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To Nilla-Olivia, Neeve, Mirho
and all my close ones

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ABSTRACT

The aim of this study was to gain an understanding of the stigma toward people with mental disorders in health care and society. The study was carried out as a mixed methods study that included four phases. First, the perceptions and associated factors of self-stigma among clients (n=898) in outpatient psychiatric services were investigated. Second, the topic of stigma in the curriculums of general nurse education programs at universities of applied sciences (n=11) was investigated. Third, the stigmatizing attitudes and associated factors that primary health care nurses (n=218) had toward people with mental disorders are described. Fourth, a systematic literature review of 55 studies and a meta-analysis of 45 interventions were performed, aiming to describe interventions to reduce stigma and effectiveness of domains of the interventions. Quantitative data were analyzed with statistical methods, and qualitative data also with narrative analysis.

According to the results of four phases, first, self-stigma exists among clients with mental disorders. Clients with affective disorders have higher self-stigma than those with psychotic disorders. Long durations of illness and depressive symptoms were also associated with self-stigma. Second, in nursing education at universities of applied sciences, the descriptions of stigma varied in the the different curriculums regarding stigma. Stigma was included only to a limited extent in the content of the courses; only two curriculums out of eleven curriculums included a clear description of stigma. Third, in primary health care, nurses had both positive and stigmatizing attitudes toward people with mental disorders. Positive attitudes were associated with nurses being older and having additional training in the field of mental health. Fourth, descriptions of interventions were at times unstructured and limited. The effectiveness of the interventions to reduce stigma proved to be effective in domains.

Stigma toward people with mental disorders is a multifaceted phenomenon that can be viewed from many angles in health care and society. More actions are needed to prevent self-stigma. Therefore, students should be educated about stigma and health care professionals should have access to regular additional mental health training. Effective interventions for stigma reduction decrease stigma among people with mental disorders and increase positive attitudes held by nurses. More research is needed to increase awareness and strengthen understanding about stigma toward people with mental disorders.

KEYWORDS: education, health care, intervention, nurse, people with mental disorder, stigma

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TIIVISTELMÄ

Tutkimuksen tavoitteena oli saada ymmärrystä stigmasta (häpeäleima), joka kohdistuu mielenterveyshäiriötä sairastaviin ihmisiin terveydenhuollossa ja yhteiskunnassa. Tutkimus toteutettiin monimenetelmätutkimuksena neljässä vaiheessa. Ensimmäisessä vaiheessa selvitettiin psykiatrian avohoidossa olevien mielenterveysasiakkaiden (n=898) näkemyksiä itsestigmasta ja yhteydessä olevia tekijöitä. Toisessa vaiheessa selvitettiin sitä, miten stigman opetus kohdistuu sairaanhoitajakoulutuksen opetussuunnitelmiin ammattikorkeakouluissa (n=11). Kolmannessa vaiheessa kuvattiin perusterveydenhuollossa työskentelevien hoitajien (n=218) leimaavia asenteita mielenterveysasiakasta kohtaan ja yhteydessä olevia tekijöitä. Neljännessä vaiheessa toteutettiin systemaattinen kirjallisuuskatsaus (55 tutkimusta) kuvaamaan interventioita ja meta-analyysin avulla tarkasteltiin interventioiden (n=45) osa-alueiden vaikuttavuutta stigman vähentämisessä. Määrälliset aineistot analysoitiin tilastollisilla menetelmillä ja laadulliset aineistot myös narratiivista analyysia käyttäen.

Tulosten perusteella ensinnäkin mielenterveysasiakkaalla esiintyi itsestigmaa; mielialahäiriötä sairastavilla asiakkailla itsestigmaa oli enemmän kuin psykoosia sairastavilla asiakkailla. Itsestigmaan oli yhteydessä myös pitkä sairaudenkesto ja masennusoireet. Toiseksi, opetussuunnitelmien kuvaukset vaihtelivat stigman osalta. Stigman opetus sisältyi vähäisessä määrin opetussuunnitelmiin; vain kahdessa opetussuunnitelmassa löytyi selvä kuvaus stigmasta. Kolmanneksi, perusterveydenhuollossa hoitajilla oli sekä myönteisiä että leimaavia asenteita mielenterveysasiakasta kohtaan. Myönteisempiin asenteisiin olivat yhteydessä hoitajan vanhempi ikä ja mielenterveysalan lisäkoulutus. Neljänneksi, stigmaa vähentäviä interventioita oli kuvattu vaihtelevasti. Interventioiden eri osa-alueet osoittautuivat vaikuttaviksi menetelmiksi stigman vähentämisessä.

Stigma on monitasoinen ilmiö, jota voi tarkastella useasta eri kulmasta terveydenhuollossa ja yhteiskunnassa. Tarvitaan lisää toimia itsestigman ehkäisemiseksi. Stigman opetus tulisi selkeästi sisältyä sairaanhoitajakoulutukseen ja terveydenhuollon ammattilaisten tulisi saada säännöllistä mielenterveysalan lisäkoulutusta. Vaikuttaviksi osoittautuneet interventiot vähentävät itsestigmaa ja lisäävät hoitajien myönteisiä asenteita. Tarvitaan lisää tutkimusta stigman tietoisuuden lisäämiseksi ja ymmärtämiseksi.

AVAINSANAT: hoitaja, interventio, koulutus, mielenterveysasiakas, mielenterveyshäiriö, stigma, terveydenhuolto

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Abbreviations

CINAHL	Cumulative Index to Nursing and Allied Health Literature
CRD	Centre for Reviews and Dissemination
ECTS	European Credit Transfer and Accumulation System
EDUFI	Ministry of Education and Culture and The Finnish National Agency for Education
ETENE	The National Advisory Board on Social Wekfare and Health care Ethics
FinFami	The Finnish Central Association of Families with People with Mental Illness
GASA	The Global Anti-Stigma Alliance
GBD	Global Burden of Disease
ICHI	The International Classification of Health Interventions
MIELI	Mental Health Finland
NAMI	National Alliance on Mental Illness
OECD	Organisation for Economic Co-operation and Development
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RCT	Randomized Conrolled Trial
RevMan	Review Manager
SD	Standard deviation
SPSS	Statistical Package for the Social Sciences
TIDieR	Template for Intervention Description and Replication
Valvira	National Supervisory Authority for Welfare and Health
WHO	World Health Organization

List of Original Publications

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

I Ihalainen N, Löyttyniemi E, Välimäki M. Self-stigma among clients of outpatient psychiatric clinics: A cross-sectional survey. *PLoS ONE,* 2022; 17(7): e0269465.

II Warwick-Smith K, Ihalainen N, Välimäki M. Supporting under-graduate general nursing students' mental health competence for primary care: a national-wide curriculum analysis. Manuscript.

III Ihalainen-Tamlander N, Vähäniemi A, Löyttyniemi E, Suominen T, Välimäki M. Stigmatizing attitudes in nurses towards people with mental illness: a cross-sectional study in primary settings in Finland. *Journal of Psychiatric and Mental Health Nursing*, 2016; 23 (6–7): 427–437.

IV Ihalainen N*, Välimäki M*, Long Q, Lantta T. The effectiveness of stigma reduction interventions associated with mental illness: a systematic review and meta-analysis. Manuscript.
* Joint first author

1 Introduction

Stigma toward mental disorders is a global health problem (Thornicroft et al. 2009, Seeman et al. 2016). Mental health is a basic human right (WHO 2022). Due to stigma and discrimination, the human rights of people with mental disorders have often been violated (WHO 2021). In several countries, mental health services are underserved because other illnesses take priority over mental health disorders in the service systems (WHO 2022). In Finland, The National Mental Health Strategy and Programme for Suicide Prevention for 2020–2030 suggests that people with mental disorders must be accepted, experience non-discrimination, and have equal rights (Ministry of Social Affairs and Health 2020). More than 970 million people worldwide, approximately 13% of the world's population, suffer from some type of mental health disorder; in this total, there are slightly more women than men (GBD 2019a, WHO 2022a). In Finland, one out of five people suffers from a mental disorder (OECD 2019).

People with mental disorders carry a double load (Thornicroft et al. 2022), suffering from symptoms and functional impairment (Mack et al. 2015), but also experiencing public and self-stigma with numerous consequences (Rüsch et al. 2005). Stigma not only burdens people with mental disorders; their family members and the general society are affected too (Corrigan et al. 2006a, Larson & Corrigan 2008). Public stigma—among the general population as well as among health care professionals—leads to discrimination and isolation (Corrigan & Rao 2012). In addition, people with mental disorders often want to be avoided or are considered unpredictable by others (Giandinoto et al. 2018). Further, self-stigma can lead to not seeking treatment, low self-esteem, impairment of quality of life, and even suicidal ideation (Kao et al. 2016, Oexle et al. 2017). Many different factors have been connected to both public stigma and self-stigma, such as sociodemographic or psychosocial factors, but results on these are discrepant (Dubreucq et al. 2021).

Stigma related to mental disorders has been described as a multifaceted concept (Thornicroft et al. 2007). Stigma is most commonly divided into public stigma and self-stigma. Public stigma consists of stereotypes, prejudices, and discrimination behaviors held by the general population, whereas with self-stigma, a person with a mental disorder has internalized prevailing prejudices (Corrigan & Watson 2002).

Due to the multifaceted nature of the concept, measuring and comparing the prevalence of stigma and its associated factors across different studies can be difficult because numerous stigma measures have been developed with various outcomes (Mittal et al. 2012, Grover et al. 2017). Stigma research has increasingly shifted from exploring public stigma to exploring self-stigma to better understand individuals' own experiences of self-stigma (Dubreucq et al. 2021, Thornicroft et al. 2022). In Finland, the general concepts of stigma have been studied to some extent (Wahlbeck & Aromaa 2011). As far as we know, the scope of this thesis is likely to be quite rare in the current Finnish context.

Due to changes in the health service systems, the implementation of mental health treatment is emphasized at the primary care level (Finnish Government 2022a, WHO 2022). The integration of mental health care services and primary care services aims to achieve less stigmatization, and more optimal and equitable health outcomes for all mental health clients (Shim & Rust 2013). It is of primary importance that the nursing staff working on the front line is aware of stigma, the importance of stigma in treatment, and their own attitudes (Pattyn et al. 2014). Stigmatizing attitudes have been studied in health care, for example, in mental health care and psychiatry, but less in primary health care. Therefore, more emphasis should be put on the knowledge of stigmatizing attitudes and their associated factors, especially in primary health care (Knaak et al. 2017, Birtel & Oldfield 2022, Ghuloum et al. 2022). In addition, there is a lack of information about how and to what degree general nursing students currently learn about stigma during their basic nursing education (Hartman & Phillips 2020).

Stigma is one of the most relevant barriers to the development of effective care and recovery in health care (Knaak et al. 2017, Oexle et al. 2018). A number of interventions have been developed to reduce stigma, such as educational and contact-based interventions (Thornicroft et al. 2016). When aiming to reduce stigma, it is essential to find out which factors are associated with stigma both for people with mental disorders and nursing staff. It is also important to know who would benefit from interventions and in what ways. Detailed descriptions and knowledge of the effectiveness of specific intervention domains are still lacking. However, it is important to know how to develop and implement sufficiently effective methods to prevent and reduce stigma (Linden & Kavanagh 2011, Mittal et. 2014, Clay et al. 2020).

The overall aim of this study was to understand stigma toward people with mental disorders in health care and society. To achieve this goal, a study was conducted with four sub-aims. First, a cross-sectional survey was conducted to describe experiences of self-stigma among people with mental disorders in outpatient psychiatric services, and the factors associated with self-stigma. Second, a document analysis was conducted to describe how stigma is targeted in general

nurse education programs based on the curriculums at the Finnish universities of applied sciences. Third, a cross-sectional survey was studied to describe the stigmatized attitudes of nurses in primary healthcare centers, and the factors associated with these attitudes, to gain an understanding of the prevailing situation in Finland. Fourth, a systematic review and meta-analysis were carried out to describe interventions used to reduce stigma toward people with mental disorders, and to summarize key domains and their effectiveness in reducing stigma.

In this study, the term *mental disorder* refers to a range of mental disorders such as depression, bipolar affective disorders, schizophrenia, anxiety disorders, and others. In one of the sub-phases —investigating self-stigma among adults in outpatient clinics the term is limited to affective disorder and psychotic disorder. The other sub-phases had no limitation related the term usage. In addition, the literature describes different types and aspects of stigma, but in this study, the most common types, self-stigma and public stigma, and most common aspects, stigmatized attitudes and stigma in general, were investigated.

This doctoral thesis was conducted in the discipline of Nursing Science. The main concepts in the nursing metaparadigm are person, health, environment, and nursing (Fawcett 1984). In this study, these concepts are considered as follows: person refers to both a person with a mental disorder and a registered or practical nurse. Health means the mental health of the person. In addition, stigma is described as a multifaceted phenomenon, which is related to health on many levels. Environment refers to the care environment in psychiatric outpatient clinics and primary health care centers, as well as to the curriculums of the universities of applied sciences. Nursing is the context in which stigmatized attitudes can occur in the treatment of people with mental disorders and in interventions for stigma reduction.

2 Review of the Literature

2.1 Mental disorders in the adult population

Mental disorders are one of the leading contributors to the global burden of illness (Patel et al. 2018, GBD 2019a). Mental disorders contribute to significant disturbances in an individual's thinking and to how they regulate emotions or behavior (WHO 2021). The most common mental disorders worldwide include anxiety disorders, depression, bipolar disorder, schizophrenia, and other psychotic disorders (WHO 2022a, GBD 2019a). Anxiety disorders affect 284 million people, which is 3.8% of the world's population. Affective disorders (e.g., depression) affect 279 million people, or 3.8%, while bipolar disorder affects 40 million people, 0.5%. Psychotic disorders such as schizophrenia and schizoaffective disorder affect nearly 24 million people, or 0.3% (GBD 2019b, WHO 2019). Due to COVID-19, it has been estimated that there has been a 28% increase in depressive disorders in 2020 worldwide (WHO 2022b).

Every year, more than one in six people in the EU have mental health problems (OECD 2020). In Finland, among the different mental disorders, depression has been found to be one of the most rapidly increasing health problem (Pirkola et al. 2005, Markkula et al. 2015). The prevalence of depression in adults and in adolescents is 5–7% (Pirkola et al. 2005, Duodecim Käypähoito 2022). The prevalence of psychotic disorders is approximately 3.5% of the population (Perälä et al. 2007). Schizophrenia alone affects 0.5–1.5% of the population (Duodecim Käypähoito 2022). Information about bipolar disorder is not yet very accurate (Duodecim Käypähoito 2021), but its prevalence is estimated to be less than 1% of the adult population (Perälä et al. 2007, Suvisaari et al. 2009).

