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Psychological Aspects, Treatment and Outcome

Doctor Philosophiae

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Trondheim, May 2021

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ISBN 978-82-326-6593-8 (printed ver.)
ISBN 978-82-326-6619-5 (electronic ver.)
ISSN 1503-8181 (printed ver.)
ISSN 2703-8084 (online ver.)

Doctoral theses at NTNU, 2021:221

Printed by NTNU Grafisk senter

Content

Norsk sammendrag

Bakgrunn

Psykofarmaka har en sentral rolle i behandling av schizofreni og andre psykoser, og viktigheten av samtaleterapi blir ofte tonet ned. Psykoselidelser blir tradisjonelt forklart med biologiske og genetiske faktorer, men i de senere 10-årene har forskningen også fokusert på miljømessige faktorer. Dette impliserer at pasienter med alvorlige mentale lidelser som schizofreni og andre psykoser, også kan betraktes i lys av sin demografiske, sosiale og psykologiske historie. Hvorvidt for ensidig biologisk rettede modeller kan bidra til å begrense muligheter for bedring og tilfriskning og øke tilpasning til sykdomstilværelser, er lite kjent og ikke entydig i litteraturen. Mange i fagfeltet stiller seg i dag kritiske til omfattende bruk av antipsykotika og mener at en del pasienter med psykotiske lidelser ville fungert bedre ved lave doser eller uten antipsykotisk medikasjon. En vanlig oppfatning er at det eksisterende behandlingstilbudet i det psykiske helsevernet for psykoser kan ha store potensialer for utvikling.

Rasjonale for denne studien var at vi vet relativt lite om effekten av samtaleterapi ved psykosetilstander, slik at det er et stort behov for nye spesifikke psykoterapistudier for denne gruppen. Målsettingen er å kunne bidra til utvikling og styrking av eksisterende behandlingstilbud for en ofte forsømt pasientgruppe i psykiatrien.

Metode

Avhandlingen inkluderer en deskriptiv kasus-kontroll-studie, med to empiriske artikler og en teoretisk artikkel. Studien baserer seg på kandidatens kliniske praksis ved Ålesund sykehus i tidsrommet 1. januar 1991 til 1. september 2008, en sammenhengende pilotstudie, hvor

erfaringer med en spesifikk samtaleform, dialogterapi (DT) – blir anvendt hele veien i behandling av schizofreni og andre alvorlige psykoser. Studien fokuserte på å undersøke om DT var assosiert med bedre utfall enn ST (standard behandling eller «standard treatment») i en naturalistisk sammenlignende studie, som er første trinn i å evaluere DT.

Denne retrospektive studien inkluderer en intervensjonsgruppe med alle pasienter med schizofreni og andre psykoser som har mottatt DT (n=54), og en kontrollgruppe med 54 pasienter med samme diagnoser, som i samme tidsrom har fått ST, uten DT. Begge gruppene fikk ST, men effektgruppen fikk DT i tillegg. Et spesifikt skjema ble utarbeidet for registrering av variabler. Det ble foretatt en systematisk gjennomgang av pasientjournaler (EPJ og papirjournal) med registrering av relevante data. IT- databehandlingsansvarlig foretok uttrekk av kontrollgruppen. En ekstern uavhengig psykiater var ansvarlig for uthenting av data fra EPJ og papirjournaler samt registrering av variablene i eget skjema utarbeidet av prosjektgruppen. En ekstern fagperson var ansvarlig for å kontrollere registreringen og datainntastingen i SPSS for begge gruppene.

Studien er godkjent av de nasjonale forskningsetiske komiteer, NEM i møte 1.9.2008 – ref.: 2008/20 og av NSD (20280): uten pasientsamtykke.

Resultater

Artikkel 1

I den teoretiske artikkelen gis en oversikt over tradisjoner og metoder som har vært sentrale for utviklingen av DT-tilnærmingen, og deretter omtales sentrale elementer og interaksjoner som er karakteristiske for psykoterapiformen. Resultatene fra studien omfatter psykoterapimodell for målgruppen schizofreni og andre psykoser (fig.1) samt spesifikke metoder vist i tre ulike faser i terapien.

Artikkel 2

Artikkelen presenterer resultater for 24 pasienter med schizofreni (F20.0) som ble behandlet med DT, sammenliknet med 24 matchede pasienter med schizofreni som ble behandlet med ST. Mens gruppene ikke var forskjellige ved behandlingsstart, var det en signifikant større bedring i symptomer og funksjon målt med hhv. GAF-S og GAF-F ved terapislutt i DT-gruppen sammenliknet med ST-gruppen. Ved terapislutt brukte også DT-gruppen signifikant mindre psykofarmaka, særlig antipsykotika, sammenlignet med kontrollgruppen. Artikkelen konkluderer med at en større andel pasienter med diagnosen schizofreni F20.0 er uten antipsykotisk medikament og har gjennomgått en betydelig grad av tilfriskning etter DT.

Artikkel 3

Artikkelen sammenlikner utviklingen gjennom behandlingsforløpet for 54 pasienter med både schizofreni og andre psykoser som ble behandlet med DT, med en matchet og like stor gruppe pasienter behandlet med ST. Som for schizofrenigruppen omtalt alene i artikkel 2, fant vi her en større bedring i både GAF-S og GAF-F i den utvidede psykosegruppen fra terapistart til terapislutt hos de i DT sammenliknet med ST. Ved terapislutt var bruken av psykofarmaka også lavere i DT-gruppen enn i ST-gruppen. Vi finner omtrent samme innleggelsesfrekvens ved terapislutt i begge grupper, men også betydelig høyere innleggelsesfrekvens ved terapistart i denne diagnostisk sett videre DT-gruppen sammenlignet med kontrollgruppen. Kontrollgruppen hadde en markant økning i medikasjon fra terapistart til terapislutt og en mindre fremgang målt ved GAF-S og GAF-F enn DT-gruppen.

Konklusjon

Studien indikerer at pasienter i hele psykosespekteret vil ha en bedre prognose hvis de gis DT i tillegg til ST sammenliknet med ST alene. DT kan være en lovende behandlingsform for pasienter med lidelser i hele psykosespekteret. Det vil likevel være behov for at resultatene i denne studien etterprøves i nye prospektive randomiserte studier med flere behandlere.

Summary

Background and Objectives

The history of psychiatry has been dominated by a focus on biological illness with a central role of pharmacological interventions in the treatment of schizophrenia and other psychosis. Standard treatment (ST) for psychosis consists primarily of antipsychotics, hospitalization, social rehabilitation and different types of psychoeducative measures or therapies designed to improve the patients' adherence to medical treatment. Antipsychotic drugs have only moderate effects on positive symptoms and no demonstrable effects on negative symptoms. Side effects are often prominent and might include a reduction in emotional expression, menstrual abnormalities, sexual dysfunction, and considerable weight gain.

A one-sided focus on medical treatment may strengthen a negative image of the patients and leave them as passive recipients of expert care. The most important shortcoming is perhaps that this practice often might maintain a disease condition instead of actively focusing on cure to restore health. On this basis, the need for other therapies as psychotherapy has become apparent.

The rational for this study was that relatively little is known about the efficacy of psychotherapy in psychosis, so there is a great need for new specific psychotherapy studies for this group. The thesis provides a presentation of a new psychotherapy model (DT), specifically for psychoses, and an evaluation of patients who have received DT during the study period. The aim was to contribute to development and strengthening of existing treatment facilities for a frequently neglected patient group in psychiatry.

Methods

The thesis consists of a theoretical article describing dialogue therapy and two articles from a retrospective case-control study. The study is based on the candidate's clinical practice at Ålesund Hospital during the period 1. January 1991 to 1. September 2008, where experiences of a specific form of dialogue (DT) are used in treating schizophrenia and other serious psychoses. The study focuses on investigating whether DT was associated with better outcomes than standard treatment (ST) at the outpatient psychiatric clinic. In the study, an intervention group is compared to all patients with schizophrenia and other psychoses who have received DT (n = 54), and a control group with 54 patients with the same diagnoses, which in the same period has been given ST, without DT at Ålesund Hospital after the following Criteria: Diagnosis, time of therapy start, gender and age. Both groups were given ST, but the intervention group received DT as well. A systematic review of patient records (EPJ and paper journal) was carried out with the registration of relevant data. The IT data controller undertook the extraction of the control group. An external independent psychiatrist was responsible for extracting data from the EPJ and paper records as well as recording the variables in its own form composed by the project team. An external

professional was responsible for controlling the registration and data entry in SPSS for both groups.

The study was approved by the National research committees, NEM in meeting 1.9.2008 – ref.: 2008/20 and of NSD (20280): Without patient consent.

Results

Article 1

The first article gives a description of DT related to the traditions and methods that have been central to the development of the method. It introduces a new psychotherapy model, DT specifically for the target group schizophrenia and other psychoses and key elements and interactions that are characteristic of the psychotherapy form are described. The most central components of treatment are described and examples of interventions are provided.

Article 2

In this article, findings are presented for 24 patients with schizophrenia treated with DT compared with 24 matched patients with schizophrenia treated with ST. There was a significantly greater improvement in symptoms and function as measured by GAF functioning (GAF-S) and GAF symptom (GAF-F) at the end of therapy in the DT group compared with the ST group. At the end of therapy, the DT group also significantly used less psychotropic drugs, especially antipsychotics, compared with the control group.

Article 3

This study compared treatment results for 54 patients with both schizophrenia and other psychoses treated with DT as compared with a matched, and equally large group of patients treated with ST. Mean time in treatment from inclusion to follow-up was 3 years and 5

months. At follow-up, GAF-F and GAF-S scores both were significantly higher in the DT group than the ST group. Effect sizes (Cohen's d) were large; 1.8 for GAF-S and 2.1 for GAF-F. Moreover, we found a greater improvement in both GAF-S and GAF-F in the DT group from therapy start to therapy end compared with ST. At therapy end, the use of psychotropic drugs was also lower in the DT group than the ST group. In contrast to the DT group, the control group had a marked increase in medication from therapy start to follow up.

Conclusions

In this preliminary and exploratory study, the psychotherapeutic approach DT was associated with improved functioning and reduced levels of general symptoms at follow up in both patients with schizophrenia and patients with other psychosis compared to ST. The differences were seen in spite of reduced use of medication and shorter duration of therapy in DT.

The outcomes from this exploratory study are consistent with the possibility that DT may lead to improvements in symptoms and functioning compared to ST in psychosis. These promising findings for DT warrant subsequent controlled studies that include larger patient groups and more therapists in order to conclude about treatment effects.

Scientific Environment

This retrospective case-control study was conducted at the Psychiatric Outpatient Clinic (POC), Department of Psychiatry at Ålesund Hospital, Møre og Romsdal Health Trust. The hospital serves about 95,000 people from a geographical sector with both rural and urban

areas. POC is a general treatment facility for all types of psychiatric conditions. Included in the study were patients enrolled to treatment at the outpatient clinic in the study period, which lasted from 1st of January 1991 to 1st of September 2008. The majority of therapists at the clinic are specialists in psychology or psychiatry, while a few are non-specialists in these disciplines, or psychiatric nurses, family therapists or clinical social workers. One person conducted DT psychotherapies, the candidate (AH).

The members of the research group in this study were specialist in psychology Annbjørg Haram, MSc., psychiatrist Egil Jonsbu, MD, PhD., psychologist and researcher Roar Fosse, PhD., psychiatrist Finn Skårderud, MD, PhD. and Torstein Hole, MD, PhD.

Acknowledgements

The present dissertation is a result of a local project that was founded since 2006 by Møre and Romsdal Health Trust, and by the Medical Faculty, Norwegian University of Science and Technology, Norway. My work was mainly carried out at Ålesund Hospital, Møre and Romsdal Health Trust, where I practiced both at the psychiatric outpatient clinic and for some years at the inpatient Department of Adult Psychiatry. The two empirical articles included in this thesis are based on data extracted form EPJ journals and paper journals at Møre and Romsdal Health Trust, Ålesund Hospital.

I give my warm gratitude to the leader at the psychiatric clinic in many years, John Olav Roaldset PhD and psychiatrist for his faith in me, for encouragement and for inviting me to practice the new methods.

Without deceased Professor Tom Andersen's commitment, this study would not have taken place. He visited the psychiatric outpatient clinic several times, talking to the patients who were videotaped. Tom Andersen described in his foreword in the candidate's book, The Power of Dialogue (Haram 2004) these clinical experiences in psychosis as startling and rare. The study presented in the thesis is an extension from the referred book above. Patients are invited as co-authors and statements referred to throughout the book about what has been effective for the individual. I want to show my honor for his strength and courage to fight for the weak groups in the society.

I want to thank my colleagues who supported me. In particular I would give a warm thank to psychiatrist and researcher Arild Hunstad for his extensive work to extract data from EPJ

journals as well as from paper journals and for his work to register variables in a specific form prepared for this study.

For some years, part of the time, I received solid supervision and enjoyed the stimulating company of brilliant researchers meeting at Ålesund Hospital.

Gratitude also for the important assistance and solid hospitality from the IT section, by deceased Sverre Engeskar for engagement and helpfulness in connection with extracts of the control group customized to the effect group in this retrospective case-control study. Great appreciation to the librarian Eva Lundaness for her stable and solid support and professional assistance regarding literature and EndNote questions.

Moreover, I want to express my sincere gratitude to my supervisor, co-author and leader of this project, Torstein Hole PhD and chief of Medical Clinics, Møre and Romsdal Health Trust, Ålesund. His encouragement, extraordinary pedagogic skills, creativity, sharpness and great competence as a researcher, have been crucial to bring this study forward. Thank you for being a constant source of education and stimulation, for helping me with planning and accomplishing this project, and for being a brilliant faithful friend, supervisor and leader all these years.

I am thankful to my co-author and supervisor, Egil Jonsbu, PhD and psychiatrist for always having faith in me, and especially for your commitment, creative inputs, observance, attentiveness and constructive advices.

I am sincerely grateful to my co-author and main supervisor in this doctoral thesis, PhD and researcher Roar Fosse at Division of Mental and Addiction, Vestre Viken Health Trust, for his

creativity, sharpness and great engagement in order to strengthen the study's method section, for being attentive and helpful bringing these experiences forward.

Thanks also to my co-supervisor Finn Skårderud, PhD and psychiatrist for his for forthcoming assistance and interest at the beginning of the project (2007). In particular, I am thankful for his involvement in a meeting in Oslo in 2012, where the article outlines were designed.

I want to thank physician PhD Ketil Roth for his important assistance to me with the SPSS work in the very start of the main study. In addition, I will show my gratitude to Marit Svindseth, PhD and psychiatric nurse for encouragement, ideas and vital stimulating to support me in the start of this study.

I am especially grateful for the inspiration, friendship an encouragement of my research colleagues. Thanks for all your insightful comments on my work.

I want to show my gratefulness also to my present leader Eirik Molvær at the psychiatric Clinic, Møre and Romsdal Health Trust for his support in order to facilitate the work situation for me so that these projects could be completed.

In particular, I want to show my gratefulness and thanks to Møre and Romsdal Health Trust, for the faith in me and this clinical experience as an innovative study and for the financial support in many years. I am thankful also for the financial support to the project from Norwegian University of Science and Technology, Faculty of medicine and Health Sciences, Department of Psychiatry, Trondheim.

Finally yet importantly, I am grateful to my family and friends, for constructive inputs to the study and patiently supported me, for their faith and all encouragements through all years.

Abbreviations

ATC	Code N03 A (Antiepileptics)
ATC	Code N05 A (Antipsychotics)
ATC	Code N05 B (Anxiolytics)
ATC	Code N05 C (Hypnotics and sedatives)
ATC	Code N06 A (Antidepressives)
EPJ	Electronic patient journals
DSM-III-R	Diagnostic and statistical manual of mental disorder, third edition, revised
DSM-IV	Diagnostic and statistical manual of mental disorder, fourth edition
DT	Dialogue therapy
GAF	Global Assessment of Functioning Scale
GAF- S	GAF Symptoms
GAF- F	GAF Functions
ICD-9/10	International classification of diseases, 9th and 10th versions
MINI	MINI international neuropsychiatric Interview
SCID	Structured Clinical Interview for DSM Disorders
MMPI-2	Minnesota Multiphasic Personality Inventory
SPSS	Statistical Package for the Social Sciences
SD	Standard deviation
ST	Standard treatment

Appendix – List of papers

Nordic Psychology

Haram, A., Jonsbu, E., Hole, T., & Fosse, R. (2019). Dialogue therapy in psychosis: A philosophical-ethical approach. *Nordic Psyhology, 71,* 200-217. doi:10.1080/19012276.2019.1586570

Psychosis

Haram, A., Jonsbu, E., Fosse, R., Skårderud, F., & Hole, T. (2018). Psychotherapy in schizophrenia: a retrospective controlled study. *Psychosis, 10,* 1-12. doi:10.1080/17522439.2018.1460392

Frontiers in Psychiatry

Haram, A., Fosse, R., Jonsbu, E., & Hole, T. (2019). Impact of Psychotherapy in Psychosis: A Retrospective Case Control Study. *Front Psychiatry, 10*, 204. doi:10.3389/fpsyt.2019.00204

Introduction

Psychosis and the field of treatment

Traditionally, the biological model has dominated the field of treatment for psychosis and psychotherapy has often been regarded as useless or impossible. As a part of this perspective, many health professionals have taken a pessimistic attitude on the prognosis of schizophrenia, regarding it as a severe lifelong illness, adding that the issue of psychosocial trauma should not be talked about (Taylor & Perera, 2015). After a long history of neglect, psychological therapy for psychosis has begun to receive more attention and is now included in most national clinical guidelines for management of psychosis (Mander & Kingdon, 2015). The consequences of this have led to increased focus on the relationship between trauma and the content of psychotic symptoms (Falukozi & Addington, 2012; Geekie, 2012; Thase, Kingdon, & Turkington, 2014).

People who experience psychosis describe stigma and negative attitudes from health professionals and the community related to having a schizophrenia diagnosis, as more life limiting than the illness itself (Stuart, Arboleda-Flórez, & Sartorius, 2012). However, it is well documented that discriminatory attitudes are major barriers to recovery (Gumley, Gillham, Taylor, & Schwannauer, 2013; Vass et al., 2015). In turn, Carter and coworkers suggested that the ways individuals understand their experience have important consequences for health behavior in psychosis (Carter, Read, Pyle, & Morrison, 2016).

