patients to improve and maintain their health and to cope with their illness. The goal of patient education is to influence the way the patient experiences his illness, his knowledge and health behaviour. (Van den Borne 1998.) Patient education should be a planned learning experience (Cooper et al. 2001). Thus, the essential elements of patient education are processes of education and learning. Education is a gradual process by which a person gains knowledge and understanding through learning. Learning, however, involves more than knowledge, namely it involves cognitive, affective and psychomotor processes. Learning implies changes in behaviour, skills and attitudes. (Falvo 1994, Bellamy 2004.) Informational content of patient education involves a large number of topics such as: care available, procedures of medical institutions, examinations, tests, treatment, improvement of compliance with therapy, conclusion of treatment, patients' rights and reinforcing social networks (Van den Borne 1998).

A variety of terms other than patient education is used for methods to support patients’ self-management e.g. psychoeducation (Pekkala et al. 2002, Bäuml et al. 2006), self-management education (Bonderheimer et al. 2002, Lorig et al. 2003) and self-management support (Glasgow et al. 2003, Department of Health 2005, 2007). Instead of ‘patient education’ the term ‘psychoeducation’ has often been used for educational interventions for patients with psychiatric disorders (Pekkala et al. 2002). Psychoeducation is not defined in dictionaries (Oxford References Online 2008) or in the MeSH vocabulary (National Library of Medicine 2008). The term was employed to describe a behavioural therapeutic concept consisting of four elements; 1) briefing the patients about their illness, 2) problem solving training, 3) communication training, and 4) self-assertiveness training (Bäuml et al. 2006). Moreover, active communication and exchange of information among those afflicted are a prominent part of psychoeducation. The goals of psychoeducation are to inform patients and their relatives about the illness and its treatment, to facilitate an understanding and responsible handling of the illness (Pekkala et al. 2002, Bäuml et al. 2006, Rummel-Kluge et al. 2006). The content of psychoeducation for severe mental illness includes for example following topics: name of illness, symptoms, origin of symptoms, vulnerability-stress-coping model, medication and side-effects, psychotherapeutic interventions and suicide prevention, psychosocial measures, early warning signs, crisis plan and relapse prevention (Bäuml et al. 2006).

Further, self-management education usually focuses on interventions for patients with chronic conditions (Lorig et al. 2003, Jordan et al. 2007). Self-management education is not defined in dictionaries (Oxford References Online 2008) or in the MeSH vocabulary (National Library of Medicine 2008). An essential element of self-management education is that patients learn problem-solving skills. Self-management education aims at helping patients to maintain a wellness in their foreground perspective, thus it is based on patient perceived problems (Bonderheimer et al. 2002). The overall goal in self-management education is increased self-efficacy to carry out a specific behaviour and so achieve improved health outcomes. For this self-management education should include content addressing three tasks of self-management: 1) medical management, 2) role management and 3) emotional management (Lorig et al. 2003).

In addition, self-management support is defined by Glasgow et al. (2003) as the process of making and refining multilevel changes in health care systems and the community to facilitate patient self-management. Levels where changes are needed are as follows: 1) patient-clinician interactions, 2) office environment and 3) health system, policy and environmental supports. Thus, self-management support is wide term emphasizing that changes involve a variety of actions on different levels in the whole community. However, the term self-management support is not defined in dictionaries (Oxford References Online 2008) or in MeSH descriptions (National Library of Medicine 2008).

Distinctions between the terms patient education and self-management education have been described in literature. Patient education is considered an old term associated with didactic knowledge-based interventions for specific conditions (Glasgow et al. 2003). In the literature self-management education is defined distinct from patient education in that self-management is designed to allow patients to take an active part in the management of their own condition and apply self-management as appropriate to individual situations (Barlow et al. 2002, Bonderheimer et al. 2002, Newman et al. 2004). In addition, a core feature of self-management education is the patient-generated short-term action plan, which is not necessarily included in patient education interventions (Lorig et al. 1994). However, there are also many patient education programmes, which meet the aspects of self-management described earlier (see Pekkala et al. 2002, Bellamy et al. 2004). Therefore, self-management education is considered to complement rather than substitute for patient education (Bonderheimer et al. 2002).

In addition, distinctions between the terms patient education and self-management support can be described. Definitions of patient education also include a wider aspect as interventions targeted directly at patients. Five aspects that have been identified to be important for the development of patient education are 1) research and evidence-based standards; 2) the organization of care; 3) training and methodological support; 4) professional values and 5) acknowledgment, funding and place of patient education in health policy (Deccache et al. 2001). These aspects are similar to self-management support (Glasgow et al. 2003), aiming to facilitate the patients' self-management of their condition through multilevel changes. As described above, a variety of definitions has been used for fairly similar processes aiming to support patients' independent coping with their illness.

To summarise, in this study the term patient education will be used for educational interventions to support patients' self-management (Pekkala et al. 2002, Bäuml et al. 2006, Rummel-Kluge et al. 2006). Patient education is considered to be interactive communication, active exchange of information and goal-orientated educational nursing activities (Lorig et al. 1994, Barlow et al. 2002, Bonderheimer et al. 2002, Newman et al. 2004). Patient education makes it possible to increase patients' knowledge and improve attitudes towards self-management and therefore their self-management (Falvo 1994, Bellamy 2004). Nurses' role is to support patients to receive, manage and adapt information to their individual life-situation taking into account patients' individual resources (Bonderheimer et al. 2002, Lorig et al. 2003, INC 2005, Bäuml et al. 2006).

2.3.3 Theoretical basis of patient education to support self-management

A number of different theories and models have been used as the basis of patient education programmes to support self-management, some examples are described in Table 7. Newer educational programmes to support patients' self-management in particular are often based on theoretical models of behaviour while early patient education programmes usually lacked an explicit theoretical basis (Piper et al. 1998, Elder et al. 1999, Cooper et al. 2001).

Table 7. Theories and models used as a basis for patient education programmes to support self-management

Theory or Model	Year	Author(s)
Theory of the Deliberative Nursing Process	1961	Orlando (see Hilton et al. 1997)
Social Learning (Cognitive) Theory	1977	Bandura
The Stages of Change Model	1984	Prochaska
Self-Care Deficit Nursing Theory	1985	Orem
Theory of Planned Behavior (Theory of Reasoned Action)	1991	Ajzen et al.
Health Belief Model	1994	Rosenstock et al.
Five A's Model	2002	Glasgow et al.

Theories and models offer frameworks to understand behaviour change, to develop and carry out patient education interventions and to implement interventions at individual, interpersonal and organizational level. At the individual and interpersonal levels many of these theories have the following factors in common: 1) Behaviour is mediated by cognitions; 2) Knowledge alone is not sufficient to produce most behaviour changes and; 3) Perceptions, motivations, skills, and the social environment are key influences on behaviour (Elder et al. 1999, NIH 2005). At organizational and community level these theories supplement educational approaches with efforts to change the social and physical environment to support positive behaviour change (NIH 2005).

Although, patient education interventions to support self-management are increasingly based on different theories and models, the theoretical bases of these interventions have been described poorly (Cooper et al. 2001). The literature has also yielded incoherent evidence considering these theories usability to predict behavior (Harrison et al. 1992, Cohen et al. 2000), as well as their effectiveness in promoting health behaviour (Hardeman et al. 2000, Armitage et al. 2001). In general, the knowledgebase on the usability of these theories as a basis of patient education interventions is scattered (e.g. Dzewaltowski et al 1990, Hilton 1997, Piper et al. 1998, Fingfield et al. 2003, Potter et al. 2004). Furthermore, the use of theories borrowed from other disciplines as a basis of nursing interventions has been criticised. However, this does not mean that these theories are of no value for patient education interventions in nursing. First, different individual attributes of these theories have been shown to be predictors of health behaviour e.g. personal factors and environment (Shon et al. 2002, Bauer et al. 2006). Second, theories generally offer a framework to develop, implement and evaluate patient education interventions (Elder et al. 1999). Third, to develop a knowledge base of nursing science, innovations from other disciplines that are appropriate for nursing should be utilised (Villaruel 2001).

Given the definitions of self-management and patient education adopted in this study, Social Cognitive Theory by Bandura (1989, 2001, 2004) was considered an appropriate theoretical basis for the study. Social Cognitive Theory provides a framework for understanding predicting, and changing human behaviour (Bandura 1989, 2001, 2004). The theory identifies human behaviour as an interaction of personal factors, the environment and behavior (Figure 3). Thus, in this study Social Cognitive theory provides the framework to comprehensively identify areas which need to be improved to develop the quality of patient education to support self-management. This is important regarding patient education interventions which are multidimensional and consist of multifaceted interactions occurring in a changing world and involving the most complex of subjects (SIGN 1998, Hutchinson 1999, The Joanna Briggs Institute 2006). In this study following core determinants of the theory were focused: knowledge of health risks and benefits of different behaviour; and the perceived social and structural facilitators and impediments to the self-management (see Bandura 2004).

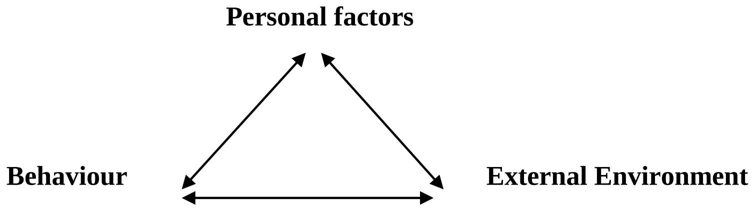


Figure 3. The components of Social Cognitive Theory by Bandura (Theories Used in IS Research Wiki; http://www.fsc.yorku.ca/york/istheory/wiki/index.php/Social_cognitive_theory)

The concepts of this study are presented through a description of the Social Cognitive theory as follows: *Personal factors* refers patients' perceptions of patient education; *External environment* refers the realisation of the patient education practices in the psychiatric ward environment, and; *Behaviour* refers outcomes of patient education (see Bandura 1989, 2001, 2004).

2.4 Patient education to support self-management of patients with mental illness during psychiatric in-patient care

Drawing on a large number of studies on patient education to support self-management of patients with mental illness (Table 2) different aspects of educational interventions to support self-management will be described based on definitions of the concepts used in this study. First, patients' perceptions of patient education will be described. Second, the realisation of the patient education practices in psychiatric care from the perspective of staff is described. Third, outcomes of patient education to support self-management are described focusing patients' knowledge of the illness and care, attitudes towards treatment and adherence behavior.

2.4.1 Patients' perceptions of the patient education

Patients' perceptions of patient education have been found to be individual and diverse (Ascher-Svanum et al. 2001, Shin et al. 2002, Feldman et al. 2002). Generally, patients with mental illness consider the realization of patient education during hospitalization important for their independent coping (Pollock et al. 2004) and they are willing to participate to patient education on their own illness and treatment (Payson et al.1998, Asher-Svanum et al. 1999, Lien et al. 2003, Hill et al. 2006). Content such as rehabilitation and use of community resources has been reported less useful (Ascher-Svanum et al. 2001). However, patients have expressed low satisfaction with patient education on treatment and illness (Alexius et al. 2000, Allen et al. 2003), medication (Howard et al. 2003, O'Donnell et al. 2003, Gray et al. 2005), the right to complain and the right to access to their own medical records (Alexius et al. 2000, Siponen et al. 2003).

Studies have revealed that patients want to receive patient education through various methods (Jimison et al. 1998, Pevler et al. 1999, Jones et al. 2001, Zygmunt et al. 2002). Patients appreciate information where their illness and care are described in written format (Robertson et al. 2002, Jorm et al. 2003) and they have found it useful for their independent coping (Scholes et al. 2007). However, written information alone without personal communication may confuse patients (Strydom et al. 2001). Such information has also been found difficult to read and patients have questioned its reliability (Pollock et al. 2004). Furthermore, computer assisted interventions have been used increasingly to support patients' self-management (Lewis, 2003, Spek et al. 2006). Patients have found these useful and convenient (Zabinski et al. 2004, Proudfoot et al. 2007). Computer assisted interventions offer patients an opportunity for self-paced learning, taking less time and providing more concise information than face-to-face interventions (Jones et al. 2001, Chou et al. 2004). They may also help to compensate for patients' cognitive deficits and enhance communication between patients and professionals (Bellucci et al. 2003, Ahmed et al. 2006). By contrast, some patients have reported deficiencies related to the individuality and credibility of information received by computer (Jones et al., 2001). In general, access to a wider range of information sources and inconsistency of information may create uncertainty among patients, especially when knowledge acquired from external sources contradicts information given out by professionals. (Pollock et al. 2004, Bylund et al. 2007.)

A number of explanations has been evinced for patients' dissatisfaction with patient education. Patient education interventions (Robertson et al. 2002, Brook et al. 2003, de Anders et al. 2006, Johnsen et al. 2007) and the use of a combination of different education methods (Jones et al. 2001, Proudfoot et al. 2003, Haynes et al. 2005, Johnson et al. 2005) improves patients' satisfaction with patient education. It is noticeable that the quality of the therapeutic relationship between patient and staff, and also staff's communication skills has an impact on successful patient education (Crowe et al. 2001, Maguire et al. 2002, Allen et al. 2003). However, it has been assumed that the patient education offered by staff does not take account of patients' individual informational needs (Ascher-Svanum et al. 2001, Pollock et al. 2004, Sung et, al. 2004, Burlingame et al. 2006), life situation (Shin et al. 2002) or the duration of their illness (Feldmann et al. 2002).

Patient related factors have also been shown to affect patients' reception of patient education. Patients with severe mental illness, such as psychosis, (Alexius et al. 2000) are less satisfied with patient education. This may be because of the cognitive deficits associated with the mental illness and psychopharmaceutical medication that may impair patients' capacity to receive and to process new information (Medalia et al. 2004 Goodman et al. 2005, Kim et al. 2006, Wong et al. 2005). Additionally, a lack of the prerequisite knowledge (Crowe et al. 2001, Allen et al. 2003, Sung et al. 2004), insight (Aleman et al. 2006), motivation (Hill et al. 2006) and support from family members (Pharoah et al. 2006) has shown to be associated with patients' reception of patient education. Age, gender, income and formal education have shown no clear connection to the patients' satisfaction with the patient education (Alexius et al. 2000, Middleboe et al. 2001, Robertson et al. 2002, Blenkiron et al. 2003, Bramesfeld et al. 2007).

2.4.2 Realisation of patient education

Various patient education interventions for self-management have been developed to support patients' ability to cope more effectively with their mental illness (Pekkala et al. 2002, Lewis 2003, Barret 2005, Crawford-Walker et al. 2005, Fernandez et al. 2006, Morriss et al. 2007, Haynes et al. 2008). However, there is still limited information available on how patient education is carried out in psychiatric hospitals (Albada et al. 2007).

From the staff viewpoint, patient education has also considered an important part of nursing care in general (Marcum et al. 2002, Pollock et al. 2004). However, professionals have reported that the patient education provided to patients is inadequate with regard to amount and content (Hill et al. 2006). Studies have also revealed professionals ambivalent attitudes towards patients having access to information due to the potentially negative consequences patient education could have on patients' compliance (Pollock et al. 2004). In addition, the usefulness of patient education may be questioned among professionals (Rummell-Kluge et al. 2006).