Mental disorders have consequences at the individual, familial and societal levels (Doran & Kinchin 2019). First, on the individual level, a high number of consequences in functional disabilities have been reported (Alonso et al. 2004, Mack et al. 2015). Disability connected to mental disorders leads to social isolation (Haddad et al. 2014), a lower possibility of full-time employment, financial burden and a decrease in the quality of life (Alonso et al. 2004, Viron & Stern 2010, Mack et al. 2015). People with mental disorders generally have worse physical health than that of the general population (Chesney et al. 2014), and access to treatment for

physical problems is more difficult for this vulnerable group (Mitchell et al. 2009). Co-morbidities related to mental health disorders may be overlooked more often than with physical illnesses (Viron & Stern 2010, Chesney et al. 2014). As an outcome, people with mental disorders have a shorter life expectancy than the general population (Chesney et al. 2014, WHO 2019); likewise, this group has a higher mortality rate (Chesney et al. 2014, Plana-Ripoll et al. 2020). It has been estimated that people with mental disorders live 10–20 years less than the general population (Walker et al. 2015, Liu et al. 2017). The main causes of mortality are natural causes such as cardiovascular disease, cancer, and diabetes (Colton & Manderscheid 2006). For example, people with major depression and schizophrenia have a 40–60% higher risk of dying prematurely due to uncontrolled physical health problems, compared to the general population (WHO 2022a). However, according to a recent Finnish study it seems that, contrary to the previous assumption, increased excess mortality related to mental health disorders does not occur as often when people with mental disorders within both primary care and specialized care are taken into account (Suokas et al. 2022a, Suokas et al. 2022b). Suicide rates among people with mental disorders are high in Europe (WHO 2023). However, suicide rates decreased by more than 30% in almost all OECD countries between 1990 and 2017, and by 29% between 2000 and 2019 (OECD 2022). For Finland, the decrease was significant with the suicide rates falling by more than 40% between 1990 and 2017 (OECD 2019). Still, compared to other OECD countries (n=39), Finland ranked 9th in suicide rates among these countries between 2019 and 2020 (OECD 2022).

Second, on the familial level, the importance of caregivers is extensive in the lives of people with mental disorders (Lespine et al. 2022). Caregivers may help with practical daily life tasks and in providing emotional and financial support (Chen et al. 2019, Ntsayagae et al. 2019). Specifically, studies have shown that caregivers experience distress and burden, which degrades their psychological well-being (Alyafei et al. 2021, Phillips et al. 2022) and quality of life (Ribé et al. 2018, Cheng et al. 2022). They may also be at a risk of a mental disorder themselves, such as depression (Ampalam et al. 2012, Souza et al. 2017, Lespine et al. 2022). In a recent scoping review of 92 studies, Phillips et al. (2022) studied the effects of caregivers' wellbeing and family-caregiving. They found that older, female, spousal and primary carers may suffer from a lack of mental and physical well-being due to having a mentally ill relative (Phillips et al. 2022).

Third, on the societal level, direct and indirect costs of serious mental health disorders, such as economic burden and loss of productivity, are considerable (Viron & Stern 2010). The economic burden is expected to continue to grow in the coming years (Arias et al. 2022). According to a recent systematic review of 143 studies from 48 countries, Christensen et al. (2020) confirmed the economic burden for societies worldwide, and they also found cost variations between mental disorder types and

between countries. Based on the review, almost half of the total costs were caused by indirect costs associated with morbidity and mortality, and not direct costs such as health care resources (Christensen et al. 2020). In Finland, the annual total costs due to mental health disorders are about 11 billion euro (OECD 2018). In 2021, mental health disorders were the cause of a disability pension for more than half (54%) of all disability pensioners. Currently, depression (29%) and schizophrenia (25%) are the two most common diagnoses that qualify for a disability pension in Finland (Finnish Centre for Pensions 2022). At the same time, people with schizophrenia have been found to have the highest unemployment rate (range from 89% to 94%) of those with serious mental disorders (Hakulinen et al. 2019).

2.2 Service systems for people with mental disorders

Every citizen should have the right to sufficient social and health services (Constitution of Finland 731/1999). The Ministry of Social Affairs and Health enacts legislation and directs its implementation. Finnish health care services are regulated in the Health Care Act (1326/2010). The current main laws regulating the organization of mental health services are the Primary Health Care Act (66/1972), the Mental Health Act (1116/1990) and the Act on Specialized Medical Care (1062/1989) (Ministry of Social Affairs and Health 2022b). Municipalities are responsible for social welfare and health care services. The services can be arranged by the municipalities themselves or through the formation of municipal associations. Municipalities can, if necessary, also acquire social and health services from, for example, organizations or private service providers (Ministry of Social Affairs and Health 2022).

In 2023, the social and health care reform will strengthen primary health services and transfer the responsibility for organizing social and health services from municipalities to the provinces (Ministry of Social Affairs and Health 2022). The focus of health care will be further shifted from specialized medical care to the primary care level (Finnish Government 2022a). Legislation on mental health and substance abuse will be reformed so that mental health and substance abuse services should primarily be regulated by the Social Welfare Act (1301/2014) and the Health Care Act (1326/2010) (Finnish Government 2022b). Despite the fact that mental health and substance abuse disorders are a heterogeneous group of disorders, the health services of many countries organize their services for these groups separately (GBD 2019). In Finland, to ensure the continuation of goal-oriented mental health work, the Ministry of Social Affairs and Health has formed mental health policy guidelines, included in the The National Mental Health Strategy and Suicide Prevention Agenda 2020–2030 (Ministry of Social Affairs and Health 2020).

Mental health services are conducted in primary health care and offer guidance, psychosocial support and treatment, for example (Ministry of Social Affairs and Health 2022b). Mental health care is carried out by professionals including doctors, nurses, public health nurses, practical nurses, psychologists, social workers, occupational therapists and physiotherapists (National Supervisory Authority for Welfare and Health, Valvira 2022), and is primarily implemented in outpatient and primary health services such as promoting mental health and prevention of mental health disorders (Ministry of Social Affairs and Health 2022b). Milder mental health problems should primarily be treated in primary health care; patients with more serious mental health problems should seek specialized medical care organized by hospital districts. Specialized medical care requires a doctor's referral and an assessment of the need for treatment at a psychiatric clinic or in psychiatric hospital care. In cases of emergency, the patient is directed to an emergency unit (Ministry of Social Affairs and Health 2022b) or to involuntary psychiatric care as permitted by law (Mental Health Act (1116/1990). Mental health services are also organized in the private sector and in the third sector where it is provided by organizations (Ministry of Social Affairs and Health 2022b). The Regional State Administrative Agencies guide and monitor public and private mental health services. The purpose is to promote well-being and health, develop services and prevent marginalization (Regional State Administrative Agencies 2022).

Nurses are the highly trained nursing professionals who do independent and responsible work based on nursing science (Suomen Sairaanhoitajat 2022). Finnish nursing education is organized at universities of applied sciences (polytechnics) (Finnish National Agency for Education 2022). The Ministry of Education and Culture and The Finnish National Agency for Education (EDUFI) are responsible for all education in Finland (Finnish National Agency for Education 2022). Applying to a nursing education program requires a previous degree such as Finnish matriculation examination or a vocational secondary degree. A bachelor's degree in health care, which registered nurses and public health nurses generally receive, takes from 3.5 to 4.5 years to complete. The number of credits needed to graduate varies from 210 to 240 ECTS: a degree to become a registered nurse requires 210 ECTS, while a degree to become a public health nurse requires 240 ECTS (Studyinfo 2022). Nursing education include basic, vocational, directional and optional studies, practical training and a bachelor's thesis. Nursing education includes mental health related studies as mandatory. In addition, directional and optional studies are chosen from areas of nursing based on one's own interest, such as mental health and psychiatric nursing (Studyinfo 2022). The universities of applied sciences are autonomous entities; each institution can plan the content of their curriculums as long as they take the general education requirements into account in their planning (Studyinfo 2022). However, the WHO's mental health competency framework for

primary care (WHO 2005) includes recommendations and can be used to consider competencies for the curriculums. The National Supervisory Authority for Welfare and Health (Valvira 2022) supervises health care professionals in the health care sectors. In order to be able to work as a nurse, Valvira issues the right to practice as a licensed professional (Valvira 2022).

2.3 Stigma and mental disorders

2.3.1 Definition for stigma

Stigma associated with mental health disorders is regarded as a universal and cultural phenomenon (Thornicroft et al. 2009). It is described as a multifaceted concept (Thornicroft et al. 2007). In existing literature, definitions for the concept of stigma can vary. Goffman (1963) defined stigma as a deeply discrediting attribute (Goffman 1963). According to Link and Phelan (2001), stigma comprises different, but concurrent, components such as labeling, stereotyping, separation, status loss, and discrimination (Link & Phelan 2001). Thornicroft et al. (2007) defined stigma as being connected to problems with knowledge (ignorance), problems with attitudes (prejudice), or problems with behavior (discrimination) (Thornicroft et al. 2007). Based on Weiner's attribution theory, Corrigan et al. (2003) defined stigma as relationships between knowledge and beliefs (e.g., controllability and responsibility), emotional responses (e.g., pity and fear) and behaviors (Corrigan & Watson 2002, Corrigan et al. 2003). Stigma has also been described as stereotypes and prejudice leading to discrimination (Corrigan et al. 2003).

Several types of stigma have been described in the literature. Examples of the different types of stigma are presented in Table 1.

Table 1. Types of stigma identified in the literature.

Type of stigma	Description
Public stigma	Negative attitudes and beliefs about individuals with mental disorders in the community (Corrigan et al. 2003).
Self-stigma/ Internalized stigma	The internalization of stigmatized public attitudes toward people with mental disorders (Corrigan et al. 2006).
Perceived stigma	The belief that negative attitudes toward people with mental disorders are held by the public (Brohan et al. 2011).
Experienced stigma	The experience of unfair treatment/discrimination due to a mental disorder (Brohan et al. 2011).
Personal stigma	Personal beliefs about mental illness consist of self-stigma, perceived stigma, and experienced stigma (Gerlinger et al. 2013).
Courtesy stigma/ Stigma by association/ Family stigma	Stigma extended to family and friends of a stigmatized person (Angermeyer et al. 2003).
Structural stigma/ Institutional stigma/ Systemic stigma	An institutions' policies, laws or cultural norms that limit the opportunities and well-being of people with mental disorders (Hatzenbuehler & Link 2014).

Literature distinguishes between the concepts of public stigma and self-stigma (Corrigan et al. 2003). Public stigma refers to negative stereotypes, attitudes and beliefs among the population related to mental disorders and people with mental disorders (Corrigan et al. 2003). People with mental disorders might be considered dangerous, guilty of their illness or unable to work (Gureje et al. 2005, Angermeyer & Dietrich 2006, Crespo et al. 2008). Self-stigma occurs when the person with a mental disorder internalizes invalidating beliefs held by the general population (Corrigan et al. 2006b). Self-stigma has also been described as a process that includes awareness, stereotype agreement, application and harm to self-esteem (Corrigan et al. 2006b, Corrigan et al. 2009). During this process a person who belong to a stigmatized group and is aware of the public stigma, first agrees with these negative stereotypes and prejudiced attitudes, then applies these stereotypes to themselves and, finally, experiences harm to their self-esteem due to the stereotypes (Corrigan et al. 2006b, Corrigan et al. 2012a).

2.3.2 Prevalence of stigma

The prevalence of stigma has been studied. In their systematic review and meta-analysis, Schomerus et al. (2012) found that public stigma has not decreased, but rather the social rejection of people with mental disorders has remained alarmingly stable for the past 20 years. A recent study from the USA found a significant decrease in public stigma toward major depression was found in the last two decades (Pescosolido et al. 2021). According to an extensive study from 229 countries, 45 % –51 % of the respondents of developed countries viewed mental disorder as an illness like any other illness, but on the other hand, only 7 % of the respondents thought that the mental disorder can be completely gotten over (Seeman et al. 2016).

Research on stigma has increasingly shifted from exploring public stigma to exploring experiences of self-stigma (Dubreucq et al. 2021, Ran et al. 2021, Thornicroft et al. 2022). The results showed that the prevalence of self-stigma is coherently high all over the world (Dubreucq et al. 2021). When comparing geographical areas, self-stigma was higher in the Middle East, Asia and Africa than in Europe and North America (Dubreucq et al. 2021). An average of 31% of people with serious mental disorders reported self-stigma; of the disorders, schizophrenia was most prevalent (36%) (Dubreucq et al. 2021). Gerlinger et al. (2013) found that the prevalence of self-stigma among people with schizophrenia ranges between 27% and 49%. According to a large study in Europe, one out of five people with bipolar disorder or depression experiences self-stigma (Brohan et al. 2011).

Stigmatization is common in Finland, but the situation is worse in many other European countries (Wahlbeck & Aromaa 2011). Aromaa (2011) studied the attitudes toward people with mental disorders in the general population in Finland in his academic dissertation (Aromaa 2011). The results showed that depressed people were not perceived to be responsible for their illness, but that they were nevertheless thought to be responsible for their recovery (Aromaa et al. 2011). Another study conducted in Finland with a qualitative design showed that both mental health clients undergoing rehabilitation and professionals identified stigma as a phenomenon affecting the majority of rehabilitants. Professionals felt that stigma toward mental disorder was directed more from the outside, while mental health clients perceived stigma as more complex, and that they had the opportunity to control it (Paananen et al. 2020). In comparing the results of the Mental Health Barometer from 2019 and 2021 (The Finnish Central Association for Mental Health 2021), there was more stigma toward mental disorders in 2021 than there was two years prior; four out of five people with a mental health disorder felt that stigma still existed in 2021. According to the 2019 barometer, approximately 47% of the people with mental disorders felt that they had become stigmatized due to their mental disorder (The Finnish Central Association for Mental Health 2021).

2.3.3 Consequences of stigma

Stigma has numerous consequences on the daily lives of people with mental disorders (Ong et al. 2020). Stigma has been recognized as being more stressful and impairing on a mentally ill person's life than the mental disorder itself (Thornicroft et al. 2016). Due to stigma and discrimination, the human rights of people with mental disorders have often been violated (WHO 2021). Stigma can lead to discrimination, isolation and low self-esteem (Corrigan & Rao 2012). Further, people with mental disorders feel loneliness (Świtaj et al. 2014), they are avoided or they are considered unpredictable by people, which negatively affects their quality of life (Corrigan & Rao 2012, Kao et al. 2016, Giandinoto et al. 2018).