Even though the biological turn in psychiatry has brought new perspectives and insights, it has also tended to leave psychiatry with limited conceptual tools vis-à-vis to include the

patient's history and to psychotherapy (Bola, Lehtinen, Cullberg, & Ciompi, 2009; Read, Bentall, & Fosse, 2009). However, several clinicians suggest that psychotherapy for severe mental illness such as schizophrenia and other psychosis should emphasize the opportunity to restore health and enable patients to develop adequate self-narratives (Lysaker, Glynn, Wilkniss, & Silverstein, 2010; Sungur et al., 2011). This also could help to reduce stigma and transform the language of psychopathology to a more restorative one of hope and empowerment (Dickerson & Lehman, 2011; Khoury, Lecomte, Gaudiano, & Paquin, 2013; Penn et al., 2011; Stuart et al., 2012; Sungur et al., 2011). Conversely, an ethical case must be made for broadening our scientific understanding of schizophrenia and other psychoses, allowing for emotions and the patient's experience of a psychosis to be more fully included in psychotherapy (Alanen, 2009; Geekie, 2012; Gumley et al., 2013; Khoury et al., 2013; Sungur et al., 2011).

At the same time, disturbance of mentalization in patients with psychosis have increasingly been associated with symptoms and functional impairment (Brent, Holt, Keshavan, Seidman, & Fonagy, 2014). It has been postulated that mentalizing interventions might be conceptualized as the common feature to increase the patients' awareness and understanding of others and themselves across different forms of effective psychotherapies (Brent et al., 2014; Fonagy & Allison, 2014). In addition, mentalization-based treatment (MBT) developed for patients with borderline personality disorder, has recently been expanded to a range of patient groups.

Altogether, through the past twenty years, there has been a growing number of evaluation studies and publications within the field of treatment of psychosis that compared effects of different psychotherapies with standard treatment.

Causality and ways to understand psychosis

Psychosis often involves profound alterations in a person's sense of reality, with reduced capacity for mentalization and relational mastery and might diminish a person's identity and the capacity to act in an autonomous manner (Brent et al., 2014; Moskowitz, Schafer, & Dorahy, 2008; Roberts, 2005), with reduced feelings of being (Moskowitz et al., 2008; Roberts, 2005). Furthermore, mental illness is usually associated with increased mortality risk, and patients with schizophrenia have about 10 to 20 years shorter life expectancy than the general population (Torniainen et al., 2015). The increased mortality may include a greater risk of various comorbid somatic conditions and higher incidence of suicide (Kishi, Matsunaga, & Iwata, 2016). Conversely, despite several decades of research, our knowledge of the long-term course of schizophrenia is hampered by both research methods and causal relationships (Heilbronner, Samara, Leucht, Falkai, & Schulze, 2016).

However, a series of quantitative and qualitative studies provide considerable evidence that schizophrenia psychoses do not follow only one cause of lifelong dysfunction, but instead have a variety of outcomes (Askham, 2018; Karon, 2008; Leonhardt et al., 2017). Similarly, studies of treatment effects indicate that people diagnosed with schizophrenia may benefit from acquiring insight into their internal states and the external circumstances of their illness. Alike, this may help them to see causal connections and develop histories about themselves that they better can live with (Lysaker, Pattison, Leonhardt, Phelps, & Vohs, 2018). In the same way, a psychotic illness and its social systems can be understood as a complex and interactive process, involving reciprocal determinism between the widely divergent levels of a bio-psycho-social self/environment system (Read, 2005). Hence, such theoretical views provide an opportunity to invite and implement advances and new

explanatory and descriptive models in medicine and psychology (Soderstrom & Skarderud, 2009).

Research repeatedly has found severe stress exposure during childhood for a majority of patients diagnosed with psychosis (Fosse, Joseph, & Richardson, 2015). A psychosis may thus be seen as a response to stressful and harrowing experiences, or a consequence of one or numerous traumatic life-events (Read, Bentall, & Fosse, 2014; Roe, Hasson-Ohayon, Mashiach-Eizenberg, Yamin, & Lysaker, 2017). Equally, schizophrenia and other psychosis might not be regarded as biological illnesses, but instead considered mainly as a consequence of several small or large life stresses, trauma and strains caused by identity harms in interpersonal relationships (Read et al., 2014).

Definitions of standard treatment (ST)

Biological treatment within the framework of the biomedical model in psychiatry for schizophrenia and other psychosis can be defined as standard treatment (ST). It consists primarily of antipsychotics, hospitalization and occasionally electroconvulsive therapy (ECT), in addition to nonspecific social rehabilitation and different types of supportive therapy (Geekie, 2012; Guo et al., 2010; Williams, 2012). In this way, psychiatry has been dominated by a focus on illness (Priebe, Omer, Giacco, & Slade, 2014) with a central role of pharmacological interventions in the treatment of schizophrenia (Karon, 2003; Nose, Barbui, & Tansella, 2003). An undesirable effect of one-sided medical treatment focus is that it might strengthen a negative image of the patients and leave them as passive recipients of expert care. The most important shortcoming is perhaps that this practice largely might maintain a disease condition instead of actively focusing on cure to restore health (Carter,

Read, Pyle, & Morrison, 2017). Against this background, compliance therapy is designed to improve the patients' adherence to medical treatment (Gray et al., 2006; Kemp, Hayward, Applewhaite, Everitt, & David, 1996; Xia, Merinder, & Belgamwar, 2011).

The focus of treatments in ST is mostly to stabilize the patients' mental states with antipsychotic medication. The extent and concrete content of the supportive and psycho-educative approaches vary among clinicians, who include psychiatrists, psychologists, mental health nurses, and clinical social workers. However, the emphasis in all variants of treatment in ST is reality orienting discourse and to teach the patients coping strategies to help them live as best possible with their illness. Topics such as the real life trauma and psychotic history of the patients are usually not addressed in any of the treatments in ST, consistent with the typical view among clinicians that recovery is not a realistic possibility.

Effects of biological treatments

A 20-year longitudinal study suggested that not all patients with schizophrenia diagnoses need treatment with antipsychotics throughout their lives, and patients not prescribed antipsychotics had significantly better work functioning (Harrow & Jobe, 2007; Harrow, Jobe, & Faull, 2012; Harrow, Jobe, Faull, & Yang, 2017; Jung et al., 2016; Nyttingnes, Ruud, & Rugkasa, 2016; Whitaker, 2004).

Over the years, newer psychotropic agents have been developed with the goal of minimizing risks and optimizing therapeutic benefits. To date, there is no perfect medication to treat mental illnesses (Givens, 2016). Although antipsychotic drugs are the cornerstone of treatment for schizophrenia, their effectiveness is limited, leaving many patients symptomatic despite ongoing antipsychotic therapy (Correll et al., 2017). However, most

studies have been small and the overall results have remained mixed or inconclusive. Studies indicate that on the group level, drug effects on positive symptoms are only moderate, while effects on negative symptoms remain to be documented (Fusar-Poli et al., 2015; Gleeson, Killackey, & Krstev, 2008; Lemos-Giraldez et al., 2015; Leucht, Helfer, Gartlehner, & Davis, 2015; 2014). Data are too limited to assess outcomes from initial antipsychotic medication treatment for persons with an early-episode of schizophrenia (Bola, Kao, & Soydan, 2012; NICE, 2014). This finding contrasts with international agreement practice guidelines recommending treatment of early episodes of schizophrenia-type psychosis with antipsychotic medication for 6-24 months (Bola, Kao, & Soydan, 2011).

Based on findings from a cohort study of antipsychotic medication, the authors called for further investigation of more individualized approaches to long-term treatment with antipsychotic drugs (Wils et al., 2017). A systematic review with pairwise comparisons and network meta-analyses of different medications found that haloperidol seems to be a suboptimal acute treatment option for first-episode schizophrenia and with little difference between second-generation antipsychotics (Zhu et al., 2017).

Side effects and other problems related to antipsychotics

Although antipsychotic medication has been the mainstay treatment for psychoses since 1950, it has a number of limitations. Research shows that prognosis often is poor and patients continue exhibiting great personal suffering and reduced social function (Danborg & Gotzsche, 2019; Haddad & Sharma, 2007; Leucht et al., 2015; Nyttingnes et al., 2016; Seikkula, Laitila, & Rober, 2012; Seikkula & Trimble, 2005). Involuntary medication and dismissal of patient perspective, can explain the feelings of humiliation and oppression

(Nyttingnes et al., 2016). Long-term treatment with antipsychotic medications in early-episode schizophrenia spectrum illnesses is common, but their short- and long-term effects on the illness are unclear (Bola, 2003, 2006).

According to a systematic review, initial antipsychotic treatment may reduce attrition but at the same time increase the risk of medication-induced adverse effects (Bola, 2006; Bola et al., 2011). However, maintenance treatment with antipsychotic drugs may benefit some patients with schizophrenia, even if the advantages must be weighed against drug side effects (Borjesson & Gotzsche, 2019; Gotzsche, Young, & Crace, 2015; Leucht et al., 2015; Leucht et al., 2012).

One review clearly concluded that there is some evidence that long-term exposure to antipsychotics increases mortality in schizophrenia (Weinmann, Aderhold, & Read, 2011). In addition, a systematic review and meta-analysis found that conventional antipsychotics in general and haloperidol in particular increase the risk of mortality in elderly patients (Belleville, 2010; Danielsson et al., 2016; Hulshof, Zuidema, Ostelo, & Luijendijk, 2015). Furthermore, a case-non-case study concluded that severe mental illnesses are associated with an increased mortality risk, and the use of antipsychotic drugs may be one of the causes (Martin Arias et al., 2017). In addition, numerous observational studies have shown an increased risk of mortality, cardiovascular risk and weight gain related to conventional antipsychotics (Healy, 2006; Luijendijk, de Bruin, Hulshof, & Koolman, 2016; Park et al., 2015; Sahlberg et al., 2015; Toft, Horwitz, & Dalhoff, 2017). Equally, a narrative review concluded that the excess of mortality is due to premature cardiovascular deaths rather than suicide (Kritharides, Chow, & Lambert, 2017). However, a recent retrospective study concluded that there may be a potential link between death from all or specific causes and certain classes of

antipsychotic drugs (Martin Arias et al., 2017; Torniainen et al., 2015). Yet, a database study in Poland suggested that mortality in atypical antipsychotic users is lower than in typical antipsychotic users (Zagozdzon, Goyke, & Wrotkowska, 2016). Side effects are often prominent and underestimated and can include a reduction in emotional expression, menstrual abnormalities, sexual dysfunction, and considerable weight gain (Bargiota, Bonotis, Messinis, & Angelopoulos, 2013; Haddad & Sharma, 2007). Conversely, antipsychotic drugs might not be an adequate treatment from a gender perspective, and, especially, clinicians need to be aware of the harms that women and their offspring can incur due to side effects (Schwartz et al., 2015; Seeman, 2004; Smith, 2010; Usall, Suarez, & Haro, 2007). Furthermore, a cohort study found that newer antipsychotics used in treatment of schizophrenia might increase risk of developing diabetes (Austin, Newman, & Kurdyak, 2012).

Noteworthy, a study of antipsychotic dose-reduction in patients with first-episode psychosis showed superior long-term recovery rates compared with antipsychotic maintenance treatment (Wunderink, Nieboer, Wiersma, Sytema, & Nienhuis, 2013). Currently, the more attention to using very small doses possibly may reduce side effects while retaining clinical effects for some patients (Bola et al., 2009; Rubio & Correll, 2017). In this way, one study of antipsychotic dose-reduction in patients with first-episode psychosis showed superior long-term recovery rates compared with antipsychotic maintenance treatment (Wunderink et al., 2013). Consistent with this notion, a seven-year follow-up study of a dose reduction strategy showed superior long-term recovery rates compared with antipsychotic maintenance treatment (Leucht et al., 2015; Wunderink et al., 2013). Furthermore, a 10-year follow-up

study in Northern Finland concluded that there might be subgroups of schizophrenia patients who do not need permanent antipsychotic medication (Moilanen et al., 2013).

Moreover, several studies suggest that a substantial proportion of patients would be better off if they were never exposed to neuroleptics, or, were encouraged to gradually withdraw from the drugs (Harrow et al., 2012; Harrow et al., 2017; Whitaker, 2004).

Psychosocial treatments

The idea that schizophrenia, long regarded as a disease of the brain, can be treated psychologically, so far remains controversial (Bentall, 2007; Karon, 2008). Still, a meta-analysis by Karon and VandenBos suggested that individualized psychotherapy, with or without antipsychotic medication, is effective for schizophrenia (Karon, 2003, 2008; Leonhardt et al., 2017; Lysaker et al., 2018).

Poor psychosocial functioning is one of the characteristics of schizophrenia, and a meta-analysis supports the efficacy of social skills training for improving psychosocial functioning (Kurtz & Mueser, 2008). Apparently, the best supported psychotherapy form for schizophrenia and other psychosis seems to be cognitive therapy. A single-blind randomized controlled trial for people with schizophrenia not taking antipsychotic drugs, showed that cognitive therapy significantly reduced psychiatric symptoms (Morrison et al., 2014). A Cochrane review revealed that cognitive behavior therapy (CTB) had a positive effect on self-esteem (Skelton, Khokhar, & Thacker, 2015), and a meta-analysis of cognitive therapy combined with psychiatric rehabilitation was found to improve functioning compared to rehabilitation alone (Bola et al., 2011; Valencia, Fresan, Juarez, Escamilla, & Saracco, 2013). In addition, a four year follow-up study of persons at ultra-high risk for developing psychosis,

concluded that CBT was successful in reducing the risk for a first psychosis episode and that this favorable effect was sustained over four years (Ising et al., 2016). Hence, to the clinical benefits of preventing psychosis with CBT, healthcare costs may be reduced (Ising et al., 2016).

Additionally, a systematic review for people with psychosis concluded that early intervention services appear to have clinically important benefits over standard treatment (Bird et al., 2010). Very similar, in the Soteria house experiment, Bola and Mosher observed that persons with early psychosis might fare better when receiving specialized psychosocial interventions and minimal or no use of antipsychotic medication (Bola & Mosher, 2002; Ince, Haddock, & Tai, 2015).

What's more, there is some evidence that psycho-educative therapy may have clinical effects and possible cost advantages for patients with psychosis (Xia et al., 2011). Furthermore, a meta-analysis found significant differences in efficacy between diverse psychological interventions for psychosis (Turner, van der Gaag, Karyotaki, & Cuijpers, 2014). One review (Bola et al., 2009; Law, Morrison, Byrne, & Hodson, 2012; Lewkowicz, 2011; Read et al., 2014) suggested a strategy for integrating biological and psychological treatments combined with a limited time off antipsychotic medications.

Newer studies underline the importance of understanding the patient's developmental, interpersonal and psycho-affective context (Gumley et al., 2013; Read et al., 2014), whereas a meta-analysis suggested that individualized psychotherapy, with or without antipsychotic medication, is effective in treatment for schizophrenia problems (Read & Dillon, 2013). Regardless of limited specific methods, several studies support the benefits of family interventions in treatment of psychosis (Olson, Laitila, Rober, & Seikkula, 2012; Seikkula et

al., 2012; Seikkula & Trimble, 2005) with excellent clinical and functional outcomes after five years (Gordon, Gidugu, Rogers, DeRonck, & Ziedonis, 2016).

Furthermore, mindfulness treatment has been delivered in groups to ease distress from psychotic symptoms, but without questioning their content (Chadwick, 2014). Patients who engage in recovery-oriented care, such as the cultivation of hope, may have better quality of life, better engagement in treatment and fewer social problems (Chen et al., 2015; Kidd, McKenzie, & Virdee, 2014).

However, the documentation of psychotherapy in psychosis is weak (Malmberg & Fenton, 2001; Read et al., 2014; Read & Dillon, 2013), with mostly uncontrolled studies, results with small effect sizes, naturalistic, observational studies, the lack of procedures for specific treatment methods, and consequently non-replicable findings across different studies.

The need to develop new psychotherapy models for psychosis

Emphasizing psychotherapy as essential for severe mental illness represents a radical shift in theoretical conceptualization, practice and ethics, which conflicts with traditional biomedical treatment models for psychosis (Bola, 2003, 2006; Bola et al., 2009; Park et al., 2014). Most people diagnosed with severe psychosis receive only ST - medication combined with psycho-education or various kinds of supportive therapy (Geekie, 2012; Read & Dillon, 2013). There is a great need for psychotherapies that more directly help the patient to regain self and sense of personal ownership, which also may aid in reducing or eliminating psychotic symptoms (Dickerson & Lehman, 2011; Karon, 2003, 2008; Read et al., 2014; Xin, 2015). Of particular importance is that any therapeutic intervention should be tailored to the patient's ongoing metalizing capacity (Alanen, 2009; Brent et al., 2014; Karterud et al., 2013).

Additionally, scientific understandings of severe mental illness would be improved and modified more rapidly if the patient's history and knowledge of the psychosis are included in treatment (Carter et al., 2017; Geekie, 2012). Furthermore, since long-term antipsychotic drug therapy is associated with a range of adverse side effects, the need for supplementary therapy has become apparent (Pfammatter, Junghan, & Brenner, 2006; Whitaker, 2004).

People who experience psychoses often have been bullied or exposed for sexual assault or other trauma. The utterance of symptoms may be informative and a key to understand the patient (Alanen, 2009; Fonagy & Allison, 2014; Olson et al., 2012), showing ways of how to move along and meet shifting needs in psychotherapy (Soderstrom & Skarderud, 2009). Faith, hope, spontaneity and enthusiasm are essential to promote change, and so is the individual knowledge that every single person brings into psychotherapy. The therapist's tool is the expertise to open new doors into rooms for dialogue and free conversation (Andersen, 1987; Seikkula & Trimble, 2005).

The last decades have seen an increased consciousness in the emphasis on recovery and psychosocial rehabilitation (Klapcinski & Rymaszewska, 2015) for severe mental illness in meeting the patients' needs for participation in treatment (Hamann, Cohen, Leucht, Busch, & Kissling, 2005; Lemos-Giraldez et al., 2015; Lysaker et al., 2010). In this way, it seems to be a growing recognition in psychiatry that psychotherapy is important in the field of psychosis and that different treatment options should be considered (Bola et al., 2009; Karon, 2008; Leonhardt et al., 2017; Lysaker et al., 2010; Seikkula & Trimble, 2005; Varese et al., 2012).

Development of dialogue-based treatments for psychosis

In the development of dialogue-adapted therapies which centre on intersubjectivity, mutual recognition and shared feelings, the emphasis is on the therapeutic process, the conversation and the patient's history to foster self-understanding and emotional growth (Gumley et al., 2013; Hasson-Ohayon, Kravetz, & Lysaker, 2017; Law & Morrison, 2014; Lysaker et al., 2010; Seikkula, 2003; Seikkula & Trimble, 2005; Stern et al., 2002). Central is to learn, understand, collaborate and use the patient's language (Olson et al., 2012; Seikkula et al., 2012; Shotter, 1993). The therapist's approach is guided by the unique person seeking help in treatment, and not exclusively by a specific theoretical tradition or the patient's diagnosis (Alanen, 2009; Haram, Jonsbu, Hole, & Fosse, 2019; Klapcinski & Rymaszewska, 2015). Through a confirmatory collaborative relationship, dialogue is applied as a powerful therapeutic instrument (Dilks, Tasker, & Wren, 2013; Seikkula & Trimble, 2005). Specifically, attention is drawn to interventions to revise and lessen the influence of the patient's relationship with the psychotic symptoms (White, 1995).