Despite the number of educational methods developed, patient education is carried out mainly through face-to-face discussions between patient and staff, without using other methods (Pevler et al. 1999, Pollock et al. 2004). This may partly be due to the poor availability of material e.g. leaflets, books, CD-ROMs and Internet access (Marcum et al. 2002, Pollock et al. 2004). However, it has been reported that there is also lack of resources and knowledge of how to implement patient education with different methods in clinical practice (Payson et al. 1998, Asher-Svanum et al. 1999, Allen et al. 2001, Maguire et al. 2002, Coombs et al. 2003, Pollock et al. 2004, Rummel-Kluge et al. 2006, Koivunen et al. 2008). Furthermore, patients rarely have opportunities for independent information seeking in the ward environment e.g. libraries and web-based information sources (Pollock et al. 2004).

In addition, a number of organizational factors such as professional hierarchy and organizational complexity has been considered to hinder the patient education (Pollock et al. 2004). The procedures of patient education vary widely across psychiatric care organisations (Rummel-Kluge et al. 2006) and there are clear deficiencies related to the realization of patient education in psychiatric hospitals (Feldman et al. 2002, Rummel-Kluge et al. 2006).

2.4.3 Outcomes of patient education

In order to form a comprehensive picture of the outcomes of patient education interventions to support self-management following relevant outcomes for this study are described: patients' knowledge of the illness and care, attitudes towards treatment and adherence behavior. This was because, the outcomes of patient education can be described in terms of patients' satisfaction with patient education, modification of attitudes, knowledge, skills and behaviours of patients, patient health states as well changes in organisational practice (Hammick 2000). Moreover, when self-management is referred to as an outcome, it connotes patients' achievement the knowledge, skills, and confidence to manage their health and behavior (Lorig et al. 2004). Additionally, outcomes related to clinical health status, functional health, cost-effectiveness and complications preventing are also important in general and therefore they are shortly described (see Irvine et al. 1998).

Outcomes related to patient education to support self-management encompasses patients' knowledge of the illness and care, attitudes towards treatment and adherence behaviour. Patient education seems to have positive effects on all these outcomes (Pekkala et al. 2002, Desplenter et al. 2006, Fernandez et al. 2006, Maneesakorn et al. 2007). Patient education is also associated with fewer needs for information on coping with symptoms, problem management, basic facts about mental illness, treatment and community resources (Pickett-Schenk et al. 2008). Knowledge about the positive influence of medication on psychiatric symptoms helps to improve compliance and the course of disease in patients with mental illness (Zygmunt et al. 2002, Dogan et al. 2003, Colom et al. 2003a). However, telling patients about adverse effects of their medications does not negatively affect their use of the medications (Fernandez et al. 2006, Haynes et al. 2008). Additionally, studies have demonstrated that involving patients in educational sessions rather than a single informing process may improve knowledge and compliance (Macpherson et al. 1996a, Zygmunt et al. 2002, Fernandez et al. 2006). A combination of different patient education methods enables the provision of standardised treatment information to patients, which also appears to improve knowledge of illness and treatment (Jones et al. 2001, Zygmunt et al. 2002, Proudfoot et al. 2003, Haynes et al. 2005, Johnson et al. 2005, Desplenter et al. 2006, Fernandez et al. 2006). In other words, interventions that have been shown to be effective for supporting adherence behaviour in the long term are usually complex, including combinations of more convenient care providing patients information, concrete instructions and problem-solving strategies, reminders, self-monitoring tools, reinforcement, counselling, family therapy, psychological therapy, crisis intervention, manual telephone follow-up and supportive care (Zygmunt et al. 2002, Haynes et al. 2008).

Regarding the other outcomes of patient education interventions clinical outcomes, functional health outcomes, cost-effectiveness and complications preventing are next described. Regarding *clinical outcomes*, patient education significantly decreases the recurrence of illness and hospitalisations of patients with mental illness (Pekkala et al. 2002, Morriss et al. 2007, Bäuml et al. 2007). Patient education to support self-management has been shown to decrease the disorders of patients with post-traumatic disorder (Scholes et al. 2007, Litz et al.

2007) and depression (Hansson et al. 2008). Moreover, patient education for treatment adherence has improved the psychotic symptoms overall of patients with schizophrenia (Maneesakorn et al. 2007). Conversely, patient education to recognise symptoms for patients with bipolar disorder does not appear to have an effect on the symptoms of these patients (Morriss et al. 2007). Furthermore, due to limited data, systematic literature reviews of educational interventions such as problem solving skills training (Xia et al. 2007), education for distraction techniques (Crawford-Walker et al. 2005), life skill education programmes (Tungpunkom et al. 2008) and medication adherence interventions (Desplenter et al. 2006, Haynes et al. 2008) have failed to find impacts of these interventions to patients' health status. *Functional health* outcomes have been measured by evaluating occupational or social functioning, problem-solving skills, self-care and quality of life. Patient education may support patients' occupational functioning (Morriss et al. 2007, Chien et al. 2007) and quality of life (Dogan et al. 2003). Patient education has been associated with improvements in lifestyle regularity, healthy habits (Colom et al. 2003b), social functioning (Seo et al. 2007), employment (Perry et al.1999) and also decreased burden of families' (Chien et al. 2007). However, the results of studies have been inconclusive and there are studies, which did not demonstrate a significant advantage for general functioning (Maneesakorn et al. 2007), problem solving (Seo et al. 2007), social skills (Xia et al. 2007) or quality of life (Desplenter et al. 2006). Due to a lack of existing knowledge no conclusions can be drawn regarding *the costs of patient education* (Pekkala et al. 2002, Desplenter et al. 2006). Further, there were no studies evaluating the effects of patient education related to the *prevention of complications*.

2.5 Summary of the literature review

Mental illnesses are a significant and increasing contributor to the burden of disease. Although mental illnesses are widespread, the main burden occurs among a smaller proportion of the population suffering from serious mental illnesses. This underlines the need to provide appropriate treatment programmes and access to care for these patients, including also development of in-patient services.

Supporting patients' self-management is considered one important way to promote well-being and decrease the burden of mental illness. In this study the term self-management is understood as patients' ability to improve and maintain their own health as well as to cope independently with their illness. Self-management is mediated by cognitions. However, knowledge alone is not sufficient to produce behaviour change. Patients' perceptions and the environment are key influences on self-management.

Patient education is one way to support self-management among patients with mental illness. Patient education is used in this study to cover a wide range of educational interventions used in psychiatric hospitals to support patients' self-management. Patient education is considered to be interactive communication, active exchange of information and goal-orientated educational nursing activities in psychiatric hospital. It makes it possible to enhance patients' knowledge and improve their attitudes towards self-management and therefore their self-management. Nurses' role is to support patients to receive, manage and adapt information to their individual life-situation.

Based on these definitions the Social Cognitive Theory (Bandura 1989, 2001, 2004) was considered an appropriate theoretical basis for the study. *Personal factors* refers patients' perceptions of patient education; *External environment* refers the realisation of the patient education in the psychiatric ward environment, and further; *Behaviour* refers outcomes of patient education.

Regarding patients perceptions of patient education to support self-management, studies have revealed that patients are not satisfied with patient education in psychiatric hospitals. Moreover, patients' perceptions of patient education have been found to be individual and divergent. Considering external environment, considerable deficiencies have been shown with regard to the realisation of patient education. Regarding outcomes, patient education seems to be an effective way to support patients' self-management, however, the effects of these interventions are not consistent.

Thus, there is a lack of comprehensive knowledge as to which educational methods to support self-management are suitable in psychiatric hospitals. Therefore, there is need to investigate patient's perceptions of patient education, realisation of patient education practices and also evaluate outcomes of patient education interventions to support self-management in psychiatric hospital. This information is needed to develop and implement effective patient education procedures and methods responding appropriately to patients' needs and to support their self-management.

3. AIMS OF THE STUDY

The overall goal of this study was to identify areas which need to be improved to develop the quality of patient education to support self-management of patients with mental illness in psychiatric hospitals. The main focus of this study is patient education. It is assumed that through patient education it is possible to support patients' self-management (Bandura 1989, 2001, 2004). In this study patient education to support self-management involves patients' perceptions of patient education; realisation of patient education practices and; outcomes of patient education.

More specifically, the subgoals of the study were:
1. To describe patients perceptions of patient education to support self-management in psychiatric hospital regarding following aspects: patients' satisfaction with patient education, patients' experiences of patient education and patients' perceptions of different patient education methods.
2. To describe the realisation of patient education practices in psychiatric hospital ward environment from the staffs' perspective.
3. To evaluate the impacts of different patient education methods on patients' attitudes, knowledge level and their perceived importance of information.

The following research questions were addressed:

Patients' perceptions of patient education in psychiatric hospital wards

Patients' satisfaction with patient education and factors associated with it (Paper I)
1. How satisfied are patients with patient education?
2. What factors are associated with satisfaction?

Patients' experiences of patient education in psychiatric hospital wards (Paper II)
1. Which informational areas are important for patients in patient education?
2. How has patient education been realised during the hospital stay?
3. What are possible problems related to patient education?
4. What are patients' suggestions for the improvement of patient education?

Patients' perceptions of different patient education methods used in psychiatric hospital (Paper V)
1. How do patients describe patient education situations?
2. What are patients' perceptions of patient education methods?
3. What are patients' suggestions for the improvement of patient education?

Realisation of patient education practices in psychiatric hospital wards from the staffs' perspective

Patient education practices in psychiatric hospital wards (Paper III)
1. Which informational areas does patient education cover?
2. Which communication methods are used to carry out patient education?
3. How are patients' individual needs for patient education defined?
4. How are a multidisciplinary approach and education of staff realised?
5. Are there systematic procedures and written instructions for patient education?
6. What are the possible problems related to the patient education?

Outcomes of patient education

The impacts of different patient education methods on patients’ attitudes, knowledge level and perceived importance of information (Paper IV)

1. What are the impacts of different patient education methods on patients’ attitudes, knowledge level and perceived importance of information in 12-month follow-up?
2. Are there differences between different patient education groups related to patients’ attitudes, knowledge level and perceived importance of information during 12 months follow-up?
3. Are there interactions between time and different patient education groups related to patients’ attitudes, knowledge level and perceived importance of information in 12-month follow-up?

4. METHODOLOGY

Patient education interventions are usually multidimensional and consist of multifaceted interactions occurring in a changing world and involving the most complex of subjects (SIGN 1998, Hutchinson 1999, The Joanna Briggs Institute 2006). According to the Social Cognitive Theory by Bandura (1989, 2001, 2004) patient education to support self-management involves patients' perceptions of patient education, the realisation of patient education practices and outcomes of patient education in psychiatric hospitals.

The study was carried out in three parts according to the components of Social Cognitive Theory (Bandura1989, 2001, 2004, Figure 3) and including five data collection phases according to the study goals (Figure 4). In Part I patients' satisfaction with patient education (Phase I), experiences of patient education (Phase II) and perceptions of different patient education methods (Phase V) were investigated. Results from phases I and II were used to develop patient education methods used in Phase IV. Moreover, Phase V was established to ensure that patients' perceptions are included to developed patient education interventions. In Part II realisation patient education practices for self-management were investigated from staffs' perspective (Phase III.) In Part III the outcomes of patient education to support self-management were investigated in terms of patients' attitudes, knowledge level and perceived importance of information (Phase IV).

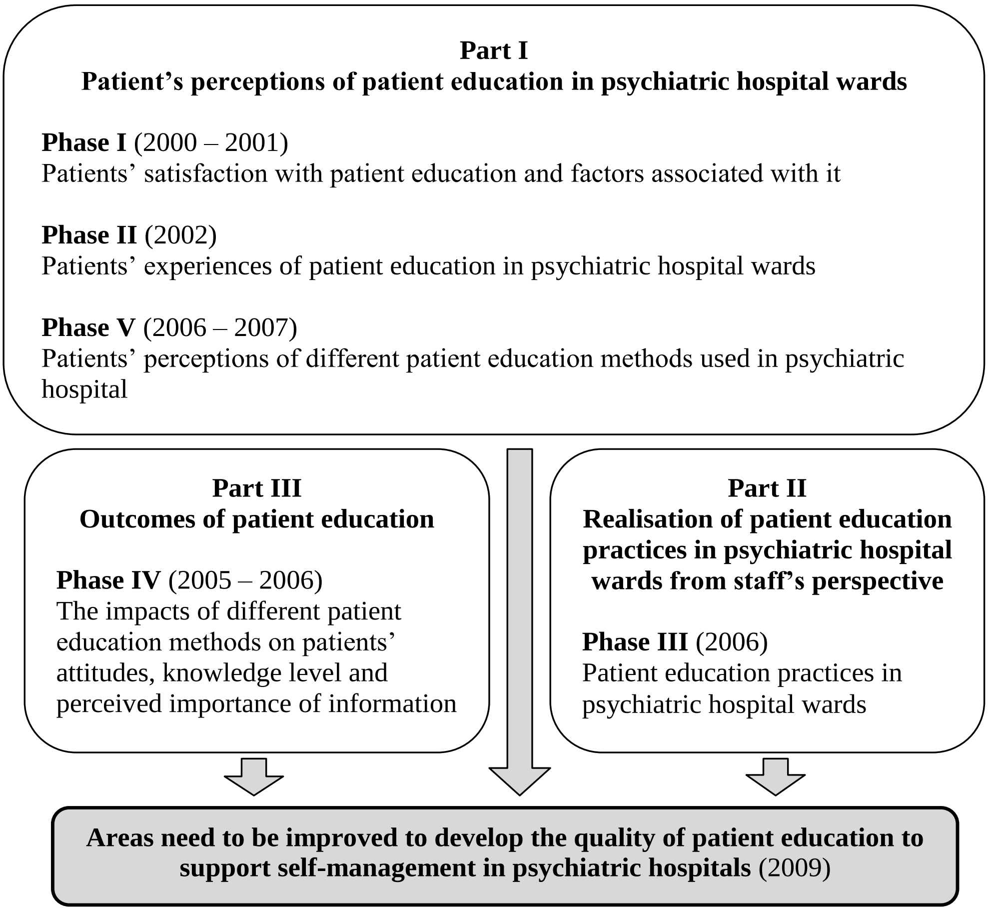


Figure 4. Parts, phases and timing of the study

Including both patient's and staff's perspective yields the most complete picture of the phenomenon in its context (Begley 1996, Foss et al. 2002). In this study mixed methods were used in design, sampling, instruments and data analysis (Table 8). The use of multiple measures allows a comprehensive view of what patient education to support self-management contributes to patients with mental illness (Hutchinson 1999, Hsieh et al. 2005). The methods used in this study are described in more detail in this section.

4.1 Designs, settings and sampling

In Phase I, a cross-sectional survey was conducted to describe patients' satisfaction with psychiatric hospital care. The study sample was formed with non-random sampling from all patients discharged from three psychiatric acute wards in one hospital during one year (May 2000 – April 2001). Inclusion criteria were as follows: age over 18, able to speak and write Finnish language and informed consent to participation. Exclusion criteria were as follows: unable to speak and write Finnish language and incapable of giving informed consent to participation. (Paper I.)