Stigma may be a barrier to help-seeking (Schomerus et. al. 2009, Evans-Lacko et al. 2012) and treatment adherence (Fung et al. 2010). Public stigma suggests that those in mental health treatment are weak or crazy, which is why self-stigmatized people want to avoid experiences of discrimination by not seeking treatment (Corrigan et al. 2004). People may also have a poor insight into the benefits of treatment (Fung et al. 2010), which can lead to them not receiving necessary and timely mental health care (Henderson et al. 2013, Clement et al. 2015). This may also lead to delays of early recognition of the disorder, which poses a risk to recovery (Knaak et al. 2007). Self-stigma may reduce the chances of employment (Corrigan et al. 2012b). For example, self-stigma is connected to the "why try" effect, when a person with a mental disorder does not even try to do important things, such as applying for a job, because the expectation is already failure (Corrigan et al. 2009, Thornicroft et al. 2022). Studies have also shown that self-stigma experiences are associated with increased current and future suicidal ideation (Oexle et al. 2017, Jian et al. 2022). In addition, the families of people with mental disorders can experience stigma as feeling shame and guilt, as they blame themselves for possibly contributing to the mental disorder (Perlick et al. 2011, Hawke et al. 2013, Rössler 2016). This can lead to not seeking treatment in time for their relative with a mental disorder (Perlick et al. 2011, Samari et al. 2022).

2.3.4 Factors associated with stigma

Stigma can differ in various contexts and societies (Mascayano et al. 2020, Ran et al. 2021, Parra Videla et al. 2022). Public stigma as stigmatizing attitudes toward people with mental disorders exists not only among the general population but also among professionals in health care (Chambers et al. 2010, Henderson et al. 2014, Mittal et al. 2014, Vistorte et al. 2018, Lien et al. 2019, Sahile et al. 2019, Birtel & Oldfield 2022, Ghuloum et al. 2022). Health care professionals may consider people with mental disorders to be unpredictable (Koschorke et al. 2021). People with mental disorders want to be avoided (Moro & Rocha 2022) or they are thought to be

incapable of making decisions about their own lives (Svediene et al. 2009). Various factors of health care professionals such as culture, gender, and personal contact with the patient (Vistorte et al. 2018) have been associated with stigmatized attitudes toward people with mental disorders. Further, associations have been found with work experience, knowledge of mental health disorders (Sahile et al. 2019), and additional training (Sreeram et al. 2022), but contradictory results have also been found.

Regarding self-stigma, people with mental disorders can be aware of stereotypes without concurring with them (Corrigan & Watson 2002); thus, being aware of stereotypes alone does not directly lead to self-stigma (Rüsch et al. 2005, Carrara & Ventura 2018). Therefore, it is important to understand different underlying factors that may be connected to self-stigma (Lucksted & Drapalski 2015). Various factors have been studied in connection to self-stigma including patients' sociodemographics, such as age, gender and employment status (Kalisova et al. 2018), and illness-related factors, such as schizophrenia (Pellet et al. 2019) and depression (Holubova et al. 2016). In addition, psychosocial factors such as quality of life (Oliveira et al. 2016) have been studied, but the results on this are still ambiguous (Gerlinger et al. 2013, Ellison et al. 2013, Dubreucq et al. 2021). Therefore, it is important to examine which factors may be connected to the experience of stigma.

2.3.5 Measuring stigma

Due to its multidimensional nature, stigma can be measured from different perspectives (Link et al. 2004). Perhaps, therefore, measuring stigma poses challenges for selecting an appropriate instrument (Mittal et al. 2012). In a recent review by Fox et al. (2018), over 400 instruments were found to measure stigma, some of which were original and some modified. Stigma has been criticized as having vague definitions (Link et al. 2004). The phenomenon may be better understood, measured, and developed with more appropriate instruments if a detailed conceptualization of stigma existed (Link et al. 2004, Brohan et al. 2010, Kassam et al. 2012, Pescosolido & Martin 2015). In terms of specific instruments for stigma of mental disorders, there are various instruments with heterogeneous outcomes in use (Dubreuck et al. 2021, Ran et al. 2021).

The instruments used to measure stigma are usually self-reported questionnaires using the Likert scale (Polit & Beck 2017). These survey questionnaires can also use a vignette where all participants read the same short text and answer questions based on their impressions of the vignette's content (Link et al. 2004). The widely used instrument, Community Attitudes to Mental Illness (CAMI, Taylor & Dear 1981), aims to measure community attitudes toward mental illness. Subscales of the CAMI

are authoritarianism, benevolence, social restrictiveness, and community approach (Taylor & Dear 1981). Another commonly used instrument is the Social Distance Scale (SDS, Link et al. 1987). The SDS measures social distance related to people with mental problems (Link et al. 1987). To measure self-stigma, Internalized Stigma of Mental Illness (ISMI, Ritsher et al. 2003) has often been used. The ISMI measures subjective experiences of stigma using the subscales of alienation, stereotype endorsement, discrimination, social withdrawal and stigma resistance (Ritsher et al. 2003). In addition, the Self-Stigma for Depression Scale (SSDS, Barney et al. 2010) assesses stigmatizing attitudes a person has toward themselves in relation to depressive symptoms. The instrument includes four subscales; shame, self-blame, social inadequacy and help-seeking inhibition (Barney et al. 2010). See examples of the instruments measuring stigma presented in Appendix 1.

2.4 Programs reducing stigma toward people with mental disorders

Various international programs to reduce stigma have been developed and implemented in societies. These include the National Alliance on Mental Illness (NAMI), which aims to provide advocacy, education and public awareness activities for fighting stigma (National Alliance on Mental Illness 2022). The Global Anti-Stigma Alliance (GASA) aims to eliminate stigma and discrimination by conducting national anti-stigma campaigns in Western Europe, North America and other places around the world (The Global Anti-Stigma Alliance 2022). The Mental Health Atlas examined the mental health promotion and prevention functional programs of the member countries. The most reported program was one for mental health awareness/anti-stigma, which was reported by 51% of responding countries and made up 18% of all functional programs (WHO 2020a).

The Comprehensive Mental Health Action Plan for 2013–2030 includes recommendations for developing interventions to improve stigma, discrimination, and human rights violations (WHO 2021). The WHO (2020b) defines intervention as “any act performed for, with or on behalf of a person or population whose purpose is to assess, improve, maintain, promote or modify health, functioning, or health conditions” (The International Classification of Health Interventions [ICHI]). The Lancet Commission and Thornicroft et al. (2022) recommend numerous actions to reduce stigma in its program. For example, preliminary courses for professionals in health care and social care should include evidence-based sessions on stigma reduction aiming to increase responsiveness and awareness of stigma toward patients. The media should make action plans on how it promotes mental health and helps promote the reduction of stigma. In addition, national government programs aimed at reducing stigma and discrimination should be led by people with mental

disorder experience, or at least they should be co-leaders based on social contact (Thornicroft et al. 2022).

In Finland, one of the priorities of The National Mental Health Strategy and Programme for Suicide Prevention for 2020–2030 is mental health rights (Ministry of Social Affairs and Health 2020). It has stated that people with mental disorders have the right to be accepted, to have the experience of non-discrimination and to have equal rights. The strategy proposes a nationwide program against discrimination and stigma related to mental health and substance abuse disorders (Ministry of Social Affairs and Health 2020). Organizations also operate actively in the third sector, which increases awareness and information about stigma (e.g., The Finnish Central Association for Mental Health 2022, MIELI Mental Health Finland 2022, FinFami - Finnish Central Association of Families of People with mental illness 2022).

Three main strategies as core elements have been used to fight stigma: education, contact and protest (Corrigan & Penn 1999, Corrigan et al. 2001). Educational approaches in stigma reduction aim to provide factual information of mental disorders, whereas contact involves video or direct contact with people with mental disorders. Protest involves a minority group first being described unfavorably and then that position being rebuked (Corrigan et al. 2001). Interventions to reduce stigma toward mental disorders and people with mental disorders have been developed in the last decades. Interventions are needed to decrease damage and change harmful attitudes and behaviors that endanger the health and well-being of people with mental disorders (Stangl et al. 2019). Various anti-stigma interventions have been developed such as educational interventions, contact-based interventions or a combination of these two approaches (Corrigan et al. 2012c, Morgan et al. 2018). Further, various innovative interventions for testing stigma reduction have become more common (Rodríguez-Rivas et al. 2022).

The effectiveness of interventions in reducing stigma has been studied through RCT studies. The results of reviews and meta-analyses have shown that both educational interventions and contact-based interventions are effective in some cases (Griffiths et al. 2014, Morgan et al. 2018), but results are still unclear. More precise and detailed information about interventions is needed so that interventions can be utilized in clinical practice (Corrigan et al. 2012c, Thornicroft et al., 2016). There is also limited evidence on how the content and different components of the interventions are connected to the effectiveness of the intervention (Morgan et al. 2018, Clay et al. 2020).

In a narrative review, Thornicroft et al. (2016) found that interventions reducing stigma targeting health professionals are rare; in particular RCT studies on the effectiveness of these interventions are lacking (Thornicroft et al. 2022). Health professionals with poor mental health training can benefit significantly from an

educational intervention (Henderson et al. 2014), while the use of contact-based interventions is more unusual among health professionals (Arboleda-Flórez & Stuart 2012). It is equally important that the interventions also target people with mental disorders to change their stigma experiences (Stuart 2008). Empirical evidence as information of implementation of the anti-stigma interventions in real-world conditions is still insufficient (Evans-Lacko et al. 2014, Jorm 2020). In order to implement the interventions, there must be a change in practice, including more management support and creating development-friendly care cultures (Henderson et al. 2014).

3 Aims

The overall aim of this study was to understand stigma toward people with mental disorders in health care and society. Kirkpatrick's (1996) model is used to explore stigma from different angles: self-stigma, stigma in educational settings, stigmatized attitudes among professionals in health care services, and the effectiveness of interventions to reduce stigma related to mental illnesses. The sub-aims of each phase were as follows:

Phase I: To describe perceptions of self-stigma among clients in outpatient psychiatric services and the associated factors (Paper I).
Phase II: To describe how stigma is targeted in general nurse education programs based on the curriculums at the universities of applied sciences (Paper II).
Phase III: To describe nurses' stigmatized attitudes toward people with mental disorders and the associated factors (Paper III).
Phase IV: To describe interventions used to reduce stigma toward people with mental disorders and their effectiveness in reducing stigma (Paper IV).

The study comprised four phases, presented in Figure 1.

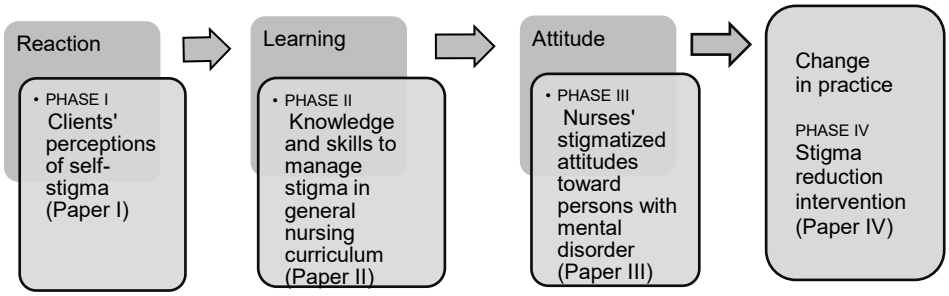

Figure 1. The summary of study phases and approaches of stigma evaluation based on the Model of Training Evaluation.

4 Materials and Methods

4.1 Theoretical approach of the study

The theoretical approach of this doctoral thesis is based on the Kirkpatrick Model, which is a four-level training evaluation model developed by Donald Kirkpatrick (Kirkpatrick 1996). Kirkpatrick's model was first published in 1959 and later updated in 1975, and again in 1996. The model was developed to evaluate the effectiveness of training in an objective way. The four-level evaluation model has been used in research, in the evaluation of various training and teaching methods in many fields, and in workshops in practice (Morgan & Jones 2009, Praslova et al. 2010, Rouse et al. 2011, Heydari et al. 2019). Its concepts have been modified to be suitable for health care environments also (Onyura et al. 2016). For this study, the model was chosen because it could basically be considered a framework for the evaluation of stigma from different angles and in various settings.

According to Kirkpatrick (1996), the model's four levels are reaction, learning, behavior and results. The first level, Reaction, means satisfaction of the customer regarding training. The second level of the model is Learning, which means changing attitudes or increasing knowledge and skills. The third level is Behavior, meaning a change in behavior that requires a change in attitudes, knowledge or skills. The last level is Results, which means the final effects that the training produces.

The model supports this study as, at first, it was important to gain information and understanding about the starting situation, i.e., the clients' experiences of self-stigma and what factors were possibly associated with self-stigma (reaction). Secondly, how stigma is targeted in general nurse education programs was explored, based on the curriculums at the universities of applied sciences (learning). Third, an investigation was done of nurses' stigmatized attitudes and opportunities for change in behavior based on nurses' knowledge and skills (attitude). And last, it was necessary to describe interventions to reduce stigma and explore their effective domains, so that change, i.e., reduction of stigma, could take place in practice (change in practice) (See Figure 1).

4.2 Methodological approach of the study

This mixed methods study combined quantitative and qualitative approaches (Johnson et al. 2007, Cresswell 2014). The approach was chosen because it enables an examination of the multifaceted research questions from different perspectives, using different samples (Regnault et al. 2018). Mixed method approaches are increasingly used in health research to improve the multifaceted and complex questions in health care (Bowers 2013).

In this study, quantitative methods were used in cross-sectional descriptive surveys (Polit & Beck 2017). Qualitative methods including a document analysis were used in the systematic review, along with a narrative approach, in order to answer the research questions. Document analysis is one form of qualitative research that can be used to interpret by giving meaning to the topic (Bowen 2009), while a narrative approach to a systemic review is a common qualitative research method (Pluye & Hong 2014). Mixed methods were used in three stages of this study: the design stage, the application of methods, and the interpretation and reporting stage.

First, quantitative and qualitative study designs were used to understand how the qualitative findings explain quantitative results (Shorten & Smiths 2017). Second, different data sources and collection methods were used (Fetters et al. 2013) as questionnaire instruments and data collection techniques, surveys, assessment of documents and systematic literature review. With these multiple methods, a deeper understanding of the studied phenomenon was obtained (Fetters et al. 2013). Third, the interpretation and reporting stage of this study integrated both qualitative and quantitative approaches in drawing conclusions.

