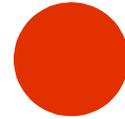
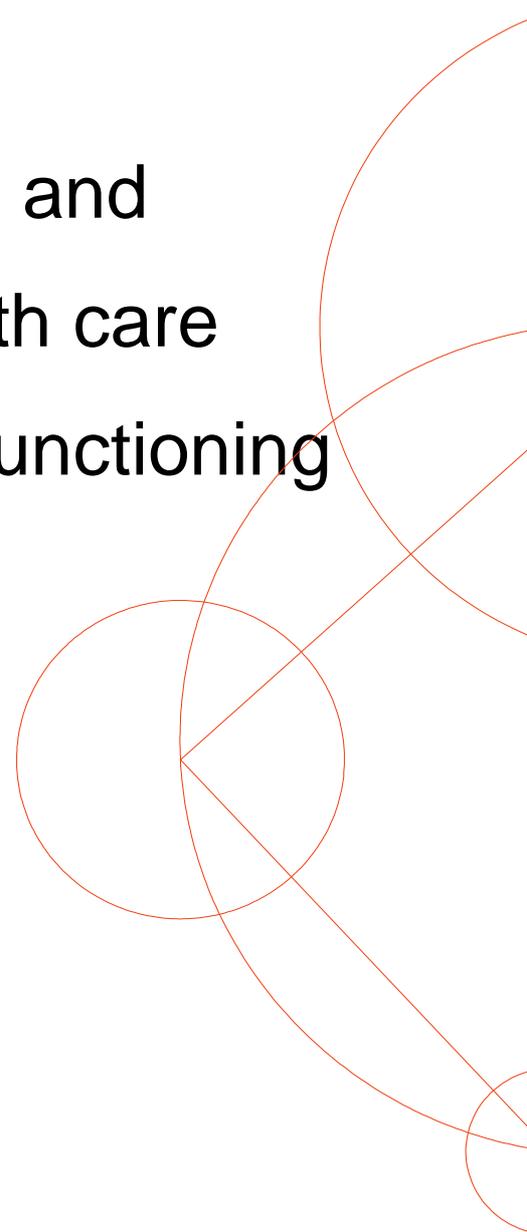


FACULTY OF SOCIAL SCIENCES
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Psychotherapy: Attendance and effects on utilisation of health care services and occupational functioning



PhD thesis

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**Mental Health
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Preface

This PhD study was carried out at the Stolpegaard Psychotherapy Centre, Mental Health Services, Capital Region of Denmark from 2008-2012. Morten Fenger was enrolled as a PhD student at the Department of Psychology, University of Copenhagen from 1 January 2008 to 31 January 2012. Morten Fenger was a visiting fellow at the Centre for Mental Health Research, Australian National University in the winter of 2009/2010.

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List of original papers

This thesis is based on the following three manuscripts:

I.

Fenger M, Mortensen EL, Poulsen S, Lau M. (2011). No-shows, dropouts and completers in psychotherapeutic treatment: demographic and clinical predictors in a large sample of non-psychotic patients. *Nordic Journal of Psychiatry*, 65(3):183-91. Epub 2010 Sep 21.

II.

Fenger M, Mortensen EL, Poulsen S, Lau M. *Increased use of health care services after psychotherapy: a register based study*. (submitted).

III.

Fenger M, Poulsen S, Mortensen EL, Lau M. *Occupational functioning after psychotherapy: a register based study*. (submitted).

The manuscripts are in the appendix as Papers I-III.

English summary

Non-psychotic mental disorders affect a substantial part of the population in Europe. In European countries the estimated yearly prevalence of individuals who fulfil the diagnostic criteria for non-psychotic disorders is estimated to be more than 20 (Wittchen et al., 2011) and a growing number of people are seeking professional assistance for their mental health problems (Centre for Psychiatric Research, 2012b). Decades of research on psychotherapy and a vast body of studies confirm that psychotherapeutic treatment is associated with a significant reduction in symptoms (Lambert, 2011). The highest level of evidence comes from randomised controlled trial (RCT) studies (Chambless et al., 1993). However, naturalistic studies may provide findings that supplement or even question the results found in RCT studies. Thus, while it has been documented that psychotherapy contributes to the alleviation of symptoms, a large number of patients refrain from treatment and more than 70% of all contacts for non-psychotic disorders to secondary mental health care services are readmissions (Centre for Psychiatric Research, 2012b). This thesis investigates to what degree mental health care actually reaches the patients seeking help and to what degree psychotherapy achieves reducing health care consumption and improving occupational functioning. This thesis includes three studies of patients referred to and offered treatment at the Psychotherapeutic Centre Stolpegaard, Mental Health Service in the Capital Region of Denmark.

Study 1 was a naturalistic cross-sectional predictor study of all patients consecutively offered psychotherapy from 1 April 2004 to 1 April 2008. Fifteen demographic and clinical variables were entered into a regression analysis to investigate to what degree the variables could predict which patients would become no-show, dropout or completer patients. Out of 2,473 participants, 668 (27.0%) did not show up for treatment and 290 (11.7%) dropped out of treatment. Regression

analysis shows that the significant predictors of treatment no-show were: age below 25, no more than the nine years of compulsory education, no sick leave, a personality disorder diagnosis, a Global Assessment of Functioning (GAF) score below 40 or above 70, no previous psychiatric/psychological treatment, no use of antidepressants, and substance abuse. The significant predictors of treatment dropout were: age below 45, no more than nine years of compulsory education or currently attending school, no vocational/university education, unemployment, and substance abuse. We concluded that no-show was predicted by both demographic and clinical factors, whereas dropout was predicted by demographic factors and substance abuse. To improve efficiency, we suggested prevention of non-attendance and applying stepped care in mental health care.

Studies 2 and 3 were matched control pre-post register-based studies of patients who were offered and completed therapy at Psychotherapy Centre Stolpegaard (PC Stolpegaard) from 1 January 2004 to 31 December 2005. Each patient was matched to a group of 20 control subjects (in total 15,220 persons for Study 2 and 14,940 for Study 3).

Study 2 used register data for the utilisation of all health care services (eight parameters) from 2000-2009. For each patient included from 2004-2005, utilisation of health care services was counted annually for four years before enrolment (date of assessment interview) and for four years after completed treatment (date of discharge). Out of the 761 patients, 216 did not show up for treatment and 545 completed therapy. Patients who completed treatment increased their use of all health care services by 296% (effect size=0.58) in the period from four years before to four year after treatment, while the control group only increased usage by 99% (effect size=0.23). Statistical analysis (ANCOVA) showed that patients who completed treatment had significantly larger increase in contacts with psychiatric hospitals ($p=0.008$), contacts with primary care psychologists ($p=0.035$), intake of psychotropic medication ($p<0.001$), and contacts with primary care physicians ($p<0.001$) than the control group. We concluded that in the long-term, patients treated

with psychotherapy increased utilisation of health care services by a factor of three compared with controls and showed significantly higher utilisation of health care services on five out of the eight health care parameters used in this study.

Study 3 contains data on the annual number of registered days on sick leave, unemployment, and disability pension for each individual patient and matched control subjects from 1 January 2002 to 31 December 2007. For all patients, the study covered register data over a five-year period: two years pretreatment, year zero (the treatment year), and two years posttreatment. Out of the 747 patients, 216 did not show up for treatment and 531 completed treatment. On average, completer patients had 15.7 sick days during the second year before treatment and 23.1 sick days during the second year after treatment, while controls had 5.4 and 7.5 days, respectively, for the same time periods. Completer patients received on average 7.6 days in disability pension before and 14.9 days after treatment, while controls had 7.8 and 11.0 days, respectively. On average, completer patients had 13.9 days in unemployment before and 10.1 days after treatment, while controls had 9.0 and 8.3 days, respectively. Statistical analysis (ANCOVA) shows that completer patients had significantly larger increase in days on sick leave ($p < 0.001$) and disability pension ($p = 0.013$) compared to the control group, while the difference in unemployment days was insignificant ($p = 0.569$). We concluded that patients receiving psychotherapeutic intervention showed long-term increases in days on sick leave and disability pension.

In conclusion, the golden standard for providing feedback on evidence-based mental health treatment has for many years come from RCT studies measuring degrees of symptom reduction. With growing constraints on government spending on health care services, more focus is directed towards the economy and the balance between cost and societal outcomes of treatments (Rich, Bonham, & Kirch, 2011). In Denmark the number of individuals treated for non-psychotic mental

disorders has increased by 44.1% from 2000-2009 and in the same period the total expenditure on health care services in Denmark has increased by 74% (Centre for Psychiatric Research, 2012a; WHO, 2012). Study 1 shows that approximately 40% of patients enrolled in a psychiatric hospital do not comply with the offered treatment. Study 2 shows that over a long-term period of approximately eight years the utilisation of health care services increased drastic by 296% for treated patients. Study 3 shows that over a long-term period of five years the days with sick leave increased from 15.7 to 23.1 days and days with disability pension increased from 7.6 to 14.9 days for treated patients. In order to develop and secure efficient treatment and optimal use of the limited resources, we suggest that other measures besides merely symptom measures should be included and used as evidence in evidence-based treatment in mental health care services.

Dansk resumé (Danish summary)

Ikke-psykotiske psykiske lidelser har stor udbredelse. I europæiske lande vurderes den årlige prævalens af personer, som opfylder de diagnostiske kriterier for en ikke-psykotisk lidelse, at være over 20% (Wittchen et al., 2011) og et stigende antal personer søger professionel hjælp for deres psykiske problemer (Centre for Psychiatric Research, 2012b). Effekt af psykoterapi er blevet undersøgt gennem årtier og et stort antal undersøgelser bekræfter, at psykoterapeutisk behandling er forbundet med en signifikant reduktion i symptomer (Lambert, 2011). Det højeste niveau af evidens siges at komme fra randomiserede kontrollerede forsøg (RCT-studier) (Lambert, 2011). Naturalistiske undersøgelser kan dog vise resultater som nuancerer eller udfordrer resultaterne i RCT studier. Uagtet at psykoterapi medvirker til symptom lettelse, er det et faktum at et stort antal patienter afstår fra behandling og mere end 70% af alle henvendelser vedrørende ikke-psykotiske lidelser til det sekundære psykiatriske sundhedsvæsen i Danmark er genhenvendelser fra tidligere patienter (Centre for Psychiatric Research, 2012b). Denne afhandling undersøger i hvilken grad psykiatrisk behandling modtages af de patienter der søger hjælp og i hvilken grad psykoterapi reducerer behovet for ekstraordinære sundhedsydelser og hvilken grad psykoterapi forbedrer den arbejdsmæssige duelighed. Afhandlingen omfatter tre studier af patienter tilbudt behandling på psykoterapeutisk center Stolpegård, Region Hovedstadens Psykiatri.

Studie 1 var en naturalistisk prædikator studie af alle konsekutive patienter tilbudt psykoterapi i perioden fra 1. april 2004 til 1. april 2008. Femten demografiske og kliniske variabler indgik i regressionsanalyse for at undersøge hvilke variabler som kunne forudsige patienter, der udeblev fra behandling (no-show), patienter som frafaldt behandling undervejs (dropout) og patienter som fuldførte behandling (completer). Resultaterne var: Ud af 2.473 patienter udeblev 668 (27,0%)

patienter fra behandling, mens 290 (11,7%) patienter frafaldt behandlingen. Regressionsanalyse viste, at signifikante prædiktorer for udeblivelse fra behandling var: alder under 25, højst de obligatoriske ni års skolegang, ingen sygemelding, personlighedsforstyrrelsesdiagnose, en vurdering af funktionsevne score (GAF score) under 40 eller over 70, ingen tidligere psykiatrisk / psykologisk behandling, intet brug af antidepressiva, og endelig misbrug af stoffer. Signifikante prædiktorer for patienter, der frafaldt under behandling var: alder under 45, højst de obligatoriske ni års skolegang eller aktuelt under skoleuddannelse, ingen erhvervsuddannelse / universitetsuddannelse, arbejdsløshed og endelig stofmisbrug. Vi konkluderede, at patienter der udeblev fra behandling kunne prædikteres af demografiske og kliniske faktorer, hvorimod patienter der frafaldt undervejs i behandling kunne prædikteres af demografiske faktorer, samt misbrug af stoffer. Vi foreslog måder at forebygge manglende behandlingsdeltagelse, samt at anvende trinvis behandling (stepped care) for at udnytte behandlingsressourcerne mere effektivt.

Studie 2 og 3 var et matchet kontrolgruppe præ-post registerstudie af patienter tilbudt og afsluttet behandling på PC Stolpegaard i perioden fra 1. januar 2004 til 31. december 2005, hvor hver patient blev matchet til en gruppe på 20 kontrolpersoner - i alt 15.220 personer i studie 2 og 14.940 personer i studie 3.

I *studie 2* indhentede vi registerdata på forbrug af sundhedsydelser fordelt på 8 ydelsesparametre i perioden fra 2000 til 2009. For hver patient blev forbruget af sundhedsydelser optalt årligt i fire år før visitationssamtalen (dato for samtalen) og årligt i fire år efter afsluttet behandling (dato for udskrivning). Resultaterne viste: Ud af de 761 patienter, udeblev 216 patienter, mens 545 patienter fuldførte behandlingen. Patienter som fuldførte behandlingen øgede deres forbrug af sundhedsydelser med 296% (effekt størrelse = 0,58) fra fire år forud for behandling til fire år efter behandling, mens kontrolgruppen kun øgede deres forbrug med 99% (effekt størrelse = 0,23).