In Phase II, semi-structured interviews were conducted to explore patients' individual experiences of patient education in psychiatric hospital. The study sample was formed with non-random sampling from all patients discharged from two psychiatric acute wards in one hospital during the period October – December 2002. Inclusion criteria were as follows: age over 18, able to speak Finnish language and informed consent to participation. Exclusion criteria were as follows: unable to speak Finnish language and incapable of giving informed consent to participation. (Paper II).

In Phase III, a nationwide survey was conducted to describe patient education practices in adult acute psychiatric hospitals from the perspective of the personnel during December 2006. The study sample was formed with non-random sampling from all 21 hospital districts in Finland, their psychiatric hospitals and adult acute psychiatric wards. State mental hospitals, prison mental hospitals and a military hospital were excluded from the study. (Paper III.)

In Phase IV, a randomised controlled trial design was used to evaluate the impacts of different patient education methods on patients' knowledge level. The study sample was formed with random sampling from all eligible patients during a 19-month period (March 2005 – October 2006) on nine psychiatric wards in two hospitals. Inclusion criteria were as follows: age (18 – 65), diagnosis F20 – F29 (ICD 10), able to speak and write Finnish language and informed consent to participation. Exclusion criteria were as follows: unable to use Finnish language, unable to give informed consent to participation and unclear diagnosis. Eligible patients were randomly assigned to three groups: Information Technology (IT)-based patient education group, conventional patient education group and standard care group. To estimate the number of patients in each group the power calculation was performed with the primary outcome measure patient's attitude toward medication (DAI-10, Hogan et al. 1992). The sample size in each of the three groups was estimated to be 100 patients, altogether 300 patients. (Paper IV.)

In Phase V, thematic interviews were conducted to explore patients' perceptions of three patient education interventions and their suggestions for further development for patient education provided in psychiatric hospital. A study population was formed with convenience sampling of patients from Phase IV. All discharged patients were systematically invited to participate in the study during a period of five months (August 2006 – January 2007). (Paper V.)

Table 8. Phases, designs, settings, samples and methods of data collection and analysis of the study

	Phase I	**Phase II**	**Phase III**	**Phase IV**	**Phase V**
Design	Cross-sectional survey	Explorative study	National survey	Randomised controlled trial	Explorative study
Setting	Wards in one psychiatric hospital (n = 3)	Wards in one psychiatric hospital (n = 2)	Acute wards in psychiatric hospitals in Finland (n = 102)	Wards in two psychiatric hospitals (n = 9)	Wards in two psychiatric hospitals (n = 9)
Sample	Patients (n = 313)	Patients (n = 51)	Head nurses (n = 55)	Patients (n = 311)	Patients (n = 16)
Instruments	Structured questionnaire	Semi-structured interview schedule	Semi-structured questionnaire	Structured questionnaires	Thematic interview schedule
Data collection	Self administered survey	Semi-structured interviews	Postal survey	Self administered questionnaire, structured interview	Thematic interviews
Data analysis					
Statistical analyses	Descriptive statistics, t-test, one-way ANOVA, Post-hoc Tukey's, two-way MANOVA, Pearson product–moment correlation	Descriptive statistics, t-test, Mann-Whitney U -test	Descriptive statistics	Descriptive statistics, chi-square, one-way ANOVA, Post-hoc Tamhane's, repeated measures ANOVA, ANCOVA	
Qualitative analysis		Inductive content analysis	Inductive content analysis		Inductive content analysis
Report	Paper I	Paper II	Paper III	Paper IV	Paper V

4.2 Instruments

Different instruments were used in this study to investigate different viewpoints of patient education to support self-management. The selection of instruments is based on sub-goals and specific research questions. The instruments used in different study phases are next described. In addition, the validity and reliability of the instruments are described and internal consistency coefficients of the instruments are summarized in Table 9.

In Phase I, patient satisfaction with their treatment in psychiatric hospital was measured with a self-rating patient satisfaction questionnaire (SPRI). The questionnaire was originally developed by the Swedish Institute for Health Services Development (Hansson 1989, Svensson et al. 1994, Hansson et al. 1995). Out of 48 original items, 46 were used in this study. The instrument included five items concerning patients' background characteristics (age, gender, duration of mental health problems, previous treatments and length of present hospital stay) and seven main satisfaction components: the staff-patient relationship (4 items; scale 1-5), the ward atmosphere and physical milieu (7 items; scale 1-5), information (7 items; scale 0-5), treatment interventions (9 items; scale 0-5), restrictions and compulsory care (3 items; scale 0-5) quality of treatment design (5 items; scale 1-5) and treatment programme as a whole (6 items; scale 1-5). The content validity of a self-rating patient satisfaction questionnaire (SPRI) has been shown in earlier studies (Hansson 1989, Hansson et al. 1994, Gjerden et al. 2001, Sorgaard 2004). An expert panel evaluated the modified questionnaire and it was piloted with 30 patients and found to be usable in psychiatric hospital settings in Finland. Permission to use the SPRI-questionnaire was granted by authors. Questionnaire was translated into Finnish by the National Research and Development Centre for Welfare and Health. (Paper I.)

The internal consistency of the instrument was estimated by Cronbach's alpha values and inter-item correlations (Groves et al. 2004, Burns et al. 2006, 2009). Internal consistency of the instrument has been found to be satisfactory in earlier studies (Cronbach's alpha 0.87, a split-half reliability of 0.79; Hansson et al. 1995). In this study values for Cronbach's alpha ranged from 0.43 to 0.89 for different satisfaction areas as follows: Staff-patient relationship = 0.83, Ward atmosphere and physical milieu = 0.72, Information = 0.88, Treatment interventions = 0.89, Restrictions and compulsory care = 0.73, Quality of treatment design = 0.43, Treatment programme overall = 0.82. The Cronbach's alpha value for sum variable considering Qualities of treatment design was low (0.43). This sum variable consisted of only three items, which may cause error in alpha value. Cronbach's alpha values for all other sum variables were over 0.70. However, high alpha values may result if there are a lot of missing data. In this study the amount of missing data ranged from 0.3 % to 79.7%. There were four questions where amount of missing data was a concern varying from 69.5 % to 79.7 %. This could impair the reliability of the study. On the other hand, the effect of the exclusion of any individual items proceed to have only a minimal effect on alpha value. (Groves et al. 2004.) In addition, the internal consistency of the instrument was investigated using inter-item correlations. The correlation coefficients (r) varied from 0.19 to 0.67. Out of 21 correlation coefficient values, twelve had a strong ($r > 0.5$), seven moderate ($r = 0.3 – 0.5$) and two weak ($r = 0.1 – 0.29$) linear relationship. Thus, the internal consistency of the instrument was considered satisfactory. (Burns et al. 2006, 2009.) (Paper I.)

Table 9. Internal consistency of the instruments

Scale	**Phase**	**n**	**Number of items**	**Statistics**		
				Average inter-item correlation value	Item-to-total correlation values	Cronbach alpha / Kuder-Richardson values
SPRI	I	63 - 310	46	-	-	0.97
Importance of information	II	51	20	0.16	0.10 - 0.71	0.77
Realisation of patient education	II	51	20	0.16	0.13 - 0.53	0.79
Content of patient education	III	55	20	0.37	0.37 - 0.75	0.92
Methods of communication	III	55	6	0.24	0.31 - 0.58	0.66
Definition of patients' individual needs	III	52 - 55	12	0.68	0.52 - 0.73	0.91
Type of delivery personnel	III	53 -54	6	0.39	0.25 - 0.72	0.79
DAI-10	IV	275	10	0.33	0.28 – 0.59	0.75
Knowledge level	IV	275	24	0.25	0.19 – 0.60	0.87
Perceived importance of information	IV	275	6	0.33	0.28 – 0.59	0.73

In Phase II, interviews were carried out with the semi-structured questionnaire specifically developed for purposes of exploring patients' individual experiences of patient education (Suhonen et al. 2005, Välimäki et al. 2002, The Mental Health Act 1116/1990, Act on the Status and Rights of Patients 785/1992). The questionnaire addressed five main areas related to patient education. First, patients were asked to indicate whether a specific informational area listed in the questionnaire was important to them using dichotomous questions (20 items; 1 = yes, 2 = no). Second, patients were asked to indicate whether they had received information about the specific informational area (20 items; 3-point scale; 1 = yes, 2 = no, 3 = not relevant). Third, problems related to patient education and fourth, suggestions for the further development of patient education were elicited by semi-structured (open-ended) questions. Fifth, patients' preferences regarding methods for receiving information were elicited (6 items; 1 = yes, 2 = no). Demographics included 8 items (age, gender, marital status, educational level, time of first contact with mental health care services, number of earlier psychiatric hospital care episodes, length of treatment and self-reported diagnosis / name of illness). The content validity of the semi-structured interview schedule used for data collection was estimated. First, instrument was developed based on literature and semi-structured schedule was used to obtain the most complete picture of patients' experiences of patient education. Second, to ensure that the questionnaire covered all relevant aspects related to the topic, it was evaluated by an expert panel. (Paper II.)

The internal consistency of the instrument was investigated with Kuder-Richardson coefficient: the coefficient of the scale concerning the importance of information was 0.77 and the coefficient of the scale concerning the realisation of patient education was 0.79. These values support the reliability of the instrument (de Vaus 2002). Moreover, investigating the effects if any item was deleted showed minimal effects on coefficient values. However, intercorrelations of the items showed low internal consistency of the scales (Table 9). The average inter-item correlation coefficient of the scale concerning the importance of information was 0.16 and the coefficient of the scale concerning the realisation of patient education was 0.16. Moreover, item-total correlation coefficients of the scale concerning the importance of information varied from 0.10 to 0.71. Out of 20 correlation coefficient values three had a strong ($r > 0.5$), eleven moderate ($r = 0.3 – 0.5$) and six weak ($r = 0.1 – 0.29$) correlation. The coefficients of the scale concerning the realisation of patient education varied from 0.13 to 0.53. For 20 correlation values of the scale values were as follows: two had a strong ($r > 0.5$), twelve moderate ($r = 0.3 – 0.5$) and six weak ($r = 0.1 – 0.29$) correlation. However, the number of items in both scales was rather high and this might explain the low unidimensionality of the scale (de Vaus 2002, Groves et al. 2004). The number of observations was also low, which might cause error in the correlation coefficients (Nummenmaa 2007). Despite these limitations the reliability of the instrument was considered satisfactory (Burns et al. 2006, 2009).

In Phase III, a semi-structured questionnaire was specifically developed to describe patient education practices in adult acute psychiatric hospitals from the perspective of the personnel. The Taxonomy of Disease Management by Krumholz et al. (2006) was used as a structure for the questionnaire. In this study, the following five of the eight domains related to provision of patient education were explored: 1) contents of patient education (20 items; 1 = yes, 2 = no), 2) method of communication (6 items; 1 = yes, 2 = no), 3) definition of patient's individual needs (12 items; seven-point scale 1 = not realised, 7 = always realised), 4) type of delivery personnel (6 items; seven-point scale 1 = not realised, 7 = always realised) and 5) complexity of patient education (investigation of existing patient education procedures with 2 items; 1 =

yes, 2 = no). In addition, to investigate domain of patient education considering definition of patients' individual needs Adult Learning Theory by Knowles (1998) was used. Respondents were also offered an opportunity to describe possible problems related to the patient education on their ward (open-ended question). Ward characteristics included 3 items (the number of members of different staff groups, beds and patients in each unit on the day of response). (Paper III.) The content validity of the instrument was ensured. The semi-structured questionnaire was developed specifically to describe patient education practices in adult acute psychiatric hospitals from the perspective of the personnel. First, to ensure that the questionnaire covered all relevant aspects related to patient education the taxonomy of disease management by Krumholz et al. (2006) was used as the structure for the questionnaire. Second, an expert panel evaluated the questionnaire.

Estimating the reliability of the instrument was conducted in relation to different domains of patient education. First, Kuder-Richardson coefficients and Cronbach's alpha values were analysed. Second, internal consistency of the instrument was also investigated through average inter-item correlation and item-total correlations. (Table 9.)

Regarding Kuder-Richardson coefficients and Cronbach's alpha values, internal consistency was satisfactory. Kuder-Richardson coefficients were as follows: content of patient education 0.92 and methods of communication 0.66. Cronbach's alpha values for different domains of the instrument were as follows: definition of patient's individual needs 0.91 and delivery personnel 0.79. (Paper III.) Investigation of the alpha deleted effects showed that exclusion of any individual items would have only a minimal effect on alpha values. Moreover, the amount of missing data was small (0 % - 3.6 %) which decreases errors in these values.

Additionally, internal consistency of the instrument was investigated through average inter-item correlation and item-total correlations. Average inter-item correlations were as follows: strong ($r > 5$) considering definition of patients' individual needs; moderate ($r = 0.3 – 0.5$) considering content of patient education scale and type of delivery personnel scale; weak ($r = 0.1 – 0.29$) considering methods of communication scale. (Table 9.) Thus, based on the statistical analyses internal consistency of the definition of patient's individual needs scale seems to be satisfactory (Hatcher et al. 2005, Burns et al. 2006, 2009). However, internal consistency of scales of other domains of the instrument need to be considered in more detail.

Regarding content of the patient education scale the Kuder-Richardson coefficient value 0.92 was satisfactory. On the other hand, intercorrelations showed low unidimensionality of the scale. The number of items in the scale was rather large which might explain the high Kuder-Richardson coefficient value and also the low unidimensionality of the scale. The data was homogenous, which might also cause unreliable high values of the Kuder-Richardson coefficient. In addition, the number of observations was small, which might cause error in the correlation coefficients (de Vaus 2002, Groves et al. 2004, Nummenmaa 2007).

The internal consistency of the methods of communication scale was low according to the reliability analyses. The number of observations was small, which might cause error in the correlation coefficients (de Vaus 2002, Groves et al. 2004, Nummenmaa 2007). However, low internal consistency indicates a need for further development of the scale.

Regarding the type of delivery personnel scale Cronbach's alpha value was satisfactory, while intercorrelations showed low unidimensionality of the scale. The number of items or the homogenous nature of the data is not considered to cause errors in Cronbach's alpha value. However, the number of observations was low, which may cause error in the correlation coefficients (de Vaus 2002, Groves et al. 2004, Nummenmaa 2007). There is a need also for further development regarding the type of delivery personnel scale.

In Phase IV, the primary outcome measure attitude towards medication was assessed with the Drug Attitude Inventory, DAI-10 (Hogan et al. 1992). The instrument assesses the patient's subjective response to medications focusing on unpleasant and subjective responses that are common adverse effects of antipsychotic medications. The instrument consists of 10 self-report items. The scale scores ranged from –10 to 10. A positive total final score meant a positive subjective response. A negative total score meant a negative subjective response. This instrument is widely used to investigate patients' attitudes towards medication (e.g Pekkala et al. 2002) and its psychometric properties are well established. The scale has been shown to have discriminant, predictive and concurrent validity (Hogan et al. 1992). To ensure the correspondence of the translated instrument to the original ones, it was translated and back-translated (Maneesriwongul et al. 2004). Internal consistency of the DAI-10 was satisfactory (Kuder-Richardson coefficient 0.75). (Paper IV.) The exclusion of any individual items was investigated and there was only a minimal effect on value. In addition, intercorrelations of the items were analysed. Average inter-item correlations were moderate (r = 0.3 – 0.5) considering DAI-10. (Table 9.)