New perspectives in psychiatry might contribute to advance treatment (Bentall, 2007, 2014; Lewis, 2011; Priebe et al., 2014; Read, Haslam, Sayce, & Davies, 2006), especially if the patient's voice of how they experience a psychosis is devoted attention (Holding, Gregg, & Haddock, 2016; Karatza & Avdi, 2011). However, we need a change in focus which includes overcoming discrimination and exposure to prejudice (Gumley et al., 2013) in treatment of psychoses. This change in focus recognises that development is an immensely complex, dynamic and probabilistic process (Lewkowicz, 2011).

Aims and hypothesis

The aim of the theoretical article in this thesis is to introduce a new psychotherapy approach, DT, in a structured way, based on the candidate's clinical practice in treating schizophrenia and other serious psychoses.

The aim of the evaluation study included in the thesis is to evaluate the effect of using DT vs ST only in the treatment of psychosis.

In the empirical study, the research questions were as follows: First, does DT improve symptoms and functioning compared to ST for patients with a schizophrenia diagnosis? Second, in a larger, composite group of patients with either schizophrenia or other types of psychotic disorders, will DT also here be more beneficial for improvements in patients' symptoms and functioning as compared to ST? Third, will eventual benefits for the patients of DT over ST take place in the absence of increased levels of medications in DT, in particular of antipsychotics?

Material and Methods

This thesis introduces DT, a philosophical-ethical and humanistically based model that includes and adapts methods developed within different existing traditions for the individual psychotherapy of psychosis. DT is designed to target emotional and relational difficulties that characterize psychosis and emphasizes to strengthen the patient's identity and self-

regulation. At the same time, the approach offers a flexible framework that can be adapted to the unique patient's challenges and needs.

The theoretical article of the thesis introduces the DT model for psychosis, illustrated in figure 1. The psychotherapeutic approach is described as a procedure that includes specific methods in three different treatment phases.

The DT model has gradually evolved since its early conceptualization in the late 1980's, developed in a form of qualitative, inductive work based on knowledge from the candidate's practice and meetings with patients together with information from existing theories and research. The candidate has invited the patients to be co-researchers about what is helpful in their unique psychotherapy processes, inspired them to curiosity and to investigate what works from an individual perspective in treatment. Some of the patients have been invited to participate in workshops and seminars where their experiences in psychotherapy have been reflected upon in dialogue with the candidate as well as with the audience. Psychiatrists have invited themselves to reflecting discourses (recorded on videotapes) together with several of the patients that are included in this study. Openly, the candidate has been touched by the absence of hope and treatment options for severe psychosis, and in this mood, gathered ideas for many patients in having an open eye and a learning attitude in the therapeutic meetings. The theoretical paper on DT that constitutes article 1 in this thesis represents a structured, synthetic account of these process steps combined.

Study design

This retrospective case-control study was conducted at the Psychiatric Outpatient Clinic (POC), Department of Psychiatry at Ålesund Hospital, Møre and Romsdal Hospital Trust. The hospital serves a combined rural and urban area with 95,000 people. The POC receives all psychiatric conditions. Included in the study were patients enrolled to treatment from January 1, 1991 to September 1, 2008. Follow-up was defined as end of treatment or end of study period (which ever occured first) and occurred on average 3 years and 5 month after treatment start.

Ethics approval and consent to participate

The project was approved by the National Research Ethical Committees (NEM) (2008/20) and by the Norwegian Social Science Data Services (NSD 20280). NEM and NSD approved the collection of anonymous data without patient consent.

Psychotherapy for patients with schizophrenia or other severe psychosis is mostly not included in today's mental health care system. Furthermore, it is important to make visible all knowledge that shows that there is hope and improvement for people who experience severe psychological illness. Consent from patients participating in a research study will always be a strongly aspired ideal and aim. However, in this study the perspective of usefulness for an often-vulnerable group in psychiatry has been the priority.

Participants

Eligible for inclusion in the study were patients with a diagnosis in either of the following domains (ICD-10): Schizophrenia (F20.0-9), paranoid psychosis (F22.0-9), acute polymorph psychosis (F23.0-9), schizoaffective psychosis (F25.0-9), bipolar affective disorder (F31.0-9),

and severe depression with psychotic symptoms (F32.3). No exclusion criteria were used. All patients were first considered at an intake meeting at POC, and thereafter distributed to any of the about 25 therapists working at the unit in a coincidental, unsystematic (random) manner, with no consideration of any therapist characteristics (e.g. area of specialty, experience). All patients treated with DT by the first author were included in the study, none were excluded. The control group was then matched to these patients.

The intervention group received DT in addition to ST and consisted of all patients diagnosed with psychosis who were treated by AH (n = 54). The control group (n = 54) received ST and was selected from the total patient population with psychosis who were treated by other therapists than AH.

Matching of patients in DT and ST

Patients in the control group were matched to those in the intervention group on four variables in the following order of priority: 1. Diagnoses, 2. Month and year of therapy start, 3. Gender, and 4. Age. By matching the ST group on the month and year of therapy start, the two groups had the same amount of time to achieve therapeutic effects. Matching of patients was performed by an independent professional at the IT department at Ålesund Hospital, who had extensive experience from previous projects with similar mapping tasks. Characteristics of the intervention and control groups are summarized in Table 1 and Table 2 below.

In paper II in this study, all included patients have fulfilled diagnostic criteria for schizophrenia (ICD 10 F 20.0-9). The intervention group (DT) (N= 24) consisted of all patients diagnosed with schizophrenia who were allocated to AH in the time period. The control

group (ST) (N=24) was selected from the total patient population with schizophrenia who started or re-started treatment in the study period. By matching the ST group on the month and year of therapy start, the two groups had the same amount of time to achieve therapeutic effect.

In paper III in this study, all patients in the intervention group (DT) (N=54) treated with DT by the candidate in this thesis AH were included in the study, none were excluded.

Baseline characteristics for the schizophrenia group in paper II

The patients in the ST group were younger than those in the DT group, mean age 23.3 (SD = 5.0) years vs 28.3 (SD = 9.1) years, (p=0.02). The percentage of women in both groups was 46 % and Global assessment of functioning (GAF) values (see measures below) did not differ significantly between the groups.

At the start of treatment, the use of psychiatric drugs differed significantly between the two groups. At baseline, the number of drug subgroups (p=0.012) and the dose of low-dose neuroleptics (p=0.03) and anxiolytics (p=0.048) were significantly higher in the DT group than in the ST group. Before treatment start, patients in the DT group also had a higher number of hospital admissions and more days spent in hospital than patients in the ST group. (Table 1).

TABLE 1: BASELINE DEMOGRAPHIC CHARACTERISTICS FOR PATIENTS IN DIALOGUE THERAPY AND STANDARD TREATMENT FOR THE SCHIZOPHRENIA GROUP N=48

	Dialogue Therapy (n=24)	Standard Treatment (n=24)
Age, Mean (SD)	23.3 (5)	28.3 (9.1)
Female	23 (43 %)	23 (43 %)
Diagnosis (ICD 10)		
Schizophrenia (F20.0-9)	24	24

Baseline characteristics for the entire participant group in paper III

At baseline, we found no significant differences between the DT and ST groups in age or gender distribution, or in GAF scores or the use of any type of medication. Before study baseline, the DT group had significantly higher number of hospitalizations (p=0.003) and days of hospitalizations (p<0.01) than the ST group. The patients in the DT group had shorter time (fewer months) in outpatient treatment during the study period compared to the ST group, median (min/max), 36 (1/132) vs 72 (1/213 (p<0.001).

At baseline, patients with other psychoses were significantly older than patients with schizophrenia (mean age 31.0 vs 26.0 years), t(105) = 2.8, p = 0.007). Compared to patients with schizophrenia, patients with other psychosis also had higher baseline scores on GAF-S, (mean 34.7 vs 28.2), t(106) = 3.6, p < 0.001) and GAF-F (mean 36.8 vs 30.0), t(106) = 3.7, p = < 0.001) and they used less high dose neuroleptics (p < 0.001) and fewer medications (p = 0.001), Table 2 below.

TABLE 2: BASELINE DEMOGRAPHIC CHARACTERISTICS FOR PATIENTS IN DIALOGUE THERAPY AND STANDARD TREATMENT FOR THE ENTIRE STUDY GROUP N=108

	Dialogue Therapy (n=54)	Standard Treatment (n=54)
Age, Mean (SD)	29.4 (10.3)	27.9 (9.6)
Female	23 (43 %)	23 (43 %)
Diagnosis (ICD 10)		
Schizophrenia (F20.0-9)	24	24
Paranoid Psychoses (F22.0-9)	10	10
Acute Polymorph Psychoses (F23.0-9)	5	5
Schizoaffective Psychoses (F25.0-9)	5	5
Bipolar Affective Disorder (F31.0-9)	5	5
Severe Depression with Psychotic Symptoms	5	5

Differences in baseline characteristics

At baseline the patients in the DT group were approximately five years older, and this may be due to the matching in 5-year intervals regarding patient age. This was a requisite from the ethics committee for the study approval.

The DT group used more psychoactive medication (low-dose neuroleptic, anxiolytic and total number of drugs), and they had a history of more hospital admissions than the patients in the ST group. The higher levels of psychoactive drugs and hospitalizations at baseline among patients in the DT group can indicate that these patients had a more serious illness, and thus that they were less responsive to therapy.

Variables and measures

Primary outcomes were symptom and function scores on the Global Assessment of Functioning Scale (GAF) (Pedersen, Hagtvet, & Karterud, 2007; Pedersen, Urnes, Hummelen, Wilberg, & Kvarstein, 2018). Secondary outcomes were a) number and doses of medications, b) length of therapy and c) number of admissions and days of hospitalization at psychiatric wards.

The Global Assessment of Functioning Scale (GAF)

Used in this study was the split-version, with separate subscales for social, occupational and school functioning (GAF-F) and mental symptom burden (GAF-S) the last week (Pedersen et al., 2007).

GAF is an observer-based continuous scale for the overall level of mental health/illness that ranges from 1 (most severe problems) to 100 (most healthy). The various score levels on GAF include characteristic patterns of symptom severity and difficulties of function (Pedersen et al., 2007; Pedersen et al., 2018). First, for symptoms/ GAF-S, scores above 70 indicate general well-being and experiences of stress that represent transient, expectable reactions to psychosocial stressors. Scores from 61 to 70 indicate intermediary, moderate stress levels and symptoms of mental health problems, with scores closer to 60 reflecting e.g. fluctuating depressed mood and mild social anxiety.

When moving down towards 50, typical would be occasional panic attacks and more persistent periods of depressive mood and anxieties.

This would further progress with scores in the 40'ies, where it may include frequent panic attacks, recurrent suicidal ideation, and severe obsessions, worries, anxieties and emotional dysregulation. A score of 40 usually is seen to denote the border for psychotic symptoms, including disturbed reality testing, communication and judgment, as well as hypomania, severely depressed mood, and debilitating anxiety.

The domain from 40 down towards 20 reflects gradually increased severity level of a range of symptoms, including increasingly severe suicidal ideations, distorted interpersonal perceptions, delusions, paranoid ideation, dissociation, and hallucinations, with the lowest scores in this range representing highly psychotic behavioral disturbances.

Scores below 20 represent imminent danger of self-destruction or death and the most urgent need of continuous help.

Second, on the function subscale/ GAF-F, when scores fall down towards 60, problems start to be apparent outside the normal healthy range for social, occupational and/ or school functioning. Serious disabilities in these domains qualify for scores in the 40's, e.g. inability to comply with school demands combined with social withdrawal and recurrent aggressive behavior. Function scores below 40 represent major disability in several areas, whereas scores in the 30's reflect inability to function in almost all areas, including disability of self-care and the need to be taken care of by others.

All GAF scores were set in ordinary clinical care; however, they were decided upon as consensus ratings between at least two trained psychiatrists, a method documented to increase reliability (Pedersen et al., 2007; Pedersen et al., 2018).

For the purpose of this study, an external, independent psychiatrist extracted the GAF scores from the patients' medical journals. A baseline score was obtained from the first evaluation documented in the patient journals after start of treatment in the study period. A second score was obtained at follow-up, defined as end of treatment or end of study period (September 1st 2008), which ever occured first.

Psychopharmacological treatments

In both treatment groups, psychopharmacological treatments were managed by different psychiatrists in charge. We gathered information at baseline and follow up on any use of Antiepileptics (WHO ATC code N03 A), antipsychotics (N05 A), anxiolytics (N05 B), hypnotics and sedatives (N05 C), and antidepressants (N06 A). Medication was sorted into the following subgroups: Low-dose Neuroleptics, High-dose Neuroleptics, Anxiolytics, Antidepressants, and Mood Stabilizers. All medications belonging to the same subgroup were added to derive at a summated dose for that subgroup. We also counted the total number of all psychoactive medications used.

Hospital admissions and stays

The psychiatrist who scored the use of medications also counted the number of hospital (inpatient) admissions, the total number of days spent in hospital, and treatment duration for outpatient treatments. These data were collected from the summary of each separate admission in the medical journals. There were no evaluations involved in these extractions and registrations. All data extractions were controlled by a collaborator. Hospital admissions and days spent in hospital were calculated for two time periods. First, a baseline measure that included all life time hospital stays prior to enrolment in outpatient treatment at POC. Second, a follow up measure for the time period after end of outpatient treatment at POC in

the study period. Treatment duration was defined as months in outpatient treatments at POC during the study period. Information about the duration of outpatient treatment, number of days in hospital inpatient treatment and number of hospital admissions were extracted from the patients' journals.

Procedures

In both treatment groups, psychopharmacological treatments were managed by different psychiatrists in charge. Decisions to make changes to pharmacological treatments were made between the prescriber and the patient in separate meetings. For patients in DT, the decision was not influenced by the DT therapist.

In DT, one therapeutic session is provided each week for each patient, with the treatment varying in length from three months to three years depending on patient needs and topics in treatment. In ST, the frequency of sessions varies, with the possibility of increased frequency of psycho-educative or supportive sessions when needed. We had no track of the frequency of sessions in ST. There were no restrictions on how long a patient could participate in treatment neither in DT nor ST.

Patients were allocated to different therapists in a random manner by various psychiatrists who were responsible for patient treatment at the institution. At any time point, treatment at POC is administered by an average of 25 clinicians. The majority are specialists in psychology or psychiatry, while a few are non-specialists in these disciplines, or psychiatric nurses, family therapists or clinical social workers. One person conducted DT psychotherapies, the candidate in this thesis (AH).

Statistical analysis

Data analysis in paper II

In paper II, we tested differences between the DT and ST groups at baseline and at follow-up. Here, we used independent sample t-tests for normally distributed variables (GAF, age) and Mann-Whitney U-tests for variables that were not normally distributed (medications, number of hospitalizations, days of hospitalization, and months in psychotherapeutic treatment). At follow-up, we calculated effect size for GAF using Cohen's *d*. For changes in GAF scores from baseline to follow-up, we calculated change scores for each patients and compared these change scores for the DT and ST groups in independent sample t-tests. Analyses in this paper were performed in SPSS v. 20.0 for Windows.

Data analysis in paper III

In paper III, we first performed similar analysis to those in paper II, but continued with more nuanced, extensive analysis that included controls for multiple independent variables.

In this paper, we started out with tests at baseline, where we tested differences between patients in the two treatment conditions, and differences between patients with schizophrenia and other psychosis in the two study groups combined. In these baseline tests, we used independent sample t-tests for GAF and age, Chi square test for gender, and Mann-Whitney U-tests for medications. We also used Mann-Whitney U-tests for differences in the number of hospitalizations and number of days in hospital before baseline. In addition, we used Mann-Whitney U-test for differences in months in outpatient treatment during the study period between the two treatment groups.

We continued by testing effects of treatment upon (i) each of GAF-S and GAF-S, (ii) an array of measures of medications, and (iii) number of hospitalizations. For these outcome measures, we first tested differences between groups without including covariates, as in paper II. Here, we used independent sample t-tests for GAF and Mann Whitney U-tests for both medications and number of hospitalizations. For GAF and medications, we focused both on scores at follow up and on changes from baseline to follow up. For GAF, again we calculated effect size using Cohen's d, as in paper II.

In the more detailed analyzes where we controlled for covariates, we used general linear regression for GAF at follow up and for changes in GAF scores from baseline to follow up. Here, we used treatment group as fixed factor and, as covariates, diagnostic group (schizophrenia, other psychoses), gender, age, number of days spent in hospital before treatment, and number of hospital stays before treatment. We included as a covariate the interaction between treatment groups and diagnostic group, in order to investigate if an eventual superior effect of DT (or ST) was limited to just one of the two diagnostic groups.

We then analyzed treatment effects upon the use of medications when controlling for other independent variables, using linear regression analysis. We used separate tests for each of the medication variables and for analysis at follow up and changes from baseline to follow up. In these tests, predictors were treatment condition, diagnostic group, gender, age, number of days spent in hospital before treatment, and number of hospital stays before treatment. In addition, we used binary logistic regression to test effects upon binary measures of using medication or not (coded as yes, no) at follow up. Here we included the same predictors as we did for the continuous outcome measures for medications. In all

these analyses, we excluded duration of outpatient treatment as a covariate/ predictor since this variable correlated strongly with treatment condition (shorter duration in DT).

In regression analysis for number of hospitalizations during follow-up, we used the same predictors as we used in the tests for medications, as specified above. We performed the analyses of this paper in SPSS v. 23.0 (SPSS Inc., Chicago, IL).

Results

The theoretical article – paper I in *Nordic Psychology*

The theoretical article (paper 1) presents DT as a new psychotherapy model, based on the candidate's clinical work performed in meetings with people diagnosed with schizophrenia and other psychosis (Haram, 2004). The article provides an overview of the theoretical basics and inspirations, a theoretical framework of the model, and a detailed description of the specific methods used in different phases of the psychotherapy process. Rather than introducing novel methods, DT offers a unified approach, including flexible methodology derived from existing psychotherapy traditions that focuses on difficulties of emotion, relation, identity, and self-regulation that are characteristic in psychosis. The patient is included to participate fully in the dialogue with her/his subjective voice. The therapist is aware, authentically committed, respectful, and meets seriously all forms of utterances. DT invites the patient to a collaborative process, where she/he is acknowledged as a co-

researcher in a continuous search for a cure. Crucial in the therapeutic interaction is to collaborate in generating a breakthrough to split off the psychotic symptoms.

Applying psychotherapy in the treatment of psychosis might provide for the development of emotions and self-regulation, social competences and healthy functioning.

