

Zavod za kliničku psihijatriju: jučer, danas i sutra

/ Division of Clinical Psychiatry: Yesterday, Today and Tomorrow

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UVOD

Zavod za kliničku psihijatriju pruža sveobuhvatnu skrb osobama oboljelima od poremećaja iz kruga shizofrenije, poremećaja raspoloženja i kognitivnih poremećaja. Ona uključuje akutno liječenje na intenzivnoj njezi, liječenje na otvorenom dijelu odjela, boravak u Dnevnoj bolnici te ambulantno liječenje. Poseban naglasak je na optimalnoj primjeni psihofarmakoterapije, mjerenju koncentracije psihofarmaka, korištenju različitih psihometrijskih mjernih instrumenata, primjeni ostalih bioloških metoda: elektrokonvulzivne terapije (EKT), repetitivne transkranijske magnetske stimulacije (rTMS) te fototerapije, kao i na oporavku bolesnika i njihovoj integraciji u društvo. Jedna od bitnih aktivnosti Zavoda je i nastavni i znanstveni rad. Ovaj tekst je napisan na temelju radova njegovih bivših (2,3) i sadašnjih djelatnika (sve ostale reference).

INTRODUCTION

The Division of Clinical Psychiatry provides comprehensive care for patients with schizophrenia, mood disorders and cognitive disorders. It provides acute intensive care treatment, treatment in the open part of the unit, treatment in day hospital and outpatient treatment. Special emphasis is on the optimal administration of psychopharmacotherapy, measuring concentration of psychotropic medication, use of various psychometric measuring instruments, use of other biological methods: electroconvulsive therapy (ECT), repetitive transcranial magnetic stimulation (rTMS) and phototherapy, as well as on the recovery of patients and their integration into society. One of the important activities of the Division is also teaching and scientific work. This paper is based on the work of its former (2, 3) and current employees (all other references).

KAKO JE NASTAO ZAVOD ZA KLINIČKU PSIHIJATRIJU – POVIJESNI PREGLED

„Korijeni“ Zavoda za kliničku psihijatriju sežu još u 70-e godine prošlog stoljeća. Naime, prvi odjeli nakon odvajanja Klinike za psihijatriju od Neurološke klinike bili su odjeli ženske i muške psihijatrije, koji su se bavili biološkim metodama liječenja, koje su osim lijekova uključivale i druge biološke metode, posebice elektrokonvulzivnu terapiju EKT (1). Ova intervencija se prvi put počela primjenjivati ubrzo nakon II. svjetskog rata, ubrzo nakon prve primjene na našim prostorima, koja je bila u Psihijatrijskoj bolnici Vrapče. Zatim, također još prije osamostaljenja Klinike za psihijatriju, 1954. g., profesor Nenad Bohaček prvi u Hrvatskoj počinje primjenjivati tzv. „mitigirane elektrošokove“ – odnosno EKT u anesteziji i miorelaksaciji, što je zamijenilo dotadašnje „nativne elektrošokove“. Profesor Bohaček je također prvi počeo provoditi klinička multicentrična istraživanja novih psihofarmaka, a 1970. g. doveo je u Kliniku prvi Suradni centar Svjetske zdravstvene organizacije za studij psihotropnih tvari za Jugoslaviju (1). Time su postavljeni temelji razvoja biološkog liječenja u hrvatskoj psihijatriji zbog čega je Klinika za psihijatriju postala i ostala vodeća klinika u primjeni bioloških metoda liječenja u hrvatskoj psihijatriji (1).

Osim spomenutih odjela, 1983. g. osnovana je i prva Dnevna bolnica, čiji su prvi djelatnici bili prim. dr. Aleksandar Maletić i prim. dr. mr. sc. Javorka Zimonja Krišković. Unatrag 30-ak godina, multidisciplinarni tim razvija i integrira terapijske postupke u jedinstven dnevno-bolnički koncept. Uz analitički orijentiranu grupnu terapiju u Dnevnoj bolnici se primjenjuju kreativne radionice koje uključuju: 1) susret s umjetničkim djelima s pisanjem eseja i raspravom, 2) likovne radionice, 3) terapiju filmom i 4) glazbene radionice (2). U Dnevnim se bolnicama nastoji u terapijski proces uključiti i obitelj bolesnika. Pri tome se uvažavaju brojne promjene i izazovi koje obitelj doživljava te se nastoji razumjeti i utjecati na disfunkcionalnu obiteljsku dinamiku, uključujući i bračnu problematiku (3). Zatim je u razdoblju 1996.-2007. učinjena transformacija odjela muške i ženske psihijatrije u Zavod za kliničku psihijatriju i Zavod za biologijsku psihijatriju. Također, od 2006. umjesto jedne, djeluju dvije dnevne bolnice, prvi tim pod vodstvom prim. dr. Vlaste Štalekar, a drugi pod vodstvom prim. mr. sc. dr. Nede Greš. Zatim se Zavod za kliničku psihijatriju i Zavod za biologijsku psihijatriju u razdoblju 2008.-2010. transformiraju u Zavod za integrativnu psihijatriju (pročelnik: prof. dr. sc. Miro Jakovljević), te Zavod za biologijsku psihijatriju (pročelnik: prof. dr. sc. Vesna Medved). U

HOW THE DIVISION OF CLINICAL PSYCHIATRY WAS ESTABLISHED – HISTORICAL OVERVIEW

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The “roots” of the Division of Clinical Psychiatry date back to the 1970s. Namely, the first units after the separation of the Department of Psychiatry from the Department of Neurology were psychiatry units for women and men, which provided biological methods of treatment, including apart from medicaments also other biological methods, especially electroconvulsive therapy (1). This method entered into use soon after World War II, soon after its first use in our region, in the University Psychiatric Hospital Vrapče. Then in 1954, even before the separation of the Department of Psychiatry, Professor Nenad Bohaček was the first in Croatia to start applying the so-called mitigated electroshocks, i.e., ECT in anaesthesia and myorelaxation, which replaced the previously used “native electroshocks”. Professor Bohaček was also the first to conduct clinical multicentre research on new psychopharmaceuticals, and in 1970 he brought to the Department the first World Health Organization collaborating centre for the study of psychotropic substances for Yugoslavia (1). This laid the foundations for the development of biological treatment in Croatian psychiatry, due to which the Department of Psychiatry became and remained the leader in applying biological methods of treatment in Croatian psychiatry (1).