The secondary outcomes consisted of knowledge level and importance of information. These scales have not been published in this form, which is known to be subject to bias in trials of treatments of patients with schizophrenia (Marshal et al. 2000). Therefore, an expert panel evaluated the instruments and found them relevant.

The Knowledge level scale (a modified version of UMQ; Macpherson, 1996a) measured knowledge of treatment, antipsychotic treatment, illness, well-being, support and patients' rights. Twenty-four stem questions generated five subscale knowledge scores, relating to treatment, illness, well-being, support and patients' rights. The total knowledge score is 0 – 48. Regarding internal consistency of the Knowledge level scale, Cronbach's alpha for the total knowledge score was 0.87. (Paper IV.) The exclusion of any individual items was investigated and there was only a minimal effect on value. Intercorrelations of the items were also analysed (Table 9). Average inter-item correlations were low (r = 0.1 – 0.29) considering Knowledge level scale. Therefore, the internal consistency of the scale needs to be considered in more detail. Item-total correlations varied from 0.19 to 0.60. Out of 24 item-total correlation coefficient values eight had strong (r > 0.5), fourteen had moderate (r = 0.3 – 0.5) and two had weak (r = 0.1 – 0.29) correlation. Thus, internal consistency of the Knowledge level instrument can be considered satisfactory (de Vaus 2002, Groves et al. 2004, Nummenmaa 2007).

Importance of information was assessed with a shortened version of an instrument used in Phase II. There were 6 items related to the importance of information (illness, medication, treatment, well-being, support, and patient rights). Patients were asked to indicate whether a specific informational area listed in the questionnaire was important to them (3-point scale; 1 = yes, 2 = no, 3 = not relevant). Internal consistency of the instrument was satisfactory. Cronbach's alpha for Importance of information score was 0.73. (Paper IV.) The exclusion of any individual items was investigated and there was only a minimal effect on values. Furthermore, intercorrelations of the items were analysed (Table 9). Average inter-item correlations were moderate (r = 0.3 – 0.5). Internal consistency of the perceived importance of information scale can be considered satisfactory (de Vaus 2002, Groves et al. 2004, Nummenmaa 2007).

In Phase V, interviews were conducted with thematic questions forming a topic guide. The main themes discussed were 1) description of patient education situations, 2) perceptions related to patient education, and 3) suggestions for the further development of patient education on the psychiatric ward. Respondents were provided with an open opportunity to describe their perceptions of the patient education interventions under these topics. Demographics included 6 items (gender, age, education, work situation, diagnosis and duration of the disorders). (Paper V.)

4.3 Data collection

In **Phase I**, nurses on the study wards ascertained patients' willingness and evaluated their eligibility to participate. This was done during the discharge process. Patients received oral and written information about the study. Patients filled in the questionnaires independently and returned them in closed envelopes. Out of 513 eligible patients leaving the wards, 316 (62%) received a questionnaire and 313 returned a completed questionnaire. The response rate was 61%. The study participants represented 52% of all patients discharged during data collection. (Paper I.)

In **Phase II,** nurses on the study wards evaluated whether or not patients fulfilled the inclusion criteria and informed the interviewers. The data collection was conducted during patients' discharge process by four trained interviewers. The interviewers informed the patients about the study, evaluated patients' capability to participate and requested the patients' written consent. Patients' responses to the interview questions were manually recorded in the questionnaire during the interview. Interview duration varied between 20 and 90 minutes. All together 114 patients were discharged from the study wards. A total of 51 patients gave their informed consent to being interviewed. The response rate was 45%. (Paper II.)

In **Phase III,** the data were collected from all acute psychiatric hospital wards in Finland. Fifty-three organisations with psychiatric in-patient wards were identified from the National Hospital Discharge Register (National Research and Development Centre for Welfare and Health 2006). Permission to conduct the study was obtained from each eligible organisation with adult acute psychiatric wards (n = 48). Fourty-one organisations with 104 wards gave their permission for data collection. After permission to conduct the study had been granted, the head nurses (n = 102) of these wards were identified. The head nurses on the study wards received a questionnaire together with an information leaflet about the study. The head nurses were asked to complete the questionnaire and return it in prepaid envelopes to the researcher. Out of 102 head nurses, 65 (64%) returned a completed questionnaire. Ten questionnaires were excluded from the analysis because the ward was no longer an acute ward. A total of 55 head nurses participated in the study. The response rate was 60%. (Paper III.)

In **Phase IV,** data collection was conducted after randomization. Out of 2793 patients assessed for eligibility, 1964 did not meet the inclusion criteria. Out of 829 eligible patients, 518 (62%) refused to participate in the study. A total of 311 patients participated to the study and were randomly allocated to three groups: IT-based patient education group (n = 100), conventional patient education group (n = 106) and standard care group (n = 105). At baseline data was obtained for demographics, diagnoses, attitudes to medication (DAI-10), knowledge level and importance of information. Diagnosis was given by a physician. Other descriptive variables were recorded by the nurses on the study wards. The data was collected at baseline and at 1, 3, 6, and 12 months for all outcomes. The participants filled DAI-10 questionnaire and the protocol researcher carried out semi-structured interviews investigating importance of information and knowledge level among respondents. Patients received education sessions (IT-based patient education group and conventional patient education group) after baseline measurement and before measurement at one month. Of 311 participating patients 225 (72%) completed the 12-month follow-up. The follow-up rate was 75% for IT-based patient education group, 68% for conventional patient education group and 73% for standard care group at 12 months. (Paper IV.)

Phase IV is a part of a project where patient education procedure with an interactive web-based patient support system (Mieli.Net; Mental.Net) and standard leaflets were developed together with patients and professionals. The patient education procedure was integrated to become a part of systematic patient education in psychiatric hospitals. (see Välimäki et al. 2008.) Patients in *the IT-based patient education group* received patient education sessions using computers and discussions with a staff in addition to standard care. During a one-month period there was one information session and five patient education sessions, each lasting approximately 40 minutes (S.D. = 15). The content of the sessions was as follows: illness, treatment, well-being, support, and patients' rights. During the education sessions patients also received education in using the computer and the Internet. At the end of the session, patients received individualized leaflets based on the content of the discussion. Patients in *the conventional patient education group* received five education sessions with oral information by staff and written material in addition to the standard care. The content and number of the sessions were the same as in the intervention group. The length of the sessions was on average 30 minutes (S.D. = 13). At the end of the sessions, patients received standard leaflets. Patients in *the standard care group* received patient education according to ward standards. (Paper IV.)

In **Phase V,** data was collected from patients participated in the Phase IV. All discharged patients were contacted by a letter describing the study four months after hospital admission. The interviews were conducted by a research assistant trained in data collection. He contacted patients by telephone within one week to agree upon times and places for interviews. The interviews were tape-recorded. The duration of the interviews ranged between 8 and 29 minutes. Out of the 32 eligible and discharged patients, seven patients were not reached and nine patients refused to participate in the study. A total of 16 patients participated in the study. The response rate was 50%. (Paper V.)

4.4 Data analyses

In **Phase I,** statistical analyses were performed. Sum variables for seven satisfaction areas were constructed by summing the value of each item in the component and dividing a sum value by a number of items (average scores). The higher the score for each sum variable, the more satisfied a patient was with his/her care. When value '0' was used, it was deleted to ensure that all sum variables were comparable. The sum scores of the scales were different from normal distribution. However, according to the central limit theorem, the large sample size enabled the use of parametric tests (see Koopmans 1987). Further analysis was conducted in three steps. First, the differences between groups and associations of patients' background variables with their satisfaction scores were tested using independent samples T-test and one-way ANOVA. Post-hoc Tukey's test was further used to examine differences among means. Second, a MANOVA with main effects and two-way interactions was used to identify the possible combined influence of two variables. Partial ETA Squared was calculated to examine the proportion of variation connected to main effects and interaction effects. And third, Pearson product-moment correlation coefficient was used to examine the correlations between scales. In the tests, p-values of 0.05 or less were interpreted as statistically significant. (Koopmans 1987, de Vaus 2002.) (Paper I.)

In **Phase II**, descriptive statistical methods were used on quantitative data. Basic descriptive analyses were conducted (percentages, frequencies) to describe information rated important and realization of patient education. Due to the small sample size background variables were re-coded. Two sum variables were constructed concerning information rated important and realization of patient education. T-test was used to analyse demographic differences in participants' responses. In the case where the scales were different from normal distribution the Mann Whitney U-test was used. P-values at a level of 0.05 were considered to be statistically significant. (de Vaus 2002.) The qualitative data (open-ended questions) was analysed using inductive content analysis. Reduction of data was done by picking out and underlining phrases answering the research questions. The phrase was taken to be a word, sentence or part of a sentence consisting of thematic content relevant to the research question. After that, the data were coded by labelling reduced phrases with a description according to thematic content that could be seen to characterise the phrases. Then, subcategories were developed by grouping together coded phrases with similar connotations. The set of main categories was established by grouping together subcategories with similar meaning. (Denzin et al. 2000, Polit et al. 2004.) Finally, to make a description of the extent of the categories qualitative data were quantified by counting the frequencies of phrases including each subcategory (Weber 1990, Denzin et al. 2000, Polit et al. 2004). (Paper II.)

In **Phase III,** descriptive statistics were used for quantitative data to describe the realisation of patient education. First, basic descriptive analyses were conducted (percentages, frequencies). Second, to reduce the number of categories related to the aspects of individual patient education, the multiprofessional collaboration and staff's educational competence to carry out patient education variables were recoded into three categories (1-2 = not realised, 3-5 = occasionally realised, 6-7 = always realised). (de Vaus 2002.) The qualitative data (open-ended questions) concerning possible problems related to the patient education in the ward were analysed by textual inductive content analysis. Phrases related to the research question were grouped together. After that, the data were coded by labelling groups with a description according to thematic content that could be seen to characterise the phrases in the same group. Similar groups were connected and made into categories. These categories were named by terms describing the content of the category. The data was quantified by counting the number of respondents including each category to describe the extent of the categories. (Weber 1990, Denzin et al. 2000, Polit et al. 2004.) (Paper III.)

In **Phase IV,** statistical analyses were conducted. First, differences between baseline characteristics were analysed using chi-square for categorized variables; t-test and one-way ANOVA for continuous variables. (de Vaus 2002.) Second, to compare the change of DAI-10, knowledge level and importance of information scores between the three groups one-way ANOVA was used. If a significant difference between groups was detected, post hoc Tamhane's tests were performed. Third, to investigate the change of DAI-10, knowledge level and importance of information scores in groups and interaction effects between time and group during 12-month follow-up repeated-measures analysis of variance was used. Fourth, exploratory sensitivity analyses of the mean differences in DAI-10, knowledge level and importance of information scores were undertaken using analysis of covariance adjusting for covariates (gender, length of previous inpatient treatments) (see Mullner et al. 2002). The analysis of the effects of participation in the intervention on outcome measures was by the intention-to-treat principle, with data for patients who discontinued follow-up. Missing data was imputed using the last-observation-carried-forward (LOCF) method (Hollis et al. 1999). Statistical significance was set at 5% level and partial Eta-squared was used to measure effect size. (Paper IV.)

In **the Phase V,** data was analysed in two phases using inductive content analysis. In the first phase, primary observations from the whole data set were coded and labelled. Then the primary observations were linked and labeled by comparing their properties and observations with same properties were linked into the same category (Denzin et al. 2000, Polit et al. 2004). On the basis of this first phase analysis, five key elements of patient education were identified. In the second phase, the data were re-analysed to describe how patients in different educational groups perceived their patient education and to describe patients' suggestions for the development of the patient education. The analysis was performed separately for each group and examining how each of the five key elements of patient education was described in the data. When patient's descriptions concerning key elements were found in the data set, a sentence or part of a sentence was coded. Subcategories were developed for these coded phrases by grouping together those with similar connotations. The set of main categories was established by grouping together subcategories with similar meaning. (Denzin et al. 2000, Polit et al. 2004.) (Paper V.)

4.5 Ethical considerations

In this study, ethical aspects were taken into consideration in every study phase (Medical Research Act 488/1999, Charter of Fundamental Rights of European Union 2000, ETENE 2001, Academy of Finland 2004, Declaration of Helsinki 2008). The study was conducted in such a way as to protect participants' dignity, autonomy, integrity and privacy in all phases of the project. To ensure the realization of these principles the following measures were taken in each study phase: 1) Study procedures for each phase were approved by the local ethics committee; 2) Permission for data collection was obtained from the participating organisations; 3) Participants were informed of the aims, methods, sources of funding, any possible conflicts of interest, institutional affiliations of the researcher, the anticipated benefits and potential risks of the study and the discomfort it might entail. 4) Participation was voluntary and participants had the right to abstain from participation without reprisal; 5) Informed consent was obtained (patient data) after informing potential participants about the study; 6) Respondents' anonymity was ensured during data processing and reporting; 7) The knowledge, sensitivities and skills of the researcher and others involved in the research were taken into account as follows: in the practical realisation of the study attention was paid to the knowledge and skills given by the professional education, staff were informed of the study and the researchers were trained in how to implement the study.

As patients with psychiatric problems are a vulnerable group in health care there is a need to consider some ethical aspects of the study in more detail. In this study patients detained in hospital involuntarily by reason of their mental condition were included in phases I, II, IV and V. As mental illness is one of the largest health issues in Europe (WHO 2008), it was considered appropriate to include participants suffering from such problems. The study focuses on scientific questions important to people with mental illness and the least vulnerable individuals necessary to answer these scientific questions adequately were included.

Moreover, one of the fundamental ethical aspects related to research among patients with mental illness is informed consent to participate in the study (National Bioethics Advisory Commission 1998, Berg et al. 2001). The majority of people with mental illness who are recruited and willing to participate in research are capable of giving consent (Moser, et al. 2002). However, the decisional capacity to consent to participate in research of people with mental illness may be impaired due to cognitive deficits (Moser, et al. 2002, Palmer, et al. 2005). Therefore, there is a need for individualised assessment considering a patient's capacity to give informed consent (Kovnick et al. 2003). Moreover, patient's reduced capacity can be compensated by a more intensive informational procedure as a part of the informed consent process (Carpenter et al. 2000). In this study patients received oral and written information about the study. They were informed of the purpose of the study and assured that participation or refusal would not affect their treatment. Before asking patients to give oral consent (Phase I) or sign the informed consent form (Phases II, IV, V), the researcher checked verbally with the participant if they were clear about the aims of the study, why their consent was being requested, and what they could do to withdraw from the study. The researcher gave participants full opportunity to ask questions and answered them honestly, promptly and completely. Before data collection, oral and written information about the study was offered again to support participants in understanding and recalling the meaning of study participation. In addition, the following actions were considered in different study phases.