A summary of the methodological approaches used in the study is described in Table 2.

Table 2. Summary of the methodological approaches used in the study.

Phase	Design	Setting	Sampling, sample	Data collection, Time period	Data analysis
I	Cross-sectional descriptive survey	Psychiatric outpatient clinics	Consecutive sampling, clients with mental disorder (n=898)	Self-reported survey, 1.4.-10.5.2019	Descriptive statistics, One-way and multiway analysis of variance (ANOVA)
II	Descriptive document analysis	Finnish universities of applied sciences' websites	Selective sampling, curriculums from Bachelor of Nursing degree (n=11)	Websites, autumn 2017	Descriptive statistics
III	Cross-sectional descriptive survey	Primary health care centers	Convenience sampling, nurses (n=218)	Self-reported survey, 14.-28.5.2014	Descriptive statistics, Multiway covariance analysis
IV	Systematic literature review, meta-analysis	Electronic databases	Selective sampling, RCT-studies with inclusion criteria (n=55)	Systematic literature search, 6.11.2015-12.9.2021	Narrative approach Descriptive statistics Meta-analysis

4.3 Design

In **Phase I**, a cross-sectional descriptive survey design (Setia 2016) was used to describe self-stigma in clients with mental disorders and examine associations between clients' self-stigma and sociodemographic and clinical factors. The cross-sectional descriptive survey design was chosen because it allows an exploration of the phenomenon of self-stigma and its associations, specifically at a certain point in time (Setia 2016, Wang & Cheng 2020) (Paper I).

In **Phase II**, a descriptive document analysis design (Bowen 2009) was conducted to describe how stigma is targeted in curriculums of general nurse education programs in mental health training at universities of applied sciences. The descriptive document analysis design was chosen because of its usefulness in identifying how stigma is explained and understood in the teaching nursing students receive according to the curriculum using interpretation (Kayesa & Shung-King 2021) (Paper II).

In **Phase III**, a cross-sectional descriptive survey design (Wang & Cheng 2020) was used to describe nurses' attitudes toward people with mental illness and explore factors associated with their attitudes. The cross-sectional descriptive survey design was selected because of its wide acceptance in describing phenomena such as attitudes toward people with mental illness (Wang & Cheng 2020) (Paper III).

In **Phase IV**, a systematic review and meta-analysis was conducted to search for published randomized controlled trials (RCT) that investigated interventions aimed at reducing stigma related to people with mental illness (Higgins & Green 2011). A systematic review was chosen due to its applicable comprehensive and systematic identification of interventions (CRD 2009). The review was guided partially by elements of the CRD and Cochrane Handbook for Systematic Reviews of Interventions (CRD 2009, Higgins & Green 2011). For the meta-analysis, the Cochrane Handbook for Systematic Reviews of Interventions was applied to compare key domains of stigma reduction interventions and their effectiveness (Higgins & Green 2011). Results were reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline (Page et al. 2021) (Paper IV).

4.4 Setting

In **Phase I**, a study was conducted in outpatient clinics (N=16). These clinics provided specialized psychiatric care services for patients with mental disorders in one hospital district in southern Finland. The outpatient clinics were accessed with a referral by a medical doctor in a primary health care center or in private health care (Ministry of Social Affairs and Health 2022b). Specific hospital district was chosen as it represents a typical Finnish hospital district including specialized psychiatric care. These clinics were selected because they provided specialized psychiatric care focused on affective disorders or psychotic disorders (Paper I).

In **Phase II**, the study setting comprised all Finnish universities of applied sciences (N=25). In Finland, universities of applied sciences offer degree studies with higher education qualifications and practical professional skills in nursing training. Nursing studies include theoretical and clinical training, and students need 210 ECTS to complete a degree. Mental health and psychiatry are included in the theoretical studies and in clinical placements (Paper II).

In **Phase III**, all primary health care centers (N=15) in two cities of southern Finland comprised the study setting. Health care services included both primary health care and specialized medical care. In primary health care, services included monitoring the health of the population, health promotion and prevention, diagnosis, and treatment of public health illnesses. It also provided primary mental health care in outpatient care (Ministry of Social Affairs and Health 2022). These health centers

were chosen because they had a primary and important role in mental health care and stigma reduction (Paper III).

In **Phase IV**, five electronic databases were used to identify the data for the systematic literature review. The following databases were used: PubMed [MEDLINE], CINAHL, PsycINFO, the Cochrane Library and the Web of Science (WOS). These databases were chosen because they are frequently used databases in health research (Oermann et al. 2012). The use of at least four databases in a systematic literature review may cover the review topic well enough (Bramer et al. 2017) (Paper IV).

4.5 Study population, sampling methods and sample

In **Phase I**, the study population consisted of adult clients with mental disorders in outpatient clinics specialized in affective disorders and psychotic disorders. This population was chosen because, according to the literature, these are the major disease groups of mental disorders, and they suffer from stigma (Brohan et al. 2011, Statistics Finland 2022). A consecutive sampling method was used to reach better representation of all outpatients available during the data collection period (Polit & Beck 2017, Omair 2015). The clients were included if they had had contact with an outpatient clinic for treatment of an affective disorder or psychotic disorder, were from 18 to 65 years old, and had had an appointment with a nurse during the data collection. Details of the excluded criteria can be found in Paper I. A total of 1,364 clients were asked to participate in the study, and the final sample consisted of 898 clients who answered the questionnaire (response rate 66%) (Paper I).

In **Phase II**, the study materials consisted of the curriculums available on the universities of applied sciences' websites. Selective sampling based on inclusion and exclusion criteria was used. Curriculums were included if universities of applied sciences provided a Bachelor of Nursing degree (for those students who did not specialize in mental health care) in Finnish with a total of 210 ECTS, if curriculum details were available via the website (credits, year of completion, description of learning outcomes and content), if modules with a heading of 'psychology' or 'mental health' were included in compulsory studies, and if the curriculum was available with full learning outcome details on the website within three attempts. A total of 25 curriculums were screened, and after the curriculum selection process, altogether 11 curriculums formed the sample (Paper II). Detailed criteria can be found in Paper II.

In **Phase III**, the study population consisted of nurses working in primary health care centers. A convenience sampling method (Polit & Beck 2017, Stratton 2021) was used to explore the entire population (nurses) in a specific setting (primary

health care) and with specific characteristics. The nurses were included if they worked in health care centers in one of two cities, if they were able to speak Finnish, if they had a licensed nursing education (i.e., registered nurses included public health nurses, practical nurses included primary care nurses and enrolled nurses) and if they were registered with the Finnish National Supervisory Authority for Welfare and Health (Valvira 2022). Details of the excluded criteria can be found in Paper III. A total of 264 nurses were asked to participate in the study, and the final sample consisted of 218 nurses who answered the questionnaire (response rate 84%) (Paper III).

In **Phase IV**, the study materials consisted of the articles reporting studies considering interventions to reduce stigma toward mental illnesses and people with mental illness. Selective sampling based on inclusion and exclusion criteria was used. Articles were included if studies were randomized controlled trials, appeared in peer-reviewed journals, and had been published in English. The interventions needed to have aimed to reduce any type of stigma or attitudes toward mental illness or people with mental illness. A total of 2,390 articles were screened, and after the systematic study selection, altogether 55 studies were included in the review and formed the sample to describe the content of the interventions. The studies consisted of 14,309 participants. Further, for the meta-analysis, 45 studies were included based on the primary and secondary outcomes. Detailed criteria for the RCT studies and primary and secondary outcomes for the meta-analysis can be found in Paper IV.

4.6 Instruments

In **Phase I**, the Self-Stigma of Mental Illness Scale – Short Form (SSMIS-SF, Corrigan et al. 2012a; originally The Self-Stigma of Mental Illness Scale SSMIS, Corrigan et al. 2006b) was used to measure outpatients' self-stigma, including four subscales. The questionnaire was translated from English into Finnish with the standard translation-back translation method (Maneesriwongul & Dixon 2004) and was pilot tested with patients who were not participating in the study. Second, the Patient Health Questionnaire (PHQ-9, Spitzer et al. 1999) (Duodecim Käypähoito Finnish version, 2016) was used to measure respondents' severity of depressive symptoms. Both instruments were self-reported and used in paper format. In addition, respondents' sociodemographic and clinical characteristics were collected (Paper I) (Table 3).

In **Phase II**, a self-developed data extraction tool with categories based on WHO (2005) framework of competency for mental health in primary health care services was used to assess the content of general nursing curriculums related to mental health training. The framework comprises competencies under five categories, altogether 24 competency statements: diagnosis and treatment (7 statements); counselling,

support and psychoeducation (4 statements); advocacy (5 statements); crisis intervention (5 statements); and mental health promotion and prevention of disorders (3 statements) (Paper II). See more details on the statements in Paper II, Table 2.

In **Phase III**, a self-reported questionnaire, the Attribution Questionnaire (AQ-27, Corrigan et al. 2003), with a vignette was used to measure nurses' attitudes regarding people with mental illness. The questionnaire included nine subscales, it was translated with the standard translation-back translation method (Maneesriwongul & Dixon 2004), and it was pilot tested with nurses who were not participating in the study. The instrument was used in paper format. In addition, respondents' sociodemographic characteristics were collected (Paper III) (Table 3).

In **Phase IV**, data extraction grids were formed as instruments to collect characteristics from the studies included (CRD 2009). The data extraction grid for characteristics included: author(s) and publication year, country, purpose of the study, type of stigma, target group, age of the participants and number of allocated participants. Another data extraction grid was formed based on a modified version of the Template for Intervention Description and Replication (TIDieR) checklist and guide (Hoffmann et al. 2014) to collect information from the descriptions of the interventions. The checklist categorized content using a structured and detailed method to enhance replication and implementation of the interventions. For the meta-analysis, primary and secondary outcomes were collected. The outcomes were measured and sorted into three sub-groups according to the length: short- (one week or less), medium- (2–8 weeks) and long-term (>8 weeks) outcomes (Paper IV).

Table 3. Summary of survey instruments used (administration, items, subscales, scale) and characteristics in Phases I and III.

Phase	Instrument (short name)	Administration Items	Subscales (n=items)	Scale	Characteristics
I	Self-Stigma of Mental Illness Scale – Short Form (SSMIS-SF)[1]	Self-reported 20 items	Awareness (5) Agreement (5) Application (5) Harm to self-esteem (5)	9-point (1 = "I strongly disagree" to 9 = "I strongly agree") Total score 20-180; the higher the score, the more self-stigma is endorsed	Age Gender Marital status Education Employment Living situation Type of mental disorder Length of mental disorder Length of psychiatric hospital care and outpatient care
	Patient Health Questionnaire (PHQ-9)[2]	Self-reported 9 items		4-point (0 = "not at all" to 3 = "nearly every day")	
III	Attribution Questionnaire - 27 (AQ-27)[3]	Vignette Self-reported 27 items	Blame (3) Anger (3) Pity (3) Help (3) Dangerousness (3) Fear (3) Avoidance (3) Segregation (3) Coercion (3)	9-point Likert (1 = "not at all" or "not likely" to 9 = "very much" or "very likely")	Age Gender Type of degree Total length of work experience in health centers and in primary care Mental health training Personal contact with people with mental illness outside of work

* [1]Corrigan et al.2012a, [2]Spitzer et al. 1999, [3]Corrigan et al. 2003

4.7 Data collection

In **Phase I**, the data were collected between 1 April and 10 May 2019 (one month in each clinic). First, the researcher organized appointments with the head nurses and nursing staff to share information about the research and the recruitment process. Second, data were collected with the help of nurses, who offered oral and written information to the eligible outpatients about the study during their appointment. Outpatients participating in the study received study forms and returned a sealed response envelope to the nurses. During the data collection, two email reminders were sent to the head nurses. Finally, after the data collection period, the researcher retrieved the closed envelopes from the outpatient clinics (Paper I).

In **Phase II**, the data were collected in the autumn of 2017 from the Finnish universities of applied sciences' websites via links such as "courses available" or "guidance for students". All curriculums for the period 2017–2018 and obligatory modules for all students including "psychology" or "mental health" were extracted. See the flowchart for the curriculum selection process in Paper II, Figure 1.

In **Phase III**, the data were collected 14–28 of May 2014. Before the data collection period, researchers arranged meetings with the director of nursing and head nurses to share information about the study. The head nurses informed eligible nurses about the study and provided the participants with information letters, questionnaires and return envelopes. During the data collection, one email reminder was sent to the head nurses. After the data collection period, researchers retrieved the closed envelopes from the health centers (Paper III).

In **Phase IV**, the data for the systematic review were collected for the first time on 6 November 2015, and the last update was on 12 September 2022, using five electronic databases. Search terms were constructed with the consultation of an information specialist at the medical library and the University of Turku. The study selection was conducted as a systematic process (CRD 2009). See the flowchart for the study selection process in Paper IV, Figure 1.

4.8 Data analysis

In **Phase I**, descriptive statistics (percentages, mean [SD] and the median and range [minimum and maximum]) were used to describe the sociodemographic characteristics (age, gender, marital status, employment status, living situation) and clinical characteristics (mental disorder, duration of psychiatric hospital care, duration of outpatient care, depressive symptoms). First, the association between self-stigma (total and subscales) and all characteristics were analyzed with a one-way and multiway analysis of variance (ANOVA). Tukey's method was used to correct statistically significant results from pairwise comparisons, and studentized residuals was used to check assumptions. Cronbach's alpha was calculated for self-

stigma (total and subscales). P-values of $p<0.05$ were considered statistically significant (two-tailed). Analyses were done with SPSS (version 25) and SAS software, version 9.4 for Windows (SAS Institute Inc., Cary, NC, USA) (Paper I).

In **Phase II**, the eight-step process was used in planning document management and analysis (O'Leary 2014). The data extraction grid was developed to categorize the WHO's mental health competency framework for primary care (WHO 2005) under five categories including 24 competency statements used in the data analysis. The data were assessed independently by two reviewers to ensure a consistent mapping regarding competency framework. Findings were analyzed using a three-point scale: 1 for clear evidence when the concept in question was literally described in the module description; 2 when the curriculum included related wording but lacked clear relevant details; and 3 when there was no evidence of the topic being covered in the module. Further, total scores of each curriculum were summed (possible variation from 24 to 72). Descriptive statistics (min, mean [SD], max, median) were carried out in one of two comparable ways: the sum-score for each competence category with a possible range of 11–33 (mean, [SD]) or a possible range of 1.0–3.0 (min, mean [SD], max, median). Descriptive statistics were done with SPSS (version 25). See more details about the analysis process in Paper II.