FIGURE 1: THE MODEL OF DIALOGUE THERAPY

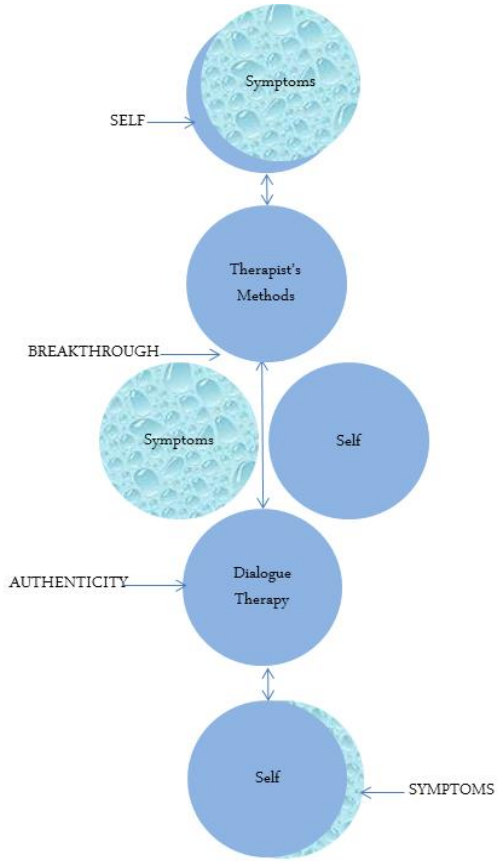


FIGURE TEXT

The model in fig. 1 illustrates the patient's development of self-regulation along with therapeutic interactions in DT (Haram, 2004). The circle at the top of the model shows the patient's degree of symptoms at start of

treatment. The hidden circle pictures the patient's healthy functioning. The third circle displays the therapist's total competence. The line between the two circles symbolizes the therapeutic competence in action. The two circles in the middle of the model symbolize the breakthrough, where the patients have succeeded in pushing/splitting the symptoms off themselves. This step is crucial and opens for the patient's gradually co-evolving participation in the dialogue, even if voices or other delusions persist. The circle second to bottom states that psychotherapy has evolved to a stage where the patient more fully participates. Finally, the large bottom circle displays the self after changing from captivity in psychosis to freedom with self-control and direction in life. The small piece of the hidden circle shows possible remaining symptoms but that no longer are threatening to the patient.

The clinical themes and specific interventions in the three phases of DT are specified in tables 3-5 below in the thesis, with clinical vignettes given in the text.

The first treatment phase

Clinical vignette: *"When admitted, I was trapped and left alone, which was completely the opposite of what I needed. Psychiatry stops asking questions when you've got a diagnosis like schizophrenia."*

The center of attention in the first treatment phase is to assist the patients to get out of the psychosis and awaken their interest to participate in a common reality (Table 3).

TABLE 3. **SPECIFIC METHODS IN THE FIRST TREATMENT PHASE**

Therapeutic theme	Central interventions
(1) Create a safe therapeutic relationship	The therapist small-talks about the situation without necessarily expecting answers to make herself/himself known and predictable
(2) Prospects of emotional knowledge	The therapist is aware of quality moments and moves along with the emotional flow or the wordless signs to promote development of emotional growth
3) Impart enthusiasm, tune in and share language	The therapist tunes into contact with compassion, enthusiasm and empathy, shares language, varies tone of voice and tonality, is doing small-talk and asks questions about what comes up in therapy, invites to dialogue and collaboration
(4) Authenticity and give response	The therapist seeks resonance, themes and ways of relating oneself, is authentically committed, and gives responses along the way in words and in body language
(5) Reduce mystery and fear	The therapist assists the patient to sort out mix-ups in the chaos of psychosis, giving small-talks and summing up to reduce confusion and mystery, increase safety and calm down the patient's fear
(6) Compliment improvements and give hope	The therapist thinks and communicates prospects of improvements, nourishing hope and opportunities, and in this fashion seeks to increase the patient's sense of freedom and safety

The second treatment phase

Clinical vignette: *"I used four different types of neuroleptics without any real rehabilitation or improvement. In fact, I got worse. When the symptoms no longer were able to generate fear and tether my feelings, I was not so afraid as before. I felt my ability to concentrate improved."*

In the second treatment phase, the center of attention is to include the patients in dialogue, reciprocity and collaboration, as depicted in Table 4 below.

***TABLE 4.* SPECIFIC METHODS IN THE SECOND TREATMENT PHASE**

Therapeutic theme	**Central interventions**
(1) Maintain a safe therapeutic relationship	The therapist highlights confidence and a trustworthy, predictable relationship with the patient
(2) Curiosity and the therapist's entire competence	The therapist is personally and professionally engaged in parallel, and shows curiosity in asking questions along these lines; who is involved in this, when, where and how?
(3) See the whole human being	The therapist seeks contact with parts of the patient's self that are not dominated/ overshadowed by the illness
(4) Get in between	The therapist moves attention to the patient's healthy self-identity and emotions and assists the patient in generating a breakthrough/splitting, pushing the symptoms aside to increase freedom and reciprocity in the dialogue
(5) Restore the self	The therapist authorizes the patient's healthy identity and gives compliments to new and previous achievements in life
(6) Personify the symptoms	The symptoms are personified and visualized to be subjects of joint exploration in psychotherapy

The third treatment phase

Clinical vignette: *"When I managed new things in social connections you often said, how well, how did you do it, and what did you do? It was important that you as my therapist showed me that I could do something myself, and I remember how you encouraged me all the time. You took my story seriously and showed clearly that you were interested in helping me, which made a great impact on me. I suppressed my feelings and then the psychosis came over me. Life was so unbearably painful."*

In the third treatment phase, the center of attention is to assist the patient back to normal life and functioning in the family and community (Table 5).

TABLE 5. SPECIFIC METHODS IN THE THIRD TREATMENT PHASE

Therapeutic theme	**Central interventions**
(1) Encourage independence	The therapist emphasizes to maintain a safe relationship with the patient and seeks to evolve the dialogue to a broader field of action
(2) Free from burden	The therapist offers the patient opportunities to learn from theories and methods used in the psychotherapy and develop insight
(3) Find explanations and re-authoring lives	The therapist assists the patient to search for causes and explanations for the illness and to find new histories and ways of understanding
(4) Support own power	The therapist supports the patients in developing their own efforts to find back to a meaningful life
(5) Give the patient tools	The therapist provides tools to prevent new illness signs, preserve self-regulation and mental control
(6) Return to normal life	The therapist encourages the patient to future occupations, such as starting in a new job or education or other meaningful activities in the society

Results of Dialogue therapy for the schizophrenia group - paper II in *Psychosis*

Changes in GAF scores for the schizophrenia group

This first empirical paper focuses on patients with a schizophrenia diagnosis and compares outcome for patients who received ST (n=24) with patients who received DT in addition to ST (n=24).

At follow-up, the DT group had significantly higher scores on the GAF-F and GAF-S subscales compared to the ST group. At follow-up, the GAF scores in the DT group compared to the ST group were, respectively, for GAF-S, 75.4 (SD = 15.1) vs 45.4 (SD = 12.8), and, for GAF-F, 77.7 (SD = 15.5) vs 44.0 (SD = 11.3) (p-values <0.001). Likewise, while GAF-S and GAF-F increased from baseline to follow-up in both groups, the increases were significantly higher in the DT group; 48.6 vs 15.9 (p<0.001) for GAF-S and 49.4 vs 12.4 (p<0.001) for GAF-F (Table 6 and Figure 2 below).

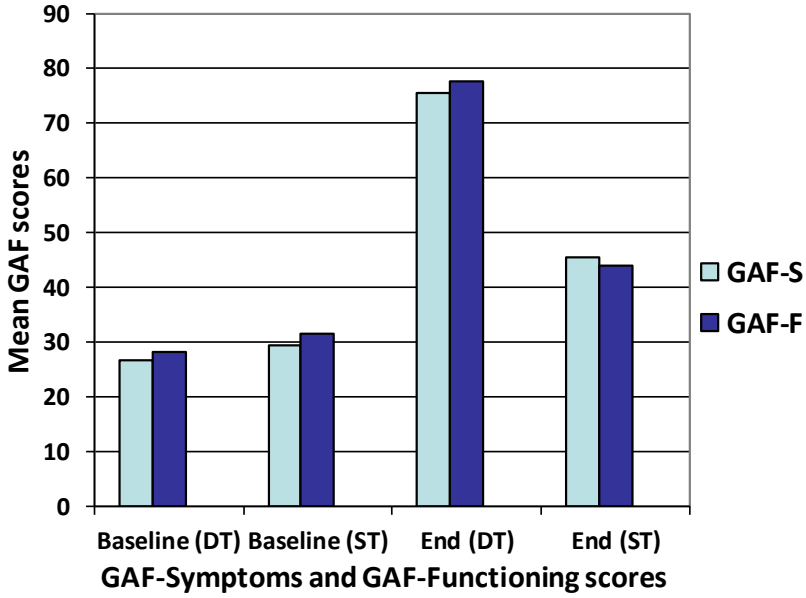
TABLE 6: CHANGES IN GAF SCORES OVER THE TREATMENT COURSE IN DIALOGUE THERAPY AND STANDARD TREATMENT FOR THE SCHIZOPHRENIA GROUP (N=48, 24 IN EACH TREATMENT GROUP)

	Baseline		Follow-up	
	Dialogue Therapy	Standard treatment	Dialogue Therapy	Standard treatment
GAF-S, mean (SD)	26.8 (9.2)	29.5 (9.3)	75.4 (15.1)	45.4 (12.8)
GAF-F, mean (SD)	28.3 (9.6)	31.6 (8.2)	77.7 (15.5)	44.7 (13.0)

Note: In both t-tests and regression analyses, at follow up, both GAF-S and GAF-F were significantly (p < 0.001) higher in patients in Dialogue Therapy compared to patient in Standard treatment. In regression analysis, these group differences were not moderated by whether patients had schizophrenia diagnoses or diagnoses for other psychosis.

At follow-up after a mean of 4 years and 1 month, we found that the DT group had significantly higher scores on the GAF Functions (GAF-F) and GAF Symptoms (GAF-S) subscales compared to the ST group. Effect sizes (Cohen's d) were very large, 2.38 for GAF-S and 2.41 for GAF-F.

FIGURE 2. CHANGES IN GAF SCORES FROM BASELINE TO FOLLOW UP FOR THE SCHIZOPHRENIA GROUP IN DIALOGUE THERAPY AND STANDARD TREATMENT



Changes in medications for the schizophrenia group

At the start of treatment, the use of psychiatric drugs differed significantly between the two groups. At baseline, the number of drug types (p=0.012) and the dose of low-dose neuroleptics (p=0.03) and anxiolytics (p=0.048) were significantly higher in the DT group

than in the ST group. From treatment start to follow up, all types of medications were reduced in the DT group, while there was a general increase in the ST group. At follow-up, a significant group difference was found, with fewer drugs (p<0.001) and lower doses of high-dose antipsychotic medication (p<0.001) and antidepressants (p<0.001) in the DT group, see Table 7 below.

TABLE 7: CHANGES IN MEDICATIONS OVER THE TREATMENT COURSE IN DIALOGUE THERAPY AND STANDARD TREATMENT FOR THE SCHIZOPHRENIA GROUP

	Baseline			Follow-up		
Variables	Intervention Group (N=24)	Control Group (N=24)	p-value	Intervention Group (N=24)	Control Group (N=24)	p-value
Low-dose Neuroleptic, Mean dose (min/max), (mg)	9.1 (0/30)	4.7 (0/18)	0.031	4.9 (0/20)	8.7 (0/50)	0.18
High-dose Neuroleptic, Mean dose (min/max),(mg)	206.0 (0/1000)	82.1 (0/600)	0.073	31.5 (0/400)	244.8 (0/900)	<0.001
Anxiolytic Medication, Mean dose (min/max), (mg)	6.5 (0/60)	0.0 (0/0)	0.048	1.4 (0/30)	5.1 (0/45)	0.17
Antidepressants Medication, Mean dose (min/max), (mg)	14.4 (0/190)	4.4 (0/50)	0.27	1.0 (0/15)	19.6 (0/190)	<0.001
Mood Stabilizing Medication, Mean dose (min/max),(mg)	54.8 (0/900)	6.9 (0/166)	0.23	0.0 (0/0)	58.9 (0/600)	0.06
Number of Medications, Mean (min/max)	2,5 (0/6)	1.5 (0/4)	0,012	1.4 (0/5)	2.6 (1/5)	<0.001

The number and doses of psychoactive drugs were significantly lower in the DT group compared to the ST group at follow-up, despite a shorter time in psychotherapy in the DT group (Figure 3 below and Table 7 above).

Changes in hospitalizations for the schizophrenia group

Before the start of treatment (baseline), the ST group had both fewer days in hospital and fewer number of hospital admissions than the DT group. These differences persisted after the end of treatment (within the study period), with significantly fewer hospitalizations in the ST group (p=0.003). However, statistical analysis of distribution revealed 5 extreme values in the DT group before treatment (and 1 after), with more or equal to 403 days in hospital. When these outliers were removed, the difference in hospitalization days between the groups was not statistically significant (Table 8) for the schizophrenia group. Days of hospitalization after end of treatment in the study period were significantly reduced in both groups compared to the period before start of treatment.

TABLE 8: CHANGES IN HOSPITALIZATIONS IN THE INTERVENTION GROUP (DT) AND CONTROL GROUP (ST) DURING TREATMENT FOR THE SCHIZOPHRENIA GROUP

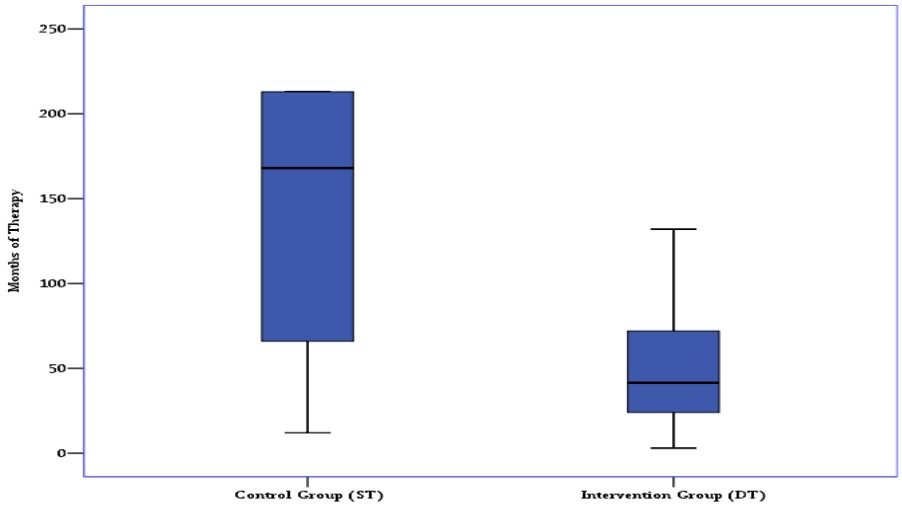
	Baseline			Follow-up		
Variables	Intervention Group (N=24)	Control Group (N=24)	p-value	Intervention Group (N=24)	Control Group (N=24)	p-value
Number of Hospitalization, Mean (min/max)	5.8 (0/35)	1.3 (0/6)	<0.001	1.0 (0/7)	0.3 (0/5)	<0.001
Days of Hospitalization, Median (min/max)	122 (0/660)	21 (0/182)	0.003	0 (0/600)	0(0/112)	0.029

Since the matching was done regarding start of therapy, and the DT group had three years less mean time in therapy, the time period to count hospitalizations after end of therapy to end of follow up, is considerably longer for the DT group than the ST group.

Time in therapy for the schizophrenia group

The mean time from start of treatment to follow-up was 4 years and 1 month for the schizophrenia group, Figure 3 and Table 12 below.

FIGURE 3. MONTHS OF THERAPY FOR THE SCHIZOPHRENIA GROUP IN THE INTERVENTION GROUP AND THE CONTROL GROUP DURING TREATMENT N=48



The Schizophrenia patients in the DT group had fewer months of psychotherapeutic treatment during the study period compared to the ST group, median (min/max), 42 (3/132) vs 168 (12/213), respectively ($p<0.001$), Table 12 below.

Days of hospitalization after end of treatment in the study period were significantly reduced in both groups compared to the period before start of treatment, in Table 8 above.

Results of Dialogue therapy for the entire participant group - paper III in *Frontiers*

Changes in GAF scores for the entire participant group

In the second empirical paper, we compared the DT group with the ST group for patients in the entire psychosis spectrum, with 54 patients in each of the two treatment groups.

At follow up, t-tests revealed that the DT and ST groups differed significantly on both GAF-S (mean 74.9 (15.2) vs 47.5 (13.8), t(106) = 9.80, p< 0.001) and GAF-F (mean 77.7 (15.6) vs 47.7 (13.0), t(106) = 10.75, p<0.001). Both GAF-S and GAF-F also changed differently in the two treatment groups from baseline to end of therapy, in favor of the DT group, with an increase of 44.9 vs 12.8 for GAF-S, t(106) = 11.12, p<0.001, and 43.7 vs 15.0 for GAF-F, t(106) = 9.56, p<0.001, respectively (Figure 4). The corresponding effect sizes (Cohen's *d*) favoring DT were large; 1.8 for GAF-S and 2.1 for GAF-F.

In the more detailed general linear model analyses that included covariates, at follow up we again found significant group differences in GAF scores in favor of DT. These better scores in the DT group compared to the ST group were seen for both GAF-S (R^2=0.47, B=27.4, p<001), and GAF-F (R^2=0.52, B=29.7, p<001). The interaction between the groups and diagnostic category (schizophrenia, other psychosis) was not significant for any of the two GAF sub-dimensions, indicating a superior effect of DT over ST independent of diagnostic group.

When considering changes in GAF scores from treatment start to follow up, again we found a benefit of the DT group compared to the ST group in general linear model analyses. This stronger improvement in DT was seen both for GAF-F (R^2=0.54, B=32.2, p<001) and for GAF-S (R^2=0.46, B=28.7, p<001). In addition, also here we found no interaction effects between treatment group and diagnostic category, indicating a larger improvement in GAF scores in DT as compared to ST for both patients with a schizophrenia diagnosis and patients with other diagnoses. Changes in GAF scores over the treatment course in DT and ST are presented in Table 9 and Figure 4 below.

TABLE 9: CHANGES IN GAF SCORES OVER THE TREATMENT COURSE IN DIALOGUE THERAPY AND STANDARD TREATMENT FOR THE ENTIRE PARTICIPANT GROUPS

	Baseline		Follow-up	
	Dialogue Therapy	Standard treatment	Dialogue Therapy	Standard treatment
All patients (n=108, 54 in each treatment group)				
GAF-S, mean (SD)	31.2 (9.3)	32.4 (10.2)	74.9 (15.2)	47.5 (13.8)
GAF-F, mean (SD)	32.6 (9.4)	35.0 (10.5)	77.7 (15.6)	47.7 (13.0)
Schizophrenia (n=48, 24 in each treatment group)				
GAF-S, mean (SD)	26.8 (9.2)	29.5 (9.3)	75.4 (15.1)	45.4 (12.8)
GAF-F, mean (SD)	28.3 (9.6)	31.6 (8.2)	77.7 (15.5)	44.7 (13.0)
Other psychoses (n=60, 30 in each treatment group)				
GAF-S, mean (SD)	34.7 (8.0)	34.7 (10.5)	74.5 (15.6)	49.1 (14.6)
GAF-F, mean (SD)	36.0 (7.9)	37.6 (11.4)	77.3 (16.0)	50.7 (13.7)

Note: In both t-tests and regression analyses, at follow up, both GAF-S and GAF-F were significantly ($p < 0.001$) higher in patients in Dialogue Therapy compared to patient in Standard treatment. In regression analysis, these group differences were not moderated by whether patients had schizophrenia diagnoses or diagnoses for other psychosis.