Statistisk analyse (ANCOVA) viste, at patienter, som fuldførte behandlingen havde signifikant større stigning i kontakter til psykiatriske hospitaler ($p=0,008$), kontakter til psykologer i den primære sundhedssektor ($p=0,035$), forbrug af psykofarmakologisk medicin ($p<0,001$), og kontakter til læger mv. i den primære sundhedssektor ($p<0,001$) end kontrolgruppen. Vi konkluderede at over en lang periode (ca. 8 år) udviste patienter i psykoterapeutisk behandling en tre gange højere stigning i forbrug af sundhedsydelser sammenlignet med kontrolgruppen og patienterne havde et signifikant højere forbrug af sundhedsydelser end kontrolgruppen på fem ud af otte ydelsesparametre i det fjerde år efter endt behandling.

I *studie 3* indhentede vi registerdata på antal sygedage, arbejdsløshedsdage og dage med førtidspension for hver patient og de matchede kontrolpersoner i perioden 1. januar 2002 til 31. december 2007. For patienterne og deres kontrolpersoner dækkede registerdata en femårig periode: to år før behandling, år nul (behandlingsåret), og to år efter behandling. Resultaterne viste: Ud af de 747 patienter udeblev 216 patienter, mens 531 fuldførte behandling. De patienter, der fuldførte behandlingen havde i gennemsnit 15,7 årlige sygedage to år forud for behandling og 23,1 årlige sygedage to år efter behandling, mens kontroller havde henholdsvis 5,4 og 7,5 sygedage for de samme to perioder. I antal dage med førtidspension havde de patienter, der fuldførte behandling i gennemsnit 7,6 dage to år før behandling og 14,9 dage to år efter behandling, mens kontrolgruppen havde henholdsvis 7,8 og 11,0 dage. I antal med arbejdsløshed havde de patienter der fuldførte behandlingen 13,9 dage to år før behandling og 10,1 dage to år efter behandling, mens kontrolgruppen havde henholdsvis 9,0 og 8,3 dage. Statistisk analyse (ANCOVA) viste, at patienter der fuldførte behandling havde signifikant større stigning i antal sygedage ($p<0,001$) og dage med førtidspension ($p=0,013$) sammenlignet med kontrolgruppen, mens forskellen i antal dage med arbejdsløsheden var insignifikant ($p=0,569$). Vi konkluderede at

på lang sigt udviste patienter efter endt psykoterapeutisk behandling et forøget antal sygedage og et forøget antal dage med førtidspension.

Konklusion: Den gyldne standard for evidens i psykoterapi og behandling i sundhedsvæsenet har i mange år været RCT studier der måler grad af symptom reduktion. Med stigende offentlige udgifter til sundhedsvæsenet er der kommet fokus på økonomien og balancen mellem omkostninger og samfundsmæssige resultater af behandlinger (Rich et al., 2011). I Danmark er antallet af personer, der behandles for ikke-psykotiske lidelser steget med 44% fra 2000 til 2009 og i samme periode er de samlede udgifter til sundhed i Danmark steget med 74% (Centre for Psychiatric Research, 2012a; WHO, 2012). Vores første studie viste, at omkring 40% af patienterne tilbudt behandling i et psykiatrisk center mødte ikke op eller frafaldt den tilbudte behandling. Vores andet studie viste, at over en længere periode på cirka otte år steg forbruget af sundhedsydelser drastisk med 296% for patienter som fuldførte behandlingen. Vores tredje studie viste, at over en længere periode på 5 år steg antallet af sygedage fra 15,7 til 23,1 dage og antallet af dage med førtidspension steg fra 7,6 til 14,9 dage for patienter som fuldførte behandling. For at udvikle og sikre en effektiv behandling og en optimal udnyttelse af begrænsede ressourcer foreslår vi at andre mål end blot symptom mål inkluderes og anvendes som evidens i evidensbaseret behandling i det psykiatriske sundhedsvæsen.

Abbreviations

ACT:	Anatomical Therapeutic Chemical Classification System
ES:	Effect size
GSI:	Global Severity Index (a SCL-90-R index)
PC Stolpegaard:	Psychotherapy Centre Stolpegaard
QALY:	Quality-adjusted life years
RCT:	Randomised controlled trial
SCL-90-R:	Hopkins Symptom Check List-90-Revised
SPSS:	Statistical Package for the Social Sciences

Introduction

Prevalence

Non-psychotic mental disorders or common mental disorders affect a substantial part of the population in Europe. In European countries, the estimated yearly prevalence of individuals who fulfil the diagnostic criteria for mood disorders is 7.8%; anxiety disorders 14%; somatoform disorders 4.9%; eating disorders 0.3-1.4% (e.g. behavioural syndromes); and personality disorders 1.3% (Wittchen et al., 2011). In a Danish survey (N=163,658) conducted in 2010, 12.8% of the respondents answered that they were affected by temporary mental problems and 3.7% by chronic mental problems (Den Nationale Sundhedsprofil, 2012).

Patients in treatment and health care expenses

Over the last decade, increasingly more people have been in contact with the mental health care system in Denmark. The numbers of patients treated for non-psychotic problems in secondary care in Denmark was 37,037 in 2000 and 53,368 in 2009 – an increase of 44.1% over ten years. Many of the patients reappear for treatment. In 2009 more than 70% of all admissions for patients with non-psychotic disorders in secondary mental health care were readmissions (Centre for Psychiatric Research, 2012b). In the period 2000 - 2009, governmental expenditure on the public health care system increased by 69.1%, while the population in Denmark only increased by 3.4% (see Table 1).

Table 1: Persons admitted to the secondary care mental health system; health expenditure; population of Denmark

	2000	2009	Change 2000-09	Change yearly
Total number of persons with a non-psychotic mental disorder admitted*	37,037	53,368	44.1%	4.9%
▪ Mood disorders (F30-39)	16,619	23,822	43.3%	4.8%
▪ Neurotic disorders (F40-49)	11,926	19,458	63.2%	7.0%
▪ Behavioural syndromes (F50-59)	1,827	3,296	80.4%	8.9%
▪ Disorders of personality (F60-69)	6,665	6,792	1.9%	0.2%
Total expenditure on health (million DKR)**	106,935	186,099	74.0%	8.2%
▪ General government expenditure on health	88,147	149,046	69.1%	7.7%
▪ Private expenditure	18,788	25,428	35.3%	3.9%
Entire population of Denmark***	5,330,020	5,511,451	3.40%	0.38%
▪ Adult population of Denmark (>18 years)	3,876,134	3,861,779	-0.40%	-0.04%

* (Centre for Psychiatric Research, 2012b)

** (WHO, 2012)

*** Excluding Greenland and Faroe Islands (Danmarks Statistik, 2012)

Treatment – science and evidence

The treatment of non-psychotic mental disorders can be medical, psychotherapeutic or a combination of both. In medical treatment, a general practitioner and psychiatrist prescribe a psycho-active drug to manage the mental disorder. The psycho-active drug operates by affecting the patient's neurochemistry, which in turn causes changes in the patient's mood, cognition and behaviour. In psychotherapeutic treatment, a mental health professional (a psychotherapist) meets an appointed number of times with the patient to provide verbal interventions to manage the mental disorder. The psychotherapeutic conversation will investigate the patient's difficulties and the therapist can provide strategies and training for resolving problems and help the patient to change attitudes and patterns of thinking and behaviour. In combination treatment, both medical and psychotherapeutic endeavours are provided at the same time.

The first studies in psychotherapy were published in the 1920s, but it was not until the 1950s that more valuable studies and a useful debate appeared in the scientific and clinical community (Lambert, 2011). In the area of science and evidence in treatment, two major themes can be outlined: a general theme focusing on the proper way to perform scientific investigations and

gather evidence in medicine and a more specific theme about the usefulness of and evidence for psychotherapy.

Scientific investigations and evidence in medicine

Archie Cochrane is recognised as the person who stated the need to do systematic research and documentation before one kind of intervention could be proven to be better than another in medicine (Haynes, 1999; Hougaard, 2009; Lambert, 2004). Cochrane was inspired by a 1952 study by Brad Hill et al. in which the researchers used and advocated for the use of RCTs to test and prove the effect of one type of intervention compared to no intervention or other types of interventions (Cochrane, 1999). Cochrane created three concepts for testing the effect of interventions: efficacy, effectiveness and efficiency (Ibid.). Efficacy describes if an intervention works under ideal circumstances, e.g. like those found in RCTs; effectiveness describes if an intervention works under usual circumstances, e.g. like in naturalistic studies, and efficiency describes if the intervention is worth the cost it represents for society (Haynes, 1999; Marley, 2000). *RCT studies* are meticulously performed and intended to keep everything equal except the intervention. Thus, patients are carefully selected and only patients with the desired profile and pure diagnosis are included. Patients are also randomly allocated to two or more intervention arms, and each intervention arm has a detailed protocol for what, when and how much intervention is given. The staff is often specialised in delivering their intervention and follows the protocol carefully. At enrolment, during and after the intervention the patients are monitored closely to ensure that the correct procedures, adherence and measurement are followed in the treatment regime. This kind of study provides evidence for whether an intervention is more effective than no intervention (the control condition) and/or another type of intervention under ideal circumstances for a specific diagnosis. *Naturalistic studies* are performed in the everyday treatment practise. Normally the studies include consecutive patients with a specific diagnosis, but

do not filter out various profiles and co-morbidities. Patients can be pre and post tested in one intervention or patients can be allocated to and compared between two or more interventions, but there is no randomised control group. The intervention is usually not described in detail in a protocol and can be eclectic. The staff delivering the intervention may be whoever is on duty that day. At enrolment, under and after the intervention the patients are given the same amount of attention as everybody else. Some patients skip the treatment (non-attendance and dropout) and no extraordinary steps are taken to ensure that they follow the treatment regime. This kind of study provides feedback on whether the intervention under usual circumstances works for average and unselected patients. Finally, another type of study is where the cost of the intervention is compared to benefits in outcome. These studies can be labelled as cost-benefit, cost-effectiveness/cost-utility or efficiency studies depending on which type of outcome measurement is used. *Cost-benefit analysis studies* assign a monetary value to the outcome measure of effect and compare cost of the treatment to the calculated or expected benefits to see whether the benefits outweigh the costs. *Cost-effectiveness/cost-utility analysis studies* assign a client-centred characteristic – mostly changes on symptom scale or gained quality-adjusted life years (QALY) – to the outcome measure of effect and calculate the cost in money per gained point in reduction of symptoms or gained year of QALY after a treatment. *Efficiency studies* investigate the relationship between health care outcome and the resources used to create that outcome and whether the outcome is produced with a minimum amount of waste, expense, or unnecessary effort. The topic of efficiency is examined later in this thesis in the section entitled: Efficiency studies and societal costs/benefits of mental health problems and treatment.

Usefulness of and evidence for psychotherapy

When Hans Eysenck's 1952 article, *The effects of psychotherapy: An evaluation*, was published it caused an upheaval among researchers and clinicians working with psychotherapy (Eysenck,

1994; Hougaard, 2009; Lambert, 1976). Eysenck listed 19 studies which investigated the outcome of psychotherapy for patients with common mental disorders and found that 64% of the patients (N=7293) were recovered after therapy, while patients (N=500) in primary care also affected by common mental disorders, but not treated with any psychotherapeutic intervention, showed a recovery rate at 72% after two years. Eysenck claimed, maybe as a provocation, that the more psychotherapy patients received, the lower the recovery rate. He concluded that the natural remission of patients would happen regardless of whether therapy was applied or not (Eysenck, 1952). Defending and arguing for his point of view in a later article, Eysenck said that spontaneous remission occurs because the neurotic in the absence of explicit therapy will seek solace, compassion, advice and support from parents, friends, relative, teachers, priests etc., who will dispense a kind of amateur therapy which may or may not be as equally effective as 'dynamic' therapy (Eysenck, 1994). A review of surveys, naturalistic studies and review studies on the natural remission of mental problems shows that the rate of remission is uncertain and variable, but it is estimated that one to two-thirds of all individuals with a common mental disorder experience recovery without any intervention or through contact solely with their primary care physician (Gilchrist & Gunn, 2007; Tyrer, Seivewright, & Johnson, 2004; van Weel-Baumgarten, Schers, van den Bosch, van den Hoogen, & Zitman, 2000; Vriends et al., 2007). Although critical of Eysenck's 1952 study, Michael Lambert later incorporated natural remission and other factors outside therapy as a substantial part of recovery.