In addition to the mentioned units, in 1983 the first day hospital was founded, whose first employees were Chief Physician Aleksandar Maletić, MD and Chief Physician Javorka Zimonja Krišković, MD, MSc. For the past 30 years, a multidisciplinary team has been developing and integrating therapeutic procedures into a unique day care concept. In addition to analytically oriented group therapy, the day hospital offers creative workshops that include: 1) encounters with works of art through essay writing and discussion, 2) art workshops, 3) film therapy and 4) music workshops (2). The aim of day hospital is to involve the patient’s family in the therapeutic process. In doing so, a number of changes and challenges experienced by the family are taken into account and efforts are made to understand and influence dysfunctional family dynamics, including marital issues (3). In the period between 1996 and 2007 the psychiatry units for women and men were transformed into the Division of Clinical Psychiatry and Division of Biological Psychiatry. Furthermore, since 2006 there are two day hospitals instead of one, the first team is led by Chief Physician Vlasta Štalekar, MD and the second one by Chief Physician Neda Greš, MD, Msc. In the period between 2008 and 2010 the Division of Clinical Psychiatry and the Division of Biological Psychiatry were transformed into the Division of Integrative Psychiatry (head: Professor Miro Jakovljević, MD, PhD), and the Division of Biological Psychiatry (Head: Professor Vesna Medved, MD, PhD). In this period, the Reference Centre

ovom razdobljuu osniva se i Referalni centar Ministarstva zdravstva Republike Hrvatske za biološki psihijatriju. Zatim se, u sklopu nove reorganizacije Klinike, navedeni zavodi transformiraju u Zavod za shizofreniju (v.d. pročelnika doc. dr. sc. Igor Filipčić), Zavod za afektivne poremećaje (pročelnik prof. dr. sc. Alma Mihaljević-Peleš), Zavod za anksiozne i stresom izazvane poremećaje (pročelnik prof. dr. sc. Vesna Medved) te Specijalistički zavod za alkoholizam i ovisnosti (pročelnik prim. dr. sc. Bjanka Vuksan Ćusa). Uz postojeći Referalni centar MZ RH za biološki psihijatriju (voditelj prof. dr. sc. Miro Jakovljević) sada se uspostavlja i Referalni centar MZ RH za afektivne poremećaje (voditelj prof. dr. sc. Alma Mihaljević-Peleš). Godine 2014. navedeni zavodi mijenjaju se u Zavod za afektivne znanosti i poremećaje raspoloženja s intenzivnom skrbi (prof. dr. sc. Alma Mihaljević-Peleš), Zavod za shizofrenologiju i psihotične poremećaje s intenzivnom skrbi (doc. dr. sc. Marina Šagud) te Zavod za anksiozne i somatoformne poremećaje i konzultativnu psihijatriju (prof. dr. sc. Vesna Medved), koji djeluju do 2019. godine (1). Zatim se ujedinijuju u Kliniku za psihijatriju i Kliniku za psihološku medicinu (koju vodi i ujedinijuje prof. dr. sc. Alma Mihaljević-Peleš), te se unutar nove klinike formira zasebna ustrojbenja jedinica Zavod za kliničku psihijatriju s intenzivnom skrbi, koja obuhvaća tri dotadašnja zavoda: Zavod za afektivne poremećaje, Zavod za shizofreniju i Zavod za anksiozne i stresom izazvane poremećaje. Pročelnica Zavoda za kliničku psihijatriju s intenzivnom skrbi je prof. dr. sc. Marina Šagud, a glavni medicinski tehničar Zavoda je mag. med. techn. Zoran Bradaš. Zavod za kliničku psihijatriju nastavlja svoj razvoj u sklopu Klinike za psihijatriju i psihološku medicinu, pod vodstvom predstojnika Klinike prof. dr. sc. Darka Marčinka.

Nastanak Zavoda za kliničku psihijatriju od osamostaljenja Klinike za psihijatriju 1971. prikazuje sl. 1.

Puni nazivi: *Zavod za shizofrenologiju i psihotične poremećaje s intenzivnom skrbi; ** Zavod za afektivne znanosti i poremećaje raspoloženja s intenzivnom skrbi, ***Zavod za anksiozne i somatoformne poremećaje i konzultativnu psihijatriju, #Zavod za kliničku psihijatriju (učinjeno prema referenci 1)

ZAVOD ZA KLINIČKU PSIHIJATRIJU DANAS

Sadašnji ustroj Zavoda za kliničku psihijatriju na dan 2. travnja, 2022. prikazuje tablica 1.

U daljnjem tekstu prikazane su osobitosti svakog od tri odjela Zavoda za kliničku psihijatriju

of the Ministry of Health of the Republic of Croatia for Biological Psychiatry was established. As part of the new reorganisation of the Department, these divisions were transformed into the Division of Schizophrenia (acting head: Assistant Professor Igor Filipčić, MD, PhD), Division of Affective Disorders (head: Professor Alma Mihaljević-Peleš, MD, PhD), Division of Anxiety and Stress Disorders (head: Professor Vesna Medved, MD, PhD) and the Specialistic Division of Alcoholism and Addiction (head: Chief Physician Bjanka Vuksan Ćusa, MD, PhD). In addition to the existing Reference Centre of the Ministry of Health of the Republic of Croatia for Biological Psychiatry (head: Professor Miro Jakovljević, MD, PhD), the Reference Centre of the Ministry of Health of the Republic of Croatia for Affective Disorders (head: Professor Alma Mihaljević-Peleš, MD, PhD) is also established. In 2014, these divisions were reorganised into the Division of Affective Sciences and Mood Disorders with Intensive Care (Professor Alma Mihaljević-Peleš, MD, PhD), Division of Schizophrenology and Psychotic Disorders with Intensive Care (Associate Professor Marina Šagud, MD, PhD) and Division of Anxiety and Somatoform Disorders and Consultative Psychiatry (Professor Vesna Medved, MD, PhD), which operated until 2019 (1). After that, the Department of Psychiatry and the Department of Psychological Medicine were merged (merged and led by Professor Alma Mihaljević-Peleš, MD, PhD) and within this new division a separate organizational unit, the Division of Clinical Psychiatry with Intensive Care, was formed covering three existing divisions: Division of Affective Disorders, Division of Schizophrenia and Division of Anxiety and Stress Disorders. The head of the Division of Clinical Psychiatry with Intensive Care is Professor Marina Šagud, MD, PhD, and the head medical technician is Zoran Bradaš, mag. med. tech. The Division of Clinical Psychiatry continues its development within the Department of Psychiatry and Psychological Medicine under the leadership of the head of the department Professor Darko Marčinko, MD, PhD.