FIGURE 4. GAF SCORES AT BASELINE AND FOLLOW UP FOR PATIENTS IN DIALOGUE THERAPY AND STANDARD TREATMENT FOR THE TWO DIAGNOSTIC SUBGROUPS (OTHER PSYCHOSIS AND THE SCHIZOPHRENIA GROUP)

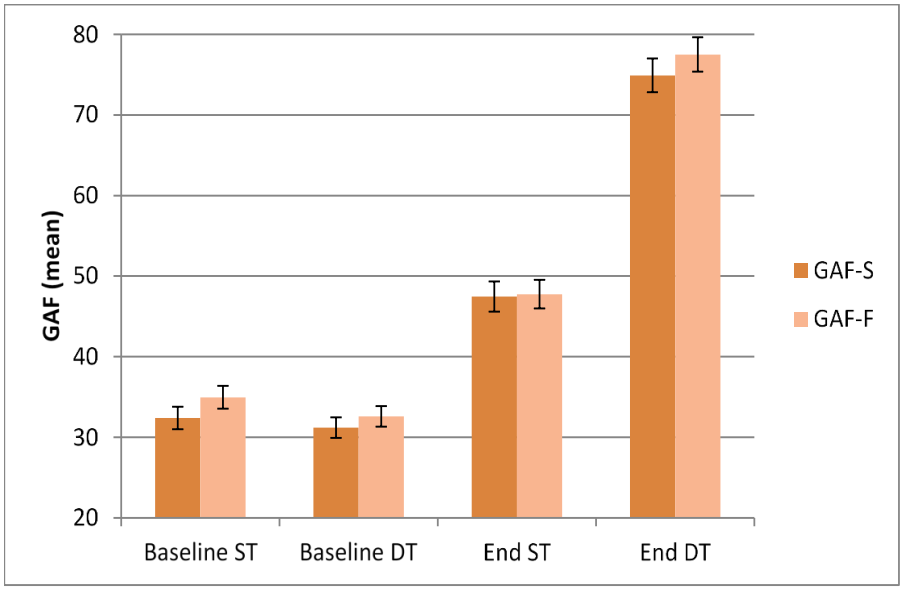
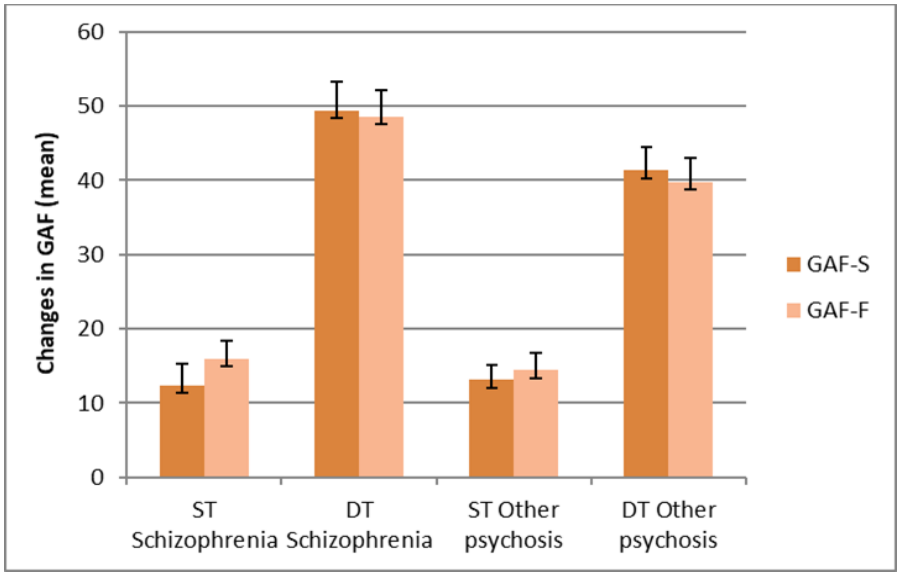


FIGURE 5. CHANGES IN GAF SCORES FROM BASELINE TO FOLLOW UP FOR THE TWO DIAGNOSTIC SUBGROUPS IN DIALOGUE THERAPY AND STANDARD TREATMENT (OTHER PSYCHOSIS AND THE SCHIZOPHRENIA GROUP)



Changes in medications for the entire participant group

Using Mann-Whitney U-tests, at follow up we found that patients in the DT group as compared to the ST group used less low-dose antipsychotics ($p<0.001$)(Figure 6), high-dose antipsychotic medication ($p<0.001$)(Figure 7), mood stabilizing medication ($p=0.02$) and anxiolytics ($p=0.045$), in addition to fewer number of drugs ($p<0.001$). As can be seen in table 10, medications in general increased across the treatment course in the ST group but decreased in the DT group. In statistical testing, the changes between baseline and follow up were significantly different between the treatment groups for low-dose antipsychotics ($p=0.001$), antidepressants ($p=0.006$), mood stabilizing medications ($p=0.004$) and anxiolytics ($p=0.004$), in addition to total number of drugs ($p<0.001$).

Changes in medications over the treatment course in both treatment groups are reported in Table 10, Figure 6 and 7 below.

TABLE 10: CHANGES IN MEDICATIONS OVER THE TREATMENT COURSE IN DIALOGUE THERAPY AND STANDARD TREATMENT FOR THE ENTIRE PARTICIPANT GROUP

Variables	Baseline			Follow-up		
	Dialogue therapy (n=54)	Standard treatment (n=54)	p-value	Dialogue therapy (n=54)	Standard treatment (n=54)	p-value
Low-dose Neuroleptics, Mean dose (min/max),(mg)	7.1 (0/30)	4.8 (0/24)	0.10	2.5 (0/20)	7.1 (0/50)	<0.001
High-dose Neuroleptics, Mean dose (min/max),(mg)	95.7 (0/1000)	46.1 (0/600)	0.14	29.5 (0/800)	185.5 (0/1100)	<0.001
Anxiolytics Medication Mean dose (min/max), (mg)	3.5 (0/60)	0.5 (0/30)	0.07	0.6 (0/30)	4.1 (0/45)	0.045
Antidepressants Medication Mean dose (min/max), (mg)	18.5 (0/190)	10.6 (0/150)	0.27	9.3 (0/225)	14.9 (0/190)	0.44
Mood Stabilizing Medication Mean dose (min/max), (mg)	33.5 (0/900)	36.7 (0/1650)	0.93	3.5 (0/166)	54.4 (0/900)	0.02
Number of Medications, Mean (min/max)	1.8 (0/6)	1.3 (0/4)	0.06	0.8 (0/5)	2.2 (0/6)	<0.001

FIGURE 6. USE OF LOW-DOSE NEUROLEPTICS AT BASELINE AND FOLLOW UP IN THE TWO TREATMENT GROUPS (OTHER PSYCHOSIS AND THE SCHIZOPHRENIA GROUP)

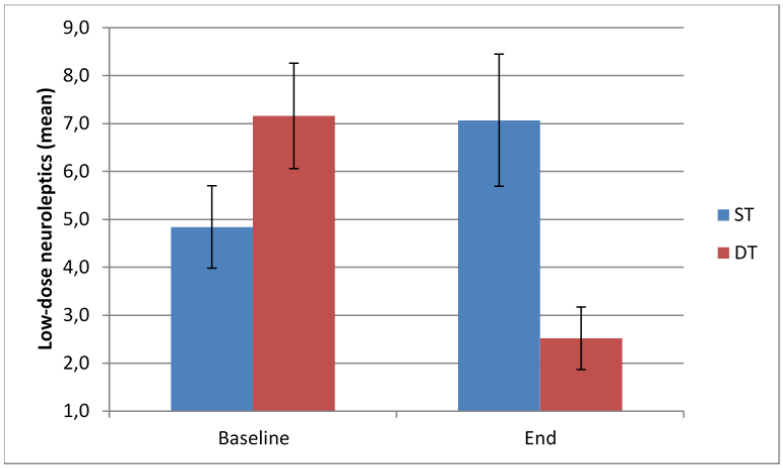
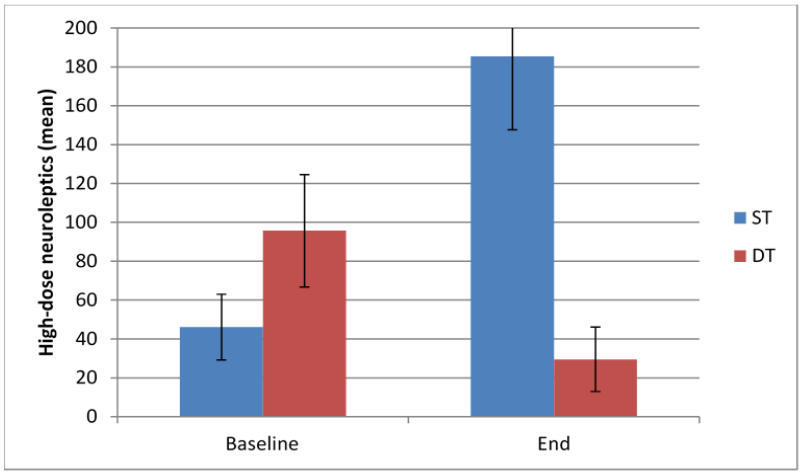


FIGURE 7. USE OF HIGH-DOSE NEUROLEPTICS AT BASELINE AND FOLLOW UP IN THE TWO TREATMENT GROUPS (OTHER PSYCHOSES AND THE SCHIZOPHRENIA GROUP)



At follow up, we noted that the more detailed regression analysis was significant for the use of low-dose neuroleptics, with effects for treatment group (less use in DT) and diagnostic group (less use in "other psychoses"). In multiple regression analyses, both factors were significant (R^2=0.11, p=0.001).

The only predictor for high dose neuroleptics (R^2= 0.11, B= -156, p<0.001), anxiolytics (R^2=0.04, B=-3.4, p=0.04) and mood stabilizing drugs (R^2=0.05, B=-50.9, p=0.023) in regression analyses were treatment group, with less use in the DT group. The only predictor for antidepressant dose was male sex (higher dose, likely reflecting more depression in males, R^2=0.04, B=15.6, p=0.031). The total number of drugs at the end of study was predicted by treatment group and diagnostic group (R^2=0.33, p<0.001), with less medication in the DT group and in other psychoses compared to schizophrenia.

The regression analysis for changes from baseline to follow-up in the use of medication was significant for low-dose neuroleptics, antidepressants and other medications. The only significant predictor was belonging to the DT group (lower doses) (low-dose neuroleptics, p=0.003, R^2=0.074; antidepressants, p=0.009, R^2=0.053; and other medications, p=0.009, R^2=0.053). The changes in number of drugs from baseline to follow-up was also predicted by treatment group (R^2=0.32, p<0.001), with larger reduction in the DT group.
There was no significant difference between the treatment groups in number of patients without medication before start of treatment. However, after end of therapy, there was a significant difference, with fewer patients using medication in the DT group (p<0.001, Mann-Whitney U-test). This was true both for low-dose and high-dose neuroleptics (p=0.001 Mann-Whitney U-test). In logistic regression analyses, therapy group (DT) and schizophrenia

diagnoses were significant predictors of not using medication (R^2=0.35, p<0.001), with more patients not using medication in the DT group and in other psychoses than schizophrenia. The same was true for not using low dose and high dose neuroleptics (p<0.001, R^2=0.29, and p<0.001, R^2=0.23, respectively). The only predictor for not using mood stabilizing medication, anxiolytics, or other medications was belonging to the DT group (p=0.041, R^2=0.10, p=0.050, R^2=0.08 and p=0.034, R^2=0.07, respectively).

Changes in hospitalizations for the entire participant group

Before the start of treatment (baseline), the ST group had both fewer days in hospital and fewer number of hospital admissions than the DT group (Table 11).These differences persisted after the end of treatment (within the study period), with significantly fewer hospitalizations in the ST group (p=0.003). However, statistical analysis of distribution revealed five extreme values in the DT group before (and one after) with at least 403 days in hospital (no outliers were seen in the ST group). When these were removed from the analyses no significant difference in hospitalization days remained between the groups. However, the p-values were close to 0.05 (0.062 before, and 0.051 after, Mann-Whitney U-test). During the study period there were significantly fewer days of hospitalization in the ST group (Table 11).

TABLE 11: CHANGES IN HOSPITALIZATIONS FOR THE INTERVENTION GROUP AND THE CONTROL GROUP DURING TREATMENT FOR THE ENTIRE PARTICIPANT GROUP

	Baseline			End of treatment		
Variables	Dialogue Therapy (N=54)	Standard Treatment (N=54)	p-value	Dialogue Therapy (N=54)	Standard Treatment (N=54)	p-value
Number of Hospitalization, Mean (SD)	3,4 (5.9)	0.9 (1.3)	<0.003	1.2 (2.5)	0.2 (0.8)	<0.006
Days of hospitalization, Mean (SD)	123.1 (176.0)	33.6 (52.3)	<0.001	40.9 (102.5)	5.6 (21.8)	<0.001

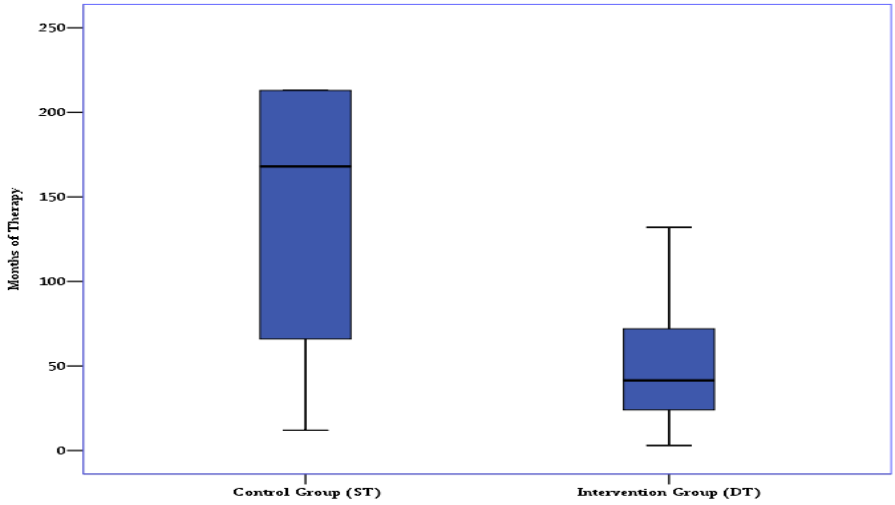
Time in therapy for the entire patient group

TABLE 12: MONTHS OF THERAPY IN INTERVENTION GROUP AND CONTROL GROUP FOR TWO DIAGNOSTIC GROUPS DURING TREATMENT

	Dialogue Therapy (DT) Median (min/max) (N)	Standard Treatment (ST) Median (min/max) (N)	P-value
All patients	36 (1/132) (54)	72 (1/213) (54)	<0.001
Schizophrenia patients	42 (3/132) (24)	168 (12/213) (24)	<0.001

The patients in the DT group had shorter time (fewer months) in outpatient treatment during the study period compared to the ST group, mean (SD), 43.0 (37.7) vs 125.1 (114.4) (p<0.001), median (min/max), 36 (1/132) vs 72 (1/213) (p<0.001) (Table 12 and Figure 8 below).

FIGURE 8. MONTHS OF THERAPY FOR THE ENTIRE PATIENT GROUP IN THE INTERVENTION GROUP AND THE CONTROL GROUP DURING TREATMENT N=108



Mean time in treatment from start of treatment to end of treatment (follow-up) in the study period was 3 years and 5 months for two diagnostic groups (schizophrenia, other psychoses).

Discussion

The initial aim presented in this thesis was to study the association between psychotherapy (DT) and health progress compared to ST alone. In the research literature, the candidate found few studies focusing on the topic of psychotherapy for this patient group.
Below, the candidate discusses, first, the DT approach, and second, results from the two evaluation study articles, followed by a Limitation part, General discussion and Conclusion.

Discussion of Dialogue therapy as a novel treatment for psychosis (paper I)

More than providing novel methods, DT represents a synthesis of elements from other approaches, unified in a specific model of treating psychosis. This speaks for DT having features in common with these other treatments, but at the same time, it departs partially from the way each of them typically is practiced, as indicated below.

DT has basic similarities with mentalization-based therapy, family therapy and other client-oriented humanistic psychotherapies. Especially, DT shares aspects with the humanistic Open Dialogue network model for psychosis of Seikkula and colleagues (Klapcinski & Rymaszewska, 2015; Seikkula & Trimble, 2005), but obviously departs from this model by its individual orientation. In DT, family, friends and professionals only occasionally are invited into the discourse if explicitly asked for by the patient.

The supportive, psycho-educative coping practice that characterizes standard treatment for schizophrenia is grounded in the medical model and has been the preference of biologically oriented clinicians. This approach is pragmatic and symptom-focused and aims at preventing worsening of the illness rather than personal change (Eells, 2000). Favored interventions include defining reality, offering direct reassurance, giving advice, urging modification of expectations, and actively organizing the environment when necessary.

In comparison, DT emphasizes the quality of the patients' internal experience and the enrichment of their sense of self as vital features to restore health. This type of highlighting in itself may promote change by positively influencing the patients' motivation and performance (Luther et al., 2017; Lysaker & Dimaggio, 2014).

There is a long history of using psychodynamic and interpersonal psychotherapies in the treatment of psychosis (Eells, 2000; Leonhardt et al., 2017; Malmberg & Fenton, 2001). These therapies were classically intended for fundamental personality change, were long-term in nature, and typically viewed schizophrenia as interpersonal in origin. Common for DT and psychodynamic approaches is the obvious emphasis on thrust, causes and history, and the therapeutic alliance.

Characteristic of DT but perhaps less typical for psychodynamic treatments is that the therapist invites the patient into an exploratory dialogue as an equal collaborator, to contribute with their own knowledge about their problems. The DT therapist collaborates explicitly with the patient in the here and now, searching for connections and causes to the illness. The patients' knowledge as evolved from their experience of life-stresses is considered to be central in the process of improvement and cure.