In **Phase III**, descriptive statistics (percentages, minimum, maximum, median with the interquartile range [IQR]) were used to describe the demographics (age, gender, level of education, length of work experience both in health centers and in primary care, additional mental health training, personal contact with people with mental illness outside of work) and the stereotypes/subscales (blame, anger, pity, help, dangerousness, fear, avoidance, segregation, coercion) of the data. Because of the skewness of distribution in stereotypes, median score values were reported. To achieve a normal distribution assumption for all stereotypes, logarithmic transformation (anger, dangerousness, fear, segregation) and square root transformation (help) were used. Associations between nurses' characteristics (age, level of education, personal contact and additional mental health training) and stereotypes toward people with mental disorders were analyzed with multiway covariance analysis. Also, interactions were tested with the same model. Analyses were carried out with SPSS (version 22: IBM SPPS Statistics for Windows, Armonk, NY) and SAS software (version 9.3 SAS Institute Inc., Cary, NC, USA) (Paper III).

In **Phase IV**, the intervention's included studies were analyzed using a narrative approach (Popay et al., 2006) and with a meta-analysis (Higgins & Green 2011). Using the data extraction grid, included studies were categorized by descriptive characteristics and the descriptive analysis (frequencies, percentages). Findings were described via tables and reported narratively, examining relationships between study characteristics and the findings (Popay et al., 2006). Interventions were described based on a modified version of the Template for Intervention Description and

Replication (TIDieR) checklist and guide (Hoffmann et al. 2014). A meta-analysis was conducted for the effectiveness of the domains of the interventions to reduce stigma and for statistical methods to summarize the results of these studies collected as system review. For binary outcomes, the risk ratio (RR) and confidence interval (CI) were calculated. For continuous outcomes, the mean difference (MD) between groups and CI were estimated. Based on TIDieR intervention components (Hoffmann et al. 2014), 12 comparisons were conducted. The meta-analysis was entered in the RevMan v 5.4 software (Higgins & Green 2011). RevMan HAL v 4.2 was used in the reporting. The quality of the included randomized controlled trials (RCTs) was appraised using the Cochrane Collaboration Risk of Bias Tool in RevMan V 5.3 software (Higgins et al. 2011) (Paper IV).

4.9 Ethical considerations

Stigma is an ethically important research topic, because people with mental disorders have to struggle with the consequences of stigma in society in everyday life. For this reason, it is desirable that this study comprises social value and leads to the advancement of these people's situation and social benefit (Stang 2015). In addition, stigma as a research topic can be sensitive. This study has approached the topic by directly and indirectly focusing on a vulnerable group: people with mental disorders. Therefore, ethical questions about the study had to be taken into account very carefully to ensure that there was no harmful effects on the health or treatment of the individuals in any phase of the study (ETENE 2006, Stang 2015). In this study, ethical aspects were taken into account in every study phase by following the guidelines of the Finnish National Board of Research Integrity TENK (2019). During the research process, good scientific practices were observed and all necessary permits to carry out the study were handled appropriately (Finnish Advisory Board of Research Integrity TENK 2019).

In **Phase I**, the study proposal was evaluated by The Ethics Committee of the University of Turku (ID 55/2018, 17 December 2018). The permission to carry out the study was granted by the director of psychiatric specialized health care (ID T09/002/19, 5 March 2019). Two instruments were used in the study. Permission to use the first survey instrument was granted by the developer of the instrument. The other instrument used in the study was freely available online. The respondents' voluntary participation in an anonymous survey was regarded as consent to join the study (Finlex 488/1999; Finlex 1050/2018; Finnish National Board on Research Integrity TENK 2019), and therefore, written informed consent was not sought. The data protection notices in accordance with the Data Protection Act (1050/2018) were prepared appropriately. To ensure anonymity, the respondents were not asked about any background information that would have infringed on data protection (Paper I).

In **Phase II**, for the document analysis, ethical approval was not required for the study due to public availability and protecting the anonymity of each university of applied sciences. Individual institutions could not be identified at any stage of the study (Polit & Beck 2017). Mapping of curriculums was done systematically using the World Health Organization (2005) mental health competency framework for primary care (2005) (Paper II).

In **Phase III**, no ethical approval was required for this phase because study did not involve intervention in the physical or psychological integrity of the research participants, did not involve the risk of causing long-term mental harms or cause security threats (Finlex 488/1999; The Finnish National Board on Research Integrity TENK 2019). The permission to carry out the study was granted by the two directors of health care services (ID 3277-2014, 19 March 2014; Decision date of permission 24 March 2014). Permission to use the instrument was given by the developer of the instrument. Participation in an anonymous survey and returning the questionnaire was considered to be informed consent (Paper III).

In **Phase IV**, no consent or permission was required or sought prior to conducting the literature review and meta-analysis. The study was registered with the Research Registry of Systematic Reviews/Meta-analysis on 30 August 2021 (reviewregistry1215). The review had been carried out following the appropriate scientifically-defined guidelines throughout the review process, from data collection to analysis, quality assessment and reporting (The Finnish National Board on Research Integrity TENK 2019). The guidelines according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) and the Centre for Reviews and Dissemination CRD (2009) were used to implement the appropriate process (CRD 2009, Page et al. 2021) (Paper IV).

5 Results

5.1 Description of study participants and materials

In **Phase I**, the participants were adult clients (n=898), whose mean age was 38.4 (SD 12.4) and more than half of the participants were female (n=562, 63%). Most of the participants had affective disorder (n=636, 71%) and most of all participants reported depression symptoms (n=745, 84%). (Table 4). (See Table 1, Paper I.)

In **Phase II**, the materials consisted of the curriculum documents (n=11) that included a description of mental health studies for general nurses. The number of ECTS in the theoretical studies combined with those from the clinical practice ranged from 11 ECTS to 17.51 ECTS. (See Table 1, Paper II.)

In **Phase III**, the participants were nurses (n=218) whose median age was 48, and they were mostly female (n=212, 98%). Most of the participants (n=197, 91%) had not been involved in additional mental health training, and over half of the participants did not have any personal contact with mentally ill people outside of work (n=115, 53%) (Table 4). (See Table 1, Paper III.)

In **Phase IV**, the total number of participants was 14,309 in the studies (n=55) that described interventions (N=74) to reduce stigma toward people with mental illnesses, and which met the inclusion criteria. (See Table 2, Paper IV.)

Table 4. Some of the characteristics of the study participants in Phases I and III.

	Phase I		**Phase III**	
Demographics characteristics	People with mental disorders (n=898) n/med	%	Nurses (n=218) n/med	%
Age	37		48	
Gender	894		217	
Male		36		2
female		63		98
Other		1		
Missing data	4		1	
Education	893		215	
Basic		16		
General		56		
Higher		28		
Practical nurse				19
Registered nurse				81
Missing data	5		3	
Employment status	897			
Employed/Student		35		
Unemployed		17		
Rehabilitation/Sick leave		13		
Retired		29		
Other		6		
Missing data	1			
Work experience in health care			210	
Under 10 years				55
10–20 years				32
Over 20 years				13
Missing data			8	
Mental disorder	895			
Affective disorder		71		
Psychotic disorder		27		
Other		2		
Missing data	3			

5.2 Perceptions of self-stigma among clients with mental disorders and associated factors (Paper I)

The study examined how self-stigma occurs among people with mental disorders and what factors may be associated with this perception (SSMIS-SF, Corrigan et al. 2012a). Self-stigma among clients in outpatient psychiatric care was found according to the four subscale scores of self-stigma. Clients most commonly reported "Awareness" of prevailing stereotypes (mean 27.3 [SD 8.3]), and they showed "Agreement" with stigmatizing statements (mean 18.6 [SD 7.5]). For the subscale "Application" (mean 14.3 [SD 7.0]), clients reflected stereotypes on themselves. Lastly, they suggested that they were influenced by the stigma in the subscale "Harm to self-esteem" (mean 14.6 [SD 8.2]). The total mean score was 74.8 (SD 22.3); the total score could range between 20 and 180. (See Paper I, Table 2.)

Factors associated with self-stigma were found regarding each subscale for self-stigma (Table 5). Statistically significant associations were also found between the total score of self-stigma and the factors. Participants with an affective disorder had a higher score of self-stigma than participants with a psychotic disorder (mean 76.9 [SD 22.2] vs 70.0 [SD 21.7], $p<0.001$). Those who had been diagnosed with a mental disorder longer (16–25 years or over 25 years) showed a higher score of self-stigma than those who had been diagnosed with a mental illness less than five years prior (mean 78.0 [SD 23.1] and 79.0 [SD 23.4] vs 72.3 [SD 21.8], all $p<0.05$). On the contrary, no statistically significant information was found for factors such as age, gender, marital status, or psychiatric hospital care (all p-values>0.05). More detailed information can be found in Paper I, Table 3.

Depressive symptoms were significant in all categories for the total level of self-stigma, in all subscales ($p<0.001$); the more severe the depressive symptoms, the higher the self-stigma scores. For example, when depressive symptoms were categorized None (0-4), self-stigma score was lowest (mean 59.7 [SD 19.7]) whereas if depressive symptoms were categorized Severe (20-27), self-stigma score was highest (mean 89.8 [SD 20.3]). More detailed information can be found in Paper I, Tables 3–5 and in the Supplementary information, Table 1.

Table 5. Factors associated with stigmatized attitudes of nurses toward people with mental disorders.

Subscale	Factors	Significant association	P-value
Awareness	-Living with the family	↑	0.017
	-Living alone	↓	
	-Affective disorder	↑	<0.001
	-Psychotic disorder	↓	
Agreement	-Length of mental disorder 16–25 years or over 25 years	↑	0.020
	-Less than 5 years or 5–15 years	↓	
Application	-Basic education	↑	0.004
	-General /higher education	↓	
	-General education	↑	
	-Higher education	↓	
	-Unemployed/rehabilitation support/sick leave/retired	↑	0.002
	-Employed/students	↓	
	-Living with support/half-way home	↑	0.045
	-Living alone/with family/with relatives/friends	↓	
	-Length of mental disorder over 25 years/16–25 years/5–15 years	↑	0.007
	-Less than 5 years	↓	
	-Length of outpatient care over 10 years	↑	0.024
	-Under 1 year/1–5 years	↓	
Harm to self-esteem	-Unemployed/rehabilitation support/sick leave	↑	<0.001
	-Employed/students/retired	↓	
	-Living with support/half-way home	↑	0.036
	-Lived alone/with family/with relatives/friends	↓	
	-Affective disorder	↑	<0.001
	-Psychotic disorder	↓	

↑=Higher score for significant association for subscale, ↓=Lower score for significant association for subscale

5.3 Stigma in curriculums of general nurse education programs in Finland (Paper II)

This study examined how stigma is targeted in curriculums of general nurse education programs at universities of applied sciences (N=11). All curriculums included mental health studies. The content of curriculums with mental health studies regarding stigma varied greatly between the universities of applied sciences. The WHO competence framework comprised five competency areas (Diagnosis and treatment, Counselling support and psychoeducation, Advocacy, Crisis intervention, Mental health promotion and prevention of disorders). There were five statements within the competency area "Advocacy", one of which concerned "the knowledge and the skills to tackle the problems of stigma and discrimination" (WHO 2005). These results specifically examined this stigma statement related to advocacy. The lowest representation based on the competence framework was found in "Advocacy" (mean 22.80 [SD 0.4]); a higher score represented worse realization of the WHO competence framework. The statement "the knowledge and the skills to tackle the problems of stigma and discrimination" received the second highest score of all competencies' statements (N=24); again, the higher the score, the less the topic of stigma and discrimination was taught based on the content descriptions of the curriculums. Stigma-related content was only clearly found in two curriculums (value 1) (e.g., students were able to identify their own values and attitudes in mental health work and stigmatization as a special issue), while limited evidence (value 2) (e.g., students identified their own feelings toward people with mental illness) was found in five curriculums. Four curriculums lacked stigma content completely (value 3) (Figure 2). More details of competency areas and statements can bee found in Paper II, Table 2 and Table 3.

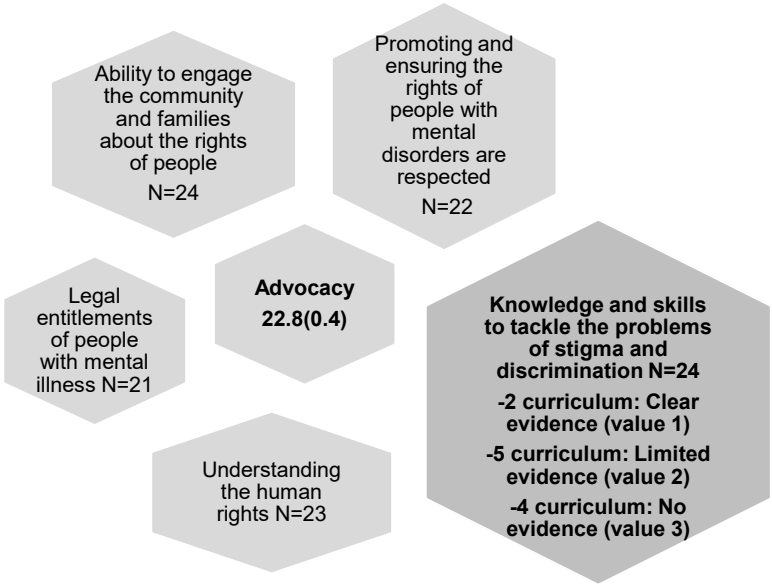

Figure 2. "Advocacy" with five statements and findings of stigma in the curriculums of universities of applied sciences.

5.4 Nurses' stigmatized attitudes toward people with mental disorders in primary care health centers and associated factors (Paper III)

The study examined nurses' stigmatized attitudes toward people with mental disorders and what factors may be associated with these attitudes (AQ-27, Corrigan et al. 2003). The highest median score of stereotypes related to nurses' stigmatized attitudes was found for helping people with mental disorders (Med=7.0). This stereotype concerned willingness to help and to talk about mental health problems of people with mental disorders. The next highest score was for pity (Med=5.3), which indicated how much nurses felt pity, sympathy and concern for people with mental disorders. Coercion received the same score (Med=5.3); these items were related to forcing people with mental disorders into treatment and forcing them to live in a group home. Also, nurses reported some attitudes related to avoidance (Med=4.3) and blame (Med=4.3). Stereotypes of fear (Med=2.3) and segregation (Med=2.3) received equal scores; nurses felt fear only to some extent toward people with mental disorders and did not want to isolate them much from others or send them to psychiatric institutions. Dangerousness received a lower score (Med=2.0),

which suggests that nurses felt quite safe and did not feel threatened. The lowest score was for anger (Med=1.7), which means that nurses felt aggravation or irritation the least when it came to people with mental disorders (Figure 3). See more details in Paper III, Table 2 and Table 3.