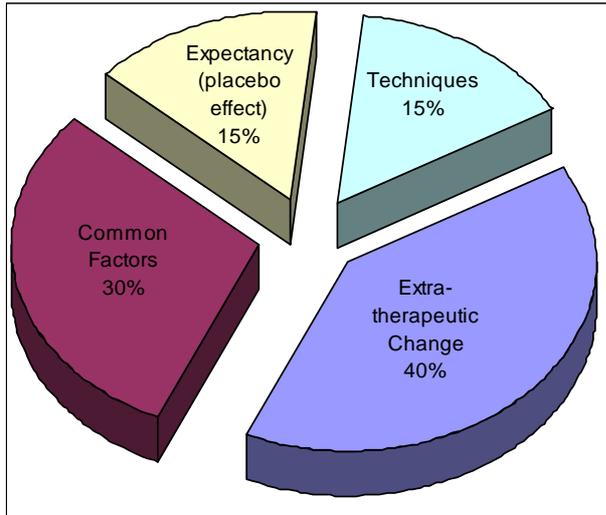


Figure 1: Improvement as a function of therapeutic and extra-therapeutic factors (Lambert & Barley, 2001)

Lambert suggests that 40% of the effect in therapy is due to extra-therapeutic changes, spontaneous remission, fortuitous events and social support (Lambert & Barley, 2001) – see Figure 1. While Lambert’s model is in widespread use, it is a problem that the model generalises findings derived from studies of markedly heterogeneous disorders and patients. The course of a mental disorder varies depending on the patient affected. Some patients will experience a progressive worsening of the disorder, some persistent and stable symptoms, others a waxing and waning symptoms, and finally some patients will experience partial or full remission of the disorder (Wittchen & Fehm, 2003) – see Figure 2. Thus, it is likely that chronically ill patients undergoing mental health care treatment will exhibit less improvement of symptoms due to placebo and extra-therapeutic change, while patients who are incidentally affected by mental distress will exhibit a greater improvement of symptoms due to placebo and extra-therapeutic change. But in both instances treatment can modify the gravity of the symptoms in malign cases, and speed up the recovery process in benign cases.

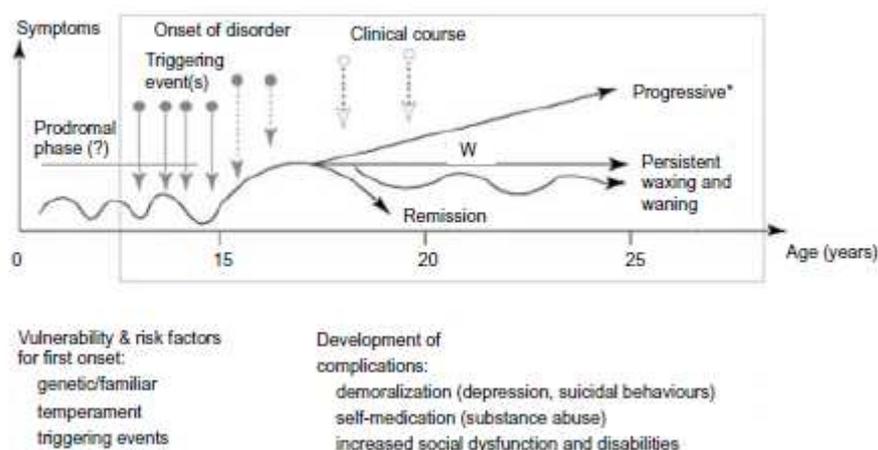


Figure 2: The development and course of symptoms in individuals with anxiety (Wittchen and Fehm, 2003)

Measure of evidence and effect sizes

Out of the methods available for testing the effect and success of an intervention, RCT studies have achieved supremacy in psychotherapy – to a certain extent fuelled by a task force established in the 1990s by the American Psychological Association (APA) to provide knowledge of empirically validated treatments and recommendations for evidence based practice (Lambert, 2011). According to this task force, empirically validated treatments are tested in at least two RCTs conducted by different investigators and demonstrate better outcomes than no treatment, another treatment or placebo treatment. The studies must be conducted with a treatment manual and clearly specify the characteristics of the client sample (Chambless et al., 1993). The effect is normally measured in effect sizes estimating the size of improvement in the experimental group vs. the control condition. The effect size (ES) is calculated by subtracting the posttreatment mean of the control group from the posttreatment mean of the treatment group and dividing by the standard deviation of the control group ($ES = (\text{Mean patient}_{\text{post}} - \text{Mean control}_{\text{post}}) / SD_{\text{control}_{\text{post}}}$). In uncontrolled studies, the ES denotes the improvement within the patient group from pretreatment to posttreatment. This is calculated by subtracting the patient's posttreatment mean from his/her pretreatment mean and dividing by the standard deviation or the pooled standard

deviation at pretreatment ($ES = (\text{Mean patient}_{\text{pre}} - \text{Mean patient}_{\text{post}}) / \text{SD patient}_{\text{pre}}$). A vast number of meta-analyses, more than 500 according to Lambert's estimate, has been made. These studies make the general conclusion that psychotherapy is far more effective than natural healing and supportive elements in the environment (Lambert, 2011). One review of 16 meta-analyses finds that the ES for cognitive behavioural therapy for depression and anxiety disorders is around $ES=0.95$ in controlled studies (Butler, Chapman, Forman, & Beck, 2006).

No-show in treatment

One factor that may contribute to a biased impression of the benefits in RCT studies is the individuals who refuse treatment or never show up for treatment (Hofmann et al., 1998). Hofmann et al. report that in both medical and psychotherapy settings, the refusal rate can be especially high. In their study (N=628) they found that 48.6% of eligible patients refused to participate in the treatment study, while 18.3% were excluded for not fulfilling the criteria. In all, only 25.3% of the initial sample participated (see Table 1 in Figure 3).

TABLE 1. Pretreatment Attrition of Subjects Screened for Inclusion in a Panic Disorder Study at Two Sites Over 34 Months

Disposition	Hillside Hospital, Long Island Jewish Medical Center (N=420)		Center for Stress and Anxiety Disorders, Albany (N=208)		Total (N=628)	
	N	%	N	%	N	%
Subjects who did not participate						
Excluded	82	19.5	33	15.9	115	18.3
Change in diagnosis	38	9.0	12	5.8	50	8.0
Medical exclusion	25	6.0	14	6.7	39	6.2
Drug dependence	8	1.9	5	2.4	13	2.1
Others ^a	11	2.6	2	1.0	13	2.1
Accepted but decided not to continue in study	36	8.6	13	6.3	49	7.8
Eligible but refused	248	59.0	57	27.4	305	48.6
Subjects who participated	54	12.9	105	50.5	159	25.3

^aIncludes individuals with prior nonresponse to tricyclic antidepressants (four at Hillside and one at Albany), infrequent panic attacks (six at Hillside and one at Albany), and previous participation in the study (one at Hillside).

Figure 3: Pretreatment attrition in a panic disorder RCT study (Hofmann et al., 1998)

Likewise, in most naturalistic studies no-show patients do not appear in the data, as opposed to dropout patients, who start treatment and figure in the data material (O'Brien, Fahmy, & Singh, 2009; Self, Oates, Pinnock-Hamilton, & Leach, 2005; Wierzbicki & Pekarik, 1993). Studies from

psychiatric settings find that 30%-40% of the patients referred to mental health treatment never show up (Issakidis & Andrews, 2004; Killaspy, Banerjee, King, & Lloyd, 2000), while a review study found an average dropout rate of 46.8% (Wierzbicki & Pekarik, 1993). Relatively few studies focus on the characteristics of no-show patients and hence a solid knowledge and understanding of the causes for non-attendance is sparse. The studies that are available find that no-show patients have the same predictors as dropout patients. Younger age, unmarried, unemployed and less educated have been found to be significant demographic predictors of no-show (Kruse, Rohland, & Wu, 2002; Lester & Harris, 2007; Matas, Staley, & Griffin, 1992; Rossi, Amaddeo, Sandri, & Tansella, 2005), while substance abuse, personality disorders, psychopharmacological treatment and previous psychiatric treatment are among the significant clinical predictors (Glyngdal, Sorensen, & Kistrup, 2002; Hofmann et al., 1998; Kruse et al., 2002; Matas et al., 1992; Rossi et al., 2008; Rossi et al., 2005). In general, non-attendance studies find that socio-economic factors have a significant influence on attrition and that the patients most in need of treatment are the ones who do not manage to attend and complete treatment.

Choice of measurement in treatment

Another aspect that is rarely discussed or challenged in the literature is the choice of measurement in studies of psychotherapy (Brockow et al., 2004; Lam, Filteau, & Milev, 2011; McKnight & Kashdan, 2009; Mirin & Namerow, 1991; Perkins, 2001; Rogers, Chamberlin, Ellison, & Crean, 1997; Zimmerman et al., 2006a). The key question is what constitutes the evidence of an effective treatment, in other words: How do you define success? According to Perkins there are at least three stakeholders that play a role in defining the success of a treatment and consequently the evidence: the clinicians, the patients and the payers (Perkins, 2001). Clinicians focus on the patient's subjective feeling of physical and mental distress and accordingly use tests of symptoms; patients focus on being in control of their own lives and on their ability to function (social,

occupational etc.); while the payers focus on treatment that reduces costs and maximises benefits (Mirin & Namerow, 1991; Perkins, 2001). Outcome studies, however, almost exclusively use measurement of symptoms to prove the success of mental health interventions. A study of 203 randomly selected effect studies on depression showed that 80% of the studies applied Hamilton Rating Scale for Depression, which focuses exclusively on bodily and intra-psychoic symptoms, while only 4% of the studies applied a test like the Social Adjustment Scale, which focuses on social, occupational and economic functioning (Brockow et al., 2004). Similar results were found in another review study, where out of 90 studies on depression, only 5% measured and reported a functional outcome (McKnight & Kashdan, 2009). Still, symptoms are only one side of mental health problems. Social, occupational and everyday functioning are also affected and could as well be targeted in an intervention (McKnight & Kashdan, 2009; Mirin & Namerow, 1991; Zimmerman et al., 2008). Although clinicians experience a sense of gratification from the success their psychotherapeutic intervention has on the patients' feeling of mental and physical distress, it is just one parameter among others that can be satisfied. As a result researchers and clinicians could consider what purpose and whose perspective and interest they pursue when designing interventions and outcome measurements (McGlynn, 2008; Perkins, 2001).

Efficiency studies and societal costs/benefits of mental health problems and treatment

With growing constraints on government spending on health care services, more attention is being given to the economy and the balance between cost and the societal outcomes of treatments (Rich et al., 2011). In America, for example, it has been estimated that 30-40% of all health care expenses are spent on unnecessary or unsafe health care, which is why the government has made it a new goal to have, '*health care organizations that continually strive to improve the delivery of appropriate patient care, and substantially and measurably reduce extraneous services and treatments*' (National Priorities Partnership, 2008). Studies have investigated the extent to which

psychotherapeutic intervention has an impact on the use of health care services and the occupational functioning for the treated patients. Two reviews show that more than 85% of the reviewed studies report significant reduction in usage of health care services after treatment (Gabbard, Lazar, Hornberger, & Spiegel, 1997; Mumford, Schlesinger, Glass, Patrick, & Cuerdon, 1984); the mean size of reduction was 10.4% in RCTs and 33.1% in naturalistic studies (Mumford et al., 1984). Reviews of interventions for selected diagnoses report even higher reduction rates ranging from 33% to 85% (Abbass, Kisely, & Kroenke, 2009; de, Philipszoon, Schoevers, Dekker, & De, 2007; Mauskopf et al., 2009; Simon, Khandker, Ichikawa, & Operskalski, 2006). Likewise, studies of work ability have shown that psychotherapy can help in the recovery of occupational functioning. A review by Mintz and colleagues shows that psychotherapy significantly improves occupational functioning as assessed by the Social Adjustment Scale for patients with depression (Mintz, Mintz, Arruda, & Hwang, 1992). Furthermore, we were able to identify ten studies on intervention for non-psychotic mental disorders that measure sick leave absence; each of these studies reported that psychotherapy led to a reduced number of sick leave days (Bakker et al., 2007; Brouwers, de Bruijne, Terluin, Tiemens, & Verhaak, 2007; Huibers et al., 2004; Knekt et al., 2008; Lazar, Sandell, & Grant, 2006; Linden, Zubragel, & Bar, 2010; Simon et al., 2000; Stenlund et al., 2009; van der Klink, Blonk, Schene, & van Dijk, 2003). Only a few studies have investigated the effect of psychotherapeutic intervention on the ability to obtain and/or maintain a job (Arnfred, Eplov L.F., Korsbek, Petersen, & Olander, 2010; Harvey, Henderson, Lelliott, & Hotopf, 2009) and on the risk of being permanently impaired and subsequently being awarded disability pension (Birket-smith & Eplov L.F., 2007; Borg, Nexø, Kolte, & Andersen, 2010). Available studies show that specialised intervention programmes improve employment stability (Nygren, Markstrom, Svensson, Hansson, & Sandlund, 2011; Proudfoot, Gray, Carson, Guest, & Dunn, 1999; Schoenbaum et al., 2002; Wang et al., 2007; Wells et al., 2000), while studies on disability

pension merely confirm that anxiety and depression are associated with a higher risk for disability pension (Mykletun et al., 2006; Sorvaniemi, Helenius, & Salokangas, 2003).

A central methodological limitation of efficiency studies regarding both utilisation of health care and occupational functioning is that the majority are based on short observation periods, typically stretching from enrolment to a few months after completion of treatment. As a consequence, the immediate pretreatment stage, where mental problems have emerged or forced the patient to seek treatment, is compared to the immediate posttreatment stage. In most cases, this comparison will show a decline in for example the number of health care visits or days with sick leave; thus the studies provide misleading positive feedback on the benefits of psychotherapy. Another methodological but more general problem is that while efficiency studies may utilise a large number of different parameters as outcome measures, there is no general consensus regarding which parameters should be used. In some studies, only the direct cost and benefits associated with treatment (such as outpatient treatment, inpatient treatment, usage of emergency units, primary care services, drugs, rehabilitation etc.) are included, whereas other studies also include indirect costs relating to change in occupational functioning (such as work ability, productivity, sickness absence, early retirement and mortality) after treatment (Konnopka, Leichsenring, Leibing, & Konig, 2009; Sobocki, Lekander, Borgstrom, Strom, & Runeson, 2007). For example, in a Swedish financial study, the total cost of depression in Sweden in 2005 was estimated at €3.5 billion. The direct costs were €502 million (14%), while indirect costs were €3.0 billion (86%). Figure 4 shows that the main expenses are due to early retirement (47%) and sick leave (32%) (Sobocki et al., 2007).