Cognitive behavioral therapy and metacognitive psychotherapy for psychosis, like DT, also emphasize interventions that are simple and easy to understand, with a focus on the patient's current mental state (Hasson-Ohayon et al., 2017; Lysaker et al., 2010; Morrison et al., 2014; Roe et al., 2014). A specific attribute in DT is the emphasis on exploring trauma and history of the distant past (Carter et al., 2017; Haram, 2004; Holding et al., 2016). Within CBT it is perhaps less typical to focus on language and re-authoring of the patient's history (White, 1995), as well as on trauma and on undressing symptoms and psychosocial causes to the psychotic problems (Carter et al., 2017; Lewis, 2011).

Taken together, while traditional cognitive therapy foremost is known for its manuals, schemes, new interpretations of settings, learning of coping strategies and a strong goal-orientation (Morrison, Hutton, Shiers, & Turkington, 2012), instead, the emphasis in DT is on

the therapeutic alliance, emotions, and that therapy and cure is a subjective process (Haram, 2004; Seikkula & Trimble, 2005).

As for CBT, also mentalization-based treatment and mindfulness techniques less often than DT focus on causes to psychotic symptoms, and are typically provided in groups. Furthermore, research indicates that mindfulness interventions can be useful adjuncts to pharmacotherapy (Dickerson & Lehman, 2011; Khoury et al., 2013; Penn et al., 2011). Moreover, mindfulness training for psychosis may more typically offer means to ease distress associated with voices and paranoia, and less typically questions the content of beliefs (Chadwick, 2014; Newman Taylor, Harper, & Chadwick, 2009).

Even though the biological turn in psychiatry has brought new perspectives and insights, it has also tended to leave psychiatry with limited conceptual tools for understanding empathic connections with patients on a deep personal level (Bola et al., 2009; Read et al., 2009).

In DT, the therapist and candidate in this thesis, emphasizes to ask questions about the influence of environmental life stresses on the development of severe mental illness, and makes space for an open attitude to psychotherapy as a healing process for psychosis (Haddad & Sharma, 2007; Haram, 2004; Seikkula & Trimble, 2005; Varese et al., 2012).

Discussion of results of Dialogue therapy for the schizophrenia group (paper II)

In paper II, we presented results from the evaluation study of patients with schizophrenia and found that patients who received DT achieved better functioning and fewer symptoms than patients who received ST at follow up after a mean of four years and one month. Patients in DT also used less psychoactive medication at follow up, despite a shorter period in outpatient treatment, compared to patients in ST. Despite the fact that the ST group was randomly selected and matched on specific criteria to the DT group, we found that patients in the ST group were younger than those in the DT group. However, the percentage of women in both groups was identical. At baseline, the patients in the DT group were approximately five years older, and this may be due to the matching in 5-year intervals regarding patient age. However, this was a requisite from the ethics committee for the study approval.

Additionally, before the start of treatment (baseline), the ST group had both fewer days in hospital and fewer number of hospital admissions than the DT group. These differences persisted after the end of treatment (within the study period), with significantly fewer hospitalizations in the ST group. However, statistical analysis of distribution revealed five extreme values in the DT group before (and one after) with at least 403 days in hospital (no outliers were seen in the ST group). When these were removed from the analyses no significant difference in hospitalization days remained between the groups. During the study period there were significantly fewer days of hospitalization in the ST group. These results might be due to that the matching was done regarding start of therapy, the DT group had

three years less mean time in therapy, and the period to count hospitalizations after end of therapy to end of follow up, was considerably longer for the DT group than the ST group.

An alternative way to interpret the encouraging results of DT is that patients in ST were younger and to a greater extent experienced their first chaotic episode of psychosis, while patients in DT were more mature and therefore more open to therapeutic interventions. However, the higher levels of psychoactive drugs and hospitalizations among the patients in DT at baseline can also indicate that they had a more serious illness, and thus were less responsive to therapy. It might be that the use of psychiatric drugs as well as hospital admissions and days spent in hospital can be attributed to the conventional practice of the standard treatment approach, ST, which has a limited focus on recovery for this patient group. Equally, it might also be related to attitudes in psychiatry and ST treatment, concerning possibilities for a healing process through psychotherapy for this target group. Additionally, we speculate that there might be a connection between higher doses of antipsychotic drugs and less hospitalization, and, unfortunately less recovery.

At follow-up, we registered that both groups had a significant increase in GAF scores as compared to baseline. However, the increase was substantially higher in the DT group, with very large effect sizes for GAF-F (d = 2.14) and GAF-S (d = 2.38). The resulting GAF-scores for symptoms (means of 75.4 in DT and 45.5 in ST) represent moderate stress symptoms and temporary and understandable reactions to psychosocial stress in the DT group, in contrast to serious symptoms clearly in need of further treatment in the ST group. For GAF-F, the follow-up scores (mean of 77.7 in DT and 44.0 in ST) represent good functioning and only a slight decrease in social, occupational, and educational functioning in the DT group, in contrast to serious problems in social relations (no friends) and that one cannot meet the

normal requirements for work and studies in the ST group. These beneficial effects of DT over ST on patients' symptoms and functioning might indicate that DT had a positive influence for patients with schizophrenia.

In addition, the patients in the DT group had fewer months of psychotherapeutic treatment during the study period contrasted to patients in the ST group. This measurement show optimism and that DT psychotherapy with its emphasis on a process to restore health might be advantageous for patients included in our study.

Antipsychotic drugs have serious health risks, including increased mortality (Morrison et al., 2012), and severe side effects might be distressing and painful for the patients (Haram, 2004). At follow-up, the DT group used significantly lower doses of all medication categories, including high-dose neuroleptics, antidepressants, and the total number of medications. This is in line with the dynamic attitude in DT to limit the use of psychiatric drugs and the emphasis on dialogue.

Conversely, several research studies can refer to positive results concerning recovery for patients with schizophrenia and other psychoses through a process of progress and hope in psychotherapy (Askham, 2018; Brand, Rossell, Bendall, & Thomas, 2017). Our results indicate that DT has a stabilizing effect in patients when medications have been reduced.

Discussion of results of Dialogue therapy for the entire participant group (paper III)

The need for psychological therapies for psychosis has become apparent since long-term antipsychotic drug treatment has a range of adverse side effects, with moderate therapeutic effects at best.

In article III, we reported larger improvements in symptoms and functioning after DT than ST in both patients with schizophrenia and patients with diagnoses for other psychoses. Associated with these differences were, again, larger reductions in the use of psychopharmaca in patients who completed DT as compared to ST, including low dose neuroleptics, antidepressants, and the total number of psychoactive drugs.

Before study baseline, the DT group in general had significantly higher number of hospitalizations than the ST group. However, the patients in DT had shorter time (fewer months) in outpatient treatment during the study period compared to those in the ST group. In DT, the mean time in treatment from inclusion to follow-up was 3 years and 5 months for the entire study group. Since the matching was done regarding start of therapy, and the DT group had three years less mean time in therapy, the interval period to count hospitalizations after end of therapy to end of follow up was considerably longer in DT than ST. Thus, the significantly higher number of hospitalizations after end of therapy to end of follow up in the DT group may be owing to the considerable longer interval period from end of therapy to end of follow-up in the DT group in contrast to the ST group due to shorter time in therapy. Regrettably, in article 2 and 3 we have not presented the hospitalizations and length of stay linked to end of therapy to end of follow up. There may well be a different

result if hospitalizations had been counted in this manner. However, days of hospitalizations after end of treatment in the study period were significantly reduced in both groups compared to the period before start of treatment.

At follow-up, the DT group used significantly lower doses of all medication categories, and significantly lower total number of medications, than the ST group. These findings are consistent with the attitude of DT, with its emphasis on dialogue and collaboration between the patient and the therapist, and to limit the use of psychiatric drugs during the psychotherapeutic treatment process.

Since the same psychiatrists were responsible for antipsychotic drug treatment in both groups during the treatment period, a group difference resulting from different opinions vis-à-vis the use of antipsychotics is a less probable alternative explanation. The results in this study suggest that DT led to a reduced use of medication without a secondary worsening of illness.

The same possible interpretation of findings for the complete study group as for the schizophrenia group separately, might be that patients in the DT group were older and thus perhaps had a difficult history with antipsychotic drugs in previous ST treatment. As a consequence, they possibly would be more strongly engaged and enthusiastic in the new context of the DT psychotherapeutic process.

Across treatment, much larger improvements in GAF scores in favor of DT were seen for both schizophrenia patients and for patients with other psychotic diagnoses. At follow-up, GAF functioning (GAF-F) and GAF symptom (GAF-S) scores both were significantly higher in

the DT group than the ST group. Effect sizes (Cohen's d) were large; 1.8 for GAF-S and 2.1 for GAF-F.

Most notably, in the DT group, GAF symptom scores at the observed levels indicated the general absence of psychotic symptoms and any other marked emotional and cognitive psychiatric symptoms. In contrast, in the ST group, GAF symptom scores were still low at follow up, in line with the remaining of serious symptoms in need of treatment. Concerning GAF function scores at follow up, in the DT group, they represented good functioning and only slight, if any decrease in the domains of social life, occupation, and education, with no need of assistance from the mental health system. In contrast, in the ST group, GAF function scores were still low, reflecting the continued presence of serious problems in social relations (no/ few friends) and the inability to meet normal requirements for work and studies.

The larger improvements in GAF scores in DT group could not be explained with increased medical treatments since medications rather were markedly reduced in DT as compared to ST across the treatment course. Nor could it be explained with longer duration of outpatient treatment since DT patients on average had shorter duration of such treatment than ST patients. Accordingly, the emphasis on psychotherapy and to restore health in DT might be a central cause to these encourages findings. Furthermore, the strong improvements in symptoms and functioning in the DT group compared to the ST group, combined with the reduction of medication, strengthen our assumption that the effective component behind the psychological changes was a psychotherapeutic process (Askham, 2018; Brand et al., 2017; Karon, 2008). DT has an explicit focus on recovery from psychosis and aims both at symptom reduction through a therapeutic process oriented towards insight and self-

regulation, and at helping the patient back to adequate functioning at home and in society in general.

The GAF scale has been the main psychometric instrument in this retrospective case control study. However, recently, questions have been raised about both reliability and validity of the GAF scale as a measurement tool of mental illness in psychiatry (Pedersen et al., 2018). However, the scale is considered to be more reliable when scores are set in consensus between several clinicians, which is what we did in this presenting study (Pedersen et al., 2018; Soderberg, Tungstrom, & Armelius, 2005).

With the current revised split version of the GAF manual, GAF scoring may possibly be more efficient and focused, discussions and arguments concerning specific scores less tempered and confusing, and finally, GAF ratings more reliable (Pedersen et al., 2018). Additionally, reliable and valid GAF scores depend not only on the raters' understanding by reading manuals or instructions, but on practice, clinical experience, and on calibrating one's ratings by discussing with colleagues (Pedersen et al., 2018).

We suggest that psychotherapy for schizophrenia and other psychosis should emphasize the opportunity to restore health and enable patients to develop adequate self-narratives (Lysaker et al., 2010; Sungur et al., 2011). It may also seek to reduce stigma and transform the language of psychopathology to a more restorative one of hope and empowerment (Dickerson & Lehman, 2011; Khoury et al., 2013; Penn et al., 2011; Stuart et al., 2012; Sungur et al., 2011). People who experience psychosis describe stigma and attitudes from health professionals and the community related to having a schizophrenia diagnosis, as more life-limiting than the illness itself (Haram, 2004; Stuart et al., 2012).

Strengths and limitations of the empirical study

The DT model has gradually evolved since its early conceptualization in the late 1980's, and patients enrolled later in the study period may have received a more complete therapy form compared to those enrolled earlier in the period. Since therapist factors may have a strong impact on outcome, a limitation is that DT involved a single therapist only; the apparent benefits of DT could alternatively reflect the particular skills and dedication of this therapist. At the same time, because only one therapist practiced DT (the founder of the model), adherence and fidelity checks have been less relevant to implement. On the other side, this has ensured a stable, comparable practice of DT for all its patients.

Strengths include that all patients who received DT and fulfilled criteria for psychosis, were included in the study, and that the ST group was matched on several criteria to the DT group. However, the likely varied approaches in ST makes it difficult to know exactly what DT was compared to. A further limitation is that although GAF scores were set in consensus by at least two trained professionals, this was done in ordinary clinical care, with no independent scores set by researchers. Other weaknesses are that patients were not allocated to treatment groups using conventional randomization methods; the small size of the sample investigated; the limited range of outcome measures; and the dependence of the outcome measures on information in the clinical notes.

Even if strengths include that all patients who received DT and fulfilled criteria for psychosis were included in this study, the limited range of outcome measures does not allow deepening the complexity of the sample, which includes the entire psychosis spectrum. We had no measure of the proportion of patients in ST who received psychoeducation and

medication versus medication only. Thus, suboptimal aspects of ST for some patients may have contributed to this group's worse outcome compared to DT.

General discussion

There is an increasing evidence that exposure to traumatic or adverse life-events is associated with increased risk of psychosis (Brand et al., 2020). However, it is necessary to go beyond associations to understand how traumatic experiences may lead to the development of psychotic symptoms. Doing so requires the identification of biological, psychological and social processes that may be involved in the observed trauma-psychosis relationship (Brand et al., 2017).

Additionally, studies of treatment effects indicate that people diagnosed with schizophrenia may benefit from acquiring insight into their internal states and the external circumstances of their illness. This may help them to see causal connections and develop histories about themselves that they better can live with (Carter et al., 2017; Haram et al., 2019; Lysaker et al., 2018), consistent with the goal of DT.

We correspond that to suppress or hide psychotic symptoms with antipsychotics without understanding their developmental, interpersonal and psycho-affective context, risks alienating the patients and their families (Gumley et al., 2013; Read et al., 2014). As well, such an approach might overwhelm emotions and get in the way of initiatives to seek help.

In particular, I believe that an attitude change is needed in the field of psychosis that allows for the patient's unique history and healing features, all which can be integrated in psychotherapy. In turn, there is an ethical case to be made for broadening our scientific

understanding of schizophrenia and other psychoses, allowing for emotions and the patient's life stresses to be to be more fully included in psychotherapy (Alanen, 2009; Geekie, 2012; Gumley et al., 2013; Haram, 2004; Khoury et al., 2013; Sungur et al., 2011).

Based on our own and previous findings, we suggest that three features are particularly important. First, that the therapeutic approach highlights and emphasizes opportunities for recovery and enable patients to develop acceptable self-narratives. Second, that the approaches aim to reduce stigma. People who experience psychosis describe stigma from health professionals and the community related to having a diagnosis as more life-limiting than the illness itself. Third, that psychotherapy is customized to the needs of each unique patient and emphasizes the perspective of subjectivity. Most importantly, treatment of psychosis may require a combination of various therapeutic approaches, not only drugs.

The present findings add to a growing body of evidence that psychotherapeutic approaches may be important adjuncts to medical treatments for patients with schizophrenia and other psychosis (Askham, 2018).

The history of psychiatry has been dominated by a focus on biologically based illness and on pharmacological treatments (Brand et al., 2020; Carter et al., 2017; Deacon, 2013; Priebe et al., 2014). Such biology-oriented models may strengthen a negative image of the patients, reduce their sense of control and leave them as passive recipients of expert care. The most important shortcoming is perhaps that this practice largely might lead to maintenance of a "disease condition" instead of actively focusing on a healing process to restore health.

Conclusions

In this study, the psychotherapeutic approach Dialogue Therapy was associated with improved functioning and reduced levels of general symptoms at follow up in both patients with schizophrenia and patients with other psychosis compared to standard treatment. The differences were seen in spite of reduced use of medication and shorter duration of therapy in Dialogue Therapy.

We suggest that psychotherapy for schizophrenia and other psychosis should emphasize the opportunity to restore health and enable patients to develop adequate self-narratives. Moreover, it may also seek to reduce stigma and transform the language of psychopathology to a more restorative one of hope and empowerment.

However, there is a need for prospective randomized controlled studies where more therapists are involved, to evaluate the effectiveness of Dialogue Therapy for patients with psychosis. Case studies could also give valuable information.

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APPENDIX – LIST OF PAPERS:

Dialogue therapy in psychosis

Psychotherapy in Schizophrenia

Impacts of Psychotherapy in Schizophrenia and Other Psychosis

PAPER I

Nordic Psychology, 2019
https://doi.org/10.1080/19012276.2019.1586570 ARTICLE

Dialogue therapy in psychosis: A philosophical-ethical approach

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Abstract

Theoretical and empirical work is needed to adapt psychotherapy to psychosis. The article introduces dialogue therapy (DT), a philosophical-ethical, humanistic, and dialogue-oriented individual psychotherapy model for schizophrenia and other severe psychosis. Rather than introducing novel methods, DT offers a unified approach, including flexible methodology derived from existing psychotherapy traditions that focuses on difficulties of emotion, relation, identity, and self-regulation that are characteristic in psychosis. The patient is included to participate fully in the dialogue with her/his subjective voice. The therapist is aware, authentically committed, respectful, and takes seriously all forms of utterances. DT invites the patient to a collaborative process, where she/he is acknowledged as a co-researcher in a continuous search for a cure. Crucial in the therapeutic interaction is to collaborate in generating a breakthrough to split off the psychotic symptoms. The context of DT, therapeutic interactions, and specific methods of how to carry out this psychotherapy are outlined in the article. Not applying psychotherapy in the treatment of psychosis might endanger the development of emotions and self-regulation, social competences, and healthy functioning.

Keywords: psychotherapy, authenticity, emotions, openness, psychosis

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PAPER II

PSYCHOSIS, 2018
https://doi.org/10.1080/17522439.2018.1460392

Routledge
Taylor & Francis Group

Psychotherapy in schizophrenia: a retrospective controlled study

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ABSTRACT

Introduction: Although pharmacological interventions have been the mainstay of treatment for schizophrenia, there has been a growing recognition of the importance of psychotherapy.

Aims: To investigate whether a novel psychotherapeutic approach, dialog therapy (DT), has an effect beyond standard psychiatric treatment (ST) in schizophrenia.

Methods: Twenty-four patients diagnosed with schizophrenia and treated with DT and 24 patients matched on age, sex, and diagnosis receiving ST were included in the study.

Results: At follow-up after a mean of 4 years and 1 month, the DT group had significantly higher scores on the GAF functions (GAF-F) and GAF symptoms (GAF-S) subscales compared to the ST group. Effect sizes (Cohen's d) were very large, 238 for GAF-S and 241 for GAF-F. The number and doses of psychoactive drugs were significantly lower in the DT group compared to the ST group at follow-up, despite a shorter time in psychotherapy in the DT group.

Conclusions: This study provides preliminary evidence that dialog therapy may lead to improvements in symptoms and functioning compared to standard psychiatric treatment.

ARTICLE HISTORY
Received 21 December 2017
Accepted 29 March 2018

KEYWORDS
Psychotherapy; schizophrenia; authenticity; emotions; openness; opportunity; collaboration; dialog

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PAPER III

frontiers in Psychiatry

ORIGINAL RESEARCH
published: 11 April 2019
doi: 10.3389/fpsyt.2019.00204

Impact of Psychotherapy in Psychosis: A Retrospective Case Control Study

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Background: The need for psychological therapies for psychosis has become apparent since long-term antipsychotic drug treatment has a range of adverse side effects, with moderate therapeutic effects at best.