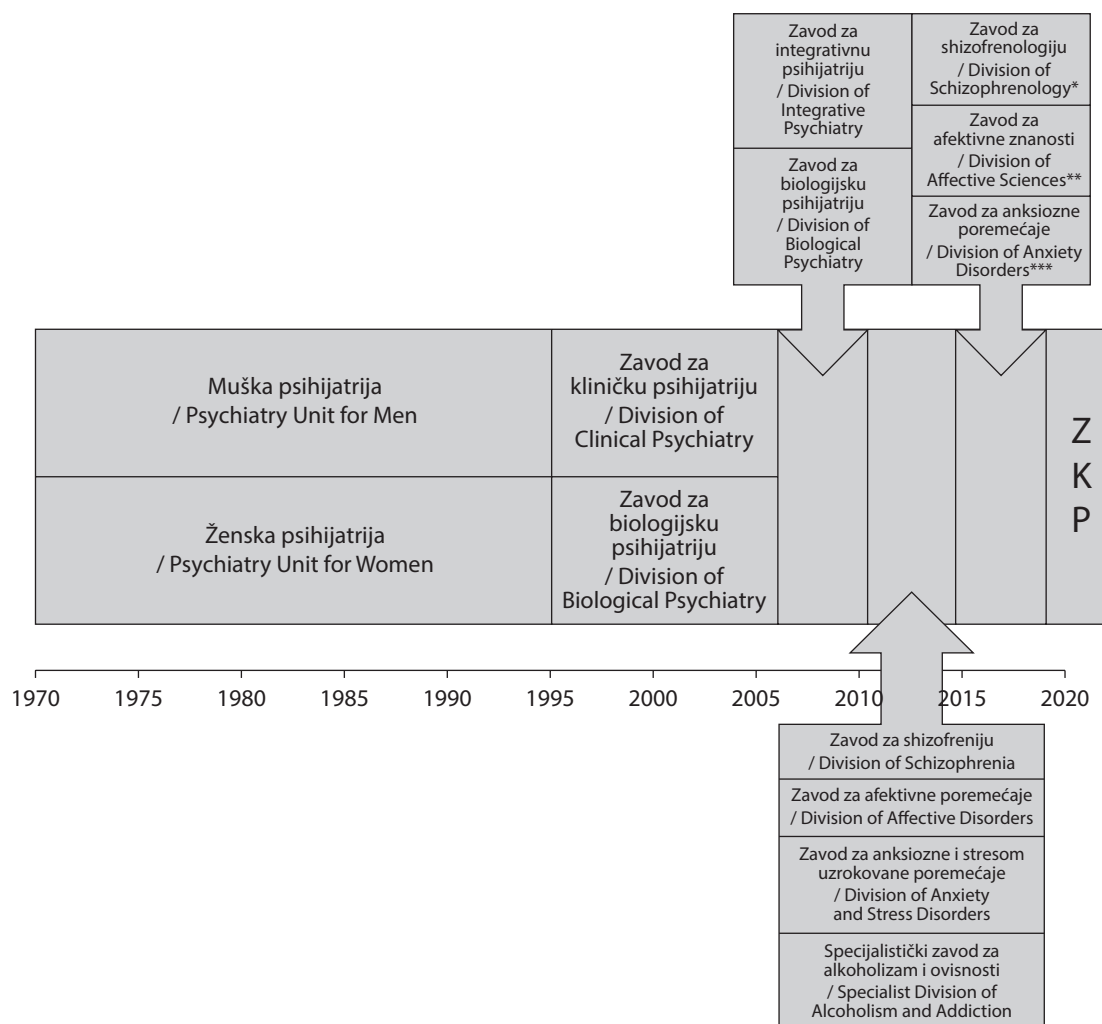
The development of the Division of Clinical Psychiatry since the separation of the Department of Psychiatry in 1971 is shown in Figure 1.

Full names: * Division of Schizophrenology and Psychotic Disorders with Intensive Care; ** Division of Affective Sciences and Mood Disorders with Intensive Care, *** Division of Anxiety and Somatoform Disorders and Consultative Psychiatry, #Division of Clinical Psychiatry (according to reference 1)

DIVISION OF CLINICAL PSYCHIATRY TODAY

The current organisational structure of the Division of Clinical Psychiatry on 2 April 2022 is shown in Table 1.

The text below contains specific features of each of the three units of the Division of Clinical Psychiatry.



SLIKA 1. Povijest Zavoda za kliničku psihijatriju
 FIGURE 1. History of the Division of Clinical Psychiatry

Odjel za poremećaje raspoloženja i anksiozne poremećaje s intenzivnom skrbi

Specifično područje rada ovoga odjela su poremećaji raspoloženja, što uključuje depresivne poremećaje, bipolarni afektivni poremećaj i organske poremećaje raspoloženja te tjelesne i/ili psihičke poremećaje koji se javljaju udruženi s poremećajima raspoloženja. Žarište interesa je prevencija dizabiliteta i osiguranje kvalitete života za osobe s poremećajima raspoloženja, s naglaskom na oporavak radnog, obiteljskog i socijalnog funkcioniranja te povratak u zajednicu. Djelatnici Odjela redovito obnavljaju smjernice za liječenje poremećaja raspoloženja. Smjernice za liječenje depresije su dostupne od 2013. g., a smjernice za liječenje bipolarnog poremećaja od 2016. g. Na Odjelu se liječe i osobe s ostalim psihičkim poremećajima, naročito ako postoji indikacija za intenzivno

Unit for Mood Disorders and Anxiety Disorders with Intensive Care

The specific areas of work of this Unit are mood disorders, including depressive disorders, bipolar affective disorder, organic mood disorders and physical and/or mental disorders that occur with mood disorders. The focus of interest is the prevention of disability and ensuring quality of life for patients with mood disorders, with an emphasis on the recovery of work, family and social functioning and return to the community. Employees of the Unit regularly update guidelines for the treatment of mood disorders. Guidelines for the treatment of depression have been available since 2013 and guidelines for the treatment of bipolar disorder since 2016. The Unit provides treatment also for patients with other mental disorders, especially if there is indication for intensive hospital treatment. The basic principle of work is biopsychosocial approach, individu-

TABLICA 1. Sadašnji ustroj Zavoda za kliničku psihijatriju
TABLE 1. Current organisational structure of the Division of Clinical Psychiatry