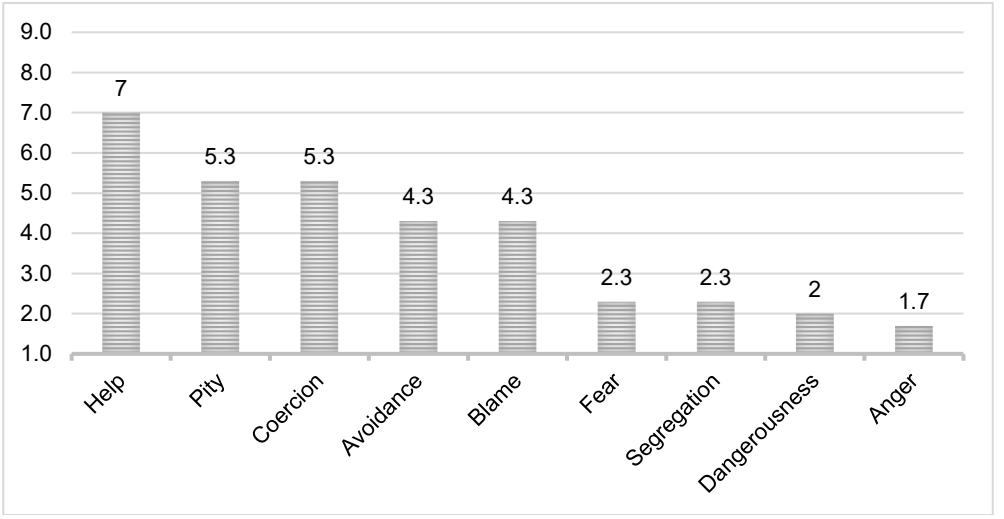

Figure 3. Medians of stereotypes related to nurses' attitudes (the higher the median score, the stronger the stereotype).

Regarding the factors associated with stigmatized attitudes, statistically significant associations were found. Older nurses were less often frightened of people with mental disorders than younger nurses [$F(1, 204) = 5.54$, $P = 0.020$], and older nurses less frequently reported that a person with a mental disorder should be segregated [$F(1, 204) = 4.41$, $P = 0.037$], and also less often reported feeling unsafe [$F(1, 204) = 4.27$, $P = 0.040$] . Nurses who had received additional mental health education experienced more willingness to help people with mental disorders [Med = 8.0 vs. 7.0, $F(1, 204) = 4.74$, $P = 0.031$] and considered them to be less frightening [Med = 1.7 vs. 2.3, $F(1, 204) = 4.59$, $P = 0.033$] . Also, these nurses preferred less segregation [Med = 1.3 vs. 2.3, $F(1, 204) = 5.00$, $P = 0.026$] and felt less unsafe compared to nurses who lacked additional mental health education [Med = 1.7 vs. 2.3, $F(1, 204) = 3.91$, $P = 0.049$]. The nurses who were in personal contact with a person with a mental disorder outside of work felt pity for people with mental disorders less often than nurses without that kind of personal contact [Med = 5.3 vs. 5.3, $F(1, 204) = 4.18$, $P = 0.042$]. Table 6 shows the factors significantly associated to stigmatized attitudes of nurses. More details can be found in Paper III, Table 4.

Table 6. Factors associated with stigmatized attitudes of nurses toward people with mental disorders.

Factor	Stereotype	P-value
Age(older)	Fear ↓ Segregation ↓ Dangerousness ↓	0.020 0.037 0.040
Additional mental health education	Help ↑ Fear ↓ Segregation ↓ Dangerousness ↓	0.031 0.033 0.026 0.049
Personal contact with a person with a mental disorder	Pity ↓	0.042

↑=More stereotype, ↓=Less stereotype

5.5 Interventions for stigma reduction and their effectiveness in reducing stigma (Paper IV)

In this study, a systematic literature review and meta-analysis was conducted to describe the interventions (N=74) and their specific domains to reduce stigma in included studies (N=55). The interventions were mostly aimed at students and people with mental disorders; nursing professionals were the target group in only a few interventions. (See Table 2, Paper IV.)

The analysis showed that there were different types of interventions used mainly as educational interventions (39%, 29/74) and contact-based interventions (37%, 27/74). Educational interventions comprised various teaching methods, for example, didactic presentations, video discussions and exercises. Contact-based interventions highlight contact with a person with a mental disorder including shared experiences and stories. Other intervention types were found, including multimodal and protest interventions. Multimodal interventions (9%, 7/74) contained many different methods together, such as psychoeducation, cognitive behavioral therapy, motivational interviewing, social skills training, and goal attainment. Interventions categorized as "protest" (1%, 1/74) involved a minority group first being described unfavorably and then a rebuking of this situation. Other types of interventions (14%, 10/74) were used, for example, interventions with newspaper stories, acceptance and commitment therapy and hallucination simulation. See detailed intervention descriptions in Paper IV, Table S2.

When the interventions were recategorized using the TiDier checklist (Hoffmann et al. 2014), it revealed that a high variety of intervention components were used in specific interventions. The descriptions of the content of each intervention varied. For example, materials comprised various electronic formats, like video, audio and online, or paper materials such as manuals, workbooks and booklets. Providers of

the interventions, as far as the providers had been described in the studies, were mostly people with mental disorders themselves, health care staff (mainly psychologists or therapists) and researchers. Most interventions were delivered in groups, and most commonly face-to-face, although some interventions were delivered online to reach a bigger target group in the community, or with film or video. See detailed intervention descriptions in Paper IV, Table S2.

The effectiveness of specific domains of the stigma interventions were analyzed (see Table 7) keeping in mind specific stigma-related concepts (self-stigma, public-stigma, attitudes, knowledge – mean, knowledge-dichotomous, social distance, affect, the quality of life, adverse effects, stereotypical beliefs, acceptability, costs).

Table 7. Description of the interventions included in the meta-analysis (N=45).

Intervention components in stigma reduction interventions	**n**
Learning material used	
Multimodal learning material	24
Conventional learning material	21
Procedure	
Social contact	27
Audiovisual	18
Provider	
Lay people	25
Professionals	20
Mode of delivery	
Individual	10
Group	35
Location	
Institutions	4
Community	41
Length	
Single	22
Two or more	23

Specific intervention domains were found to be more effective than contrast conditions in reducing specific types of stigma. The primary outcomes were self-stigma and public stigma (see tables 8 and 9). Regarding self-stigma, all intervention domains were more effective than contrast conditions in reducing self-stigma. In reducing public stigma, it varied as to whether or not a specific intervention domain

was more effective than the contrast condition. Out of 12 domains, seven comparisons showed that a specific intervention domain was more effective in improving attitudes toward mental health problems than the contrast group. On the contrary, the contrast condition was more effective if the intervention did not provide live social contact or lay people or it was not offered in groups. The data for conventional learning materials and institutions were not available. For secondary outcomes such as quality of life, out of twelve intervention domains and their comparisons with contrast conditions, nine of the domains were found to have no clear difference, and data for three domains were missing. It seemed that none of the domains included in the analysis had a clear connection to quality of life. Likewise, regarding adverse effects, no connections were found. See detailed results of this study in Table 10 and in Paper IV, Table 4 and Table 5.

Table 8. Effectiveness of the different intervention domains to reduce self-stigma.

Intervention domain	**Number of studies** (n)	**Number of participants** (n)	**Mean difference** (MD)	**Confidence interval** (CI)
Multimodal learning material	5	948	-0.17	-0.28 – -0.07
Conventional learning material	11	1354	-0.08	-0.14 – -0.03
Social contact	12	1764	-0.09	-0.14 – -0.04
Audiovisual	4	538	-0.28	-0.48 – -0.09
Lay people	7	1114	-0.17	-0.26 – -0.09
Professionals	9	1188	-0.07	-0.13 – -0.01
Individual	3	458	-1.64	-3.53 – 0.25
Group	13	1799	-0.01	-0.15 – -0.05
Institutions	2	131	-0.16	-0.47 – 0.15
Community	14	2171	-0.1	-0.15 – -0.05
Single	4	773	-0.17	-0.27 – -0.06
Two or more	12	1592	-0.09	-0.14 – -0.03

Table 9. Effectiveness of the different intervention domains to reduce public stigma.

Intervention domain	N**umber of studies** (n)	N**umber of participants** (n)	M**ean difference** (MD)	C**onfidence interval** (CI)
Multimodal learning material	3	596	-0.09	-0.22 – 0.04
Conventional learning material	-	-	-	-
Social contact	2	455	0.07	-0.1 – 0.23
Audiovisual	1	141	-0.35	-0.56 – -0.14
Lay people	2	455	0.07	-0.1 – 0.23
Professionals	1	141	-0.35	-0.56 – -0.14
Individual	1	141	-0.35	-0.56 – -0.14
Group	2	455	0.07	-0.1 – 0.23
Institutions	-	-	-	-
Community	3	596	-0.09	-0.22 – 0.04
Single	2	509	-0.09	-0.22 – 0.04
Two or more	1	87	-3.2	-6.46 – 0.06

Table 10. Categorized stigma reduction interventions (modified based on Hoffmann et al. 2014).

	Learning material		Procedure		Provider		Mode of delivery		Location		Length	
Outcomes	Multi-modal vs. contrast condition	Conven-tional vs. contrast condition	Live social contact vs. contrast condition	Audio-visual vs. contrast condition	Lay people vs. contrast condition	Profession vs. contrast condition	Individual vs. contrast	Group vs. contrast	Institutions vs. contrast	Community vs. contrast	Single vs. contrast	Two or more vs. contrast
Primary												
Self-stigma	Multi-modal	Conven-tional	Live social contact	Audio visual	Lay people	Professio-nal	Individual	Group	Institution	Commu-nity	Single	Two or more
Public stigma	Multi-modal	NA	Contrast	Audio visual	Contrast	Professio-nal	Individual	Contrast	NA	Commu-nity	Single	Two or more
Secondary												
Attitudes	Multi-modal	Conven-tional	Live social contact	Contrast	Lay people	Contrast	Individual	Group	Institution	Commu-nity	Single	Two or more
Knowledge - mean	Multi-modal	NA	Live social contact	Audio-visual	Lay people	NA	NA	Group	NA	Contrast	Contrast	NA
Knowledge-dichotomous	No clear differen-ce	NA	NA	No clear difference	NA	No clear difference	NA	No clear difference	NA	No clear difference	No clear differen-ce	NA
Social distance	Multi-modal	Contrast	Contrast	Audio visual	Lay people	Contrast	Individual	Group	NA	Commu-nity	Single	Contrast
Affect	Multi-modal	Conven-tional	Contrast	Audiovisual	Lay people	Professio-nal	Individual	Contrast	Institution	Commu-nity	Contrast	Two or more
The quality of life	NA	No clear difference	No clear difference	No clear difference	No clear difference	No clear difference	NA	No clear difference	No clear difference	No clear difference	NA	No clear differen-ce
Adverse effects	NA	No clear difference	No clear difference	NA	No clear difference	No clear difference	NA	No clear difference	No clear difference	No clear difference	NA	No clear differen-ce
Stereotypical beliefs	NA	Conven-tional	Live social contact	NA	Lay people	NA	NA	Contrast	NA	Commu-nity	NA	Two or more
Acceptability	No clear differen-ce	No clear difference	No clear difference	No clear difference	No clear difference	No clear difference	Contrast	No clear difference	No clear difference	No clear difference	No clear differen-ce	Contrast
Costs (less expensive)	Multi-modal	NA	NA	Audio visual	Lay people	NA	NA	Group	NA	Commu-nity	Single	NA

5.6 Summary of the main results

Self-stigma exists among people with mental disorders. Statistically significant associations were found between self-stigma and the factors. Participants with an affective disorder had a higher score of self-stigma than participants with a psychotic disorder. The longer duration of mental disorder and the more severe the depressive symptoms were, the more self-stigma existed (Phase I).

The results in the content of curriculums with mental health studies regarding stigma varied a lot among different universities of applied sciences. Only two curriculums had clear evidence related to stigma teaching while limited evidence was found in five curriculums. In addition, in four curriculums no evidence was found for teaching of stigma and discrimination at all (Phase II).

Nurses have both positive and stigmatized attitudes toward people with mental disorders. Statistically significant associations were found; nurse's older age and additional mental health education were associated more positive attitudes (e.g. less frightened or willingness to help). The nurses who had personal contact with person with mental disorder felt less often pity for persons with mental disorder than those nurses without personal contact (Phase III).

Descriptions of interventions to reduce stigma varied a lot. Different types of interventions were used as educational interventions and contact-based interventions. Specific intervention domain was more effective thant other comparing to contrast condition in reducing specific type of stigma. Regarding primary outocomes, all intervention domains were more effective than contrast conditions in reducing self-stigma and certain domains in reducing public stigma (Phase IV). The main findings of the present study are summarized in Figure 4 based on the Model of Training Evaluation.

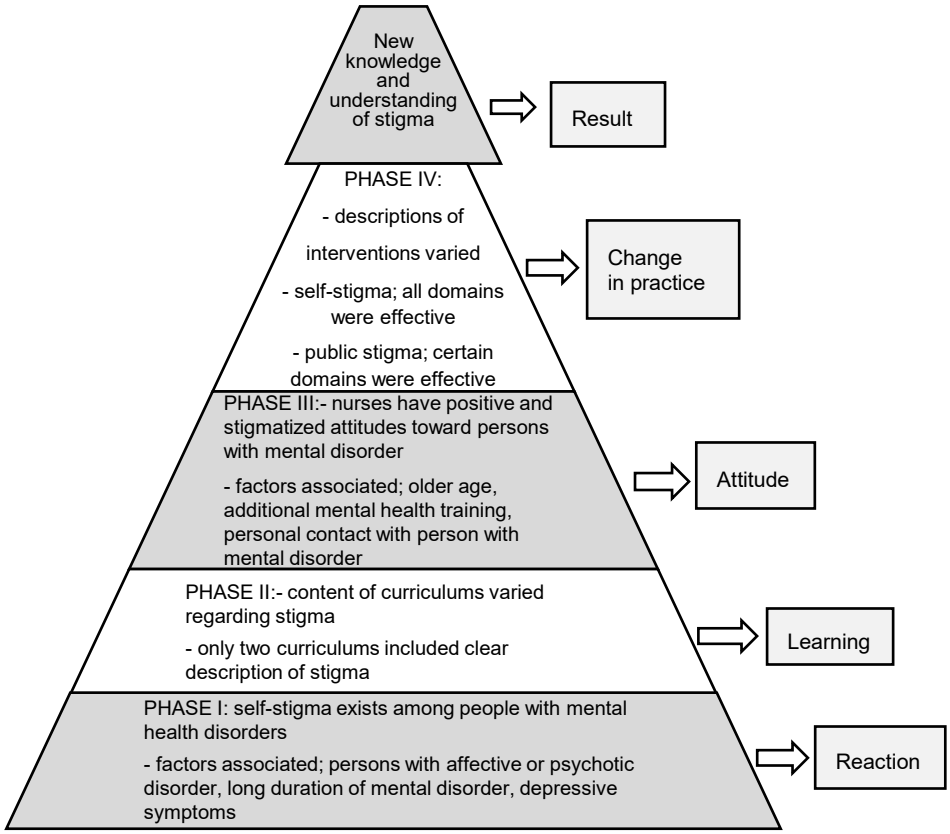

Figure 4. Summary of the main results.