In **Phase I**, permission for data collection was obtained from the hospital's scientific committee. Patients' ability to participate was evaluated by ward personnel. According to Finnish policy during data collection, patient consent was obtained verbally. Patients filled in the questionnaires independently and returned them in sealed envelope. The survey was done at discharge so that patients felt free to give their opinions about the topic. Patients had an opportunity to contact researcher if the questionnaire raised questions. The data was treated in confidence by encrypting all identification data during the analysis. Permission to use the SPRI-questionnaire was granted by authors.

In **Phase II**, permission for collecting data was obtained from the hospital's chief physician and director of nursing. The interviewers were not working in the study units. Patients' ability to participate was evaluated by researchers in collaboration with ward personnel. Written informed consent was obtained from each participant. They received oral and written information about the purpose of the study and their rights as participants. It was emphasized that participation in the study was voluntary and refusal would not affect their treatment. Patients had an opportunity to contact the researcher if interview raised questions. Signed consent forms were stored in a different place from the research data to ensure participants' anonymity during data processing and analysis. Additionally data security was ensured by encrypting all identification data during the analysis.

In **Phase III**, permission to conduct the study was obtained from the organization's directors. Participants received written information about the study and contact information of the researcher for possible further questions. The data was treated in confidence by encrypting all identification data during the analysis.

In **Phase IV**, permission to conduct the study was obtained from the organization's directors. Patients' ability to participate was evaluated by a research assistant in collaboration with ward personnel. Written consent to participate in the study was obtained from patients after they have been informed of all aspects of the study. Regulations addressing the conduct of clinical trials of investigating products were taken into account (Clinical Trials Directive 2001, Declaration of Helsinki 2008). Patients were not left without treatment in any study group. In addition, patients' ability to participate was evaluated by a research assistant at each follow-up data collection round. Signed consent forms were stored in a different place from the research data to ensure participants' anonymity during data processing and analysis. To secure the research data it was centralized stored in the University of Turku Computer Service System. Data security was also ensured by encrypting all identification data during the analysis. The computerized patient education portal was developed according to the Quality Criteria for Health Related Websites (Commission of the European Communities 2002). Permission to use DAI-10 questionnaire and modified version of UMQ questionnaire was granted by authors.

In **Phase V**, permission to conduct the study was obtained from the organization's directors. Patients' ability to participate was evaluated by the researcher. Written informed consent was obtained from each participant. They received oral and written information about the purpose of the study and their rights as participants. It was emphasized that participation in the study was voluntary and refusal would not affect their treatment. Permission for tape-recording was requested before the interviews. The interviewer was trained to carry out interviews with psychiatric patients using an open-ended thematic questionnaire as a topic guide. The signed consent forms were stored in a different place from the research data to ensure participants' anonymity during data processing and analysis. In addition, to ensure participants' anonymity the data was treated in confidence by encrypting all identification data during the analysis.

5. RESULTS

The results of this study are reported in three parts according to the sub goals of the study. The first part describes patients' perceptions of patient education to support self-management in terms of satisfaction with patient education and factors associated with it (Paper I), patients' experiences of patient education on psychiatric in-patient wards (Paper II) and patients' perceptions of different patient education methods used on psychiatric hospital wards (Paper V). The second part describes the realisation of patient education in psychiatric hospital from the staffs' perspective (Paper III). The third part describes the impact of different patient education methods on patients' attitudes, knowledge level and perceived importance of received information (Paper IV).

5.1 Patients' perceptions of patient education in psychiatric hospital wards

Patients' perceptions of patient education were investigated in three phases. First, in Phase I patients' satisfaction with patient education and factors associated with it were investigated (Paper I). Second, in Phase II patients' experiences of patient education on psychiatric in-patient wards and suggestions to develop patient education were explored (Paper II). Third, in Phase V patients' perceptions of different patient education methods used in psychiatric inpatient care were explored in terms of patients' descriptions of patient education situations and patients' perceptions of patient education methods. Additionally patients' suggestions for the improvement of patient education were explored. (Paper V.)

Patients' satisfaction with patient education and factors associated with it

In Phase I patients' satisfaction with patient education and factors associated with it was investigated as part of a patient satisfaction survey where seven different satisfaction areas were investigated: staff–patient relationship, ward atmosphere and physical milieu, information, treatment interventions, restrictions and compulsory care, qualities of treatment design and treatment programme as a whole (Paper I). The results of patients' satisfaction with information are presented here in more detail.

Patients (n = 311) were dissatisfied with patient education (satisfaction with information: mean = 3.53, SD = 0.77; Paper I). Regarding patients' satisfaction with different informational areas 78% of patients considered information on ward routines very good or good and 63% reported that their opinions were taken into account well. Approximately half of the patients considered information on care alternatives (58%) and illness (55%) very good or good. Patients were less satisfied with information on medication and side-effects (49%), opportunities to affect treatment plan (49%) and the right to appeal if they were dissatisfied with treatment (44%). (Table 10.) Considering background variables, there were no associations related to the satisfaction with information (Paper I).

Table 10. Distribution of patients' assessments of satisfaction with information

Informational area	n	Very good or Good (%)	Neither good nor poor (%)	Poor or Very poor (%)	Mean	(SD)
Ward routines	300	78	14	8	3.9	(0.86)
Opinions taken into account	285	63	26	11	3.6	(0.96)
Care alternatives	284	58	27	15	3.5	(0.95)
Illness	295	55	30	15	3.5	(0.96)
Opportunities to affect treatment plan	262	49	37	14	3.4	(1.07)
Medication and side-effects	258	49	30	21	3.3	(1.10)
Right to appeal	234	44	29	27	3.2	(1.09)

Patients' experiences of patient education in psychiatric hospital wards

In Phase II patients' experiences of patient education on psychiatric in-patient wards were explored in terms of perceived importance of informational areas in patient education and realisation of patient education. In addition, possible problems related to patient education and suggestions for the improvement of patient education were explored. (Paper II.)

Patients (n = 51) considered it important to receive information during hospitalization. The most important areas of information for patients were information on treatment procedures (98%) and treatment alternatives (98%), while information on mental patients' organisations (67 %) and options for re-education (55 %) were considered least important. Out of 20 possible informational areas, on average seventeen were reported important to individual patients (Mean = 17.39, SD = 2.93). (Paper II.)

Patient education was not realised in the informational areas important to patients. Patients reported having received sufficient information on future treatment (75%) and diagnosis (69%) while the information on options for re-education (12%) and mental patient organisations (29%) was insufficient. Out of 20 possible informational areas, respondents reported receiving sufficient information on nine information areas (Mean = 8.71, SD = 4.77). (Paper II.)

Problems related to patient education were described by patients as a lack of information, problems in patient-staff interaction and a lack of requisite knowledge among patients and staff. Patients' suggestions for future development of patient education were more innovative methods in patient education, paying attention to patient-staff interaction, and ensuring staff's competency. (Paper II, Table 11.)

Table 11. Problems related to patient education and suggestions for future development of patient education described by patients.

Main category	Description
Problems related to patient education	
A lack of information	Information received was deficient and inadequate.
Problems in interaction	Patients' individual life situation and needs for patient education were not noted by staff.
Lack of requisite knowledge	Nurses were considered not to be knowledgeable in order to give information to a patient. Patients experienced that they did not have sufficient basic information to formulate questions on their illness and care.
Suggestions for future development of patient education	
Methods for patient education	Receiving information through open discussions with staff. Receiving information is supported with different patient education methods.
Paying attention to patient-staff interaction	Staff provides active, individual and respectful attention to patients.
Ensuring staff's competence	Nurses' knowledge about patients' situation and mental health issues in order to carry out patient education is ensured.

Patients' perceptions of different patient education methods used in psychiatric hospital
In Phase V patients' perceptions of different patient education methods used in psychiatric in-patient wards were explored in terms of patients' descriptions of patient education situations and patients' perceptions of patient education methods. Additionally patients' suggestions for the improvement of patient education were explored. (Paper V.)

Patients' (n = 16) descriptions of patient education formed five key elements identifying patient education: procedure, interaction, educational method, environment and benefits (Table 12). The five key elements of patient education were used as a framework to describe patients' perceptions of IT-based patient education, conventional patient education and patient education according to the standard care. Patients' perceptions of these five key elements of patient education varied depending on which patient education group they had participated in. (Paper V.)

Table 12. Key elements of patient education described by patients (n = 16)

Key element	Description of the content of the key element
Procedure	The structure and content of how patient education was conducted on psychiatric wards.
Interaction	Communication and the relationship between patient and nurse.
Educational method	Use of educational methods as a part of patient education and possible additional support for receiving information.
Environment	Physical environment that may have affected patients' information receiving.
Benefits	Patients' perceptions of the advantages of the patient education for coping with their illness in their everyday lives.

Regarding IT-based patient education, the procedure was described as systematic patient education sessions where the timing and content of patient education were planned in advance together with the patient. The interaction between patient and nurse was described as individual discussions if the content of patient education was integrated into the patient's individual life situation. By contrast, mechanical interaction meant delivery of information from nurse to patient without responding to patients' individual needs. The use of a computer was perceived to support patients' in receiving information while some patients reported that using the computer caused additional concern in relation to confidentiality. The environment was described as supportive or hindering depending on the appearance of disturbing factors. Focusing on patients' independent coping was perceived as a benefit of patient education. However, some patients considered the information received to be important, but useless for everyday coping. (Paper V.)

Regarding conventional patient education, the procedure of patient education was described as planned patient education sessions whose content was based on leaflets. The interaction between patient and nurse was described by some patients as helpful, meaning open and confidential discussions. By contrast, some patients described interaction as one-way informing. The use of the leaflets gave additional support to patients' receiving information. The patients in this group did not mention if the environment had any effect on receiving information. Regarding the benefits of patient education, the information received was perceived useful for independent coping while some patients reported that the information seemed rather superficial to them. (Paper V.)

Regarding standard care, the procedure of patient education was described as occasional information dissemination situations or lack of information. Interaction between patient and nurse was described as lacking discussions on patients' situation. Some patients also described a lack of appropriate respect. Patients were of the opinion that they were not supported in receiving information by any educational method and the patients did not mention if the environment had any effect on how they received the information. Considering the benefits, the information received was perceived not to support them in coping with illness in their everyday lives. (Paper V.)

The key elements of patient education were also used as a framework to describe patients' suggestions for the further development of computer assisted patient education, patient education with leaflets and patient education according to the ward standards.

Regarding suggestions to develop IT-based patient education patients were of the opinion that to develop patient education procedure the planning of patient education should be based on their individual situations. To improve the education method the options of information technology should be utilized in a more comprehensive way. Regarding environment, patient education should be carried out in a peaceful and undisturbed place without interruptions. The availability of information sources on hospital wards was also perceived to support patients' independent information seeking. (Paper V.)

Patients' suggestions to develop conventional patient education included patients' suggestions to develop the procedure by involving patients in the planning of patient education sessions and recapping the content of patient education sessions. Active interaction could be developed through open communication and clarifying issues about which patients may be concerned. Patients also wanted different educational methods to support their information receiving. (Paper V.)

Patients' suggestions to develop patient education according to the standard care were described in relation to procedure, interaction and educational method, while there were no suggestions related to environment and benefits. To improve procedures, patients were of the opinion that patient education should be offered systematically to all patients, taking into account their individual situations. Individuality of interaction can be improved through nurses' activity in creating individual and respectful communication. Regarding educational methods, patients wanted to receive information from different sources and from different professionals. (Paper V.)

5.2 Realisation of patient education practices in psychiatric hospital wards from the staffs' perspective

Realisation of patient education practices were investigated in terms of the contents of patient education, the method of communication, identification of patients' individual needs, delivery personnel and complexity of patient education. Additionally, possible problems related to the realisation of the patient education were explored.

Out of 20 informational areas, all respondents (n = 55, 100%) reported that content of patient education included following sixteen informational areas: illness, illness' effects to function, examinations and their results, treatment related risks, treatment schedule, prognosis of the treatment, effects of the medication, side effects of the medication, sick leave, relatives involvement to treatment, future treatment, rehabilitation, peer support, options for re-education, general patients' rights and right to make complaints about care. Exceptions to this were informational areas such as treatment procedures (98%), treatment alternatives (96%), financial benefits (96%) and information on mental patients' organisations (86%).

Regarding methods of communication oral communication and leaflets were used by all respondents (100%) as methods to provide patient education. Books were also used by most of the respondents (78%) to provide patient education. Of communication methods based on information and communication technology most often respondents used Internet (71%), while DVD (22%) and CD-ROM applications (16%) were used least to provide patient education. (Paper III.)

Of patients' individual needs patient's condition related to receiving information (74% always realised) was considered most often and effects of illnesses on patient's daily routines (73% always realised). Patients' individual needs were not taken into account by staff concerning methods of patient education (32% not realised). Moreover, relatives' involvement (13% not realised) and timing of the patient education (13% not realised) were not considered by staff. (Figure 5.)

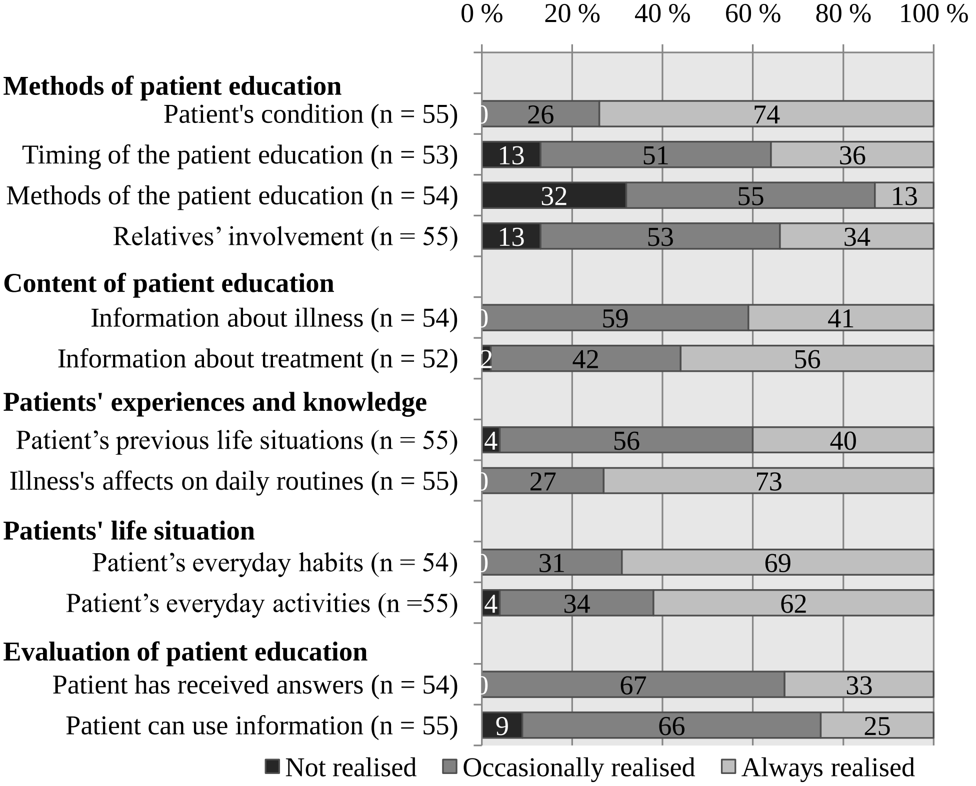


Figure 5. Realisation of taking account of patients' individual needs reported by head nurses (%)

The investigation of the delivery personnel included the multidisciplinary approach and the staffs' educational competence to carry out patient education. Respondents were of the opinion that a multidisciplinary approach was always (48%) or occasionally (52%) realised through consultation with different professionals. Patient education was seldom carried out together with different professionals (always realised 28%). Regarding staff's educational competence almost half of the (45%) respondents were of the opinion that the nurses had received sufficient professional education to deliver patient education interventions. Moreover, on-the-job training for staff had been poorly realised (always realised 17%). (Figure 6.)