Pročelnik: prof. dr. sc. Marina Šagud / Head: Professor Marina Šagud, MD, PhD Glavni medicinski tehničar: mag. med. techn. Zoran Bradaš / Head medical technician: Zoran Bradaš, mag. med. techn.				
Sastavnice Zavoda / Division components	Šef odjela / Head of the unit	Glavna sestra odjela / Head nurse of the unit	Djelatnici odjela – specijalisti psihijatri / Employees of the unit – psychiatry specialists	Sastavnice odjela / Unit components
Odjel za shizofreniju i druge psihotične poremećaje s intenzivnom skrbi / Unit for Schizophrenia and Other Psychotic Disorders with Intensive Care	Izv. prof. dr. sc. Martina Rojnić Kuzman / Associate Professor Martina Rojnić Kuzman, MD, PhD	Mag. techn. Mirica Mavračić / Mirica Mavračić, mag. tech.	Dr. sc. Zoran Madžarac, dr. Biljana Kosanović Rajačić, dr. Jasmina Plevelj Zajec / Zoran Madžarac, MD, PhD; Biljana Kosanović Rajačić, MD; Jasmina Plevelj Zajec, MD	Stacionar s intenzivnom njegom, Dnevna bolnica, Ordinacije: 1) za prve psihoze; 2) za farmakoterapiju; 3) za psihotične poremećaje; 4) za hitnu psihijatriju s opservacijom; 5) za konzultativnu psihijatriju / Inpatient unit with intensive care, day hospital, offices for: 1) first psychoses; 2) pharmacotherapy; 3) psychotic disorders; 4) emergency psychiatry with observation; 5) consultative psychiatry
Odjel za poremećaje raspoloženja i anksiozne poremećaje s intenzivnom skrbi / Unit for Mood Disorders and Anxiety Disorders with Intensive Care	Prof. dr. sc. Alma Mihaljević Peleš / Professor Alma Mihaljević-Peješ, MD, PhD	Mag. techn. Marija Dujmović / Marija Dujmović, mag. tech.	Izv. prof. dr. sc. Milena Skočić Hanžek, dr. sc. Maja Živković, dr. Zoran Štimac, dr. Maja Vukoja / Associate Professor Milena Skočić Hanžek, MD, PhD; Maja Živković, MD, PhD; Zoran Štimac, MD; Maja Vukoja, MD	Stacionar s intenzivnom njegom, Dnevna bolnica, ordinacije: 1) za poremećaje raspoloženja; 2) za biološke metode liječenja; 3) za koordinaciju liječenja; 4) za transplantacijsku medicinu; 5) za osobe s intelektualnim teškoćama / Inpatient unit with intensive care, day hospital, offices for: 1) mood disorders; 2) biological treatment methods; 3) treatment coordination; 4) transplantation medicine; 5) patients with intellectual disabilities
Odjel za kognitivne poremećaje i komorbidna stanja s intenzivnom skrbi / Unit for Cognitive Disorders and Comorbidity with Intensive Care	Doc. dr. sc. Bjanka Vuksan Ćusa / Associate Professor Bjanka Vuksan Ćusa, MD, PhD	Mag. techn. Anica Furjan / Anica Furjan, mag. tech.	Prim. dr. sc. Suzana Kudlek Mikulić, prim. dr. sc. Jasmina Grubišin, dr. sc. Ivana Kekin, dr. Lucija Bagarić / Chief Physician Suzana Kudlek Mikulić, MD, PhD; Chief Physician Jasmina Grubišin, MD, PhD; Ivana Kekin, MD, PhD; Lucija Bagarić, MD	Stacionar s intenzivnom njegom, Dnevna bolnica, ordinacije: 1) za neurokognitivne poremećaje; 2) za kliničku psihijatriju; 3) za psihičke poremećaje osoba starije životne dobi / Inpatient unit with intensive care, day hospital, offices for: 1) neurocognitive disorders; 2) clinical psychiatry; 3) mental disorders of the elderly

bolničko liječenje. Temeljno načelo rada je bio-psiho-socijalni pristup, individualno prilagođen svakoj osobi s psihičkim smetnjama. Na Odjelu se provodi biološko, psihoterapijsko i socioterapijsko liječenje, u bolničkom i vanbolničkom programu. Prof. dr. sc. Milena Skočić Hanžek sudjeluje u timu za transplantaciju srca te sa Zavodom za gastroenterologiju i hepatologiju, a dr. sc. Maja Živković intenzivno surađuje s Odjelom za epilepsiju i paroksizmalne poremećaje svijesti (IV. odjel Klinike za neurologiju) koji je ujedno i Referentni centar Ministarstva zdravstva za epilepsiju. Pri Odjelu djeluje i Referentni centar Ministarstva zdravstva za afektivne poremećaje.

Od bioloških metoda kojima se specifično bave na Odjelu je primjena TMS-a, EKT (4) i terapije svjetlom. U dijagnostici se značajno primjenjuju farmakogenetska testiranja te djelatnici sudjeluju u međunarodnom multicentričnom projektu ERA Permed.

ally tailored to each patient with mental disorders. The Unit provides biological, psychotherapeutic and sociotherapeutic treatment within inpatient and outpatient programmes. Professor Milena Skočić Hanžek, MD, PhD is a member of the heart transplant team and cooperates with the Division of Gastroenterology and Hepatology, and Maja Živković, MD, PhD cooperates intensively with the Unit for Epilepsy and Paroxysmal Disorders of Consciousness (unit IV of the Department of Neurology), which is also the Reference Centre of the Ministry of Health for Epilepsy. The Reference Centre of the Ministry of Health for Affective Disorders also operates within this Unit.

Among the biological methods specifically used in the Unit is the application of TMS, ECT (4) and light therapy. Pharmacogenetic testing is widely used in diagnostics and employees participate in the international multicentre project ERA Permed.

Odjel za shizofreniju i druge psihotične poremećaje s intenzivnom skrbi

Specifično područje rada ovog Odjela su poremećaji iz kruga shizofrenije, uključujući osobe s prvom psihotičnom epizodom te osobe u kroničnoj fazi bolesti. Cilj liječenja u stacionaru jest ublažavanje psihotičnih simptoma, auto- i heteroagresivnosti, postizanje suradljivosti te početak razvoja terapijskog saveza, ali i dijagnosticiranje, odnosno isključivanje somatskih poremećaja koji mogu oponašati psihotični poremećaj i/ili otežavati liječenje. Područja od posebnog interesa su prve psihotične epizode (5-12), terapijski rezistentna shizofrenija (13) te potencijalni biološki pokazatelji terapijske rezistencije i/ili odgovora na liječenje poput plazmatske i/ili serumske koncentracije moždanog neurotrofnog čimbenika (14), prisutnosti antitijela na *Toxoplasma gondii* (15,16), polimorfizama gena za kateholamin-O-metiltransferazu (17,18), koncentracije antipsihotika i polimorfizama enzima CYP450 i transportera (19) te drugi potencijalni biološki pokazatelji. U svakodnevnom kliničkom radu se u sklopu individualnog pristupa liječenju određuju koncentracije psihofarmaka, najčešće antipsihotika u serumu, te određuju, u indiciranim slučajevima (razvoj teških nuspojava ili terapijska rezistencija), polimorfizmi enzima CYP450 odgovorni za metabolizam određenih antipsihotika, kao i polimorfizmi ABC transportera. Konačan cilj liječenja jest funkcionalni oporavak koji se postiže u jednom dijelu bolesnika, dok se u ostalih bolesnika nastoji postići što je moguće veće ublažavanje simptoma te povećati stupanj samostalnosti. Kao i na drugim odjelima, koristi se biopsihosocijalni model liječenja. Liječnici Zavoda surađuju s drugim klinikama. Dr. Plevelj Zajec je dio tima za transplantaciju pluća u Klinici za plućne bolesti. Dr. Kosanović Rajačić surađuje sa Odjelom za neurodegenerativne bolesti, Klinike za neurologiju. Osim stacionara i ambulantnih jedinica u sklopu Odjela djeluje i dnevna bolnica.

Dnevna bolnica za prve psihotične poremećaje ima sljedeće ciljeve:

1. Prevencija ponovnog relapsa bolesti, te time i prevencija rehospitalizacija nakon prve psihotične epizode
2. Funkcionalni oporavak pacijenta, a ne samo smanjenje intenziteta simptoma nakon prve epizode shizofrenije
3. Sprječavanje ili odgađanje razvoja prve psihoze u osoba pod rizikom za razvoj shizofrenije.