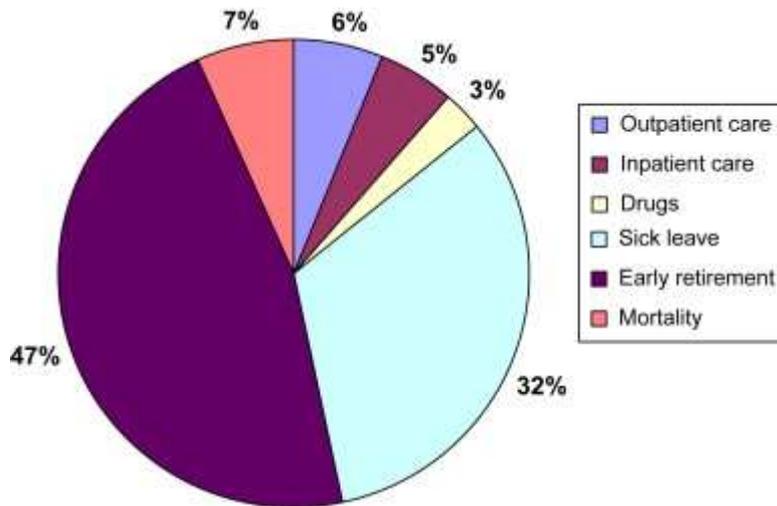


Figure 4: Total cost of depression in Sweden in 2005 (Sobocki et al., 2007)

In Denmark, the total direct and indirect cost for mental health problems is estimated at DKK 55 billion a year, of which direct expenses for medical treatment are estimated to be merely 10% of the total cost; the remaining and main costs arise from early retirement, long-term sickness absence, and reduced individual productivity (presenteeism) (Borg et al., 2010).

Study motivation

The outcomes of psychotherapy have been researched for decades and a vast body of studies confirms that psychotherapeutic treatment is associated with a significant reduction in symptoms (Lambert, 2011). But two important issues came to our attention at the research unit at PC Stolpegaard: 1) An apparently large number of patients refused the offered treatment, missed appointments or did not manage to stay in treatment; and 2) statistics from the Danish Psychiatric Central Research Register showed that over 70% of all contacts by patients with secondary mental health care services were readmissions (Centre for Psychiatric Research, 2012b).

Hence, the motivation behind this thesis is to go beyond the traditional documentation of the outcome of psychotherapy and to present an efficiency oriented picture of the success and evidence of psychotherapy. This study addresses the question of whether or not psychotherapy reaches the patients seeking help and whether or not psychotherapy achieves reducing health care consumption and improving the occupational functioning in the treated patients. Thus, to develop and secure efficient treatment and optimal use of the limited resources, we think it is necessary to have and investigate a broader perspective of which measures could be included and used as evidence in evidence based treatment in the mental health care services.

Aims

This thesis consists of three studies based on three articles:

- The aim of Study 1 was to state the amount of non-attendance and then to investigate the influence of demographic and clinical variables on treatment no-show and dropout.
- The aim of Study 2 was to investigate the long-term outcome of non-psychotic patients referred to psychotherapy with respect to utilisation of health care services based on a comprehensive set of register-based data on mental and somatic health care services.
- The aim of Study 3 was to investigate the long-term outcome of psychotherapy in non-psychotic patients on occupational functioning in terms of number of days on sick leave, unemployment and disability pension.

A secondary aim of Study 1 was to investigate possible differences in predictors for no-show patients and for dropout patients. The secondary aim of studies 2 and 3 was to evaluate possible associations between treatment status (completers, no-shows, responders, and non-responders) and the patients' utilisation of health care services and the patients' occupational functioning compared to a matched control group.

Materials and methods

Setting

The Psychotherapy Centre (PC) Stolpegaard, Mental Health Services in the Capital Region of Denmark provides treatment for adults with non-psychotic mental disorders, including affective disorders, nervous disorders, eating disorders, and personality disorders. The PC Stolpegaard offers outpatient (80%) and inpatient (20%) treatments in a five-day care unit, primarily using group psychotherapy. The centre offers cognitive behavioural group therapy for patients with anxiety and depression, systemic and narrative group therapy for patients with eating disorders, and psychodynamic group therapy for patients with personality disorders. Inpatient treatment also includes milieu therapy. Short-term individual therapy (for a mean of 10 sessions) is offered to patients who are not suited for group therapy. The typical group therapy format is 16-20 sessions lasting 2.5 hours per session.

Definitions of treatment status

No-shows are patients who came to the assessment interview and were offered treatment, but did not show up for their first and later treatment sessions and did not attempt to change the appointment or notify the centre. *Dropouts* are patients who started their treatment, but stopped treatment without contacting the therapists. *Completers* are patients who started their treatment and participated in either the full programme or in more than six sessions. Patients were defined as treatment *responders* or *non-responders* based on changes on the Global Severity Index (GSI) from the Hopkins Symptom Check List-90-Revised (SCL-90-R) (see description in *Statistics* section).

Participants in the studies

Patient sample

All of the patients in the three studies were referred to and offered psychotherapeutic treatment at PC Stolpegaard.

In Study 1 the patient sample consisted of 2,473 consecutive patients referred to PC Stolpegaard from 1 April 2004 to 1 April 2008 (for demographic data, see Paper I, Table 1). In studies 2 and 3 the patient sample consisted of 944 consecutive patients offered psychotherapeutic treatment at PC Stolpegaard from 1 January 2004 to 31 December 2005 and who completed treatment before 31 December 2005. In studies 2 and 3, dropout patients (n=102) and patients of non-Danish origin (n=81) were excluded. Study 2 comprised 761 patients, but only 747 consecutive patients were included in the Study 3, because 14 patients could not be identified in the aggregated register Coherent Social Statistics. Due to missing data it was not possible to calculate treatment response status on all completer patients. See Table 2 demographic and clinical data.

Control sample

Studies 2 and 3 included a matched control group as a comparison to account for natural developments in the use of health care services and natural developments in sick leave, unemployment, and disability pension trends. For each patient, 20 control individuals were randomly collected and matched from the Central Population Register in Denmark based on four criteria: (1) Danish ethnicity, (2) residence in same geographic area, (3) same gender, and (4) same birth date. No exclusions were made. Thus, Study 2 included 15,220 controls and Study 3 included 14,940 controls.

Table 2: Demographic and diagnostic data for patients and control persons in Study 2 and 3

	N Male/Female (%)	All N Age (SD)	Mood disorders F30-39 (%)	Neurotic disorders F40-49 (%)	Behavioural 1 syndromes F50-59 (%)	Disorders of personality F60-69 (%)
Completer (N=545)	102/443 (81%)	33.2 (10.7)	120 (22%)	249 (46%)	104 (19%)	65 (12.0%)
▪ Responder (n=228)	38/190 (83%)	33.3 (10.4)	62 (28%)	100 (45%)	38 (17%)	23 (10%)
▪ Non-responder (n=201)	34/167 (83%)	34.4 (10.3)	47 (24%)	83 (42%)	41 (21%)	25 (13%)
No-show (N=216)	40/176 (81%)	31.1 (10.3)	35 (17%)	110 (52%)	34 (16%)	31 (15%)
Control (N=15,220)	2,840/12,380(81%)	32.6 (10.6)	21 (0.14%)	31 (0.20%)	12 (0.08%)	22 (0.14%)

Design

Study 1 was a naturalistic cross-sectional predictor study of all patients consecutively offered psychotherapy from 1 April 2004 to 1 April 2008. Fifteen demographic and clinical variables were entered into regression analysis to investigate to which degree the variables could predict which patients became no-show, dropout or completer patients, respectively.

Studies 2 and 3 were matched control pre-post studies of patients who were offered and completed therapy from 1 January 2004 to 31 December 2005, where each patient was matched to a group of 20 control subjects. Study 2 used register data for the utilisation of mental health care services from 2000-2009. For each individual patient included from 2004-2005, the utilisation of health care services was measured annually four years prior to enrolment (date of assessment interview) and four years after completed treatment (date of discharge). No-show patients were assigned a date of discharge equal to the average length of the intervention period (including waiting time) for completer patients; in our sample this was 214 days. The utilisation of health care services by controls was measured annually using the same dates and period as their matched patient. Study 3 comprised data on the annual number of registered days on sick leave beyond 14 days, unemployment, and disability pension for each individual patient and matched control subjects from 1 January 2002 to 31 December 2007. For all of the patients, the study covered annually measured register data over a five-year period: two years pretreatment, year zero (the treatment year), and two years posttreatment. Thus, the study period was 2002-2006 for patients treated in 2004 and 2003-2007 for patients treated in 2005.

Data

Data collected from PC Stolpegaard

In Study 1 patient demographic and clinical data were registered at the assessment interview.

Demographic data included the following binary variables: gender, children at home, employment status and sick leave status. Additionally, age, marital status, and compulsory school education was registered in four categories and vocational/university education in three categories (the categories are presented in Table 2). *Clinical data* included the following binary variables: previous psychiatric/ psychological treatment, use of antidepressants and substance abuse. Additionally, primary and comorbid psychiatric diagnoses and duration of symptoms were registered in four categories, and the GAF score was registered on a continuous scale and recoded in three intervals (< 40, 40-70, >70). GAF is an observer scale (range 1-100) used for rating a patient's lowest level of psychosocial functioning during the preceding month (Karterud, Pedersen, Løvdahl, & Friis, 1998).

Studies 2 and 3 only contain data on the current level of psychological distress using SCL-90-R before and after psychotherapeutic intervention at PC Stolpegaard. SCL-90-R is a self-report symptom checklist designed to measure current mental distress on nine symptom scales and three overall symptom indexes (Derogatis, 1994).

Data collected from external central registries

No external data was obtained for Study 1. Studies 2 and 3 contain administrative data from registries at the National Board of Health and from Statistics Denmark registries. Study 2 contains data on utilisation of mental and somatic health care services, i.e. the number of contacts with hospitals, inpatient bed days in hospitals, primary care contacts and benefits, and dispensed volume of medication. Study 3 comprises data on social benefits from the aggregated register Coherent Social Statistics. This data contains the number of days with sick leave, the number of days with unemployment and the number of days with disability pension.

Statistics

All data were analysed using Statistical Package for the Social Sciences (SPSS) for Windows, versions 15 or version 18. In Study 1, no-show patients and dropout patients were cross-tabulated with the demographic and clinical data to assess the bivariate associations. Associations were evaluated with chi-square tests of significance. All significant variables ($P < 0.05$) were then included in multiple logistic regression models that predicted no-show and dropout, respectively. The logistic regression models ensured mutual adjustment for the effects of all predictor variables with significant bivariate associations. The no-show model compared no-show patients with show-up patients, whereas the dropout model compared dropout patients with treatment completers.

In studies 2 and 3 the mean values (M) and standard deviations (SD) of the number of health care services (eight parameters) and the number of days with social benefits (three parameters) were calculated annually for the patient groups and the control group. The percent change and ES were calculated for the changes between x-years pretreatment and x-year posttreatment (see Paper II and Paper III or the note for the specific x-year here and in the following)*. Effect sizes were calculated using Glass' formula: $ES = (\text{mean}_{\text{pre}} - \text{mean}_{\text{post}}) / SD_{\text{pre}}$. According to Cohen, $ES < 0.5$ is considered a small effect; $ES = 0.5$ to 0.8 a moderate effect; and $ES > 0.8$ a large effect (Cohen, 1988).

Independent t-tests were performed for the difference in use of health care services (Study 2) and the number of social benefits days (Study 3) between patients and controls for the x-years pre treatment and the x-years posttreatment*. Paired t-tests were performed to analyse changes in use of health care services (Study 2) or in benefit days (Study 3) within the patient groups and the control group for the x-year pre-post treatment comparisons*. Differences in changes in the use of

* In Study 2 it was the first and fourth year before and after treatment. In Study 3 it was the second year before and after treatment.

health care services (Study 2) or in the number of benefit days (Study 3) over time between the patient groups and control group were analysed with ANCOVA for the x-year pre-post treatment comparisons*. Age, gender, and baseline usage of health care services (Study 2), respectively, and baseline benefit days (Study 3) at x-year before treatment were included as covariates in ANCOVA. Significant results in ANCOVA were followed by planned contrasts to evaluate which patient group had the significant change.

Treatment response and non-response

Change in the GSI from SCL-90-R was used to categorise whether patients responded to treatment or not. Response or non-response was assessed using the model proposed by Jacobson and Truax, which requires both a statistically reliable change in symptoms and a symptom level that is within the functional range of a non-patient population (Jacobson & Truax, 1991). Coefficient alpha is recommended as a measure of reliability (Schauenburg & Strack, 1999) and in a Danish population this score on the GSI was found to be 0.97 (Olsen, Mortensen, & Bech, 2006a). This was used together with the standard deviation at pretreatment GSI ($SD_{pre}=0.586$) to derive the reliable change criterion. The functional range of GSI was calculated according to the recommendations by Derogatis (Derogatis, 1994). The Danish cut-off scores for non-cases are 1.08 for women and 0.87 for men (Olsen, Mortensen, & Bech, 2006b).