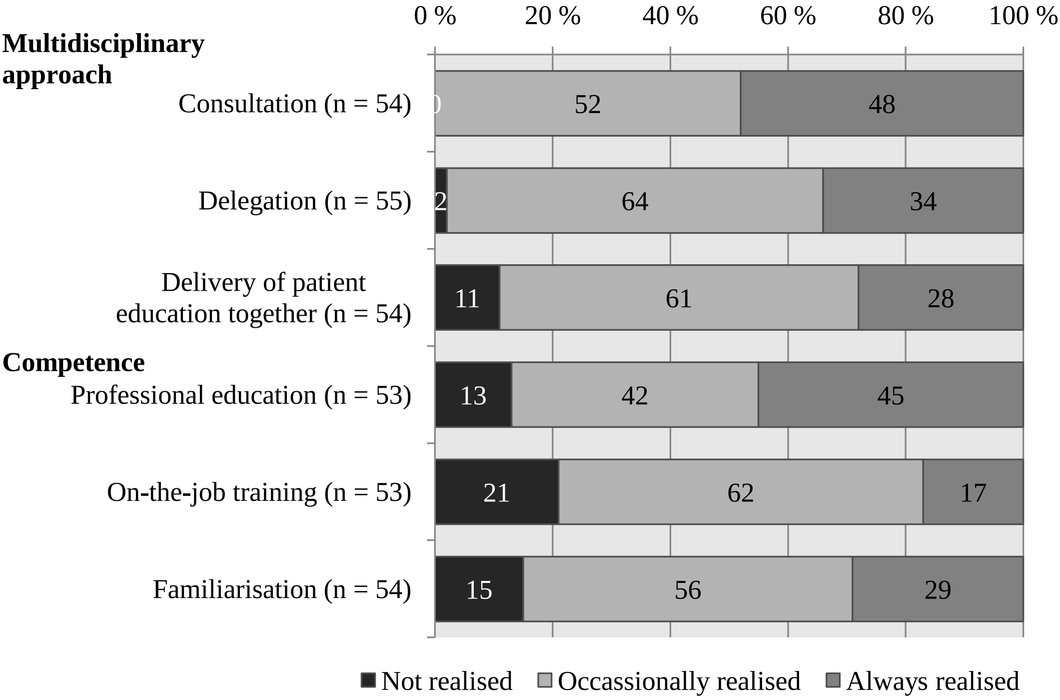


Figure 6. Multidisciplinary approach and staff competence to provide patient education reported by head nurses (%)

Complexity of patient education was investigated in terms of systematic patient education procedures and existing written instructions for patient education. Systematic patient education procedures were in place on fourteen wards (25%) and written instructions related to patient education were in place on three wards (5%). (Paper III.)

Altogether 50 head nurses described problems related to patient education on their wards. These problems were categorised into four themes: patients' poor condition, a lack of staff resources, the discrepancy in the procedures and poor operational conditions. Patients' poor condition (n = 33) was perceived to be problematic because of poor mental condition patients lacked insight, had poor motivation and had cognitive difficulties in participate in patient education. A lack of staff resources (n = 25) meant that there was not sufficient staff on the wards and they were not motivated or competent to carry out patient education. The discrepancy in the procedures (n = 17) concerned the treatment procedures and patient education instructions. Due to unplanned and short treatment periods respondents considered that there was no time for patient education. Moreover, there were no appropriate instructions related to the delivery of patient education. Poor operational conditions (n = 17) were described in terms of equipment and places; there was a lack of equipment such as Internet connections and appropriate peaceful places to provide patient education.

5.3 Impacts of different patient education methods on patients’ attitudes to medication, knowledge level and importance of information

The impacts of different patient education methods were evaluated by comparing the impacts of IT-based patient education on patients’ attitudes to medication, knowledge level and perceived importance of information with conventional patient education and standard care in patients with schizophrenia.

A total of 311 (48%) patients were randomly assigned to three groups: IT-based patient education (n = 100), conventional patient education (n = 106) and standard care (n = 105). Of these patients 225 (72%) completed the 12-month follow-up. The follow-up rate was 75% for the IT-based patient education, 68% for conventional patient education and 73% for standard care at 12 months. Baseline characteristics of randomized patients were much the same in all groups. (Paper IV.)

Patients' attitudes to medication and knowledge level improved significantly in all groups during 12-month follow-up ($p < 0.001$, ES = 0.031; $p < 0.001$, ES = 0.171, respectively) while the importance of information did not improve significantly in any group during 12-month follow-up ($p = 0.900$, ES = 0.001). (Paper IV.)

The differences between groups were not significant on patients' attitudes to medication. Significant differences between groups were found for knowledge level at 1 month ($p = 0.021$), and 12 months ($p = 0.019$); the knowledge level was lower in the standard care group than in the IT-based patient education group. Regarding importance of information the differences between groups were significant at 1 month ($p = 0.006$), 3 months ($p = 0.002$) and 6 months ($p = 0.002$). The importance of information was lower in the standard care group than in the conventional patient education group at 1 month. Moreover, the importance of information was lower in the standard care group than in the IT-based patient education and the conventional patient education groups at 3 and 6 months. The interactions between treatment groups and time for the attitudes to medication, the knowledge level and the importance of information were not significant. (Paper IV.)

5.4 Summary of the results of the study

To summarise, the study results of different study phases are described according to the sub goals of the study.

Patients’ perceptions of patient education to support self-management in psychiatric hospital were investigated in terms of patients’ satisfaction with patient education (Phase I), patients’ experiences of patient education (Phase II) and patients’ perceptions of different patient education methods (Phase V). Patients reported dissatisfaction with patient education. Especially patients were dissatisfied with information on patients' right to appeal if they were dissatisfied with treatment, opportunities to affect treatment plan as well, medication and side-effects. There were no associations between satisfaction with patient education and patients’ background variables. (Phase I.) The results showed that patients have considerable needs to receive information during their hospital stay. The most important were considered areas of information such as treatment procedures and treatment alternatives. However, patients did not receive sufficient information on the topics in which they were interested. Problems related to patient education reported by patients included lack of information, problems in interaction, and the lack of the prerequisite knowledge. (Phase II.) Regarding patients’ perceptions of different patient education methods, patient education by computer or using leaflets were perceived by patients to be useful when the content was integrated into the treatment and when it was carried out in a structured way. However, interaction between patient and nurse was perceived to be important regardless of what educational methods were used. (Phase V.)

In addition, patients' suggestions to develop patient education were explored (Phases II, V). Patients' suggestions for future development of patient education were more innovative methods in patient education, paying attention to patient-staff interaction, and ensuring staff's competence (Phase II). Moreover, to develop patient education patients wanted to participate in the planning of patient education, which may support the individuality of patient education. Offering patient education by different methods systematically to all patients was also perceived to support information receiving. (Phase V.)

Patient education practices to support self-management in psychiatric hospitals were investigated from the staffs' perspective. The results showed that content of patient education covered almost all informational areas investigated. However, a number of discrepancies related to the realisation of patient education were found. Respondents reported that patient education was mostly carried out orally and with leaflets while other patient education methods were seldom used. Staff rarely received adequate on-the-job training and on the study wards there were only few systematic procedures and instructions regarding patient education. Problems related to patient education were described in terms of patients' poor condition, a lack of staff recourses, the discrepancy in the procedures and poor operational conditions. (Phase III.)

Regarding the outcomes of patient education to support self-management the impacts of different patient education methods on patients' attitudes, knowledge level and their perception of the importance of information were evaluated. The results of this study phase indicate that patients with schizophrenia benefit from structured patient education with supportive methods such as computers and leaflets. (Phase IV.)

6. DISCUSSION

This study produces information on areas which need to be improved to develop the quality of patient education to support self-management of patients with mental illness. Study involved patients' perceptions of patient education, the realisation of patient education practices and outcomes of patient education. This knowledge can be used to improve patient education to support self-management particularly in psychiatric hospitals. Study offers implications for different fields including nursing practice, management, education and nursing science.

In this chapter, validity and reliability of the study are first discussed. Second, main findings are discussed in relation to literature in accordance with the goal of the study. Third, implications for the development of patient education to support self-management among patients with mental illness are considered. And fourth, suggestions for the future research are presented.

6.1 Validity and reliability of the study

Validity and reliability form the quality of the study methodology. In this study mixed methods were used in design, sampling, instruments and data analysis. Validity is the measure of truthfulness and accuracy of the study in relation to the concept under research while reliability refers to the quality of the measurement estimating consistency, stability and repeatability of the measure obtained (Brink 1988, Hatcher et al. 2005, Burns et al. 2006, 2009). The validity of this study is considered in terms of internal validity, external validity and objectivity. *Internal validity* refers to whether the results of the study investigating causal relationships are a true reflection of the reality and not attributed to extraneous variables (Hatcher et al. 2005, Burns et al. 2009, Gravetter et al. 2008). *External validity* is related to generalizing referring to the truth of conclusions (Hatcher et al. 2005, Burns et al. 2009). Validity of the results refers to *objectivity*. It is essential that the results and conclusions of the study are based on data (Burns et al. 2009).

The validity and reliability of the qualitative methods are discussed in terms of credibility, dependability, transferability and conformability (Polit et al. 2004). *Credibility* is considered as a form of internal validity referring to believable results from the perspective of the participants. *Dependability* refers to reliability in terms of the stability of the data over time and conditions. To estimate the dependability of the study detailed descriptions of the study process are provided. The dependability of the study is ensured through several methods: piloting interview schedules, training interviewers, comparing the analysis of the same data by several researchers and code-recode procedures. *Transferability* is considered as a form of external validity referring to the generalizability of the results to other contexts or settings. *Conformability* refers to the degree to which the results can be confirmed by others. (Silverman 2001, Polit et al. 2004.) Various other definitions have also been used to describe validity and reliability issues in qualitative research (Polit et al. 2004). In addition, the usefulness of terms validity and reliability in qualitative research have also been discussed and these aspects have been considered relevant and important also in qualitative research (Silverman 2001, Rolfe 2006).

The validity and reliability of the study are next discussed in relation to different study phases considering relevant aspects in each phase. Validity and reliability of the instruments used in this study have been described earlier (Chapter 4.2. Instruments).

6.1.1 Validity and reliability of the study phases

Phase I

The study was carried out on only three wards in a single hospital. This could affect the external validity of the results because health care institutions vary widely in their organization, experience, and resources (Deccache et al. 2001, Rummel-Kluge et al. 2006, Albada et al. 2007). The response rate (61%) was satisfactory for survey research among patients with mental illness (Sitzia et al. 1998, Groves et al. 2004, Klemmer et al. 2005) and the study participants represent 52% of all patients discharged during data collection, which increases the validity of the study. However, nearly a third (32%) of eligible patients were not offered an opportunity to participate. This may impair the validity of the study. The non-respondents were mainly patients with very short hospital stay (1– 2 days), and cases where staff forgot to distribute the questionnaires. Moreover, data collection was carried out during the discharge process. The timing of the data collection may have affected the participants' evaluations giving an excessively positive impression of their satisfaction with in-patient care in psychiatric hospital. Despite these limitations, the results of the study were in line with earlier studies and are therefore generalizable.

Phase II

The study was conducted on two wards in one hospital. This could impair the external validity of the study. In addition, recruitment conducted by ward personnel may cause bias as different nurses make different interpretations, especially concerning a patients' being 'able to give informed consent'. Furthermore, over half of eligible patients (55%) refused to participate in the study. Due to this and the small number of participants the study findings are not necessarily generalisable to represent the whole study population on the wards. On the other hand, the results of the study were congruent with those of earlier studies and this supports their generalizability to some extent.

Data was collected with semi-structured interviews. Therefore the credibility, conformability and dependability of the study are discussed. *Credibility* refers to believable results from the perspective of the participants (Polit et al. 2004). The study sample was formed from patients who had experience of in-patient psychiatric care. Therefore they can be considered suitable informants and this increases the credibility of the study. Moreover, respondents had an opportunity to clarify unclear issues during the interviews. They also had an opportunity to read their written answers, and give feedback if the notes were not in line with their responses. (Polit et al. 2004.) Emphasis was also placed on ensuring that the qualitative analysis covered all aspects of the data. This was done by reading the transcripts carefully and returning repeatedly to the original data. (Silverman 2001.) *Conformability* was ensured by the first author conducting the qualitative analysis and validated through discussions with the other authors (Polit et al. 2004). Moreover, to overcome influence caused by the researchers' own perceptions the results were read several times by all members of the research group. Relations between data and categories were verified with quotations. (Denzin et al. 2000, Polit et al. 2004.) The results from the structured and open-ended questions were in line with each other, which verifies the objectivity of the study results. (Silverman 2001, Polit et al. 2004.) To increase *dependability* the study process was described in detail so that other researchers will be able to follow the research process. Moreover, four interviewers were trained to carry out interviews to ensure their uniformity. Additionally, data from open-ended questions was re-coded by the same coder one year after the first coding. The agreements of these two coding rounds were as follows: problems related to patient education 90 % and the development of patient education 87 %. (Silverman 2001, Polit et al. 2004.)

Phase III

The method by which a sample is selected from a sampling frame is integral to the external validity of a survey. The sample has to be representative of the larger population to obtain a composite profile of that population. (Kelley et al. 2003, Groves et al. 2004). The study sample was formed by all 21 hospital districts, their psychiatric hospitals and adult acute psychiatric wards in two phases. The response rate of the study was low (60%). However, it is satisfactory for mail surveys (Groves et al. 2004). There is no information about units who did not participate in the study. Patient education may be considered important in the units participating in this study and the results may give too positive impression of the realisation of patient education. On the other hand, the results of the study were congruent with those of earlier studies, which supports their generalizability to some extent in psychiatric hospital wards.

The instrument used for data collection included one open-ended question. Therefore, credibility, conformability and dependability are considered to estimate the validity and reliability of the study. Regarding the *credibility*, the respondents were head nurses, which may raise doubts about their ability to describe patient education practices among nursing staff. However, the basic assumption in this research was that head nurses have an overall picture of procedures and practices on the ward. Therefore they were considered to be suitable respondents for this study. Nurses' evaluations could, however, differ from those of head nurses. Data was collected by semi-structured questionnaire with one open-ended question. Thus, the respondents had an opportunity to clarify their answers, which may increase the credibility of the data. The data was analysed using inductive content analysis. To ensure the credibility of the results one head nurse working on the psychiatric ward checked the results. (Silverman 2001, Polit et al. 2004.) To ensure *conformability,* it is essential that the results and conclusions of the study are based on data so that others can reach agreement about the relevance and meaning of the data. (Polit et al. 2004.) Therefore, a transparent description of the instrument, data collection and analysis were performed. The members of the research group read the results several times to avoid influence caused by a researcher's own perceptions. Additionally, researchers not involved in the research process examined both the process and results of the study. Relations between data and categories were verified with quotations to ensure that the results and conclusions of the study were based on data. (Silverman, 2001, Polit et al. 2004.) Regarding *dependability,* the study process was described in detail to ensure that other researchers have an opportunity to follow the study process. The questionnaire was piloted with nine head nurses and it was found to be clear and understandable for respondents. The dependability of the study could be increased by comparing the analysis of the same data by several researchers. However, this was not possible due to practical reasons. (Silverman 2001, Polit et al. 2004.)