S obzirom da se radi o iznimno vulnerabilnoj skupini bolesnika, organizirali smo je kao grupu zatvorenog tipa kako bi se postiglo podržavajuće grupno okruženje, a u cilju ublažavanja tjeskobe te željenog napretka. Svakih 6 mjeseci se nakon indikacijskog razgovora

Unit for Schizophrenia and Other Psychotic Disorders with Intensive Care

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The specific area of work of this Unit are schizophrenia spectrum disorders, including patients with the first psychotic episode and patients in the chronic phase of the disease. The aim of inpatient treatment is to alleviate psychotic symptoms, auto- and hetero-aggressiveness, achieve cooperation and begin the establishment of therapeutic alliance, but also to diagnose or exclude somatic disorders that can mimic a psychotic disorder and/or complicate treatment. Areas of particular interest include first psychotic episodes (5-12), therapeutically resistant schizophrenia (13) and potential biological indicators of therapeutic resistance and/or response to treatment such as plasma and/or serum concentrations of brain-derived neurotrophic factor (14), presence of *Toxoplasma gondii* antibody (15, 16), catecholamine-O-methyltransferase gene polymorphisms (17, 18), antipsychotic concentrations and CYP450 enzyme and transporter polymorphisms (19) and other potential biological indicators. In everyday clinical work, as part of the individual approach to treatment, concentrations of psychopharmaceuticals, most often serum antipsychotics, are measured and in indicated cases (development of severe side effects or therapeutic resistance) CYP450 enzyme polymorphisms responsible for the metabolism of certain antipsychotics and ABC transporter polymorphisms are measured. The ultimate aim of treatment is functional recovery which is achieved with a certain number of patients, while in other patients the aim is to achieve the greatest possible alleviation of symptoms and to increase the degree of independence. As in other units, a biopsychosocial model of treatment is used. Physicians working in the Unit cooperate with other departments. Doctor Plevelj Zajec is part of the lung transplant team at the Department of Lung Diseases. Doctor Kosanović Rajačić cooperates with the Unit for Neurodegenerative Diseases of the Department of Neurology. In addition to inpatient and outpatient units, the Unit also has a day hospital.

The day hospital for first psychotic disorders aims to achieve the following goals:

1. prevention of disease relapse, thus preventing rehospitalization after the first psychotic episode,
2. functional recovery of patients, not just reduction of intensity of symptoms after the first episode of schizophrenia,
3. prevention or delay of the development of the first psychosis in patients at risk of developing schizophrenia.

Since this is an extremely vulnerable group of patients, it is organised as a closed group in order to achieve supportive group environment, to alleviate anxiety and to achieve desired progress. Every six months, after the

potencijalnih kandidata s psihijatrom oformi skupina od 15 bolesnika, koji prolaze 1-godišnji program, od intenzivnijeg 3-mjesečnog, prema sve manje intenzivnom. Nakon završetka jedne godine kod nekih se pacijenata nastavlja rad u psihoterapijskim grupama s učestalošću od jednom tjedno. U dnevnoj bolnici svi pacijenti prolaze dijagnostičko-terapijski proces uključujući farmakoterapiju i psihoterapijske metode, uz redovito praćenje napretka liječenja. Terapijski tim (dva psihijatra, diplomirane medicinske sestre bac. med. teh, psiholog) surađuje s drugim psihijatrima i socijalnim radnicima, sukladno potrebama liječenja.

Proces liječenja u dnevnoj bolnici prikazan je na slici 2.

Terapijske aktivnosti obuhvaćaju: psihoedukaciju, grupnu psihoterapiju, grupnu obiteljsku psihoterapiju, trening socijalnih vještina, metakognitivni trening, kao i kreativne i radne terapije, rekreaciju, grupu podrške, tri puta na tjedan.

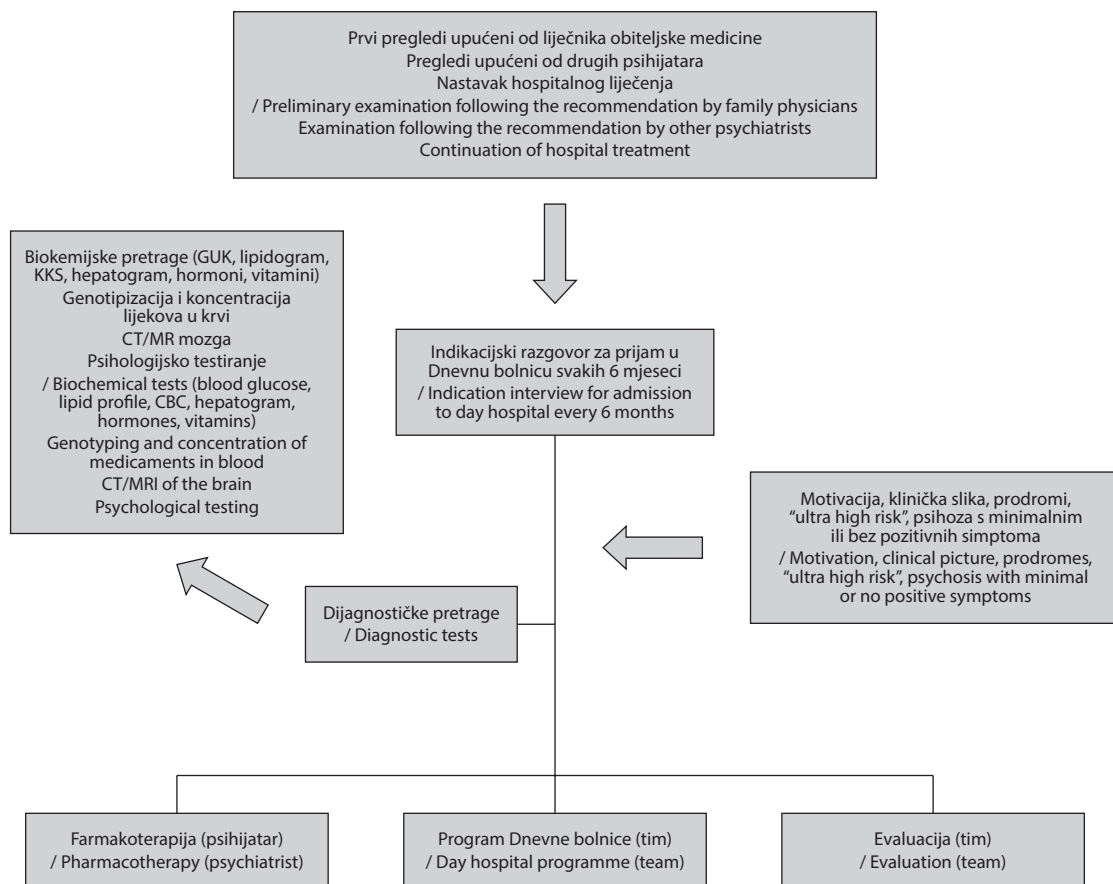
Pri ovom Odjelu djeluje i Dnevna bolnica za osobe sa shizofrenijom, koja uključuje bolesnike koji su imali više psihotičnih epizoda, a imaju potrebu za dodatnom podrškom, izgradnjom psihosocijalnih vještina, te ublažavanjem funkcionalnih deficita.

indication interview between potential candidates and a psychiatrist, a group of 15 patients is formed who undergo a one-year programme, ranging from a more intensive three-month programme to a less intensive one. After one year, some patients continue to participate in psychotherapy groups once a week. In day hospital, all patients undergo a diagnostic-therapeutic process including pharmacotherapy and psychotherapeutic methods with regular monitoring of treatment progress. The therapeutic team (two psychiatrists, graduate nurses (bacc. med. tech.), psychologist) cooperates with other psychiatrists and social workers, depending on the needs of treatment.