Study 1: No-shows, dropouts, and completers in psychotherapeutic treatment

Results

In Study 1, all variables significant from the cross tabulation and chi-square analysis were used in the regression analysis. In the regression model for no-show patient versus show-up patients, three demographic and six clinical variables were entered. The results of the analysis are presented in Table 3: No-show was significantly predicted by: age below 25 years, only the compulsory nine years of school education, no current sick leave, personality disorder, a GAF-score either above 70 or below 40, no previous psychiatric/psychological treatment, no prescribed antidepressants, and substance abuse.

Table 3: Logistic regression analysis for no-show patients versus show-up patients (Study 1)

Demographic variables and categories	N*	Odds ratio	C.I. 95% (Lower – Upper)	P [§]
Age				
▪ > 45 years	248	1.000	(Reference)	
▪ 35-44 years	422	1.008	(0.675 – 1.506)	.967
▪ 25-34 years	650	1.213	(0.813 – 1.771)	.318
▪ < 25 years	511	1.512	(1.016 – 2.249)	.041
School education				
▪ High school	863	1.000	(Reference)	
▪ Up to eleven years	634	1.415	(0.696 – 2.878)	.338
▪ Nine years (compulsory)	295	1.497	(1.090 – 2.056)	.013
▪ Attending school now	39	1.119	(0.865 – 1.448)	.391
Current sick leave				
▪ Yes	575	1.000	(Reference)	
▪ No	1256	1.466	(1.115 – 1.927)	.006
Clinical variables and categories	N*	Odds ratio	C.I. 95% (Lower – Upper)	P [§]
Primary diagnosis				
▪ Mood disorders	361	1.000	(Reference)	
▪ Neurotic disorders	930	1.119	(0.815 – 1.537)	.487
▪ Behavioural syndromes	335	0.860	(0.574 – 1.290)	.467
▪ Disorders of personality	205	1.829	(1.211 – 2.762)	.004
Psychiatric comorbidity				
▪ Mood disorders	60	1.000	(Reference)	
▪ Neurotic disorders	129	1.360	(0.587 – 3.153)	.473
▪ Behavioural syndromes	32	0.731	(0.231 – 2.310)	.593
▪ Disorders of personality	157	1.308	(0.574 – 2.981)	.523
▪ No comorbidity diagnosis	1394	1.313	(0.622 – 2.770)	.475
GAF-score				
▪ 40 – 69	1715	1.000	(Reference)	
▪ > 70	37	2.018	(1.016 – 4.009)	.045
▪ < 40	79	2.735	(1.651 – 4.529)	<.001
Previous psych. treatment #				
▪ Yes	1319	1.000	(Reference)	
▪ No	512	1.372	(1.077 – 1.748)	.011
Prescribed antidepressiva				
▪ Yes	679	1.000	(Reference)	
▪ No	1152	1.487	(1.152 – 1.918)	.002
Substance abuse				
▪ No	1744	1.000	(Reference)	
▪ Yes #	87	1.831	(1.131 – 2.956)	.014

* The number of cases in each category in the variable.

§ Significant *p*-values (*p* < 0.05) for the categories are emphasised in bold.

Error corrected in this table. Erratum is given in Nord J Psychiatry. 2011 Jun;65 (3):191.

In the regression model for dropout patients versus completer patients, four demographic and one clinical variable were entered. Table 4 shows the results of the regression analysis: Dropout was

significantly predicted by: age below 45 years, only the compulsory nine years of school education or currently attending school, no vocational/university education, unemployment, and substance abuse.

Table 4: Logistic regression analysis for dropout patient versus completer patients (Study 1)

Demographic variables and categories	N*	Odds ratio	C.I. 95% (Lower - Upper)	p [§]
Age				
▪ > 45 years	235	1.000	(Reference)	
▪ 35-44 years	409	1.655	(1.010 – 2.713)	.046
▪ 25-34 years	602	1.741	(1.070 – 2.831)	.026
▪ < 25 years	432	1.908	(1.112 – 3.276)	.019
School education				
▪ High school	800	1.000	(Reference)	
▪ Up to eleven years	593	1.595	(1.163 – 2.187)	.004
▪ Nine years (compulsory)	257	1.933	(1.309 – 2.854)	=.001
▪ Attending school now	28	1.835	(0.756 – 4.455)	.180
Vocational/university education				
▪ Student	316	1.000	(Reference)	
▪ Completed education	868	1.166	(0.737 – 1.846)	.511
▪ No education	494	1.599	(1.043 – 2.452)	.031
Employment status				
▪ Employed	597	1.000	(Reference)	
▪ Unemployed	1081	1.432	(1.049 – 1.955)	.024
Clinical variables and categories	N*	Odds ratio	C.I. 95% (Lower - Upper)	p [§]
Substance abuse				
▪ No	1611	1.000	(Reference)	
▪ Yes	67	2.704	(1.548 – 4.721)	<.001

* The number of cases in each category in the variable.

§ Significant p-values ($p < 0.05$) for the categories are emphasised.

Discussion

The aim of Study 1 was to examine potential predictors of attendance for patients referred to psychotherapeutic treatment. In agreement with most of the existing literature on dropout and no-show, the study confirms that certain demographic and clinical factors predict treatment attendance. A clear difference between prediction of no-show and prediction of dropout was observed. No-show was predicted by both clinical and demographic variables, while dropout was solely predicted by demographic variables and substance abuse.

Which patients do not show up for treatment?

Low age, only the compulsory school education, no sick leave, personality disorder, low and high GAF-score, no previous treatment, no antidepressant, and presence of substance abuse were significant predictors of no-show patients. The results from the present study support the consistent finding that young people have adherence problems (Edlund et al., 2002; Kruse et al., 2002; O'Brien et al., 2009). Both the less stable personal and social situation of young patients and lack of experience with therapy may contribute to these problems (O'Brien et al., 2009). The results also support that patients with a short school education are likely not to show up for treatment. Previous studies have shown that low levels of education are associated with various other problems and a low feeling of mastery, which might entail a reduced ability to structure your life and fully to adhere to treatment (Dalgard, Mykletun, Rognerud, Johansen, & Zahl, 2007). The variable current sick leave predicted higher treatment show-up frequency, maybe because a sick leave better allows patients to take their time to comply with treatment as opposed to patients who remained in job, but generally it is recommended that individuals with mental health problems should stay at work (Borg et al., 2010).

The impact of the psychiatric diagnosis on not showing up is in agreement with other studies (Matas et al., 1992). The fact that patients with personality disorder had the highest rate of no-show may reflect that they tend to experience their pervasive dysfunctional mental patterns of behaviour, thoughts, and feelings as ego-syntonic, and therefore may have an ambivalent attitude towards treatment. In contrast to the existing literature (Issakidis & Andrews, 2004; Marie et al., 2005) psychiatric comorbidity was not associated with a greater risk for not showing up in the present study. This finding demands further investigation to be understood, but a tentative explanation will be that our centre provides several modalities of treatment, which may better encompass and suit more complex patients. Patients rated as slightly impaired (GAF>70) or severely impaired (GAF<40) were more likely not to show up. This result suggests that there is a

window for psychotherapeutic treatment equivalent to a GAF-score in the interval 40–70.

Previous studies have shown that mild conditions (i.e. high GAF-scores) predict no-show (Rossi et al., 2008), maybe because the patients have remitted during the waiting time before treatment (Centorrino et al., 2001). In the other end, a GAF score below 40 signifies severely impaired patients unable to function without support (Karterud et al., 1998). Such patients might have been too sick to show up and participate in treatment or the patients may even have been referred to an acute psychiatric department. In contrast to the results of another Danish study (Glyngdal et al., 2002), previous psychiatric or psychological treatment in our study was significantly associated with a higher rate of showing up for treatment. We think that previous treatment experience lowers the barrier for requesting and participating in a new treatment and that may explain the result. Patients on prescribed antidepressants were more likely to show up for treatment than non-medicated patients. This was surprising, as meta-analyse studies have shown that dropout rates are higher for the combination of psychotherapy and medicine compared to single psychological treatments (Furukawa, Watanabe, & Churchill, 2007; Hollon et al., 2005). In our study, medication started before and independently of the psychotherapeutic treatment. The results may imply that medication made it easier for the patients to endure the waiting time or it may reflect that compliance with the use of medication may be associated with compliance with other forms of treatment (Kruse et al., 2002). Another possibility is that motivation for psychotherapy is higher due to insufficient effects of the medication. Finally, our study confirms previous findings that patients with substance abuse are less likely to show-up (Glyngdal et al., 2002; Matas et al., 1992). It has been estimated that more than 50% of substance abusers have a comorbid mental disorder, but few seek help or want treatment as they are not prepared to change their abuse (Harris & Edlund, 2005).

Which patients drop out of treatment?

Age below 45 years, only compulsory school education, or currently attending school, no vocational/university education, unemployment, and substance abuse were significant predictors of dropout patients. The most consistent finding in previous studies is that low socio-economic status more than anything else differentiate dropouts from completers as well as no-shows (Self et al., 2005)(Wierzbicki & Pekarik, 1993). Thus, it appears that demographic variables may be more important predictors of dropout than variables related to the clinical status of the patients.

Interestingly, in the present study four demographic variables but only one clinical variable were significant predictors for dropout. Dropout patients were significantly more likely to be under the age of 45 years. We have already discussed various reasons why younger age may be associated with a higher rate of non-attendance. Consistent with previous research (Self et al., 2005; Wierzbicki & Pekarik, 1993), the present study showed that having only the nine compulsory years in school, currently attending school as an adult, having no vocational/university education, and being unemployed were all factors associated with increased risk of dropping out. A nationwide Norwegian survey (Dalgard et al., 2007) found these factors to be highly correlated with each other and with other parameters such as low sense of mastery. Two points can be of relevance here: First, patients with no further education may be unaccustomed to self-reflection and may even lack the intellectual ability required for meta-cognitions. This may partly explain why they tend to give up therapy and should be further investigated through studies of the association of verbal intelligence with attendance and outcome. Second, as discussed by Dalgaard and colleagues (Dalgard et al., 2007), low education and unstable employment may be associated with less ability to manage and control one's own life, including the ability to be compliant with a treatment regime.

The only significant clinical predictor of dropout was substance abuse. Substance abuse is consistently found to be associated with high risk for dropout (Compton, Rudisch, Weiss, West, &

Kaslow, 2005; Wang et al., 2007) and it is generally agreed that patients with double diagnosis need to be treated for their addiction first as the substance abuse often hinder and complicate the treatment of the mental disorders (Harris & Edlund, 2005; O'Brien et al., 2009).

Study limitations

The study has a number of limitations. First, our study was accomplished in a naturalistic setting. None of the patients were selected specifically for this study, which contributed to an inhomogeneous patient sample. All diagnoses from mood disorders (F30) to personality disorders (F69) and comorbid conditions were included. This may partly explain if our non-attendance rates were high compared to specialized treatment units focusing only on one diagnostic group. Second, our study included demographic and clinical data. Other studies have shown that waiting time, travel distance and time of appointment are significant predictors of attendance (Campbell, Staley, & Matas, 1991)(Gallucci, Swartz, & Hackerman, 2005)(Weinerman et al., 2003). In addition, no data on treatment type, satisfaction with treatment and the patients' subjective reasons for non-attendance were collected. Thus, if we had investigated data on accessibility of treatment, subjective reasons for non-attendance (Killaspy et al., 2000; Peeters & Bayer, 1999; Rossi et al., 2008; Wang et al., 2007) and detailed clinical assessments, we might have been able to make better predictions of no-show and dropout. Third, the findings may only be generalised to psychotherapeutic settings similar to the Scandinavian welfare system. In the Scandinavian welfare system health treatment and sick leave exceeding 14 days is financed by the state and is without cost for the patients and this may influence the number of patients not showing up or dropping out of treatment.

Study 2: Increased utilisation of health care services after psychotherapy – a register based study

Due to a high number of parameters and patients groups investigated in Study 2 and 3 only results for the completer patients are reported in text here, but tables and figures will show the outcome for all participants. For details in results for the control group and the subgroups of patients, please see Paper II.

Results

In Study 2 the use of health care services in eight parameters were measured annually for a period of eight years (excluding the treatment). During the fourth year before treatment, the group of completer patients averagely contacted a psychiatric hospital 0.08 times, had 0.37 bed days in a psychiatric hospital, visited a psychologist in primary care 0.55 times and was prescribed 51.9 dispensed volume of psychopharmacological medicine; for further data on utilisation of health care services see Table 5. Four years after completed treatment, the patients had increased their use of the eight health care services by averagely 296% (effect size=0.58), while the control group only increased usage by averagely 99% (effect size=0.23) (see Table 5 and Figure 5).