Phase IV

Internal validity is approximate to the extent to which the observed outcomes can be attributed to the intervention under investigation (Hatcher et al. 2005, Burns et al. 2006, 2009, Gravetter et al. 2008). Threats to the internal validity of this study are considered in terms of selection bias and social threats (Altman et al. 2001, Hatcher et al. 2005). Selection bias refers to the comparability of the groups. To avoid selection bias the eligibility criteria for participants were clearly defined. Quality of the randomization process was assured regarding generation and concealment of allocation sequence and assignment process (Altman et al. 2001, Hatcher et al. 2005.) Social threats to internal validity refers to the social pressures in the research context that may lead to effects that are not directly caused by the intervention (Altman et al. 2001, Hatcher et al. 2005). To avoid this, the realization of the intended interventions was ensured through detailed protocols for two systematic patient education interventions. The nurses on the study wards were trained to carry out these interventions. Despite this training, the nurses on study wards were not used to delivering computer assisted patient education (Koivunen et al. 2008). This may have impaired the internal validity of the study. Furthermore, patients, professionals, and researchers could not be blinded to intervention allocation after assignment. Therefore information flow between patient education groups may have occurred. However, the statistician responsible for the data analysis was blinded to the group assignment, which strengthens the validity of the study.

Regarding the internal validity of the analysis, statistical analyses to compare groups for primary outcome and secondary outcomes were carried out according to a pre-established analysis plan. (Altman et al. 2001, Hatcher et al. 2005.) The amount of missing data was considerable: 29% of participants did not provide follow-up data. Therefore, missing data values were dealt with by the LOCF-method. This technique is regarded as the most reliable way to handle missing data (Hollis et al. 1999). Moreover, sensitivity analyses were carried out to ensure the validity of the results.

External validity is related to generalizing referring to the truth of conclusions. The sample size of the study was determined through power calculations with primary outcome (attitudes to medication; DAI-10) based on earlier publications. Sample size was adequate to have 95% power of detecting 4.5 mean difference for 5% alpha. The number of patients who refused to participate in the study was high. Of eligible patients, 62% refused to participate in the study. This is also a well known problem in studies on patients with schizophrenia (Klemmer et al. 2005). However, the study participants represent patients with schizophrenia in psychiatric hospital care fairly well (National Research and Development Centre for Welfare and Health 2008). To avoid settings and locations affecting external validity the study was carried out in two hospitals and on nine wards.

Phase V

The credibility of Phase V was enhanced during different phases of the study process. The study sample was formed from those patients with experience of the patient education interventions under investigation. Therefore the results can be considered to represent these patients' perspective. During data collection pre-planned questions were used as a topic guide. The aim was to ensure that the interviews were uniform in nature but also to avoid leading questions. Respondents were given an open opportunity to describe their perceptions of the patient education interventions. During the analysis the emphasis was on ensuring that the analysis included all aspects of the data. This was done by reading the transcripts carefully and returning repeatedly to the original data. Credibility can also be enhanced by using member checking, where participants verify interpretations and conclusions. For practical reasons this was not done. (Silverman, 2001, Polit et al. 2004.)

The transferability of the results was enhanced by describing in detail the participants, settings and also the interventions used in the study (Silverman, 2001, Polit et al. 2004). Although the participants in the study represent all three patient education interventions under investigation, the number of non-respondents was high (50%). The perceptions of non-respondents could be different from those patients who participated in the study. However, the results were in line with those of other qualitative studies and they correlated with the results from Phase IV. Therefore the results of the study are likely to be relevant to some extent regarding patient education interventions among patients with schizophrenia in in-patient settings.

Regarding the conformability of the study, emphasis was placed on overcoming influence from the researchers' own perceptions. This was considered especially important because the researcher was involved in the development of the patient education interventions under investigation. The results were read through several times by all members of the research group. Researchers not involved in the research then evaluated the process, results and conclusions of the study. Moreover, different phases of the study were described in detail and the relations between data and categories were verified with quotations to ensure that the results and conclusions of the study were based on the data. (Silverman, 2001, Polit et al. 2004.)

To ensure the dependability of the study the topic guide used as an interview schedule was piloted with two interviews. The aim was to ensure that it is understandable for respondents. The interviewer was trained to carry out thematic interviews among patients with mental illness. Comparing the analysis by several researchers or code-recode procedures were not done for practical reasons. Moreover, dependability is based on the assumption of the repeatability of the study. Therefore the study process was described in detail so that other researchers can follow the process. (Silverman 2001, Polit et al. 2004.)

6.2 Discussion of the study results

The overall goal of this study was to identify areas which need to be improved to develop the quality of patient education to support self-management of patients with mental illness in psychiatric hospitals. The results of the study are next discussed according to the sub-goals of the study regarding patients’ perceptions, realisation and outcomes of patient education to support self-management.

Patients’ perceptions of patient education to support self-management on psychiatric hospital wards

Patients reported dissatisfaction with the information they received (Paper I) and claimed that they did not receive sufficient information on the topics of their interest (Paper II). The results are in line with earlier studies where patients have expressed low satisfaction with information concerning treatment and illness (Alexius et al. 2000, Allen et al. 2003), medication (Howard et al. 2003, O’Donnell et al. 2003, Gray et al. 2005), the right to complain and the right to review their own medical records (Alexius et al. 2000, Siponen et al. 2003). The finding is important because it illustrates the need to investigate different aspects of patient education and further to develop patient education to support self-management in psychiatric hospitals.

A number of explanations has been evinced for patients’ dissatisfaction with patient education. In this study, there were no associations between the satisfaction with information and patients’ background variables (Paper I). This finding is also supported by earlier studies where age, gender, income and formal education have showed no clear connection to the patients’ satisfaction with the information (Alexius et al. 2000, Middleboe et al. 2001, Robertson et al. 2002, Blenkiron et al. 2003, Bramesfeld et al. 2007).

On the other hand, patients with severe mental illness, such as psychosis, have been less satisfied with information (Alexius et al. 2000). This may be because of the cognitive deficits related to the mental illness and psychopharmaceutical medication that may impair patients’ capacity to receive and to process new information (Medalia et al. 2004, Goodman et al. 2005, Wong et al. 2005, Kim et al. 2006). A number of other patient related factors such as a lack of the prerequisite knowledge (Crowe et al. 2001, Allen et al. 2003, Sung et al. 2004), insight (Aleman et al. 2006), motivation (Hill et al. 2006) and life situation (Blenkiron et al. 2003) have been shown to be associated with patients' satisfaction with patient education. In other words, lower satisfaction with information among patients with severe mental illness may also be partly due to their dissatisfaction with their life situations in general (Blenkiron et al. 2003).

Due to these patient related factors associated to patients' dissatisfaction with patient education, there may also be a tendency to consider patients with mental illness to be passive or incompetent persons who are less willing or able to receive information about their own care (Crowe et al. 2001, Roberts et al. 2002). However, the study results showed that patients have considerable needs to receive information during their hospital stay (Paper II). In earlier studies patients have also considered realisation of patient education important during hospitalization (Pollock et al. 2004) and they have been interested in receiving information (Payson et al. 1999, Asher-Svanum et al. 1999, Lien et al. 2003, Hill et al. 2006). These results support initiatives to develop patient education, also in psychiatric hospital. It seems that offering patient education systematically to all patients is necessary to ensure information receiving and to support self-management among those patients with severe mental illness.

On the other hand, offering patient education to all patients is not enough to improve quality of patient education. This is because patients in psychiatric hospitals are heterogeneous group with individual needs (Lay et al. 2006) and problems related to patient education reported by patients included also other aspects such as problems in interaction, and the lack of the prerequisite knowledge (Paper II). These problems in patient education are not new in psychiatric care (Crowe et al. 2001, Feldmann et al. 2002, Marcum et al. 2002, Shin et al. 2002, Allen et al. 2003, Coombs et al. 2003, Pollock et al. 2004, Sung et, al. 2004, Burlingame et al. 2006). Despite considering patient education important in clinical practice (NICE 2002, APA 2004, The Finnish Medical Society Duodecim and the Finnish Psychiatric Association 2004, 2008a, 2008b) these problems are still unsolved. Therefore, exploring patients' suggestions to develop patient education and developing patient education based on these suggestions is one way to improve patient education in psychiatric hospital.

Investigating patients' suggestions for the future development of patient education yielded useful information for procedures in patient education, interaction between patient and nurse during patient education sessions and educational methods (Papers II, V). The results are also supported by earlier studies where therapeutical interaction (Crowe et al. 2001, Allen et al. 2003) and use of a combination of different education methods have been related to improved patients' satisfaction with patient education and its efficiency (Pevler et al. 1999, Jimison et al. 1998, Jones et al. 2001, Zygmunt et al. 2002, Colom et al. 2003, Proudfoot et al. 2003, Haynes et al. 2005, Johnson et al. 2005).

Systematic patient education procedures were perceived to be useful and individual by patients (Paper V). Patient education to support patients' self-management should be based on patients needs (Bonderheimer et al. 2002). On the other hand, systematic treatment procedures have also raised concerns about the loss of individuality (Miller et al. 2004). However, in light of the findings of this study there is no conflict between taking patients' individuality into account and systematic patient education procedures. To provide patient education based on patients' needs it seems important to involve patients in the planning of patient education in a more active way (Paper V). This may be one way to identify informational areas important to patients and also to identify different patient related factors hindering the realization of patient education such as cognitive difficulties (Medalia et al.

2004, Goodman et al. 2005, Wong et al. 2005, Kim et al. 2006) and dissatisfaction with life situation in general (Blenkiron et al. 2003). Involving patients in the planning of patient education also supports the realization of patients' role as active in decision making concerning their own condition, which is important part of self-management (Lorig et al. 2003). In addition, this might help patients to experience psychiatric hospital care more structured and understandable (Koivisto et al. 2004).

In this study interaction between patient and nurse was perceived by patients to be the essential element of patient education need to be developed regardless of what educational methods were used (Papers II,V). Even though, the result is in line with earlier studies (Crowe et al. 2001, Allen et al. 2003, Bramesfeld et al. 2007), it raises questions because the trusting relationship that is unique with each patient is considered a crucial part of psychiatric nursing (Peplau 1997, McQueen 2000). Furthermore, nurses' role is to support patients to receive, manage and adapt information to their individual life-situation taking into account patients' individual resources (Bonderheimer et al. 2002, Lorig et al. 2003, INC 2005, Bäuml et al. 2006). Patients also expect consistent relationship with nurses who are equipped with professional skills and values to enable meaningful interactions (Bee et al. 2008). Thus, interaction between patient and nurse, as a crucial part of nursing, is also essential part of patient education to support self-management. However, clear communication between patient and staff may be disturbed due to several issues, especially in psychiatric hospitals. For example, patients may be in an unfamiliar situation, they are dependent on staff and they may have cognitive difficulties (Medalia et al. 2004, Goodman et al. 2005, Wong et al. 2005, Kim et al. 2006 Bramesfeld et al. 2007). Furthermore, deficiencies in staff's communication and patient education skills have been revealed (Maguire et al. 2002, Allen et al. 2003, Pollock et al. 2004, Bee et al. 2008). Therefore there is clearly a need to pay attention to staff's skills in providing systematic patient education through patient-centred communication.

Regarding educational methods, patients suggested that to improve patient education there is a need to combine different patient education methods in clinical practice and also to offer opportunities for independent information seeking in ward environment (Papers II, V). The use of a combination of different educational methods has also been found to be effective (Murray et al. 2005, Haynes et al. 2006) and accepted among patients (Chou et al. 2004, Johnson et al. 2005). On the other hand, concerns emerged especially in relation to computer assisted patient education (Paper V). Loss of individuality, safety issues as well as credibility and inconsistency of information are essential issues when information technology is used in health care (European Communities 2007). Information technology as a part of patient education is quite new in the field of psychiatric care (Lewis 2003, Wofford et al. 2005). However, different information technology solutions will be increasingly used in health care (European Communities 2007). Therefore it is important that health professionals are ready for this transformation and have the skills to guide patients to use the health information available on the Internet safely (Mc Mullan 2006). This supports also patients' independent information seeking which might also be one way to increase their engagement and activities during hospitalization (see. Radcliffe et al. 2007).

On the basis of the patients' perceptions the development of patient education to support self-management seems to be important in psychiatric hospitals. From patients perspective areas need to be developed are offering patient education systematically to all patients, defining patients' individual needs for patient education, providing patient education through active, individual and respectful interaction and supporting patients' independent information seeking. However, there was still limited information available on how patient education is carried out in psychiatric hospitals (Albada et al. 2007). Therefore Phase III was conducted to describe patient education practises in psychiatric hospital wards.

Realisation of patient education practices on psychiatric hospital wards from the staffs' perspective

The results of the study showed that the content of patient education covered almost all the informational areas investigated (Paper III). However, patients' dissatisfaction with information receiving have revealed in this study (Papers I, II) and in earlier studies (Alexius et al. 2000, Allen et al. 2003, Howard et al. 2003, O'Donnell et al. 2003, Siponen et al. 2003, Gray et al. 2005). Therefore, the increasing amount of information does not seem to be the way to improve patient education. In this study, staff reported a number of quality gaps in the realisation of patient education in psychiatric hospitals. These were related to the methods of communication, individuality, staff's on-the-job training and patient education procedures. (Paper III.) These aspects have been considered important also by patients (Papers II, V). Targeting improvement at these areas is one way to improve the quality of patient education practices to support patients' self-management in psychiatric hospitals.

Patient education was mostly carried out orally and with leaflets (Paper III). Despite patients' preferences (Papers II, V) and the number of educational methods developed (Pekkala et al. 2002, Lewis 2003, Barret 2005, Crawford-Walker et al. 2005, Morriss et al. 2007, Haynes et al. 2008), patient education is often carried out through discussions between patient and staff without using other methods (Pevler et al. 1999, Pollock et al. 2004). This may partly be due to the poor availability and knowledge on material e.g. books, CD-ROMs and Internet access (Marcum et al. 2002, Pollock et al. 2004, Vaitheswaran et al. 2009). Moreover, patients' individual needs for certain communication methods were not met (Paper III). This was also revealed in this study by patients (Papers II,V) and in earlier studies (Crowe et al. 2001, Feldmann et al. 2002, Shin et al. 2002, Allen et al. 2003, Pollock et al. 2004, Sung et, al. 2004, Burlingame et al. 2006, Bee et al. 2008).