The process of treatment in day hospital is shown in Figure 2.

Therapeutic activities include: psychoeducation, group psychotherapy, group family psychotherapy, social skills training, metacognitive training, creative and occupational therapy, recreation, support group, three times a week.

The Unit also has a Day Hospital for Schizophrenia for patients who have had multiple psychotic episodes and need additional support, building of psychosocial skills and alleviation of functional deficits. This day



SLIKA 2. Dijagnostičko terapijski proces u Dnevnoj bolnici za prve psihoze (sliku je ustupila prof. dr. sc. Rojnić Kuzman)
FIGURE 2. Diagnostic and therapeutic process in Day Hospital for First Psychoses (figure by Professor Rojnić Kuzman, MD, PhD)

Ova Dnevna bolnica održava se jednom tjedno, te uključuje psioedukaciju, grupnu psihoterapiju, metakognitivni trening, kao i kreativne i radne terapije i terapije rekreacijom.

Odjel za kognitivne poremećaje i komorbidna stanja s intenzivnom skrbi

Specifično područje rada ovog Odjela jest provođenje aktivnosti u svrhu očuvanja i poboljšanja kognitivnog i somatskog zdravlja pacijenata. Liječenje i istraživanje kognitivnih poremećaja provodi se ne samo u osoba starije životne dobi, nego i u drugim populacijama bolesnika, npr. poput onih liječenih EKT-om (20). Nadalje, s obzirom da je poznato da oboljeli od psihijatrijskih poremećaja žive kraće u odnosu na opću populaciju, pozornost se obraća metaboličkim komplikacijama, gdje se kao rizični čimbenici prepoznaju neredovita i nekvalitetna prehrana, sjedilački način života te primjena psihofarmaka. Komorbiditeti povezani s debljinom danas su vodeći uzrok smrtnosti te je liječenje debljine neophodno. Prema izvještaju Svjetske zdravstvene organizacije iz 2015. više od pola milijuna ljudi je pretilo. Povezanost debljine i psihičkih smetnji je kompleksna i dvosmjerna, psihičke smetnje mogu biti etiološki čimbenik ali istovremeno i posljedica debljine. Doc. dr. sc. Vuksan Ćusa je uključena od 2017. g u rad Dnevne bolnice za debljinu pri Zavodu za endokrinologiju Klinike za unutarnje bolesti Kliničkog bolničkog centra Zagreb, gdje se provodi strukturirano i sveobuhvatno liječenje debljine. Radi se o petodnevnom programu liječenja debljine pod vodstvom endokrinologa-dijabetologa uz kojeg okosnicu tima čine nutricionist-dijetetičar, medicinska sestra, psihijatar/psiholog i specijalist fizikalne medicine s fizioterapeutom. Program također uključuje obradu i liječenje komorbiditeta, hormonalnu evaluaciju te isključivanje sekundarnih uzroka debljine. U program se uključuju koherentne grupe motiviranih adipoznih bolesnika sa zajedničkim karakteristikama (npr. adipozne osobe slične dobi, osobe s dijabetesom, hipertenzijom, psihijatrijskim poremećajima itd.). Ovisno o potrebi grupe izmjenjuju se brojni subspecialisti (npr. neurolog, ginekolog, kardiolog). Uz edukaciju, svakodnevnu tjelesnu aktivnost i obroke te neformalan pristup prisutna je grupna, po potrebi i individualna psihoterapijska te međusobna podrška sudionika. Nakon završenog programa Dnevne bolnice nastavlja se grupno mjesečno praćenje. Dio pacijenata koji je bio uključen u Dnevnu bolnicu također nastavlja individualni psihijatrijski tretman uz primjenu psihoterapijskih i psihofarmakoloških metoda. U sklopu opisane suradnje publicirani su i članci u časopisima (21,22) te prikazani poster na različitim simpozijima.

hospital programme is held once a week and includes psychoeducation, group psychotherapy, metacognitive training and creative, occupational and recreational therapy.

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Unit for Cognitive Disorders and Comorbidity with Intensive Care

The specific area of work of this Unit is the implementation of activities aimed at preserving and improving cognitive and somatic health of patients. The treatment and research of cognitive disorders is carried out not only with the elderly, but also with other patient populations, such as those treated with ECT (20). Furthermore, as it is known that people with psychiatric disorders live shorter than the general population, attention is paid to metabolic complications, where irregular and poor diet, sedentary lifestyle and the use of psychopharmaceuticals are recognised as risk factors. Obesity-related comorbidities are the leading cause of death today and the treatment of obesity is essential. According to a 2015 report by the World Health Organization, more than half a trillion people were obese. The connection between obesity and mental disorders is complex and two-way, psychological disorders can be an etiological factor but at the same time a consequence of obesity. Assistant Professor Vuksan Ćusa has been involved since 2017 in the work of the Day Hospital for Obesity at the Division of Endocrinology of the Department of Internal Medicine of the University Hospital Centre Zagreb, where structured and comprehensive treatment of obesity is carried out. It is a five-day obesity treatment programme led by an endocrinologist-diabetologist with a team consisting of a nutritionist-dietitian, a nurse, a psychiatrist/psychologist, a physical medicine specialist and a physiotherapist. The programme also includes the processing and treatment of comorbidities, hormonal evaluation and exclusion of secondary causes of obesity. The programme is intended for coherent groups of motivated adipose patients with common characteristics (e.g., adipose persons of similar age, persons with diabetes, hypertension, psychiatric disorders, etc.). Depending on the needs of the group, numerous subspecialists (e.g., neurologist, gynaecologist, cardiologist) take turns. In addition to education, daily physical activity, food and informal approach, there is group, if necessary also individual, psychotherapy and mutual support of participants. After the completion of the day hospital programme, group monitoring continues every month. A part of the patients who were included in the day hospital programme also continues individual psychiatric treatment with the use of psychotherapeutic and psychopharmacological methods. As part of the described collaboration, articles were published in journals (21, 22) and posters were presented at various symposia.