Table 5: Mean utilisation of specific health care services. Percent change, effect size (ES) and t-test within groups (Study 2)

	4Ypre Mean	4Ypost Mean	% change	ES	Differ- ence	<i>t</i>	<i>df</i>	<i>p</i>
Contacts to psychiatric hospitals								
Completer	0.08	0.34	356%	0.46	0.27	4.4	544	<.001
▪ <i>Responder</i>	0.07	0.36	382%	0.61	0.29	2.9	227	.004
▪ <i>Non-responder</i>	0.05	0.34	527%	1.16	0.29	3.0	200	.003
No-Show	0.05	0.15	191%	0.33	0.10	2.2	215	.026
Control	0.02	0.05	112%	0.11	0.03	7.3	15,219	<.001
Bed days in psychiatric hospitals								
Completer	0.37	5.08	1290%	1.39	4.71	4.3	544	<.001
▪ <i>Responder</i>	0.57	2.99	425%	0.50	2.42	2.9	227	.004
▪ <i>Non-responder</i>	0.26	5.97	2164%	2.85	5.71	2.8	200	.006
No-Show	0.31	1.09	256%	0.28	0.78	1.6	215	.113
Control	0.55	0.80	45%	0.02	0.25	1.6	15,219	.100
Psychologists via primary care								
Completer	0.55	1.20	119%	0.35	0.65	4.1	544	<.001
▪ <i>Responder</i>	0.66	1.14	73%	0.24	0.48	2.0	227	.050
▪ <i>Non-responder</i>	0.48	1.26	162%	0.40	0.78	2.8	200	.006
No-Show	0.51	0.98	93%	0.25	0.47	2.2	215	.026
Control	0.11	0.23	110%	0.14	0.12	9.9	15,219	<.001
Disp. volume of psych. Medication								
Completer	51.93	219.82	323%	1.05	167.89	9.2	544	<.001
▪ <i>Responder</i>	46.06	191.46	316%	0.97	145.40	6.5	227	<.001
▪ <i>Non-responder</i>	66.85	259.94	289%	0.99	193.09	5.0	200	<.001
No-Show	39.28	166.58	324%	0.92	127.30	6.0	215	<.001
Control	16.11	40.86	154%	0.23	24.75	19.1	15,219	<.001
Contacts to somatic hospitals								
Completer	0.77	1.09	40%	0.21	0.31	3.1	544	.002
▪ <i>Responder</i>	0.75	0.99	32%	0.18	0.24	1.9	227	.066
▪ <i>Non-responder</i>	0.69	1.26	82%	0.44	0.57	3.4	200	.001
No-Show	0.97	1.41	45%	0.26	0.44	2.6	215	.011
Control	0.59	0.97	66%	0.31	0.39	23.6	15,219	<.001
Bed days in somatic hospitals								
Completer	1.33	2.40	81%	0.34	1.08	3.5	544	<.001
▪ <i>Responder</i>	1.34	2.04	52%	0.23	0.70	1.8	227	.077
▪ <i>Non-responder</i>	1.25	3.13	151%	0.61	1.89	3.1	200	.003
No-Show	2.27	3.64	60%	0.13	1.37	1.4	215	.170
Control	1.25	2.79	123%	0.29	1.54	13.5	15,219	<.001
Primary care excl. psych.								
Completer	22.59	33.35	48%	0.48	10.76	7.3	544	<.001
▪ <i>Responder</i>	22.71	32.33	42%	0.48	9.62	4.7	227	<.001
▪ <i>Non-responder</i>	23.87	37.63	58%	0.52	13.76	4.9	200	<.001
No-Show	22.67	30.54	35%	0.38	7.88	4.4	215	<.001
Control	15.64	23.45	50%	0.42	7.81	35.3	15,219	<.001
Disp. volume of somatic medication								
Completer	60.14	124.29	107%	0.35	64.15	5.4	544	<.001
▪ <i>Responder</i>	54.21	123.68	128%	0.53	69.47	3.9	227	<.001
▪ <i>Non-responder</i>	82.17	147.10	79%	0.25	64.94	2.9	200	.004
No-Show	52.85	148.42	181%	0.59	95.56	1.6	215	.101
Control	48.76	112.40	130%	0.31	63.63	24.4	15,219	<.001

Between group t-test showed that completer patients compared to the control group, during the fourth year before treatment had a significant higher use on five out of eight health care parameters (see Table 5.) During the fourth year after treatment completer patients still had significantly higher use on five out of eight health care parameters compared to the control group (See Table 6. See Paper II, Table 2-4 for the specific mean values, SD etc.).

Table 6: Mean utilisation of specific health care services and t-test between groups (Study 2)

	Control	Com- pleter	<i>t</i>	<i>df</i>	<i>P</i>
4-year pre treatment					
Contacts to psychiatric hospitals	0.0	0.1	2.2	554	.027
Bed days in psychiatric hospitals	0.5	0.4	-0.3	15,763	.792
Psychologist via primary care	0.1	0.5	5.4	552	<.001
Disp. vol. of psych. medication	16.1	51.9	5.2	562	<.001
Contacts to somatic hospitals	0.6	0.8	2.9	572	.004
Bed days in somatic hospitals	1.3	1.3	0.3	15,763	.738
Primary care excl. psychologists	15.6	22.6	7.2	569	<.001
Disp. vol. of somatic medication	48.8	60.1	1.3	15,763	.196
4-year post treatment					
Contacts to psychiatric hospitals	0.0	0.3	5.9	550	<.001
Bed days in psychiatric hospitals	0.8	5.1	3.9	551	<.001
Psychologist via primary care	0.2	1.2	7.1	551	<.001
Disp. vol. of psych. medication	40.7	219.8	9.9	551	<.001
Contacts to somatic hospitals	1.0	1.1	1.4	15,763	.148
Bed days in somatic hospitals	2.7	2.4	-0.7	15,763	.468
Primary care excl. psychologists	23.4	33.3	7.0	568	<.001
Disp. vol. of somatic medication	112.2	124.3	0.7	15,763	.479

Discussion

The purpose of Study 2 was to investigate long term changes in utilisation of health care services among patients referred to psychotherapeutic treatment. The study used register data of a comprehensive set of health care services collected on patients and matched controls. The matched control group formed the reference baseline; controls increased their utilisation at a steady rate of 11% per year on average. As the mean age of our sample was 32.6 years at intake, this more likely represents a general expansion of health care consumption rather than age dependent consumption.

For completer patients, utilisation of two out of eight health care service parameters decreased from the one year before intake to the one year after completed treatment, while utilisation of four parameters increased. However, comparison between the four years before intake and the four years after completed treatment showed a persistent, considerable, and significant increase in utilisation of health care services on *all eight* measured health care parameters. When compared to changes in the control group, completer patients showed a significantly greater increase in four out of eight parameters (see Table 7). Thus, in the present study psychotherapy does not entail a decrease in the utilisation of health care services.

Table 7: ANCOVA and planned contrasts evaluating differences in change in utilisation of specific health care services between groups (Study 2)

	Overall contrast		Compl. Control	No-show Control	Compl. No-show
	<i>F</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>
1-year pre/post treatment dif.					
Contacts to psychiatric hospitals	70.8	<.001	<.001	<.001	.159
Bed days in psychiatric hospitals	18.6	<.001	<.001	.709	.003
Psychologist via primary care	15.4	<.001	<.001	.004	<.001
Disp. vol. of psych. Medication	71.3	<.001	<.001	<.001	.925
Contacts to somatic hospitals	1.5	.223	.068	.094	.100
Bed days in somatic hospitals	2.2	.116	.734	.040	.117
Primary care excl. psychologists	1.0	.381	.174	.743	.644
Disp. vol. of somatic medication	0.6	.552	.630	.323	.561
4-year pre/post treatment dif.					
Contacts to psychiatric hospitals	3.6	.026	.008	.710	.078
Bed days in psychiatric hospitals	0.1	.901	.657	.911	.884
Psychologist via primary care	14.5	<.001	.035	<.001	<.001
Disp. vol. of psych. Medication	14.3	<.001	<.001	.002	.823
Contacts to somatic hospitals	1.4	.252	.633	.109	.269
Bed days in somatic hospitals	0.0	.958	.814	.864	.784
Primary care excl. psychologists	21.3	<.001	<.001	.005	.400
Disp. vol. of somatic medication	2.1	.126	.770	.044	.118

Discussion of methodological differences

We found increased usage of health care services after completed psychotherapeutic intervention in contrast with results of previous studies (Gabbard et al., 1997; Mumford et al., 1984). One

possible explanation may be the methodological differences in the definition and length of the observation period. Although both Mumford et al. and Gabbard et al. were aware that the recording of utilisation of health care services for only a short period was an important limitation, the two reviews did not investigate the impact of this issue on the reviewed studies. Our study suggests that the results of these previous studies may not be representative of changes in utilisation of health care service over several years before and after intervention. The second methodological issue was that the majority of studies only assessed inpatient days or otherwise relied on retrospective self-reports. Gabbard et al. reported that inpatient days could be an insufficient parameter, as more treatments are now offered on an outpatient basis (Gabbard et al., 1997). Nevertheless, the majority of studies in the reviews by Gabbard et al. and Mumford et al. reported inpatient days. Our results also suggest that inpatient days may be an insufficient and misleading measure of change in the use of health care services. Thus, while the completer patients in the present study had fewer inpatient days in somatic hospitals than controls at four years after intervention, they still had more total contacts with somatic hospitals. Validity may also be a problem for studies using self-reported data, as underreporting will happen when a high number of incidences or a long time span is included (Ritter et al., 2001; Roberts, Bergstralh, Schmidt, & Jacobsen, 1996; Short et al., 2009; Wolinsky et al., 2007). Since our study included annual counts of up to 261 primary care contacts and up to 10,000 doses of dispensed medication per year, under-reporting would be likely if register data had not been used.

Discussion of potential explanations

Besides the methodological issues, our results support three potential explanations for the increases in utilisation of health care services, as described below.

Mental disorder may be a long lasting condition

There is an ongoing debate concerning whether mental disorders should be characterized as a temporary state or a more permanent trait (Stein et al., 2010). With the fifth revision of the Diagnostic and Statistical Manual (DSM), proposals are made to conceptualize mental disorders as expressions of psychobiological dysfunction rather than temporary crises caused by external events (Stein et al., 2010). Studies investigating the natural course of common mental disorders find that between 1/3-2/3 of patients with mental disorders will have persistent symptoms many years after initial assessment, while the remaining patients will experience vanishing symptoms or full remission over time (Tyrer et al., 2004; van Weel-Baumgarten et al., 2000; Vriends et al., 2007). Our study supports the assumption that non-psychotic mental disorders may be long lasting conditions, as our completer patients showed significantly higher utilisation of health care services on five out of eight parameters at four years before intake as well as four years after treatment. Thus, for some patients suffering from mental disorders, neither complete restoration of health nor any significant reduction in use of health care services can be expected, even after successfully completed treatment (Horz, Zanarini, Frankenburg, Reich, & Fitzmaurice, 2010; Tyrer et al., 2004).

Another important point is that mental problems have a significant impact on the experience of somatic symptoms and consequently on utilisation of somatic health care services (Haftgoli et al., 2010; Hanel et al., 2009; Haug, Mykletun, & Dahl, 2004; Toft et al., 2005); the reverse effect is probably also true (Leucht & Fountoulakis, 2006). A large Norwegian population survey (N=50,377) found that people with anxiety or depression had, on average, approximately six somatic symptoms, while mentally unaffected people had approximately three somatic symptoms; there was a linear relationship between the two categories of symptoms (Haug et al., 2004). Our results showed that all patients had significant higher use of primary care services, and no-shows

and non-responders had significantly more contacts with somatic hospitals than the control group four years after completion of treatment.

Successfully performed psychotherapy may not bring recovery

Our results showed that 53% of the completer patients achieved a clinically reliable change during treatment and were within the functional range of a normal population – a higher percentage than that observed for other treatment centers in similar settings (Johansson, 2009). However, it was only with respect to somatic hospitals and somatic medication that responders were comparable to the control group four years after completion of treatment. On the remaining five mental and somatic health care parameters, responders showed significantly greater consumption compared to the control group. In other words, treatment responders fell outside the normal range in utilisation of most categories of health care services after treatment, even though the mental symptoms of these patients were within the normal range of the general population. Consequently, it remains to be determined what kind of effect one should expect with successfully completed psychotherapy and which outcome measures one should use in evaluating psychotherapy. It has been suggested that assessment of quality of life and the ability to maintain an independent existence are more relevant for patients than assessment of symptoms (Mirin & Namerow, 1991; Perkins, 2001) and that the functional level of the patient correlates better with the utilisation of health care services than severity of mental symptoms (Fifer et al., 2003).