Aims: To investigate whether the psychotherapeutic approach, dialogue therapy (DT) is associated with improvements of symptoms and functioning beyond standard psychiatric treatment (ST) in both schizophrenia and other psychosis.

Methods: A retrospective case-control design, comparing 54 patients with different psychoses who received DT with 54 patients in a control group receiving ST was carried out. The groups were matched on diagnosis, age, sex, and treatment start. Outcome measures were Global assessment of functioning (GAF) scores, medications at follow up, and hospital stays after completed outpatient treatment.

Results: Mean time in treatment from inclusion to follow-up was 3 years and 5 months. At follow-up, GAF functioning (GAF-F) and GAF symptom (GAF-S) scores both were significantly higher in the DT group than the ST group. Effect sizes (Cohen's d) were large; 1.8 for GAF-S and 2.1 for GAF-F. At follow-up, the use of psychoactive drugs was significantly reduced despite a shorter time in psychotherapy in the DT group compared to the ST group. Days of hospitalizations after end of treatment in the study period were significantly reduced in both groups compared to the period before start of treatment.

Conclusions: The findings from this exploratory study are consistent with the possibility that dialogue therapy may lead to improvements in symptoms and functioning compared to standard treatment in psychosis.

Keywords: global assessment of functioning, antipsychotic medication, psychotherapy, dialogue therapy, psychosis

OPEN ACCESS

Edited by:
Cynthia H. Y. Fu, University of East London, United Kingdom

Reviewed by:
Vyv Huddy, University College London, United Kingdom
Loredana Lucarelli, University of Cagliari, Italy

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Specialty section:
This article was submitted to Psychological Therapies, a section of the journal Frontiers in Psychiatry

Received: *08 January 2019*
Accepted: *20 March 2019*
Published: *11 April 2019*

Citation:
Haram A, Fosse R, Jonsbu E and Hole T (2019) Impact of Psychotherapy in Psychosis: A Retrospective Case Control Study. Front. Psychiatry 10:204. doi: 10.3389/fpsyt.2019.00204

INTRODUCTION

Standard treatment (ST) for psychosis consists primarily of antipsychotics, hospitalization, social rehabilitation, and different types of supportive therapy (1–3). Antipsychotic drugs have only moderate effects on positive symptoms and no demonstrable effects on negative symptoms (4–6). Side effects are often prominent and might include a reduction in emotional expression, menstrual

abnormalities, sexual dysfunction, and considerable weight gain (5). On this basis, the need for psychotherapy has become apparent (7–9).

Combinations of pharmacological and psychosocial treatments have demonstrated potential for recovery from psychosis (10, 11). A systematic review found cognitive therapy (CBT) and family interventions to improve outcome in early psychosis (12, 13). However, a Cochrane review underlined that the evidence is limited and recommended further efforts to advance the treatment of psychosis (14). In this paper, we present data on treatment effects of an original psychotherapy model, Dialogue therapy (DT).

What Is Dialogue Therapy?

DT is an individual, dialogue oriented psychotherapy that has been developed through the first author's clinical practice and collaboration with patients diagnosed with schizophrenia and other psychoses since the 1980's (15, 16). Central sources of inspiration are humanistic traditions, language, and narrative approaches, family therapy, inter-subjectivity, and mentalization-based treatments (17–19). The treatment aims to restore health by using dialogue and collaboration to treat the illness and strengthen the patient's resources in parallel.

DT consists of three treatment phases and is provided in 1-h weekly sessions over a course that lasts between 3 months and 3 years. In the first treatment phase, the focus is on aiding the patient out of the psychosis and awakening interest in participating in a common reality. The therapist emphasizes to create an atmosphere of safety and predictability, inclusion, hope and meaning, and to invite the patient to a co-creating treatment process characterized by dialogue and collaboration. The therapist expresses empathy, compassion, authentic commitment, and sensitive curiosity toward the patient's emotions, wordless signs, and utterings. The patient is invited to tell about problems she has and is assisted in reflecting on chaotic aspects of the psychosis. The patient is complimented on progress she has made and the therapist signals a strong belief in the patient's ability for change to restore health. These issues and aspects also constitute a longitudinal fundament in the therapy that frequently is returned to in subsequent phases. The central foci in the first phase can be summarized as follows:

- Create a safe therapeutic relationship
- Communicate prospects of emotional knowledge
- Impart enthusiasm, tune in and share language
- Be genuine, show authenticity, and be responsive
- Normalize and reduce psychotic mystery and fear
- Compliment improvements, provide hope, stimulate empowerment.

Within the continued focus on establishing and maintaining a trustworthy, safe working alliance, central in the second treatment phase is to gradually include the patient in dialogue, reciprocity, and collaboration. The patient is helped to reach a greater understanding and regulation of her feelings and thoughts. The therapist is allowing for parts of the self that are dominated by the illness as well as healthy aspects of the self. By moving attention to the patient's healthy self-identity, the therapist uses emotions to stimulate the interactive process and emphasizes moments that can generate a breakthrough/splitting. This implies to help the patient in pushing symptoms aside to increase freedom and reciprocity in the dialogue and empower the patient's healthy identity. In these attempts to restore the self, the therapist personifies and visualizes symptoms to make them subjects of joint exploration, sees and compliments novel as well as previous achievements. Central foci in this phase are the following:

- Maintain a safe and predictable therapeutic relationship
- Include all the patient's narratives, life-trauma, emotional utterances, ask questions, be curious
- See the whole human being, not only the illness
- Get in between the symptoms (the illness) and the patient's healthy self-identity
- Highlight a process that helps restore a sense of self
- Externalize and help the patients label their symptoms

The third treatment phase is devoted to assist the patient back to normal life and functioning in the family and community. Independence is encouraged by increasing the scope of the dialogue and offering the patient to learn and gain insight from psychotherapeutic approaches and theories. The patient is offered assistance in searching for psychosocial explanations of symptoms in the past and present and to develop new ways of understanding. An emphasis is on strengthening the patient's belief in her own ability, resources and qualities to reestablish a meaningful life. Accordingly, various tools are provided to strengthen mental control and self-regulation to prevent relapse. This includes an emphasis on initiatives toward future work and education and other meaningful social activities. The foci of the third, final phase can be summarized as follows:

- Encourage independence
- Search for causes, free from burden
- Find explanations, evolve new histories in re-authoring lives
- Empower the patient's own qualities
- Give the patient tools from therapy and methods
- Support the journey back to normal life which includes job, educations or other activities

For a more thorough description of DT [see (15, 16)].

A Brief Comparison of Dialogue Therapy With Other Psychotherapeutic Approaches for Psychoses

DT shares features with other psychotherapeutic approaches to psychosis but it also may have several unique features. First and foremost, DT has several meeting points with the Open Dialogue network model (20, 21). However, it differs from it with its individual psychotherapeutic orientation rather than a family and social network approach.

Shared between DT and newer psychodynamic approaches for psychosis is the emphasis on thrust, causes, history and the therapeutic alliance. The psychodynamic approaches, however, more typically view psychosis, in particular schizophrenia, as biologically based illnesses that can be managed by learning

practical coping strategies (22). These models emphasize adaption and adjustment, and incorporate cognitive-behavioral multimodal theoretical orientations. Different in DT is the therapist's inclusion of the patient in an equal, exploratory collaborative context and that interpretations are part of the ongoing dialogue.

Common with DT, cognitive behavioral therapies (CBT) and metacognitive psychotherapies for psychosis typically emphasize simple and easy to understand interventions with a focus on the patient's current mental state (23–25). DT may differ from most of these approaches, however, by inviting the patient to explore experiences from the psychotic landscape as well as of trauma and history of the distant past (16, 26, 27). While traditional cognitive therapy is known for its manuals, schemes, new interpretation of settings, learning of coping strategies and strong goal-orientation (25), DT emphasizes emotions, narratives, and therapeutic alliance (17, 28). Among the approaches that may have the most in common with DT is Metacognitive Reflective Insight Therapy (MERIT) (29, 30). In MERIT, focus is on restoring the patients' integrated representations and ideas about self and others' using a range of therapeutic interventions, several of which are at least partly shared with DT, including focus on the dialogue, eliciting narrative descriptions, and stimulating to reflections about the self and about ways to understand and respond to psychological and social challenges.

AIMS

We have previously reported a larger improvement in symptoms and functioning, combined with a larger reduction in the use of psychopharmaca, in DT as compared to ordinary, standard treatment in 48 patients with a schizophrenia diagnoses (F20.0-F20.9, ICD-10) (15). In the present, extended exploratory study of DT, we present data from an additional 60 patients with a diagnosis for a psychotic disorder other than schizophrenia. Hence, we asked whether DT is associated with larger improvements in symptoms and functioning, and in larger reductions in psychopharmaca, as compared to standard psychiatric treatment in patients within the entire array of psychotic problems.

MATERIALS AND METHODS

This retrospective case-control study was conducted at the Psychiatric Outpatient Clinic (POC), Department of Psychiatry at Ålesund Hospital, Møre and Romsdal Health Trust. The hospital serves about 95,000 people from a geographical sector with both rural and urban areas. POC is a general treatment facility for all types of psychiatric conditions. Included in the study were patients enrolled to treatment at the outpatient clinic in the study period, which lasted from 1st of January 1991 to 1st of September 2008. Follow-up was defined as end of treatment or end of study period (which ever occured first). Follow up data were acquired a mean of 4 years and 1 month after treatment start. The study was approved by the National Research Ethical Committees (NEM) (2008/20) and by the Norwegian Social Science Data Services (NSD 20280). NEM and NSD approved the collection of anonymous data without patient consent. At any time point, treatment at POC is administered by an average of 25 clinicians. The majority are specialists in psychology or psychiatry, while a few are non-specialists in these disciplines, or psychiatric nurses, family therapists or clinical social workers. One person conducted DT psychotherapies (AH).

Subjects

Eligible for inclusion in the study were patients with a diagnosis in either of the following domains (ICD-10): Schizophrenia (F20.0-9), paranoid psychosis (F22.0-9), acute polymorph psychosis (F23.0-9), schizoaffective psychosis (F25.0-9), bipolar affective disorder (F31.0-9), and severe depression with psychotic symptoms (F32.3). No exclusion criteria were used.

All patients were first considered at an intake meeting at POC, and thereafter distributed to any of the about 25 therapists working at the unit in a coincidental, unsystematic (random) manner, with no consideration of any therapist characteristics (e.g., area of specialty, experience). All patients treated with DT by the first author were included in the study, none were excluded. The control group was then matched to these patients. The intervention group received DT in addition to standard treatment (ST, see below) and consisted of all patients diagnosed with psychosis who were treated by AH ($n = 54$). The control group ($n = 54$) received ST and was selected from the total patient population with psychosis who were treated by other therapists than AH. Patients in the control group were matched to those in the intervention group on four variables in the following order of priority: 1. Diagnoses, 2. Month and year of therapy start, 3. Gender, and 4. Age. By matching the ST group on the month and year of therapy start, the two groups had the same amount of time to achieve therapeutic effects. Matching of patients was performed by an independent professional at the IT department at Ålesund Hospital, who had extensive experience from previous projects with similar mapping tasks. Characteristics of the intervention and control groups are summarized in **Table 1**.

In this study, both groups received the same sort of medication therapy monitored by the same psychiatrists.

Standard Treatment

The main focus of all treatments in ST was to stabilize the patients' mental states with antipsychotic medication, reflecting a strong biological orientation at the outpatient clinic. Usually, pharmacological treatment was accompanied by different forms of supportive or psycho-educative endeavors. The extent and concrete content of the supportive and psycho-educative approaches varied among clinicians, which included psychiatrists, psychologists, mental health nurses, and clinical social workers. However, the emphasis in all variants of treatment in ST was reality orienting dialogue and to teach the patients coping strategies to help them live as best possible with their illness. Topics such as the real life trauma and psychotic history of the patients were not addressed in any of the treatments in ST, consistent with the typical view among these clinicians that recovery was not a realistic possibility.

TABLE 1 | Baseline demographic characteristics for patients in Dialogue therapy and Standard treatment.

	Dialogue therapy ($n = 54$)	Standard treatment ($n = 54$)
Age, Mean (SD)	29.4 (10.3)	27.9 (9.6)
Female	23 (43%)	23 (43%)
Diagnosis (ICD 10)	–	–
Schizophrenia (F20.0-9)	24	24
Paranoid psychoses (F22.0-9)	10	10
Acute polymorph psychoses (F23.0-9)	5	5
Schizoaffective Psychoses (F25.0-9)	5	5
Bipolar Affective Disorder (F31.0-9)	5	5
Severe depression with psychotic symptoms	5	5

Measurements

The Global Assessment of Functioning Scale (GAF) was the primary outcome measure. The secondary outcome measure was the number and dose of medications. Data also were gathered on number of admissions and days of hospitalization at psychiatric wards. All data were acquired from Electronic Patient Journals (EPJ) and paper journals by independent raters (psychiatrists).

Different psychiatrists in charge made all the diagnosis by using the International Neuropsychiatric Interview (MINI/ MINI plus), Structured Clinical Interview for DSM Disorder (SCID) and Minnesota Multiphasic Personality Inventory (MMPI-2). In addition, the appropriate diagnoses were discussed in separate diagnostic meetings that included all involved personnel. The diagnoses were retrospectively confirmed by an independent psychiatrist using DSM-III-R, DSM-IV, and ICD-9/10 criteria.

GAF is an observer-based continuous scale for the overall level of mental health/illness that ranges from 1 (most severe problems) to 100 (most healthy). Used in this study was the split-version, with separate subscales for social, occupational and school functioning (GAF-F) and mental symptom burden (GAF-S) the last week (31). The various score levels include characteristic patterns of symptom severity and difficulties of function (31, 32). First, for symptoms/ GAF-S, scores above 70 indicate general well-being and experiences of stress that represent transient, expectable reactions to psychosocial stressors. Scores from 61 to 70 indicate intermediary, moderate stress levels and symptoms of mental health problems, with scores closer to 60 reflecting e.g., fluctuating depressed mood and mild social anxiety. When moving down toward 50, typical would be occasional panic attacks and more persistent periods of depressive mood and anxieties. This would further progress with scores in the 40'ies, where it may include frequent panic attacks, recurrent suicidal ideation, and severe obsessions, worries, anxieties, and emotional dysregulation. A score of 40 usually is seen to denote the border for psychotic symptoms, including disturbed reality testing, communication and judgment, as well as hypomania, severely depressed mood, and debilitating anxiety. The domain from 40 down toward 20 reflects gradually increased severity level of a range of symptoms, including increasingly severe suicidal ideations, distorted interpersonal perceptions, delusions, paranoid ideation, dissociation, and hallucinations, with the lowest scores in this range representing highly psychotic behavioral disturbances. Scores below 20 represent imminent danger of self-destruction or death and the most urgent need of continuous help. Second, on the function subscale/ GAF-F, when scores fall down toward 60, problems start to be apparent outside the normal healthy range for social, occupational and/ or school functioning. Serious disabilities in these domains qualify for scores in the 40's, e.g., inability to comply with school demands combined with social withdrawal and recurrent aggressive behavior. Function scores below 40 represent major disability in several areas, whereas scores in the 30's reflect inability to function in almost all areas, including disability of self-care and the need to be taken care of by others.

All GAF scores were set in ordinary clinical care; however, they were decided upon as consensus ratings between at least two trained psychiatrists, a method documented to increase reliability (31). For the purpose of this study, an external, independent psychiatrist extracted the GAF scores from the patients' medical journals. A baseline score was obtained from the first evaluation documented in the patient journals after start of treatment in the study period. A second score was obtained at follow-up, defined as end of treatment or end of study period (September 1st 2008), which ever occured first.

In both treatment groups, psychopharmacological treatments were managed by different psychiatrists in charge. The prescribers did not use a shared decision making approach. We gathered information at baseline and follow up on any use of Antiepileptics (ATC code N03 A), antipsychotics (N05 A), anxiolytics (N05 B), hypnotics and sedatives (N05 C), and antidepressants (N06 A). Medication was sorted into the following subgroups: Low-dose Neuroleptics, High-dose Neuroleptics, Anxiolytics, Antidepressants, and Mood Stabilizers. All medications belonging to the same subgroup were added to derive at a summated dose for that subgroup. We also counted the total number of all psychoactive medications used.

The psychiatrist who scored the use of medications also counted the number of hospital (inpatient) admissions, the total number of days spent in hospital, and treatment duration for outpatient treatments. These data were collected from the summary of each separate admission in the medical journals. There were no evaluations involved in these extractions and registrations. All data extractions were controlled by a collaborator. Hospital admissions and days spent in hospital were calculated for two time periods. First, a baseline measure that included all life time hospital stays prior to enrolment in outpatient treatment at POC. Second, a follow up measure for the time period after end of outpatient treatment at POC in the study period. Treatment duration was defined as months in outpatient treatments at POC during the study period. Information about the duration of outpatient treatment, number

of days in hospital inpatient treatment and number of hospital admissions were extracted from the patients' journals. In DT, on average, one therapeutic session was provided each week for each patient.

Data Analysis

Differences between patients in the two treatment conditions at baseline were tested with independent sample *t*-tests for GAF and age, Chi square test for gender, and Mann-Whitney *U*-tests for medications. Mann-Whitney *U*-tests were used to test differences in the number of hospitalizations and number of days in hospital before baseline and after treatment within each study group, and differences between the two study groups were analyzed with multiple regression analyses.

To investigate impacts of treatment group upon GAF and medications we focused both on scores at follow up and on changes from baseline to follow up. First, we used independent sample *t*-tests for GAF and Mann Whitney *U*-tests for medications. For GAF, we calculated effect size using Cohen's *d*. Next, we performed more detailed analyzes with control for covariates. For GAF, we used general linear modeling, with treatment group as fixed factor and, as covariates, diagnostic group (schizophrenia, other psychoses), gender, age, number of days spent in hospital before treatment, and number of hospital stays before treatment. In these models we included as a covariate the interaction between treatment groups and diagnostic group, in order to investigate if an eventual superior effect of DT (or ST) was limited to just one of the two diagnostic groups. For medications, we used linear regression, with treatment condition, diagnostic group, gender, age, and the two noted hospitalization variables as predictors. In these analyses, we excluded duration of outpatient treatment as a covariate/ predictor since this variable was strongly correlated with treatment condition (shorter duration in DT). In multiple forward regression analyzes all factors with $p < 0.20$ were tested in the model.

All analyses were performed in SPSS v. 23.0 for Windows (SPSS Inc., Chicago, IL).