6 Discussion

6.1 Discussion of the main results

The overall aim of this study was to understand the stigma toward people with mental disorders in health care and society. Kirkpatrick's model (1996) was a sufficient tool for this study for gaining understanding about the multifaceted phenomenon of stigma. The approach of mixed methodology supports the usage of the model with the phases. The model guided the process of approaching stigma from different angles: self-stigma in the people with mental disorders (reaction), stigma in educational settings (learning), stigmatized attitudes among professionals in primary health care services (attitudes), and the effectiveness of interventions to reduce stigma related to mental illnesses (change in practice). First, based to Kirkpatrick's model the results showed that self-stigma does exist among people with mental disorders, and that certain factors such as affective and psychotic disorders, long durations of mental disorder, and depressive symptoms are associated with self-stigma. Second, the model helped to identify that Finnish nurse education programs lacked stigma reduction content in curriculums at the universities of applied sciences (learning), and therefore, students were not necessarily learning enough about stigma to change attitudes or increase knowledge and skills as expected. Third, the investigation of nurses' stigmatized attitudes and opportunities for change in behavior based on nurses' knowledge and skills showed that, although nurses have positive attitudes toward patients, stigmatized attitudes also exist. It can be assumed that, if nurses' do not have enough knowledge and skills regarding stigma, stigmatized attitudes will continue to exist. On the other hand, certain factors, such as older age and additional mental health training, were connected to the strengthening of positive attitudes. And last, an exploration of stigma-reducing interventions and their effective domains showed that changes in stigma reduction could take place in practice and be improved by effective interventions in certain domains. The results provide new knowledge and understanding about stigma toward people with mental disorders from different angles.

In this dissertation, perceptions of self-stigma among clients in outpatient psychiatric services and factors associated are described. In the study, it was important to find out information and gain an understanding about the current

situation regarding perceptions of self-stigma. The results showed that people with mental disorders who require special medical care experience self-stigma. This finding was supported by previous studies (Gerlinger et al. 2013, Kalisova et al. 2018, Dubreucq et al. 2021). In the present study, results show that people suffering from affective disorder experienced higher self-stigma than people with a psychotic disorder. This result is supported by findings from at least one study where self-stigma was higher with bipolar disorder and major depression than it was with schizophrenia (Dubreucq et al. 2020). Therefore, our results are partially contradictory to those obtained in previous studies as people with psychotic disorders experience self-stigma more frequently than people with affective disorders or other diagnoses in general (Karidi et al. 2015, Oliveira et al. 2015, Switaj et al. 2016, Ran et al. 2018). Attention should be given to the question: Is it possible that in Finland, where people with affective disorders remain in their working life longer than people with psychotic disorders, those with affective disorders may face more social shame and prejudice (Brohan et al. 2012, Laar et al. 2019). Those with affective disorders may feel shame about giving up their careers due to the prevailing stigmatizing attitudes (Corrigan & Rao 2012, Thornicroft et al. 2022). On the other hand, due to mixed results, previous studies have also considered that a certain diagnosis of mental disorder may not have a direct connection with self-stigma (Holubova et al. 2016, Kalisova et al. 2018, Dubreucq et al. 2021).

The results showed that the duration of the mental disorder also has a significant connection to the experience of self-stigma. This finding follows the findings of previous studies (Pal et al. 2017, Sahoo et al. 2018, Dubreucq et al. 2020). Results in the present study show that self-stigma occurred more in those who had the mental disorder for more than 16 years than in those who suffered from the mental disorder for less than five years. If self-stigma is caught in the early stages of the mental disorder and treatment, it can reduce self-stigma experiences later in life (Au et al. 2019). The significant association between symptoms of depression and self-stigma is equivalent with the findings of previous studies (Shimotsu & Horikawa 2016, Pellet et al. 2019, Bharat et al. 2020). The more severe the symptoms, the more the person experiences self-stigma. In Finland, it is notable that increased depressive disorders among the population give cause for concern (Markkula et al. 2015). Left untreated, depressive symptoms can maintain and even increase the experience of self-stigma, which in turn can lead to suicidal behavior (Lien et al. 2018, Koçak et al. 2022). Therefore, identifying and treating depression is important regardless of what the actual diagnosis is or what the main mental disorder is.

The study aimed to describe how stigma was being targeted in the curriculums of general nurse education programs in Finnish universities of applied sciences and explore what nursing students were actually learning about stigma. Compared to the WHO's mental health competency framework for primary care (WHO 2005),

Finnish curriculums regarding mental health included relatively little learning content related to stigma. Stigma-related content was only clearly found in two curriculums, while four curriculums lacked stigma content completely. These results are interesting as stigmatizing attitudes toward people with mental illness are also found in nursing students (Giandinoto et al. 2018, Gu et al. 2021). Addressing stigma and training related to stigma strengthens students' self-confidence and readiness for meeting and building trusting relationships with mental health clients in treatment (Thornicroft et al. 2022). This topic is current as mental health care is increasingly emphasized in primary health care (Ministry of Social Affairs and Health 2022). General nurses should have sufficient knowledge to identify mental health problems and stigma, and the skills to deal with the treatment of people with mental problems (WHO 2021). The results also show that the contents of Finnish nursing curriculums, regarding the teaching of stigma and mental health education in general, varied between the universities of applied sciences included in this study. This finding is similar to those of previous studies (Moxham et al. 2011, Happel et al. 2019). Attention should be given to the question of why the content of curriculums regarding stigma varies so much between curriculums. One explanation may be that schools have autonomous status, so they can plan and conduct curriculums independently based on the general education requirements (Studyinfo 2022). However, the results support the need for a stigma-related module in the curriculums of nursing education nationwide (Thornicroft et al. 2022).

Nurses' stigmatized attitudes toward people with mental disorders and factors associated with them were investigated to find opportunities for changes in behavior based on nurses' knowledge and skills. The results showed that nurses in primary health care did have positive attitudes toward people with mental disorders, which is a finding supported by previous studies (Ahmead et al. 2010, Stuber et al. 2014). Stigmatized attitudes toward people with mental disorders also existed. Nurses felt the desire to help people with mental problems, and they felt sympathy and concern for them. This is an encouraging finding because mental health treatment is increasingly emphasized to take place in primary care (Ministry of Social Affairs and Health 2022b). On the other hand, nurses considered it possible to use coercive measures to help a patient's condition, and they tended to want to avoid patients with mental disorders. The stigmatizing attitudes of health professionals can cause a person with mental problems to be reluctant to seek help (Hamilton et al. 2016). These stigmatized attitudes may cause a challenge in forming confidential care relationships (Henderson et al. 2014, Lien et al. 2019). In the present study, results showed that younger nurses experienced more fear and insecurity toward people with mental health problems. This may indicate that younger nurses do not have enough knowledge to strengthen their skills in the treatment of mental health patients for reducing their stigmatized attitudes. With this result in mind, younger nurses may

benefit from more attention being paid to mental health issues like stigma in basic nursing education (Thornicroft et al. 2022). In addition, the findings showed that nurses who did not have additional mental health training experienced more fear, segregation, and feelings of being unsafe. It seems that additional mental health training is valuable for nurses in primary health care in terms of strengthening positive attitudes toward people with mental disorders (Knaak & Patten 2016, Heim et al. 2018, Sukhera & Chahine 2016, Sreeram et al. 2022). In addition, results showed that nurses who have personal contact with a person with a mental disorder experienced pity and sympathy less than the nurses without personal contact. One can only assume that personal contact may increase a nurse's burden or the feeling of helplessness, especially if the people with mental disorder that they have contact with have not progressed in the recovery process as desired (Mittal et al. 2014). On the other hand, studies have shown that personal contact with people with mental disorders can actually increase positive attitudes (Oliveira et al. 2020).

Interventions used to reduce stigma toward people with mental disorders and the effectiveness of the domains of the interventions to reduce stigma were described. It was necessary to evaluate stigma-reducing interventions and explore their effective domains so that changes in stigma reduction can take place in practice. Results showed that educational and contact-based interventions were used often. However, based on previous literature, it can be concluded that educational and contact-based interventions play a key role in stigma reduction work (Griffiths et al. 2014, Morgan et al. 2018). In the present study, the results showed that the descriptions of the interventions to reduce stigma varied; information was unstructured and scarce, or information was missing (Burford et al. 2013, Clement et al. 2013, Mehta et al. 2015). Supporting previous studies, interventions were seldom targeted at nursing professionals (Thornicroft et al. 2016). Randomized studies targeting nursing professionals for interventions to reduce stigma are especially lacking (Thornicroft et al. 2022). This is an interesting finding considering how existing stigma toward people with mental health disorders is a key barrier to successful treatment (Mirnezami et al. 2016). However, as providers of interventions to reduce stigma with nursing professionals as the intervention providers were limited as well. In turn, the results showed that people with mental disorders were often involved as a provider of the intervention. This supports the view that consumers with experience should be included in the implementation of interventions to enable contact-based intervention (Thornicroft et al. 2022). Interestingly, online methods were used less often, even though in current societies there are more opportunities than ever to use digital technology (Michie et al. 2017, Goh et al. 2021). Online methods are ascertained to be geographically equal, cost-effective (Clement et al. 2013; Griffiths et al. 2014), and feasible, especially for sensitive topics, such as mental health (Boydell et al. 2014).

Regarding the effectiveness of the interventions to reduce self-stigma, all domains used to reduce stigma were effective compared to the contrast condition. More specifically, if the intervention used teaching material, for example, multimodal method or conventional method, or if the intervention was carried out with live social contact or audiovisual contact, the intervention was effective. These findings are important for the development of interventions when knowing the serious consequences of self-stigma such as negative quality of life, failure to seek treatment, and suicidal thoughts (Hamilton et al. 2016, Kao et al. 2016, Oexle et al. 2017). If the goal was to reduce public stigma, only certain domains were effective and some domains made no difference at all. For example, live social contact as a procedure of intervention and interventions provided by lay people did not reduce stigma. This result is not supported by previous studies. On the contrary, previous results have shown that whether the intervention was a direct or indirect contact-based intervention, the intervention reduced public stigma (Thornicroft et al. 2022). However, in the present study results showed that if live social contacts and lay people were involved in the interventions, secondary outcomes like attitudes and knowledge improved, compared to the contrast condition. In addition, outcomes regarding social distance also improved when lay people were involved in the interventions. On the other hand, when an intervention aimed to affect the quality of life, no evidence was found to be related to domains.

6.2 Validity and reliability of the study

In this study, mixed methods approach was used. Mixed methods integrate qualitative and quantitative methods to enrich the evidence of the research (Johnson et al. 2007, Cresswell 2014). The simultaneous use of different approaches can strengthen the validity of the study (Fetters et al. 2013). In this study, validity and reliability were evaluated in phases. A systematic search in the literature review could have confirmed and harmonized the definition of concepts.

In both quantitative survey studies, Phases I and III, a cross-sectional descriptive survey design was performed. The internal validity of the study was estimated regarding the instruments used. In Phase I, data were collected with the Self-Stigma of Mental Illness Scale – Short Form (SSMIS-SF, Corrigan et al. 2012b). The instrument measures self-stigma experienced by people with mental disorders. Another survey used in this study phase was the Finnish version (Duodecim Käypähoito 2016) of The Patient Health Questionnaire (PHQ-9, Spitzer et al. 1999). Instrument measures severity of depressive symptoms. In Phase III, the validated and well-known instrument the Attribution Questionnaire (AQ-27, (Corrigan et al. 2003) with a vignette was used to measure nurses' attitudes regarding people with mental illness. Since the use of a vignette can have a dominant effect on the answers,

we chose as neutral of a vignette as possible to minimize its effect (Link et al. 2004). In both Phases I and III, to confirm the content validity of the instruments (SSMIS-SF and AQ-27), the original instruments were translated from English into Finnish using the standard translation-back translation method (Maneesriwongul & Dixon 2004). The face validity of these instruments was evaluated with a pilot test of volunteered patients (Phase I) and nurses (Phase III). Neither group participated in the actual studies. In both instruments the clarity and comprehensibility of the items, effectiveness of instructions, and time required were appraised, but no modifications were necessary (Polit & Beck 2017).

Self-reported bias should be considered. Self-reported bias (social desirability bias), where a respondent wants to give favorable answers (Polit & Beck 2017), has been observed, especially when asking sensitive questions, such as questions about stigma toward mental disorders (Tourangeau & Yan 2007). Thus, self-reported bias may have contributed to the nurses' answers in Phase III, as well as to the patients' answers in Phase I perhaps. In addition, Phase I data was based respondents' own perceptions of which diagnostic group they belonged to. Some of the respondents might not have been aware of, or did not fully understand, their own diagnosis or disorder. On the other hand, psychiatric services were divided into two different pathways based on diagnostic groups (affective disorders and psychotic disorders), which may support the validity of the results.

The internal consistency reliability of the instrument is defined as how accurately the items of the instrument measure what is expected to be measured (Polit & Beck 2017). A Cronbach's alpha over 0.70 is considered acceptable for the internal consistency of the instrument (Taber 2018). In Phase I, the internal consistency reliability of all self-stigma subscales of SSMIS was calculated with Cronbach's alpha. Internal consistency was found to be good. The Cronbach's alpha for each subscale ranged from 0.68 to 0.79 and the total Cronbach's alpha was 0.85. One sum-variable (Application) was almost 0.70, but it suggests a slightly weaker internal consistency of this subscale. In previous studies the Cronbach's alpha value has ranged from 0.62 to 0.90 (Corrigan et al. 2006b, Al-Khouja et al. 2017, Hansson et al. 2017).