On the study wards there were only few systematic procedures and instructions regarding patient education. (Paper III.) This may partly explain the fact that the practices in patient education vary widely across psychiatric care organizations (Rummel-Kluge et al. 2006) and there are clear deficiencies related to the realization of patient education in psychiatric hospitals (Feldman et al. 2002, Rummel-Kluge et al. 2006). Therefore it seems important to develop systematic procedures which support professionals to use different educational methods on basis of patients' preferences.

In addition to development of systematic patient education procedures, staff should have adequate skills to provide patient education. Staff rarely received adequate on-the-job training (Paper III). Earlier studies have reported the same kind of problems such as lack of resources and knowledge of how to implement patient education with different methods in clinical practice (Maguire et al. 2002, Coombs et al. 2003, Pollock et al. 2004, Koivunen et al. 2008). However, in Finland we have good recourses of adequate and well-trained professionals in the field of psychiatric services (WHO 2007, OECD 2008). Therefore, improving staff on-the-job training might be unproductive unless actions are not also targeted to the other aspects of patient education (Deccache et al. 2001, Glasgow et al. 2003, Bee et al. 2008). The results of this study indicate that poor operating conditions in terms of equipment and places hinder the realisation of patient education from the staff's perspective (Paper III). Therefore, workability and availability of equipment such as Internet connections and appropriate peaceful places to deliver patient education should be arranged.

Investigation of the realisation of patient education practices showed that there is a need for patient education procedures to support self-management in psychiatric hospitals. These guidelines and instructions should thoroughly consider different domains of patient education including content, communication methods, definition of patient’s individual needs, as well competence of personnel and operating conditions.

Impacts of different patient education methods on patients’ attitudes, knowledge level and importance of information

The results indicate that patients with schizophrenia derive benefit from structured patient education with supportive methods such as computers and leaflets. Self-management connotes patients’ achievement the knowledge, skills, and confidence to manage their health and behavior (Lorig et al. 2004). Patient education methods used in this study had a beneficial effect on patients’ perception of the importance of information (Paper IV). The results are also comparable with systematic literature reviews (Pekkala et al. 2002, Wofford et al. 2005, Spek et al. 2006, Kaltenhaler et al. 2008) and other studies (Jones et al. 2001, O’Donnell et al. 2003, Byerly et al. 2005, Bäuml et al. 2007), which have shown benefits of patient education and computer assisted interventions for patients with mental illness. Although that IT-based patient education, conventional patient education or standard care did not have a superior impact on patients’ attitudes to medication over 12 months, structured patient education offers an alternative and could provide a more efficient approach for information dissemination to patients in psychiatric hospital care (Paper IV).

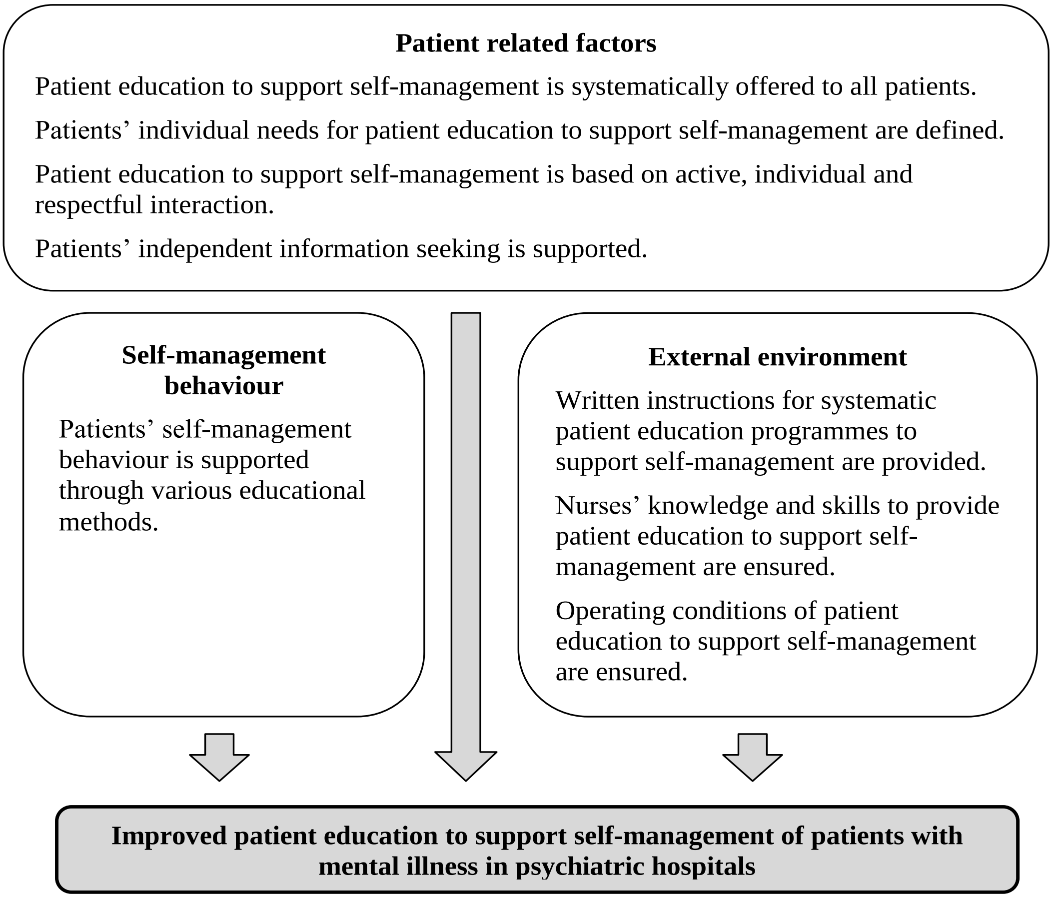
On the basis of the follow-up rates, IT-based patient education and conventional patient education seem to be acceptable interventions. However, patients who discontinued IT-based patient education had longer previous treatment periods than those who remained in the study. (Paper IV.) This does not necessarily indicate that IT-based patient education is not an appropriate intervention for those patients because these interventions have been shown to be usable for patients with severe mental illness (Bellucci et al. 2003). Rather it indicates a need to consider patients' individual preferences related to the use of these methods. This is also supported by other phases of this study, were patients emphasized the importance of individuality of patient education (Papers II, V). Additionally, it can be assumed that when computerized interventions are used increasingly in psychiatric hospitals (European Communities 2007) patients are increasingly willing to use them as a part of their care.

Information and communication technology is used by the most of the people in the EU countries and usage in increasing (Euro Stat 2008). Finland is one of the frontrunners in information society developments in all respects (European Commission 2009). In health care the most common information and communication technology applications under development and implementation are electronic health records and electronic patient summaries (Hämäläinen et al. 2008). However, development and implementation of applications targeted to patients are not developed and implemented in a same range. Information and communication technology can contribute strongly to improvements in the effective participation of groups at risk of exclusion, and further improve the self-management of people with chronic illnesses such as mental illnesses (European communities 2007). In psychiatric hospitals information and communication technology might be one way to support patients' engagement and activity (Radcliffe et al. 2007). This is still important because patients with sever mental illness such as schizophrenia suffer isolation, a loss of social relationship and they have poor employment prospects in society (Nikkonen 1996, Graf et al. 2004, Thornicroft et al. 2004). Therefore to support patients self-management these applications should be increasingly used also in the field of mental health services (see European Commission 2005, Hautala-Jylhä et al. 2006, European Communities 2008).

Information technology itself is not only solution to develop patient education to support patients' self-management. The results indicate that structured patient education also with leaflets derived benefits for patients. Thus, structured patient education seems to be one way to develop patient education that meets patients' individual needs and further, support their self-management. In other words, to support patients' self-management in terms of ability to improve and maintain their health as well as to cope independently with their mental illness (Clark et al. 1991, Levin-Zamir et al. 2001, Barlow et al. 2002, Lorig et al. 2003) patients should have opportunities to these systematic interventions provided by health care professionals (Embrey 2006). This to be achieved, multilevel improvements are needed in mental health services (Deccache et al. 2001, Glasgow et al. 2003). Based on the results of this study (Papers I, II, III, IV and V) these improvements should be targeted to patient related factors, external environment and self-management behaviour (see Bandura 1989, 2001, 2004).

6.3 Implications of the study

The overall goal of this study was to identify areas which need to be improved to develop the quality of patient education to support self-management of patients with mental illness in psychiatric hospitals. The areas which need to be improved are identified from the findings of five study phases involving patients' perceptions of patient education, referring to patient related factors; the realisation of patient education practices, referring to external environment and; outcomes of patient education, referring to self-management behaviour (see Bandura 1989, 2001, 2004) (Figure 7). The study results offer implications for the development of patient education to support self-management among patients with mental illness, particularly in psychiatric hospitals. The study results can be used in different fields including nursing practice, management, education and nursing science.



Patient related factors

Patient education to support self-management is systematically offered to all patients.

Patients' individual needs for patient education to support self-management are defined.

Patient education to support self-management is based on active, individual and respectful interaction.

Patients' independent information seeking is supported.

Self-management behaviour

Patients' self-management behaviour is supported through various educational methods.

External environment

Written instructions for systematic patient education programmes to support self-management are provided.

Nurses' knowledge and skills to provide patient education to support self-management are ensured.

Operating conditions of patient education to support self-management are ensured.

Improved patient education to support self-management of patients with mental illness in psychiatric hospitals

Figure 7. Areas to be developed to improve patient education to support self-management in psychiatric hospitals

To improve patient education to support self-management in psychiatric hospitals the following aspects regarding patient related factors, external environment and self-management behaviour should be considered:

Patient related factors

1. *Offering patient education systematically to all patients* in psychiatric hospital. Patients have considerable needs to receive information during their hospital stay and ensuring patient education for all patients is perceived useful by patients. However, patient education should be based on patients' individual needs. Therefore, patient education should be offered to all patients based on their individual needs.
2. *Defining patients' individual needs.* Patients perceive it important for successful patient education that their individuality is taken into account by staff. Therefore, to define patients' individual needs related to patient education to support self-management the following aspects should be considered together by patients and staff: patients' informational needs, patients' life situation, and patients' capability to participate patient education. This could be realised by planning patient education together with patients and staff as a part of the treatment plan.
3. *Providing patient education through active, individual and respectful interaction.* Patients want to receive patient education through discussions with staff using supportive methods. Patients expect discussions to be based on active, individual and respectful interaction between patient and nurse. Interaction between patient and nurse is perceived important regardless of what educational methods were used. Thus, patient education should be provided through active, individual and respectful interaction in relation to different educational methods.
4. *Supporting patients' independent information seeking.* Patients also want to seek information independently. Therefore, patient education to support self-management should include information supporting patients' independent information seeking from various sources. Moreover, the ward environment should be organised to support patients' independent information seeking in terms of available and workable information sources.

External environment

5. *Providing written instructions for systematic patient education programmes.* Staff consider patient education problematic because of a lack of systematic procedures and instructions. Thus, there is need to provide written concrete instructions for systematic patient education programmes including different aspects of patient education to support self-management.
6. *Ensuring nurses' knowledge and skills* to provide patient education to support self-management. Realisation of familiarization and continuing education related to patient education to support self-management was deficient. Thus, patient education to support self-management should be included as a part of familiarization and continuing education of staff.
7. *Ensuring operating conditions* including equipment and places. Poor operating conditions in terms of equipment and places were perceived to hinder the realisation of patient education from the staff's perspective. Therefore, workability and availability of equipment such as Internet connections and appropriate peaceful places to deliver patient education should be arranged.

Self-management behaviour

8. *Different educational methods are used* to support patients' self-management. Patients derive benefit from structured patient education with supportive methods such as computers and leaflets. Therefore, structured patient education with different educational methods should be considered a useful approach to support patients' self-management.

In nursing practice, study results can be used to create a comprehensive picture to develop and provide patient education to support self-management. In the field of psychiatric nursing there is an increasing need to develop and implement systematic practices also including educational interventions. This improves the transparency and quality of nursing interventions. Moreover, the study findings offer initiatives for nurses to take into account patients' individuality when patient education to support self-management is provided. Although interaction between patient and nurse is considered a crucial part of psychiatric nursing, the research findings emphasise the importance of active, individual and respectful interaction during patient education. Therefore, these aspects should not be considered too self-evident. However, despite the importance of interaction related to patient education, there is also a need to use supportive educational methods as a part of everyday clinical work to support patient self-management behaviour. Regarding the external environment, the research findings also offer initiatives for nurses to arrange the ward environment to ensure the realisation of patient education to support self-management and opportunities for patients' independent information seeking.

Regarding nursing management, the research findings can be used in implementing patient education practices to support self-management and also as a part of organisations' quality management. The findings indicate that systematically provided patient education is one way to support patients' self-management during psychiatric hospital treatment. Organisations' management have an important role in ensuring the realisation of systematic practices. The findings provide a framework to create systematic patient education procedures at organizational level. These procedures should include different aspects of patient education. Moreover, the research findings can be used for managing the implementation process of these systematic procedures. This means taking into account existing procedures, staffs' competence, availability and workability of patient education methods and environmental factors. In psychiatric hospitals especially there is a need to pay attention to patients' opportunities for independent information seeking. The research findings can also be used as a part of quality management when evaluating patient education practices and outcomes.

In the field of nursing education, the research findings offer a knowledge base to plan the content of professional education and continuing education. They also offer essential topics to be included in the nursing education curriculum. This is one way to ensure nurses' basic capabilities to plan, provide and evaluate patient education to support self-management systematically through effective methods. Additionally, the findings will be useful when planning the contents of continuing education to meet the needs arising in clinical practice.

Regarding implications for nursing science the study generated a knowledge base on patient education to support self-management and the use of different research methods in the field of psychiatric nursing. The study generated knowledge to target future research on patient education to support self-management among patients with mental illness. Patients' participation in the development of the patient education programmes used in this study yielded important information on how patients' involvement can be supported as active participants in different study phases, not only as informers. The use of different designs and data collection methods enabled us to gain a wide perspective on patient education to support self-management as a nursing intervention. For the development of nursing science it is important to conduct evaluation research on nursing interventions.

6.4 Suggestions for future research

Future research on patient education to support self-management of patients with mental illness is still much needed. The importance of self-management will increase in our society, especially among patients with mental illnesses (European Commission 2005). The role of nurses working in the field of psychiatric care is important to support patients’ self-management. Therefore, to ensure the realisation of evidence-based nursing, high quality research on patient education to support self-management is needed in the field of nursing science also including the multidisciplinary perspective. To gather more evidence on patient education to support self-management in psychiatric care, suggestions for future research are as follows:

1. Systematic and usable methods which support staff in evaluating patients' individual needs related to patient education to support self-management more comprehensively should be explored.

2. Patient education criteria to support self-management should be developed on the basis of the research findings. Further, the usefulness of the criteria developed needs to be evaluated in psychiatric hospitals and in other mental health care contexts from the patients, staff and organisations perspective.

3. Regarding staff competence, there is a need to investigate effective methods to support nurses' knowledge and skills to provide patient education to support self-management.

4. Evidence-based knowledge about the use of information technology to support self-management of patients with severe mental illness should be provided through systematic literature reviews.

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