Djelatnici Zavoda uključeni su u nastavu na Medicinskom fakultetu Sveučilišta u Zagrebu. Prof. dr. sc. Mihaljević Peleš je redoviti profesor u trajnom zvanju, voditelj predmeta „Psihijatrija“ na diplomskom studiju na engleskom jeziku, te voditelj izbornog predmeta „Anksiozni poremećaji“ na diplomskom studiju, kao i član Odbora za sveučilišne užbenike, te Odbora za izborne predmete fakulteta. Djelatnici Zavoda Šagud, Rojnić Kuzman i Skočić Hanžek su izvanredni profesori, Vuksan Ćusa i Živković su poslijedoktorandi/viši asistenti. Vuksan Ćusa je također u zvanju docenta na Medicinskom fakultetu Sveučilišta u Osijeku i Medicinskom fakultetu Sveučilišta u Mostaru. Vanjski suradnici fakulteta su prim. dr. sc. Grubišić i prim. dr. sc. Kudlek Mikulić. Prof. Šagud je tajnica Katedre za psihijatriju i psihološku medicinu, voditelj izbornog predmeta „Hitna stanja u psihijatriji“, član Odbora za doktore, povjerenik za zaštitu dostojanstva djelatnika fakulteta, te također član Etičkog savjeta Sveučilišta u Zagrebu. Navedeni nastavnici provode nastavu na diplomskom studiju medicine na hrvatskom i engleskom jeziku, diplomskom studiju sestrištva, te različitim poslijediplomskim studijima. Osim nastave, uključeni su u znanstveni rad studenata, što ima za rezultat nekoliko Rektorovih i Dekanovih nagrada za najbolje studentske radove, kao i mnogo objavljenih radova u koautorstvu sa studentima, te su mentori brojnih diplomskih radova studenata. Nadalje, doc. Vuksan Ćusa je voditelj izbornog predmeta „Psihopatologija“ na Katoličkom bogoslovnom fakultetu Sveučilišta u Zagrebu. Mag. med. techn. Bradaš je predavač na Zdravstvenom veleučilištu u Zagrebu.

Znanstvena djelatnost: projekti i suradnje

U sklopu Zavoda u novije su vrijeme provedeni sljedeći projekti:

1. Projekt Ministarstva znanosti RH: Farmakogenetska varijabilnost u psihijatrijskih bolesnika, 2007-2012.. koji je vodila prof. dr. sc. Mihaljević-Peleš
2. Projekt Europske unije u sklopu Programa za istraživanje i inovacije Horizon 2020, u kojem sudjeluje Klinički bolnički centar Zagreb (KBC Zagreb), te Hrvatski zavod za javno zdravstvo (HZJZ), uz partnere iz 11 zemalja, a voditelj projekta je izv. prof. dr. sc. Martina Rojnić Kuzman. Cilj projekta RECOVER-E je usporedba novog modela liječenja u zajednici prema principu tima FACT, adaptirano lokalnoj situaciji u odnosu na dosadašnji način liječenja, u

Teaching activity

Employees of the Division teach at the School of Medicine of the University of Zagreb. Professor Mihaljević-Peleš is a tenured full professor, head of the course “Psychiatry” at the undergraduate level held in English, head of the elective course “Anxiety Disorders” at the undergraduate level and a member of the Committee for University Textbooks and the Committee for Elective Courses. Employees of the Unit Šagud, Rojnić Kuzman and Skočić Hanžek are associate professors, Vuksan Ćusa and Živković are postdoctoral students and senior assistants. Vuksan Ćusa is also an assistant professor at the Faculty of Medicine of the University of Osijek and the School of Medicine of the University of Mostar. Chief Physician Grubišić and Chief Physician Kudlek Mikulić are external associates of the School of Medicine. Professor Šagud is the secretary of the Department of Psychiatry and Psychological Medicine, the head of the elective course “Emergencies in Psychiatry”, a member of the Doctoral Committee, the commissioner for the protection of dignity of faculty members and also a member of the Ethics Council of the University of Zagreb. These teachers teach at the graduate study of medicine in Croatian and English, graduate study of nursing and various postgraduate studies. In addition to teaching, they are involved in the scientific work of students, resulting in several rector’s and dean’s awards for best student work and many published papers in co-authorship with students, as well as mentorship in numerous graduate theses. Furthermore, Associate Professor Vuksan Ćusa is the head of the elective course “Psychopathology” at the Catholic Faculty of Theology of the University of Zagreb. Medical technician Bradaš is a lecturer at the University of Applied Health Sciences in Zagreb.

Scientific activity: projects and collaborations

The following projects have recently been implemented within the Division:

1. Project of the Ministry of Science of the Republic of Croatia: Pharmacogenetic variability in psychiatric patients, 2007–2012, led by Professor Mihaljević-Peleš.
2. Project of the European Union within the Horizon 2020 Research and Innovation Programme, with the participation of the University Hospital Centre Zagreb (KBC Zagreb), Croatian Institute of Public Health (HZJZ) and partners from 11 countries, led by Associate Professor Martina Rojnić Kuzman. The aim of the RECOVER-E project is to compare the new model of community treatment according to the FACT team principle, adapted to the local situation, in relation to the current treatment in five EU Member States participating in the project (Bulgaria, Montenegro, Macedo-