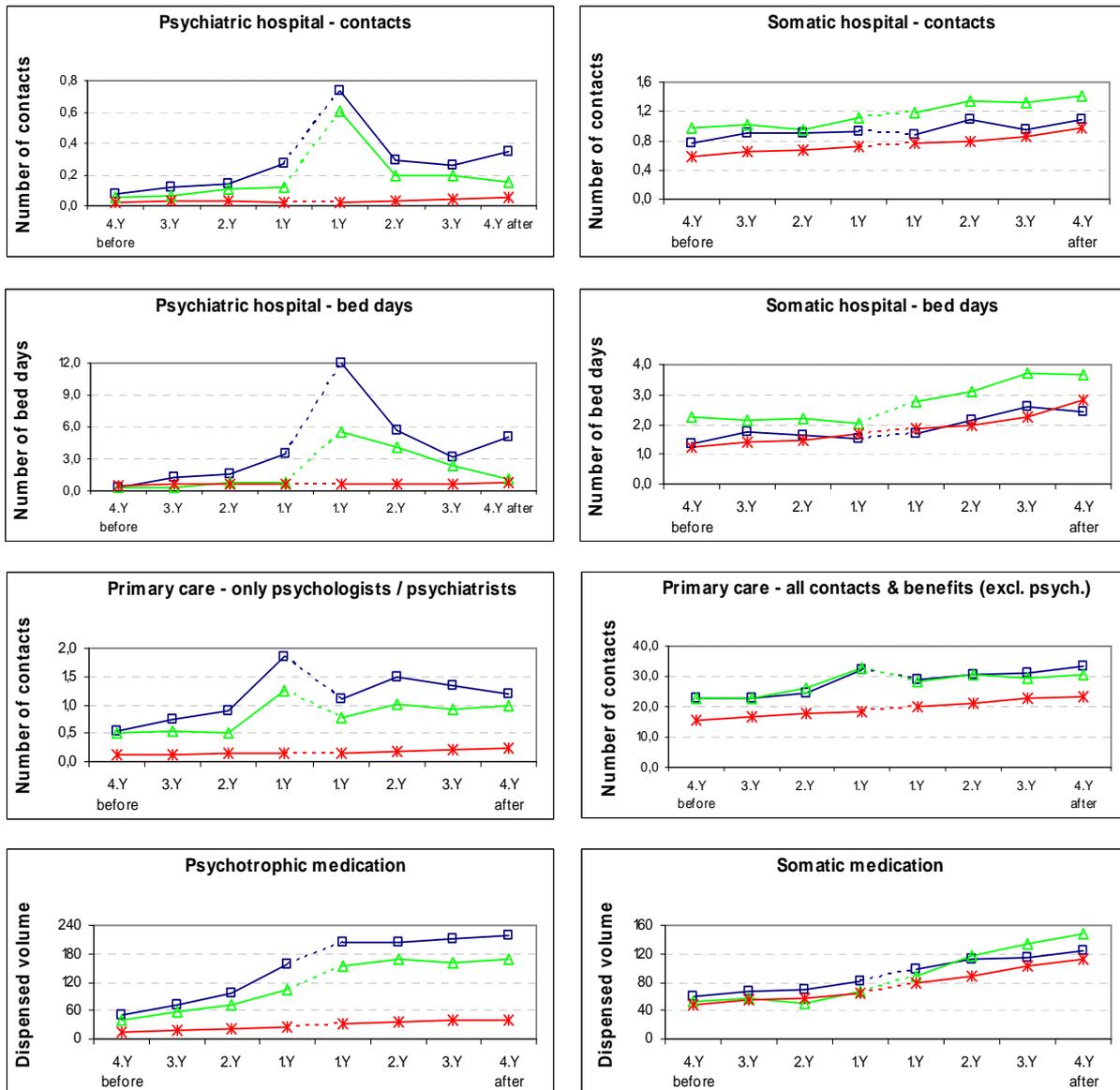


Figure 5: Utilisation of specific mental health care services before and after intervention (Study 2)
 —□— Completer patients. —△— No-show patients. —×— Control subjects.

The health care system may stimulate patients to increased use of health care services

Our results showed that completer patients had a higher increase in consumption of mental health care services than patients who renounced treatment; in the four-year pre-post comparison, completers increased usage by 522% while no-shows only increased usage by 216%. From a previous study, we know that about 30% of the patients at PC Stolpegaard had no prior experience with mental health treatment at the time of referral to PC Stolpegaard (Fenger, Mortensen,

Poulsen, & Lau, 2011). Patients without a history of psychiatric treatment were 1.4 times more likely *not* to show up to treatment compared to patients with prior mental health care experience. This finding may support the notion that the health care system in fact stimulates patients to be compliant and to use more mental health care services, since completer patients showed significantly more usage of all mental health care services than no-shows without therapy at four years after completion (see Figure 5). On the other hand, no-show patients exhibited a higher use of somatic hospital services and medicine than completers, and patients in this group may be somatising. However, even though a Danish study of 1785 consecutive patients in primary care found that 36% of these patients fulfilled the criteria for a somatoform disorder (Toft et al., 2005), somatoform diagnoses were very rare in our patient sample ($n=6$, $< 1\%$). Somatoform disorder may be under-diagnosed and masked by somatic complaints (Fink, Steen, & Sondergaard, 2005; Haftgoli et al., 2010). Studies have shown that when a patient and the physician/health care system disagree about the health problem or when a mental problem is treated by somatic health care services, excessive utilisation of health care services may be the consequence (Barsky, Orav, & Bates, 2005; Frostholm et al., 2010).

Study limitations and strengths

Our study has some limitations regarding the setting and design. As in all naturalistic studies, there is a risk for selection bias in the group of completer and no-show patients, where personal or socio-economic characteristics may have confounded the results. Furthermore, the study was conducted in a country and setting where most health care services are free of charge. This may result in a higher utilisation of health care services compared to settings where access is controlled by insurance companies or the patient has to pay a fee for health care services.

Our study has considerable strengths as well. First, we included a matched control group to provide comparison to the general trend in utilisation of health care services. Second, our data on

utilisation of health care services were collected from highly reliable national registries. Third, our data consisted of a comprehensive set of different health care services observed for an extended observation period of four years before and after treatment. Overall, we think we have provided a sensitive and reliable measure of patients' utilisation and changes in health care services before and after psychotherapeutic intervention.

Study 3: Occupational functioning after psychotherapy – a register based study

Due to the high number of parameters and patients groups investigated in Study 2 and 3 only results for the completer patients are reported in text here, but tables and figures will show the outcome for all participants. For details in results for the control group and the subgroups of patients, please see paper III.

Results

In Study 3 completer patients had on average 15.7 days on sick leave during the second year before treatment and 23.1 days on sick leave during the second year after treatment, while controls had 5.4 and 7.5 days, respectively, for the same time periods. In disability pension completer patients had on average 7.6 days before and 14.9 days after treatment, while controls had 7.8 and 11.0 days. In unemployment completer patients had 13.9 days before and 10.1 days after treatment while controls had 9.0 and 8.3 days, respectively (Table 8, Figure 6). Paired t-tests showed that only the increase in disability pension was significant for completer patients.

Table 8: Mean number of days with sick leave, unemployment and disability pension. Percent change, effect size (ES) and t-test within groups (Study 3)

	2Y pre	2Y post	Differ- ence	% change	ES	<i>t</i>	<i>df</i>	<i>p</i>
Sick leave								
Completer	15.7	23.1	7.35	46.8%	0.14	1.9	530	.054
▪ <i>Responder</i>	9.1	19.2	10.14	111.4%	0.24	1.9	226	.055
▪ <i>Non-responder</i>	20.3	25.2	4.92	24.2%	0.08	0.7	196	.473
No-show	9.8	27.1	17.33	176.8%	0.46	3.0	215	.003
Control	5.4	7.5	2.09	38.9%	0.07	5.4	14939	<.001
Unemployment								
Completer	13.9	10.1	-3.81	-27.4%	0.07	-1.5	530	.137
▪ <i>Responder</i>	14.0	12.9	-1.10	-7.8%	0.02	-0.3	226	.792
▪ <i>Non-responder</i>	17.0	9.3	-7.74	-45.4%	0.15	-1.9	196	.065
No-show	9.5	17.9	8.46	89.4%	0.21	1.9	215	.062
Control	9.0	8.3	-.74	-8.2%	0.02	-1.9	14939	.064
Disability pension								
Completer	7.6	14.9	7.29	95.6%	0.14	3.2	530	.002
▪ <i>Responder</i>	5.2	14.9	9.78	189.7%	0.24	2.7	226	.007
▪ <i>Non-responder</i>	12.8	20.1	7.31	57.1%	0.11	1.6	196	.101
No-show	7.6	14.9	7.22	94.5%	0.14	2.3	215	.022
Control	7.8	11.0	3.15	40.2%	0.06	10.9	14939	<.001

Between group t-tests showed that completer patients had significantly more days on sick leave and unemployment during the second year before treatment and significantly more days on sick leave during the second year after treatment compared to the control group (Table 9).

Table 9: Differences in days with benefits and t-test between groups (Study 3)

	2-year pre				2-year post			
	Days dif	<i>t</i>	<i>p</i>	Days dif	<i>t</i>	<i>p</i>		
Sick leave								
Completer vs control	10.3 *	4.4	<.001	15.6 *	5.1	<.001		
▪ <i>Responder vs control</i>	3.7 *	1.3	.186	11.8 *	2.7	.008		
▪ <i>Non-resp. vs control</i>	14.9 *	3.4	=.001	17.8 *	3.5	=.001		
No-show vs control	4.4 *	1.7	.086	19.7 *	3.7	<.001		
Unemployment								
Completer vs control	4.9 *	2.2	.030	1.8	1.1	.278		
▪ <i>Responder vs control</i>	5.0 *	1.4	.152	4.6 *	1.5	.143		
▪ <i>Non-resp. vs control</i>	8.0 *	2.1	.037	1.0	0.4	.710		
No-show vs control	0.4	0.2	.871	9.6 *	2.7	.008		
Disability pension								
Completer vs control	-0.2	-0.1	.923	3.9 *	1.3	.198		
▪ <i>Responder vs control</i>	-2.7	-0.8	.437	3.9	1.0	.341		
▪ <i>Non-resp. vs control</i>	4.9 *	1.0	.302	9.1 *	1.6	.113		
No-show vs control	-0.2	-0.1	.953	3.9	0.9	.362		

* Equal variances not assumed

ANCOVA showed that completer patients had significantly more days on sick leave ($p < 0.001$) and disability pension ($p = 0.013$) compared to the control group, while the difference in unemployment days was insignificant ($p = 0.569$) (Table 10). Thus, patients receiving psychotherapeutic intervention showed long-term increases in days on sick leave and disability pension.

Table 10: ANCOVA and planned contrasts evaluating differences in change in number of days with sick leave, unemployment and disability pension between groups (Study 3)

2-year pre/post treatment	<i>F</i>	<i>p</i>	Contrast	<i>p</i>
Sick leave	59.7	<.001		
Completer vs control			5.3	<.001
▪ <i>Responder vs control</i>			8.0	<.001
▪ <i>Non-resp. vs control</i>			2.8	<.001
No-show vs control			15.3	<.001
Unemployment	7.4	=.001		
Completer vs control			-3.0	.569
▪ <i>Responder vs control</i>			-0.3	.136
▪ <i>Non-resp. vs control</i>			-6.8	.841
No-show vs control			9.0	<.001
Disability pension	4.6	.010		
Completer vs control			4.0	.013
▪ <i>Responder vs control</i>			6.5	.008
▪ <i>Non-resp. vs control</i>			3.8	.129
No-show vs control			4.4	.072

Discussion

The aim of Study 3 was to investigate the long-term effects of psychotherapy on occupational functioning. The study was based on registered records of sick leave, unemployment, and disability pension over a period of five years. According to our results, psychotherapy was not followed by a reduction, but rather an increase in the number of days that patients spent on sick leave and disability pension, while unemployment remained unchanged compared to controls (see Figure 6).

Sick leave

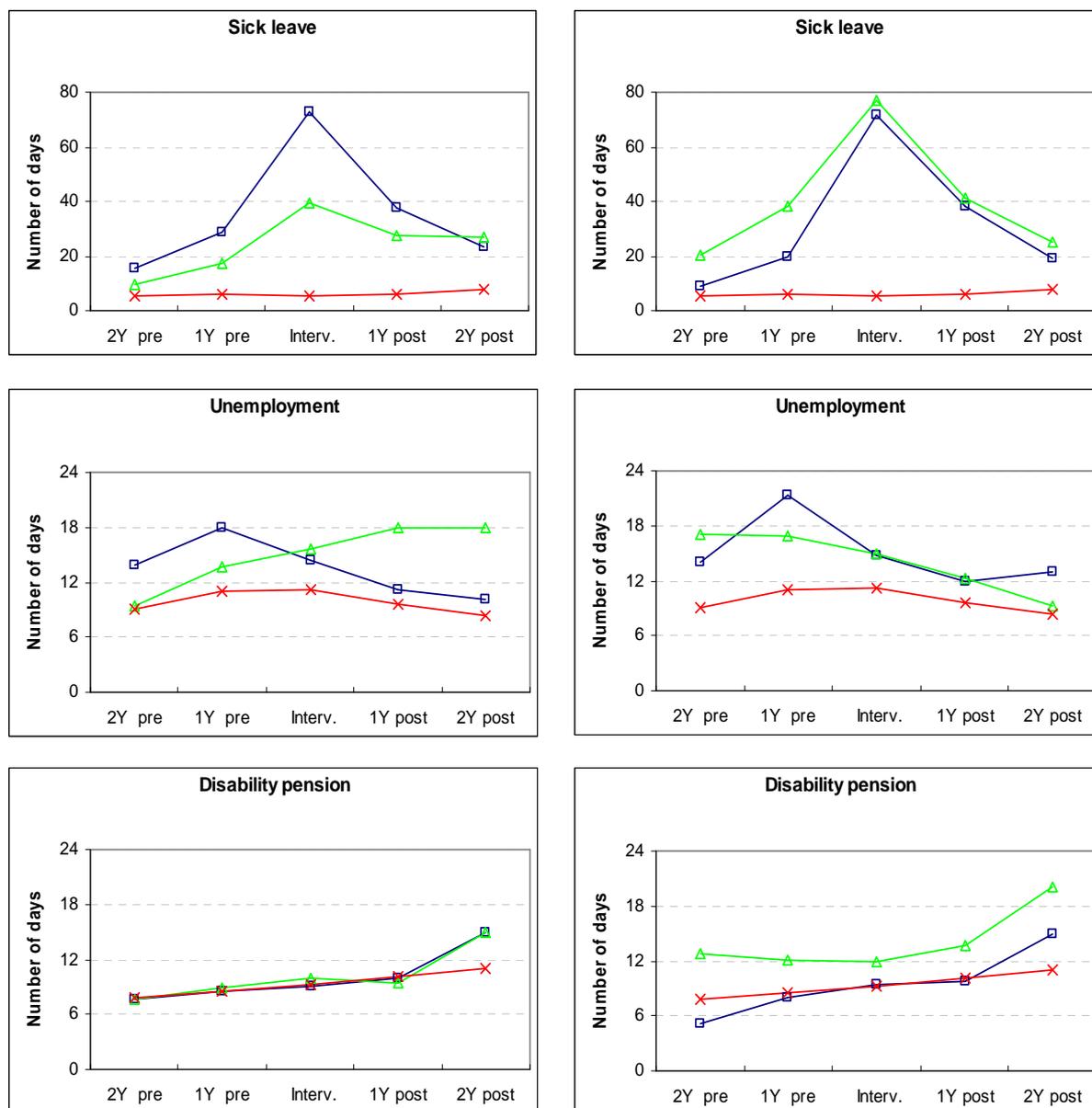
The result is in contrast with results of previous studies, which found a reduction in days on sick leave after treatment. It is, however, possible that the conflicting results may be explained by