The Patient Health Questionnaire (PHQ-9, Spitzer et al. 1999) has been tested for validity and reliability for many studies (Lotrakul et al. 2008, Hyphantis et al. 2011), and the Cronbach's alpha has ranged from 0.70 to 0.87. In this study, the Cronbach's alpha was good as 0.88. In Phase III, regarding AQ-27 the Cronbach's alpha was 0.73. Also previous studies have found this well-known instrument to be valid as the Cronbach's alpha has ranged from 0.75 to 0.88, indicating acceptable internal consistency (Corrigan et al. 2003, Crespo et al. 2008, Akyurek et al. 2019). This can support the reliability of the instrument in general.

External validity concentrates on the generalizability of the findings (Polit & Beck 2017). External validity was supported in this study by exclusion and inclusion criteria in the various phases. In Phase I, study participants were adult clients with mental disorders in outpatient clinics specialized for affective disorders and psychotic disorders. The large sample size with two different disorders supports the generalization of the results, but the study was covered a small geographical area in Finland (16 outpatient clinics in one hospital district in southern Finland). This may limit the generability of the results. Notably, when the nurses recruited the participants, it may be that not all potential participants were asked about participating in the study, or that the nurses could have used different motivational methods for recruitment. However, the validity was supported by the consistent and clear recruitment instructions given to the nurses for the data collection. In Phase III, study participants were nursing staff working in primary health care centers (N=15) in two geographical areas in Finland. The sample size was not large, which may weaken the generalizability. Thus, the sample sizes were not based on the power calculation. Regarding educational level, gender and age, however, the sample was assumed to be representative of the nursing staff in primary health care. In addition, the response rates of the surveys were quite high, which supports the external validity (Polit & Beck 2017). In Phase I, the response rate of the survey was 84% (N=218), and in Phase III, the response rate was 66% (N=898).

In Phase II, a descriptive document analysis design was used as a form of qualitative study. The validity of this phase is supported by the detailed planning process and transparency of the research process (O'Leary 2014). Strict inclusion and exclusion criteria were applied to ensure standardization in the data included in the study, promoting research reliability. Documents are reliable sources of data because they remain stable, and they can be read and checked multiple times (Bowen 2009). The data collection of documents (curriculums) was conducted based on the websites of the universities of applied sciences. We were not in contact with the educational institutions whose websites could not be accessed or whose documents may have otherwise not been readily available. In addition, the fact that curriculums only provide a small window into the teaching of any given subject must be taken into account. These factors may have weakened the generalizability and the truthfulness of the results. It is also important to thoroughly assess and examine both the subjectivity of the documents and the researcher's understanding of the collection of this information in order to maintain the credibility of the study (Bowen 2009). Bias was avoided by using the WHO framework (WHO 2005) and the participation of two researchers in the analysis. The data were analyzed by two researchers, which increased the validity, as the second researcher reassessed 50% of the data to ensure an accurate understanding of the data and a standardized application of the classification principles. The results were reported truthfully and impartially.

In Phase IV, the systematic literature review and meta-analysis was performed. In the systematic review, the methodological quality of the included studies was assessed independently, first by two reviewers and then confirmed by another two reviewers using the Cochrane Collaboration Risk of Bias Tool (Higgins et al. 2011). To evaluate the internal validity of the studies, six types of questions about risk bias were explored: selection bias (random sequence generation and allocation concealment), performance bias (blinding of participants and personnel), detection bias (blinding of outcome assessment), attrition bias (incomplete outcome data), reporting bias (selective outcome reporting), and other potential sources of bias (e.g., contamination, funding or unpublished instrument) (Higgins et al. 2011; Chung et al. 2012). The studies were classified as having a low, high, or unclear risk using Review Manager (RevMan) version 5.3 software (Higgins et al. 2011). The methodological quality of the included studies varied greatly. Over half of the studies had an unclear risk of bias regarding random sequence generation (30/55, 54%), allocation concealment (39/55, 71%), performance bias (53/55, 94%) and blinding for outcome assessment (42/55, 77%). Over half of the studies (30/55, 56%) had a high risk of attrition bias as well as reporting bias (50/55, 91%). Regarding other bias, over half of the studies (35/55, 63%) had a low risk of bias. The risk of bias for each study is described in detail in Paper IV, Table S1 and Figure 2 (Paper IV).

For the validity of Phase IV, the literature review was conducted using a systematic process with guidelines and checklists to conduct a specific data extraction grid and to ensure high-quality reporting (Higgins & Green 2011). Search terms were used with the assistance of an information specialist. Due to the lack of a Finnish database, finnish studies may have been missed from the data. Since the data search was conducted in English, the results might be biased toward Western countries. To minimize errors, the selection process was conducted mainly by two authors, and any disagreements were resolved with a third author. Data extraction was formed and guided by CRD (2009). The PRISMA flow chart (Moher et al. 2009, Page et al. 2021) describes, step by step, the flow of study selection. The Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green 2011) guided review and the meta-analysis process. An updated literature search was conducted. Updating the literature search several times may have weakened the formation of systematic and accurate results, but on the other hand, updating was done to ensure that any new eligible data published during the review process was not missed. In terms of eligibility criteria, even though the vagueness of the definition of stigma posed challenges, adequate and accurate eligibility criteria were used.

6.3 Implications of the study

Clinical practice

Nurses play a key role in the treatment of people with mental health problems on the front line, especially in primary care. Therefore, nurses should systematically raise the matter of self-stigma experiences with clients in the early stages of illness, and support adherence to treatment. Nurses should also be aware of their own attitudes considering self-stigma of people with mental disorders. Ongoing additional mental health training aimed at nurses should be developed and increased to improve the knowledge level of mental health and strengthen positive attitudes toward people with mental disorders.

Effective interventions are needed to reduce self-stigma, but also for nursing professionals to strengthen their positive attitudes. The study indicates that the interventions should utilize information about which domains and factors an effective intervention consists of. Further, structured descriptions could facilitate the implementation of interventions. For people with mental disorders, the treatment selection of the service system should include an intervention that considers effective domains in reducing self-stigma for both therapeutic and preventive purposes. Stigmatized attitudes can be improved through interventions with effective domains. For instance, if an intervention includes multimodal or conventional learning material, provides live social contact with lay people, and is offered both individually or in groups, nurses' attitudes can become more positive. In addition, results showed that a wide range of interventions to reduce stigma has been developed for clinical practice, but very few interventions have targeted nurses. To identify stigma and strengthen positive attitudes, nurses should be targeted in more interventions.

Nursing education

Understanding the importance of stigma is not only a case for nurses, but also for nursing students. Before entering working life, graduating general nurses should receive adequate knowledge about stigma as a phenomenon as well as understand the importance of stigma toward people with mental health problems. Therefore, nationwide, standardized stigma-related modules in the curriculum of nursing education should be developed and administered in all institutions where nursing education is offered.

Health care administration

The results of this study can be helpful in decision making, not only at the professional levels, but also at the organizational level, when planning treatment such as interventions to reduce self-stigma and stigmatizing attitudes. Therefore, it would be important that health care managers contribute to strengthening stigma-free health care services by providing nursing staff with tools and time for anti-stigma work with patients. Organizations should provide continuous additional mental health training in primary health care as ongoing training has been found to strengthen the positive attitudes of nursing staff.

Nursing science

Stigma has been studied in many different scientific fields internationally. It was crucial to study a phenomenon such as stigma in Nursing Science because research on stigma is known to be less in Nursing Science contexts in Finland. Although the research focused on health care, the results of this study can be used in other disciplines to increase the value of multidisciplinary research. In this study, the mixed methods approach allowed the collection of multifaceted data. Research and development of interventions for stigma reduction, structured models and checklists should be utilized to improve the quality of interventions.

Suggestions for future research

Based on the study findings more research related to stigma is needed in Finland. Future research could:

- investigate in longitudinal research the association of depressive symptoms with self-stigma in mental disorders as studies have found that both depressive symptoms and self-stigma are associated with suicidal ideation;
- explore nursing students' stigmatized attitudes toward people with mental disorders and associated factors;
- explore the prevalence of stigma and the associated factors with other target groups and contexts to increase the understanding of stigma as a phenomenon;
- conduct randomized studies of interventions targeting nursing professionals to reduce their stigmatized thoughts and attitudes.

7 Conclusions

To conclude, stigma is a multifaceted concept that can be viewed in many different ways in health care environments as well as in society. Knowledge of the experiences of self-stigma among people with mental disorders is essential. This study indicates that, among clients in outpatient clinics, self-stigma occurs more among people with affective disorders than people with psychotic disorders. Taking into account key factors associated with self-stigma, such as the long duration of illness and severe depressive symptoms, regular assessment of depression symptoms and interventions administered in the early stages of the disorder can support self-stigma treatment. Increasing the teaching of stigma in general nurse education is important as well as harmonizing the teaching of stigma at the universities of applied sciences. These actions may strengthen the knowledge and competence of newly graduated nurses regarding stigma. The importance of attitudes toward people with mental disorders in health care environments, such as primary health care, is recognized. Attention must be paid to the fact that nursing professionals are more aware of stigma and of the importance of their own attitudes in treatment. When additional mental health training is offered, positive attitudes can be strengthened and the understanding of stigma can increase. With the help of high-quality interventions, clinicians can implement interventions more confidently. The types of educational and contact-based interventions seem to be the most used and most effective interventions for stigma reduction. Based on the results of the meta-analysis, effective domains of interventions must be considered when developing interventions for stigma reduction.

The results of this study reveal the multifaceted nature of stigma toward people with mental disorders. It may be useful for health care environments to take these results into account when aiming to reduce stigma toward people with mental disorders. More and varied research is needed to expand and deepen the understanding of stigma. The results of this mixed methodology study can provide strong theoretical basis and evidence for further interventional study of stigma.

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Appendices

Appendix 1. Examples of instruments measuring stigma used in stigma studies: instrument, subscales, administration, number of items, scale.

Instrument (short name, author(s), year	**Subscales**	**Administration Number of items, Scale**
[1]Community Attitudes toward the mentally ill (CAMI, Taylor & Dear 1981)	Authoritarianism Benevolence Social restrictiveness Community approach	Self-reported 40 items, 5-point scale
[2]Social Distance Scale (SDS, Link et al. 1987)		Self-reported 7 items, 4-point Likert scale
[3]Stigma Through Knowledge Test (STKT, Antonak & Livneh 1995)	Predujice	Self-reported 14 items, True/false
[4]Psychiatric Disability Attribution Questionnaire (PDAQ, Corrigan et al. 2000)	Controllability Stability	Self-reported 6 items, 7-point scale
[4]Devaluation of Consumer Families Scale (Struening et al. 2001)	Status reduction Role restriction Frienship refusal	Self-reported 7 items, 4-point Likert scale
[6]Affective Reaction Scale (AS, Penn et al. 2003)	Bipolar dimensions eg. supportive/resentful relaxed/tense	Self-reported 10 items, 7-poin tbipolar scale
[7]Attribution Questionnaire -27 (AQ-27, Corrigan et al. 2003)	Responsibility Pity Anger Help Dangerousness Fear Avoidance Coercion Segregation	Vignette, self-reported 27 items, 9-point Likert scale
[8]Desired Social Distance (DSD, Goldstein & Rosselli 2003)		Self-reported 8 items, 7-point Likert scale
[9]Emotional Reactions to Mental Illness Scale (ERMIS, Angermeyer & Matschinger 2003)	Fear Prosocial emotion Anger	Vignette, self-reported 9 items, 5-point scale
[10]Internalized Stigma of Mental Illness (ISMI, Ritsher et al. 2003)	Alienation Stereotype endorsement Discrimination	Self-reported 29 items, 4-point Likert scale

	Social withdrawal Stigma resistance	
[11]Attribution Questionnaire-9 (AQ-9, Corrigan et al. 2004)	Responsibility Pity Anger Help Dangerousness Fear Avoidance Coercion Segregation	Vignette, self-reported 9 items, 9-point Likert scale
[12]Depression Stigma Scale (DSS, Griffiths 2004)	Personal stigma Perceived stigma	Self-reported 18 items, 5-point Likert scale
[13]Attitudes Toward Serious Mental Illness Scale- Adolescent version (Watson et al. 2005)	Threat Social construction Wishful thinking Categorical thinking Out of control	Self-reported 24 items, 5-point Likert scale
[14]Self-stigma of Mental Illness scale (SSMIS, Corrigan et al. 2006)	Stereotype awareness Stereotype agreement Self-concurrence Self-esteem decrement	Self-reported 40 items, 9-point Likert scale
[15]Depression Stigma Scale (DSS, Griffiths et al. 2008)	Personal stigma	Self-reported 9 items, Likert-scale
[16]Stigma Stress Scale (Rüsch et al., 2009)	Harmful Resources to cope	Self-reported 8 items, 7-point Likert scale
[17]Mental Illness: Clinicians Attitudes Scale (MICA, Kassam et al. 2010)	Views of health care and mental illness Knowledge of mental illness Disclosure Distinguishing mental and physical health Patient care for people with mental illness	Self-reported 16 items, 6-point Likert scale
[18]Self-Stigma for Depression Scale (SSDS, Barney et al. 2010)	Shame Self-blame Social inadequacy Help-seeking inhibition	Self-reported 16 items, 4-point Likert scale
[19]Reported and Intended Behaviour Scale (RIBS, Evans-Lacko et al. 2011)	Reported behaviour	Self-reported 8 items, 6-point Likert scale
[20]Opening Minds Stigma Scale for Health Care Providers (OMS-HC, Kassam et al. 2012)	Attitude Disclosure and help-seeking Social distance	Self-reported 20 items, 5-point Likert scale
[21]Self-Stigma of Mental Illness Scale-Short Form (SSMIS-SF, Corrigan et al. 2012)	Awareness of stereotypes Agreement with stereotypes Application	Self-reported 20 items, 9-point Likert scale

	Harm to self-esteem	
[22]Error Choice Test (ECT, Michaels & Corrigan 2013)		Self-reported 14 items, Numerical or true/ false
[23]Internalized Stigma of Mental Illness Inventory-Short Form (ISMI, Boyd et al. 2014)	Discrimination Social withdrawal	Self-reported 10 items, 4-point Likert scale
[24]Adolescent Measure of Empathy and Sympathy (AMES, Vossen et al. 2015)	Cognitive empathy Affective empathy Sympathy	Self-reported 12 items, 5-point Likert scale
[25]California Assessment of Stigma Change (CASC, Corrigan et al. 2015)	Attributions Empowerement Recovery Care seeking	Vignette, self-reported 3-9 items, 9-point scale

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