RESULTS

Baseline Characteristics

At baseline, there were no significant differences between the DT and ST groups in age or gender distribution (**Table 1**), or in GAF scores or the use of any type of medication (left columns in **Tables 2**, **3**). Before study baseline, the DT group had significantly higher number of hospitalizations ($p = 0.003$) and days of hospitalizations ($p < 0.01$) than the ST group. The patients in the DT group had shorter time (fewer months) in outpatient treatment during the study period compared to the ST group, median (min/max), 36 (1/132) vs. 72 (1/213) ($p < 0.001$).

At baseline, patients with other psychoses were significantly older than patients with schizophrenia [mean age 31.0 vs. 26.0 years, $t_{(105)} = 2.8$, $p = 0.007$]. Compared to patients with schizophrenia, patients with other psychosis also had higher baseline scores on GAF-S, [mean 34.7 vs. 28.2, $t_{(106)} = 3.6$, $p < 0.001$] and GAF-F [mean 36.8 vs. 30.0, $t_{(106)} = 3.7$, $p \leq 0.001$] (left columns in **Table 2**), and they used less high dose neuroleptics ($p < 0.001$) and fewer medications ($p = 0.001$) (left columns in **Table 3**).

Changes in GAF-S and GAF-F

At follow up, the DT and ST groups differed significantly on both GAF-S [mean 74.9 (15.2) vs. 47.5 (13.8), $t_{(106)} = 9.80$, $p < 0.001$] and GAF-F [mean 77.7 (15.6) vs. 47.7 (13.0), $t_{(106)} = 10.75$, $p < 0.001$]. Both GAF-S and GAF-F also changed differently in the two treatment groups from baseline to end of therapy, in favor of the DT group, with an increase of 44.9 vs. 12.8 for GAF-S, [$t_{(106)} = 11.12, p < 0.001$] and 43.7 vs. 15.0 for GAF-F, [$t_{(106)} = 9.56, p < 0.001$], respectively (**Figure 1**). The effect size (Cohen's *d*) favoring DT was 1.8 for GAF-S and 2.1 for GAF-F.

At follow up there was no significant difference in GAF scores between the schizophrenia group and other psychoses.

The more detailed general linear model analysis for GAF scores at follow-up was significant for both GAF-S and GAF-F. A significant effect was seen for treatment groups upon both GAF-S ($R^2 = 0.47$, B = 27.4, $p < 001$), and GAF-F ($R^2 = 0.52$, B = 29.7, $p < 001$). The interaction between treatment groups and diagnostic category (schizophrenia, other psychosis) was not significant for any of the two GAF sub-dimensions, indicating a superior effect of DT over ST independent of diagnosis. No effects were seen for the covariates.

In each of the general linear models, with four variants of GAF as dependent variable, significant effects were seen only for treatment group; GAF-F at follow up ($R^2 = 0.55$, $p < 0.001$), GAF-S at follow up ($R^2 = 0.49$, $p < 0.001$), changes in GAF-S from baseline to follow up ($R^2 = 0.57$, $p < 0.001$) and changes in GAF-F from baseline to follow up ($R^2 = 0.50$, $p < 0.001$). Noteworthy, the interaction between treatment group and diagnostic category was not significant in any of the models, suggesting comparable effects of DT for patients with schizophrenia and for patients with other psychoses. See **Table 2** for details about GAF scores at baseline and follow up and **Figure 2** for changes in GAF scores from baseline to follow up, paneled by diagnostic group.

The univariate general linear model analysis for changes from baseline to follow-up also was significant for both GAF-S and GAF-F. Stronger improvements were again associated with receiving DT as compared to ST (GAF-F, $R^2 = 0.54$, B = 32.2, $p < 001$ and GAF-S, $R^2 = 0.46$, $B = 28.7$, $p < 001$). No interact effects were seen between treatment groups and diagnostic categories, indicating a larger improvement in GAF scores in DT as compared to ST both for patients with a schizophrenia diagnosis and patients with other diagnoses (for illustration, see **Figure 2**). No other covariates were significant predictors in multiple regression analyses.

Change in the use of Medication

At follow up, patients in the DT as compared to the ST group used less low-dose antipsychotics ($p < 0.001$; **Figure 3**), high-dose antipsychotic medication ($p < 0.001$; **Figure 4**), mood

TABLE 2 | Changes in GAF scores over the treatment course in Dialogue therapy and Standard treatment.

	Baseline		Follow-up	
	Dialogue therapy	**Standard treatment**	**Dialogue therapy**	**Standard treatment**
ALL PATIENTS (n = 108, 54 IN EACH TREATMENT GROUP)				
GAF-S*, mean (SD)	31.2 (9.3)	32.4 (10.2)	74.9 (15.2)	47.5 (13.8)
GAF-F, mean (SD)	32.6 (9.4)	35.0 (10.5)	77.7 (15.6)	47.7 (13.0)
SCHIZOPHRENIA (n = 48, 24 IN EACH TREATMENT GROUP)				
GAF-S, mean (SD)	26.8 (9.2)	29.5 (9.3)	75.4 (15.1)	45.4 (12.8)
GAF-F, mean (SD)	28.3 (9.6)	31.6 (8.2)	77.7 (15.5)	44.7 (13.0)
OTHER PSYCHOSES (n = 60, 30 IN EACH TREATMENT GROUP)				
GAF-S, mean (SD)	34.7 (8.0)	34.7 (10.5)	74.5 (15.6)	49.1 (14.6)
GAF-F, mean (SD)	36.0 (7.9)	37.6 (11.4)	77.3 (16.0)	50.7 (13.7)

** In both t-tests and regression analyses, at follow up, both GAF-S and GAF-F were significantly ($p < 0.001$) higher in patients in Dialogue Therapy compared to patient in Standard treatment. In regression analysis, these group differences were not moderated by whether patients had schizophrenia diagnoses or diagnoses for other psychosis.*

TABLE 3 | Changes in medications over the treatment course in Dialogue therapy and Standard treatment.

	Baseline			Follow-up		
Variables	**Dialogue therapy (n = 54)**	**Standard treatment (n = 54)**	***p*-value**	**Dialogue therapy (n = 54)**	**Standard treatment (n = 54)**	***p*-value**
Low-dose Neuroleptics, Mean dose (min/max), (mg)	7.1 (0/30)	4.8 (0/24)	0.10	2.5 (0/20)	7.1 (0/50)	< 0.001
High-dose Neuroleptics, Mean dose (min/max), (mg)	95.7 (0/1,000)	46.1 (0/600)	0.14	29.5 (0/800)	185.5 (0/1,100)	< 0.001
Anxiolytics Medication Mean dose (min/max), (mg)	3.5 (0/60)	0.5 (0/30)	0.07	0.6 (0/30)	4.1 (0/45)	0.045
Antidepressants medication mean dose (min/max), (mg)	18.5 (0/190)	10.6 (0/150)	0.27	9.3 (0/225)	14.9 (0/190)	0.44
Mood stabilizing medication mean dose (min/max), (mg)	33.5 (0/900)	36.7 (0/1,650)	0.93	3.5 (0/166)	54.4 (0/900)	0.02
Number of Medications, Mean (min/max)	1.8 (0/6)	1.3 (0/4)	0.06	0.8 (0/5)	2.2 (0/6)	< 0.001

stabilizing medication ($p = 0.02$) and anxiolytics ($p = 0.045$), in addition to fewer number of drugs ($p < 0.001$). As can be seen in **Table 3**, medications in general increased across the treatment course in the ST group but decreased in the DT group. In statistical testing, the changes between baseline and follow up were significantly different between the treatment groups for low-dose antipsychotics ($p = 0.001$), antidepressants ($p = 0.006$), mood stabilizing medications ($p = 0.004$), and anxiolytics ($p = 0.004$), in addition to total number of drugs ($p < 0.001$).

At follow up, the univariate regression analysis for the use of low-dose neuroleptics was significant, with effects for treatment group (less use in DT) and diagnostic group (less use in "other psychoses"). In multiple regression analyses, both factors were significant ($R^2 = 0.11$, $p = 0.001$).

The only predictor for high dose neuroleptics ($R^2 = 0.11$, B $= -156$, $p < 0.001$), anxiolytics ($R^2 = 0.04$, $B = -3.4$, $p = 0.04$) and mood stabilizing drugs ($R^2 = 0.05$, $B = -50.9$, $p = 0.023$) in univariate and multiple regression analyses were treatment group, with less use in the DT group. The only predictor for antidepressant dose was male sex (higher dose, likely reflecting more depression in males, $R^2 = 0.04$, $B = 15.6$, $p = 0.031$). In multiple regression analyses the total number of drugs at the end of study was predicted by treatment group and diagnostic group ($R^2 = 0.33$, $p < 0.001$), with less medication in the DT group and in other psychoses compared to schizophrenia.

The regression analysis for changes from baseline to follow-up in the use of medication was significant for low-dose neuroleptics, antidepressants, and other medications. The only significant predictor was belonging to the DT group (lower doses) (low-dose neuroleptics, $p = 0.003$, $R^2 = 0.074$; antidepressants, $p = 0.009$, $R^2 = 0.053$; and other medications, $p = 0.009$, $R^2 = 0.053$). The changes in number of drugs from baseline to follow-up was also predicted by treatment group ($R^2 = 0.32$, $p < 0.001$), with larger reduction in the DT group.

There was no significant difference between the treatment groups in number of patients without medication before start of treatment. However, after end of therapy, there was a significant difference, with fewer patients using medication in the DT group ($p < 0.001$, Mann-Whitney U-test). This was true both for

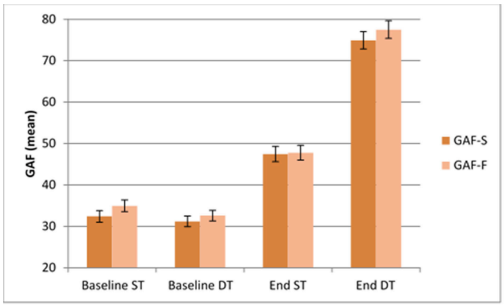

FIGURE 1 | GAF scores at baseline and follow up for patients in Dialogue therapy and Standard treatment.

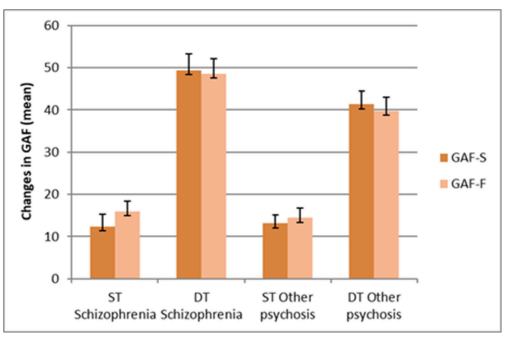

FIGURE 2 | Changes in GAF scores from baseline to follow up for two diagnostic subgroups in Dialogue therapy and Standard treatment.

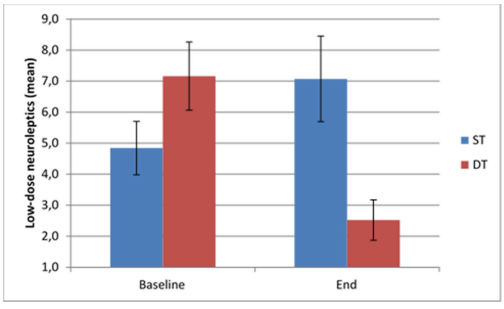

FIGURE 3 | Use of low-dose neuroleptics at baseline and follow up in the two treatment groups.

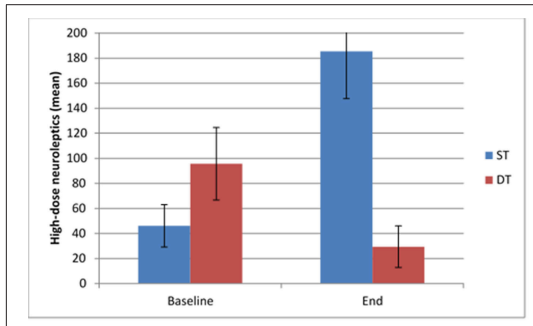

FIGURE 4 | Use of high-dose neuroleptics at baseline and follow up in the two treatment groups.

low-dose and high-dose neuroleptics ($p = 0.001$ Mann-Whitney U-test). In logistic regression analyses, therapy group (DT) and schizophrenia diagnoses were significant predictors of not using medication ($R^2 = 0.35$, $p < 0.001$), with more patients not using medication in the DT group and in other psychoses than schizophrenia. The same was true for not using low dose and high dose neuroleptics ($p < 0.001$, $R^2 = 0.29$, and $p < 0.001$, $R^2 = 0.23$, respectively). The only predictor for not using mood stabilizing medication, anxiolytics, or other medications was belonging to the DT group ($p = 0.041$, $R^2 = 0.10$, $p = 0.050$, $R^2 = 0.08$, and $p = 0.034$, $R^2 = 0.07$, respectively).

Differences in Hospitalizations

During follow up, we observed more days of hospitalization in the DT group than the ST group ($p = 0.011$). In multiple regression analyses, belonging to the DT group predicted more days in hospital after end of treatment ($R^2 = 0.06$, $p = 0.014$). However, when one extreme outlier in the DT group was removed from the analyses, no effect remained for treatment group upon hospitalization days.

DISCUSSION

We have previously reported larger improvements in symptoms and functioning after DT compared to ST in patients with schizophrenia diagnoses (15). In the current, extended exploratory analysis we report that in both patients with schizophrenia and in patients with diagnoses for other psychoses, larger improvements in symptoms and functioning were seen after DT than ST. Concomitant with these differences were larger reductions in the use of psychopharmaca in patients who completed DT as compared to ST, including low dose neuroleptics, antidepressants, and the number of psychoactive drugs.

Across treatment, much larger improvements in GAF scores in favor of DT were seen for both schizophrenia patients and for patients with other psychotic diagnoses. Considering the two diagnostic domains together, in the DT group, GAF symptom scores at follow up were moderate to high, representing the remaining of only mild stress symptoms and temporary and understandable reactions to psychosocial stress. Most notably, scores at the observed level indicated the general absence of psychotic symptoms and any other marked emotional and

cognitive psychiatric symptoms. In contrast, in the ST group, GAF symptom scores were still low at follow up, in line with the remaining of serious symptoms in need of treatment. Regarding GAF function scores at follow up, in the DT group, they represented good functioning and only slight, if any decrease in the domains of social life, occupation, and education, with no need of assistance from the mental health system. In contrast, in the ST group, GAF function scores were still low, reflecting the continued presence of serious problems in social relations (no/few friends) and the inability to meet normal requirements for work and studies.

The larger improvements in GAF scores in DT could not be explained with increased medical treatments since medications rather were markedly reduced in DT as compared to ST across the treatment course. Nor could it be explained with longer duration of outpatient treatment, since DT on average had shorter duration than ST. The strong improvements in symptoms and functioning in DT compared to ST, combined with the reduction in use of medication, strengthen the assumption that the effective component included psychological changes based on a psychotherapeutic process.

DT has an explicit focus on recovery from psychosis and aims both at symptom reduction through a therapeutic process oriented toward insight and self-regulation, and at helping the patient back to adequate functioning at home and in the society in general. The high GAF scores at follow up in the DT patients indicate that this goal was achieved.

Studies of treatment effects indicate that people diagnosed with schizophrenia may benefit from acquiring insight into their internal states and the external circumstances of their illness. This may help them to see causal connections and develop histories about themselves that they better can live with (16, 33), consistent with the goal of DT. We suggest that psychotherapy for schizophrenia and other psychosis should emphasize the opportunity to restore health and enable patients to develop adequate self-narratives (24, 34). It may also seek to reduce stigma and transform the language of psychopathology to a more restorative one of hope and empowerment (11, 34–37). People who experience psychosis describe stigma and attitudes from health professionals and the community related to having a schizophrenia diagnosis, as more life-limiting than the illness itself (37, 38). There is an ethical case to be made for broadening our scientific understanding of schizophrenia and other psychoses, allowing for emotions and the patient's experience of a psychosis to be more fully included in psychotherapy (3, 17, 34, 36, 38, 39).

Strengths and Limitations

Since therapist factors may have a strong impact on outcome, a limitation is that DT involved a single therapist only; the apparent benefits of DT could alternatively reflect the particular skills and dedication of this therapist. At the same time, because only one therapist practiced DT (the founder of the model), adherence and fidelity checks have been less relevant to implement. On the other side, this has ensured a stable, comparable practice of DT for all its patients. However, the survey must be considered preliminary and exploratory, and controlled prospective studies that include more therapists providing DT are needed. Strengths include that all patients who received DT and fulfilled criteria for psychosis, were included in the study, and that the ST group was matched on several criteria to the DT group. However, the likely varied approaches in ST makes it difficult to know exactly what DT was compared to. A further limitation is that although GAF scores were set in consensus by at least two trained professionals, this was done in ordinary clinical care, with no independent scores set by researchers. Other weaknesses are that patients were not allocated to treatment groups using conventional randomization methods; the small size of the sample investigated; the limited range of outcome measures; and the dependence of the outcome measures on information in the clinical notes. Moreover, even if strengths include that all patients who received DT and fulfilled criteria for psychosis were included in this study, the limited range of outcome measures does not allow deepening the complexity of the sample, which includes the entire psychosis spectrum. We had no measure of the proportion of patients in ST who received psychoeducation and medication vs. medication only. Thus, suboptimal aspects of ST for some patients may have contributed to this group's worse outcome compared to DT.

CONCLUSIONS

In this preliminary and exploratory study, compared to standard treatment, the psychotherapeutic approach Dialogue therapy was associated with improved functioning and reduced levels of general symptoms at follow up in both patients with schizophrenia and patients with other psychosis. The differences were seen in spite of reduced use of medication and shorter duration of therapy in DT. These promising findings for DT warrant subsequent controlled studies that include larger patient groups and more therapists in order to conclude about effects.

ETHICS STATEMENT

The project was approved by the National Research Ethical Committees (NEM) (2008/20) and by the Norwegian Social Science Data Services (NSD 20280). NEM and NSD approved the collection of anonymous data without patient consent.

AUTHOR CONTRIBUTIONS

AH, TH, and RF have made substantial contributions to conception, design, analysis, interpretation of data, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. AH, TH, EJ, and RF have been involved in interpreting the data and drafting the manuscript or revising it critically for important intellectual content. All authors read and approved the final version of the manuscript.

FUNDING

Møre and Romsdal Hospital Trust, Ålesund, Norway and Department of Neuroscience, Medical Faculty Norwegian, University of Science and Technology, Trondheim, Norway.

ACKNOWLEDGMENTS

The authors want to thank psychiatrist Arild Hunstad, Ålesund, Norway for his forthcoming assistance. Moreover, the authors show great thankfulness to the contributions from the patients.

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Conflict of Interest Statement: AH has developed the new psychotherapeutic approach and published a book about the method.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

ISBN 978-82-326-6593-8 (printed ver.)
ISBN 978-82-326-6619-5 (electronic ver.)
ISSN 1503-8181 (printed ver.)
ISSN 2703-8084 (online ver.)