methodological differences. In the previous studies we reviewed, a short or asymmetrical period of observation was used; the studies analysed sick leave days occurring around the referral/intake day, where mental illness was severe and probably peaking, and compared this period to some point after treatment completion, which inevitably shows a decline in sick leave. The fact that our study utilized a longer and symmetrical comparison period may explain the striking difference in results compared to previous studies. Thus, our data suggest that the existing intervention studies may provide an overly optimistic impression of the benefits of psychotherapy in terms of occupational functioning. There may be at least three explanations for our finding that therapy did not reduce sick leave. The first is that the patients referred to the Psychotherapy Centre to a large extent suffer from chronic conditions rather than temporary states. We found that completers had significantly more sick leave days than the control group during the entire five-year observation period, which suggests a long-term disorder. The second explanation is that the highly efficient and specialised Danish labor market does not accommodate the special needs of people with mental disorders. A Danish white paper on mental health and work found that persons with mental health problems on sick leave had problems returning to work (Borg et al., 2010). The third explanation relates to the focus of psychotherapy. Typically, psychotherapy is not aimed at helping patients strengthen their occupational function, but rather at relieving the patients' subjective experience of distress, which is the leading goal of evidence-based treatment (Bergin, Garfield, & Lambert, 2004). It could, however, be argued that further parameters should be considered as goals for evidence based therapy (Lam et al., 2011; Perkins, 2001). For example, it has been suggested that quality of life, functional health status, and social and occupational functioning might be equally appropriate and relevant measures as symptom measures (Lam et al., 2011; McKnight & Kashdan, 2009; Mirin & Namerow, 1991; Perkins, 2001; Zimmerman et al., 2006b; Zimmerman et al., 2008).

Unemployment

With regard to unemployment, the high unemployment rate for people with mental disorders is in accordance with other studies in the literature. Results regarding changes in unemployment after treatment are more complex. As Figure 6 (left side) depicts, unemployment decreased for completers but increased for no-shows, suggesting that intervention did improve occupational functioning. However, when comparing completer patients to the control group and thus accounting for developments in the labor market, no significant decrease was observed (see Table 10 for adjusted values). In comparing our results to the literature, we found other studies investigating the impact of intervention on employment status. Wang et al. compared traditional treatment to an active outreach and care management program for depressed workers (Wang et al., 2007). Nygreen et al. investigated an occupational intervention normally applied in patients with severe illness and tested it in a group of patients with common mental disorders (Nygreen et al., 2011). Wells et al. compared quality care (psychotherapy) to traditional care for patients with depression (Wells et al., 2000) and Proudfoot et al. investigated cognitive behavioral therapy aimed at improving occupational ability for persons with long-termed unemployment (Proudfoot et al., 1999). All studies found that the applied intervention had a significant impact on work status. Thus, our results are conflicting with previous research on change in employment status after treatment. One methodological explanation for this disagreement is that the four studies compared employment status at intake with employment status at some point during 6-12 months follow-up, while we applied a symmetrical period of two years for comparison. Second, in three of four of the employment studies the primary purpose was to strengthen occupational functionality, while treatment in our study was primarily aimed at relieving psychological distress. Third, contrary to expectation and to the literature (Schoenbaum et al., 2002), our study showed that treatment responders were not better off than non-responders concerning degree or change of unemployment after treatment (see Figure 6, right side). However, completers did show better

functioning than no-shows and the potential effects can be strongly beneficial if the right intervention strategy or program is applied (Arnfred et al., 2010; Harvey et al., 2009; Proudfoot et al., 1999).



—□ Completer. —△ No-show. —× Control. —□ Responder. —△ Non-resp. —× Control.
 Figure 6: Days with sick leave, unemployment and disability pension before and after intervention (Study 3)

Disability pension

The rise in disability pension after treatment completion was surprising, because our patients were not diagnosed with severe mental illnesses. The most straightforward explanation for the increase

in disability pension is that for a number of patients on long-term sick leave, psychiatric treatment was instigated after a prolonged period of inability to work. If medical and mental health assessments are still negative concerning patient's ability to work after psychotherapy, a disability pension may be perceived as the last resort. Other studies have suggested a similar connection between sick leave, assessment, and disability pension awards in Sweden (Gustafsson et al., 2011; Vaez, Rylander, Nygren, Asberg, & Alexanderson, 2007). Gustafsson et al. concluded that a medical assessment did not improve the chances of returning to work, but rather served as a justification of a disability pension (Gustafsson et al., 2011). For our patients and other patients with non-psychotic mental disorders, a disability pension will most likely preclude future treatment (Birket-smith & Eplöv L.F., 2007).

Study limitations and strengths

Our study had a number of limitations. First, only a rough time demarcation could be applied to the period of treatment and days with sick leave, unemployment, and disability, because the register data were only available as annual counts. Second, an unknown number of patients and controls were probably not members of the union unemployment insurance system, and thus, were not registered as unemployed. It would have been preferable to obtain complete records of unemployed individuals, both from the unemployment insurance fund and from outside the fund. Third, the occurrence and duration of sick leave, unemployment, and disability pension are sensitive to economic and political regulation (Birket-smith & Eplöv L.F., 2007; Borg et al., 2010; Lund et al., 2009); therefore, our results are only generalisable to other countries with the same type of social security system and regulation.

However, our results are likely to be more valid than most other studies for three reasons. First, our data on occupational status were collected from highly reliable administrative registries over a period of five years. Second, we used a matched control group to account for changes in

occupational status in the general population. Third, our study comprised data on three interconnected measures of occupational function: sick leave, unemployment, and disability pension. Thus, the study provides a comprehensive account of the impact of psychotherapy on occupational functioning of patients with non-psychotic mental problems. Still, further studies are needed to support or challenge these findings.

Conclusion: Implications and future direction

This thesis, which consists of three studies, investigated to what degree mental health care reaches the patients seeking help and to what degree psychotherapy achieves reducing health care consumption and improving occupational functioning. In this final chapter the results and discussion are briefly restated and implications of the findings in the three studies are further discussed.

Implications of Study 1

In Study 1, approximately 30% of the patients failed to show up and another 10% failed to complete treatment. One way to combat these lapses would be to have therapeutic clinics make an effort to improve attendance for the referred patients, assuming the patients are in actual need of treatment. Several strategies may be used. One simple strategy is to keep in touch with and remind the patients about the treatment. The literature agrees that any kind of reminder such as letters, telephone calls, e-mails or text messages is useful and it gives a considerably higher adherence rate (Downer, Meara, Da Costa, & Sethuraman, 2006; Glyngdal et al., 2002; Lefforge, Donohue, & Strada, 2007; Robertson, Smith, & Tannenbaum, 2005). Strategies should also focus on specific predictors of no-show. Patients should be informed about the risk of not showing up for first treatment and be informed about preventive steps like starting antidepressant medication and considering sick leave. For dropouts, the challenges are different as the problem may be caused by social deprivation (O'Brien et al., 2009; Self et al., 2005; Wierzbicki & Pekarik, 1993). Patients who struggle with low education, unemployment, low income and a low sense of mastery (Dalgard et al., 2007; Self et al., 2005) are perhaps more in need of social intervention than psychological intervention. In addition, when psychological intervention is administered, it should be specifically tailored to the needs of this patient group. One suggestion is that patients at risk of dropout should participate in motivational and psycho-educational groups before entering

psychotherapy (Walitzer, Dermen, & Connors, 1999). Seen from the perspective of reducing the socio-economic costs and utilising limited mental health service resources efficiently, another strategy to overcome both no-show and dropout is to implement stepped care. In this framework, simpler and lower-cost interventions are tried before the patient progresses to more complex, costly interventions. Internet based self-help programmes have been suggested as a simpler and lower-cost intervention before entering psychotherapy (Fenger, 2007; Fenger, 2012).

Implications of Study 2

In Study 2, a substantial increase in utilisation of health care services was observed for patients referred to psychotherapy. There are three potential explanations for the results. First, mental disorders may reflect a long-lasting psychobiological dysfunction requiring long-term use of health care services. Second, in the majority of patients, psychotherapy does not entail full recovery. Third, the health care system may stimulate increased use of health care services in patients. All three factors may contribute to the results. Comparative studies of health care services in different countries show that a correlation does not always exist between health care provision and the utilisation of health care services (Kovess-Masfety et al., 2007; Linden, Gothe, & Ormel, 2003). Furthermore, there is not always a correlation between increased provision of health care services and improved mental health (Johannessen, Dieserud, Claussen, & Zahl, 2011). However, studies find significant correlations between health and socio-economic status as well as psychosocial stressors (Edlund et al., 2002; Haftgoli et al., 2010; Hanel et al., 2009; Johannessen et al., 2011; Self et al., 2005). It has been suggested that social interventions more comprehensive than psychotherapy may be necessary (Self et al., 2005). Studies are therefore needed to clarify how and why psychotherapeutic treatment does not necessarily lead to a reduction in the utilisation of health care services for the average and unselected patient and to evaluate other potential interventions for patients with mental problems.

Implications of Study 3

In Study 3, the results show that while unemployment remained unchanged, psychotherapeutic treatment of patients with non-psychotic mental disorders did not prevent an increase in the number of sick leave and disability pension days. A number of possible explanations for these results exist, the most important of which is that the psychotherapy provided was not designed to strengthen or reclaim occupational functionality, but to relieve psychological distress. Others have criticised the practice of treating only symptoms and suggest that also targeting functional outcome would improve psychotherapy (Lam et al., 2011; McKnight & Kashdan, 2009; Perkins, 2001). It has been shown that unemployment often leads to secondary stressors, such as worrying, financial problems, and family difficulties (McKee-Ryan, Song, Wanberg, & Kinicki, 2005). Several studies suggest that employment has markedly positive effects on mental health and reduces psychological stress (McKee-Ryan et al., 2005; Thomas, Benzeval, & Stansfeld, 2007; Thomas, Benzeval, & Stansfeld, 2005). Therefore, further improving intervention involves taking a broader perspective on what kind of problems should be addressed and how these problems could be solved – both for the patients who complete treatment, and for patients who choose non-attendance to cope with their problems (Laaksonen et al., 2009; Marmot, 2003; Molarius et al., 2009; Self et al., 2005).

Conclusion and a future direction

In conclusion, the golden standard for providing feedback on evidence-based mental health treatment has for many years come from RCT studies measuring degrees of symptom reduction. With growing constraints on government spending on health care services, more focus is directed towards the economy and the balance between cost and societal outcomes of treatments (Rich et al., 2011). In Denmark the number of individuals treated for non-psychotic mental disorders has increased by 44.1% from 2000-2009 and in the same period the total expenditure on health care services in Denmark has increased by 74% (Centre for Psychiatric Research, 2012a; WHO, 2012).

Study 1 shows that approximately 40% of patients enrolled in a psychiatric hospital do not comply with the offered treatment. Study 2 shows that over a long-term period of approximately eight years the utilisation of health care services increased drastic by 296% for treated patients. Study 3 shows that over a long-term period of five years the days with sick leave increased from 15.7 to 23.1 days and days with disability pension increased from 7.6 to 14.9 days for treated patients. In order to develop and secure efficient treatment and optimal use of the limited resources, we suggest that other measures besides merely symptom measures should be included and used as evidence in evidence-based treatment in mental health care services.



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Appendix: Papers

Paper I

Fenger M, Mortensen EL, Poulsen S, Lau M. (2011). No-shows, dropouts and completers in psychotherapeutic treatment: demographic and clinical predictors in a large sample of non-psychotic patients. *Nordic Journal of Psychiatry*, 65(3):183-91. Epub 2010 Sep 21.

Paper II

Fenger M, Mortensen EL, Poulsen S, Lau M. *Increased use of health care services after psychotherapy: a register based study*. (submitted).

Paper III

Fenger M, Poulsen S, Mortensen EL, Lau M. *Occupational functioning after psychotherapy: a register based study*. (submitted).