- pet država članica Europske unije koje sudjeluju u projektu (Bugarska, Crna Gora, Makedonija, Hrvatska i Rumunjska). U provedbi projekta sudjelovalo je 25 djelatnika Klinike za psihijatriju i psihološku medicinu, uključujući magistre sestrištva i medicinske sestre i tehničare, socijalne radnike, psihologe, specijalizante psihijatrije i psihijatre, te četvero stručnjaka po iskustvu (osobe koje su se oporavile od težih duševnih bolesti i sudjelovale u procesu liječenja drugih kao dio terapijskog tima). Takav način liječenja je potpuno novi koncept liječenja u Hrvatskoj, a temelji se na principima oporavka, što je željeni standard liječenja u zemljama sjeverne i zapadne Europe. Sukladno očekivanju, rezultati projekta upućuju da osobe koje su liječene takvim modelom imaju značajno višu kvalitetu života i značajno manji disabilitet tijekom 18 mjeseci liječenja u odnosu na standardno liječenje. Dosad je publicirano više znanstvenih radova proizašlih iz projekta (22-25).
3. Projekt Biomarkeri u shizofreniji-- integracija komplementarnih pristupa u praćenju osoba s prvom psihotičnom epizodom koji financira Hrvatska zaklada za znanost (2015. – 2019.) HRZZ, *Croatian science foundation – installation grants – UIP-09-2014*, a provodio se u Klinici za psihijatriju i psihološku medicinu, Klinici za neurologiju, Klinici za nuklearnu medicinu, Klinici za laboratorijsku dijagnostiku KBC-a Zagreb i Medicinskom fakultetu Sveučilišta u Zagrebu u suradnji s Klinikom za psihijatriju Vrapče, Klinikom za psihijatriju Sveti Ivan, Psihijatrijskom bolnicom „Dr. Ivan Barbot“, te Sveučilištem u Torontu, *Pharmacogenetics Research Clinic, Campbell Family Mental Health Research Institute, Centre for Addiction and Mental Health*. Voditelj projekta bila je izv. prof. dr. sc. Martina Rojnić Kuzman. Projektom je provedeno opsežno istraživanje putem uspostavljene istraživačke skupine, obranjene su dvije doktorske disertacije, a dvije su u tijeku, te su rezultati objavljeni u više od 10 znanstvenih članaka, objavljenih u visokoindeksiranim časopisima (7, 8, 26-34).
 4. Projekt *mPIVAS: m-health Psychoeducational Intervention Versus Antipsychotic-Induced Side-effects*, koji je odobrila i financirala Europska unija (*Life Learning programmes, Leonardo da Vinci Partnership*), od 2013. do 2015. godine, provodio se na Klinici za psihijatriju i psihološku medicinu KBC-a Zagreb u suradnji s Hrvatskim psihijatrijskim društvom, Europskim psihijatrijskim društvom, Kliničkim bolničkim centrom Zagreb, *University of Zurich, Westphalian Wilhelms* nia, Croatia and Romania). The project involved 25 employees of the Department of Psychiatry and Psychological Medicine, including masters of nursing, nurses and technicians, social workers, psychologists, psychiatry specialists and psychiatrists, and four experts by experience (persons recovering from severe mental illness and participating in the process of treating others as part of the therapeutic team). This type of treatment is a completely new concept of treatment in Croatia and is based on the principles of recovery, which is the desired standard of treatment in the countries of northern and western Europe. As expected, the results of the project suggest that patients undergoing such treatment model have a significantly higher quality of life and significantly less disability during 18 months of treatment as compared to standard treatment. So far, several scientific papers resulting from the project have been published (22–25).
 3. Project Biomarkers in schizophrenia – integration of complementary approaches in monitoring patients with the first psychotic episode funded by the Croatian Science Foundation (2015–2019) HRZZ, *Croatian Science Foundation – installation grants – UIP-09-2014*, and implemented in the Department of Psychiatry and Psychological Medicine, Department of Neurology, Department of Nuclear Medicine, Department of Laboratory Diagnostics of the University Hospital Centre Zagreb and the School of Medicine of the University of Zagreb in cooperation with the University Psychiatric Hospital Vrapče, Psychiatric Hospital Sveti Ivan, Neuropsychiatric Hospital “Dr. Ivan Barbot” and the University of Toronto, Pharmacogenetics Research Clinic, Campbell Family Mental Health Research Institute, Centre for Addiction and Mental Health. The project leader was Associate Professor Martina Rojnić Kuzman. Within the project, extensive research was conducted by an established research group, two doctoral dissertations were defended and two are ongoing, and the results were presented in more than ten scientific articles published in highly indexed journals (7, 8, 26–34).
 4. *mPIVAS* project: m-health psychoeducational intervention versus antipsychotic-induced side-effects, approved and funded by the European Union (Life Learning programmes, Leonardo da Vinci Partnership) from 2013 to 2015, implemented in the Department of Psychiatry and Psychological Medicine of the University Hospital Centre Zagreb in cooperation with Croatian Psychiatric Association, European Psychiatric Association, University Hospital Centre Zagreb, University of Zurich, Westphalian Wilhelms University Muenster, Charles University in Prague, University of Belgrade, European Federation of

University Muenster, Charles University in Prague, University of Belgrade, European Federation of Associations of Families of People with mental illness (EUFAMI). Ciljevi projekta bili su razviti učinkoviti psihoedukacijski tečaj na temu nuspojava antipsihotičnih lijekova za liječnike i bolesnike. Glavne inovacije uključuju: 1) razvoj mobilne aplikacije (PsyLOG) za praćenje nuspojava u šest jezika; 2) *web-casting* glavnog tečaja i produkcija on-line modula; 3) „kaskadni“ nacionalni tečajevi u svim partnerskim zemljama. Tijekom projekta razvijena je mobilna aplikacija *PsyLOG* za praćenje nuspojava na lijekove, koja je namijenjena liječnicima i pacijentima koji se liječe antipsihoticima. Aplikacija je sada u vlasništvu KBC-a Zagreb. Voditelj projekta bila je izv. prof. dr. sc. Martina Rojnić Kuzman. Rezultati projekta su prezentirani na nizu internacionalnih i nacionalnih sastanaka, te su objavljeni u znanstvenim časopisima (35,36).

5. Projekt Sveučilišta u Zagrebu „Pokazatelji terapijskog odgovora u shizofreniji“, Sveučilišta u Zagrebu, BM1.45. U sklopu projekta obranjene su dvije doktorske dizertacije (dr. Suzana Vlatković i dr. Zoran Madžarac), koji se provodio u razdoblju 2015.-2018., te je do sada objavljeno 7 znanstvenih radova u visokocitiranim časopisima (15-18, 37,38,39).
6. Projekt Sveučilišta u Zagrebu „Utjecaj religioznosti na ishod liječenja depresije: klinički i biokemijski pokazatelji“, BM126, koji se provodio u razdoblju 2016.-2019. U sklopu projekta je u tijeku izrada tri doktorske dizertacije (dr. Anja Dvojković, dr. Biljana Kosanović Rajačić, dr. Tihana Bagarić), a do sada objavljena tri znanstvena rada u visokocitiranim časopisima (40-42).
7. Projekt Sveučilišta u Zagrebu: „Učinak akutne reakcije na stres i depresivnog poremećaja na patologiju krvožilnog sustava“ Sveučilišta u Zagrebu. Projekt se provodi od 2018. godine. U sklopu projekta se izrađuju dvije doktorske dizertacije (dr. Sonja Udovičić, dr. Sara Medved).

Djelatnici Zavoda su intenzivno uključeni ne samo u znanstveni rad, nego su i mentori brojnih doktorskih dizertacija. Tablica 2. prikazuje obranjene dizertacije mentori kojih su djelatnici Zavoda za kliničku psihijatriju

U tijeku je izrada ukupno 18 dizertacija pod mentorstvom djelatnika Zavoda za kliničku psihijatriju. Nadalje, u suradnji s kolegama iz drugih zavoda i ustanova redovito se organiziraju tečajevi trajne medicinske edukacije iz područja psihofarmakologije što je dovelo do osnivanja „Zagrebačke škole psihofarmakologije“ koja djeluje već 12 godina. Nadalje,

Associations of Families of People with Mental Illness (EUFAMI). The aim of the project was to develop an effective psychoeducational course on the side-effects of antipsychotic medications for physicians and patients. Major innovations include: 1) development of a mobile application in six languages (PsyLOG) for monitoring side-effects; 2) web-casting of the main course and production of online modules; 3) “cascading” national courses in all partner countries. Within the project, the mobile application PsyLOG for monitoring side-effects of medications was developed, which is intended for physicians and patients treated with antipsychotics. The application is now owned by the University Hospital Centre Zagreb. The project leader was Associate Professor Martina Rojnić Kuzman. The results of the project were presented at a number of international and national meetings and published in scientific journals (35, 36).

5. Project of the University of Zagreb: Indicators of therapeutic response in schizophrenia, BM1.45. As part of the project conducted in the period between 2015 and 2018, two doctoral dissertations were defended (Suzana Vlatković and Zoran Madžarac) and so far, seven scientific papers have been published in highly cited journals (15–18, 37, 38, 39).
6. Project of the University of Zagreb: Impact of religiosity on the outcome of depression treatment: clinical and biochemical indicators, BM126, implemented in the period between 2016 and 2019. As part of the project, three doctoral dissertations are being prepared (Anja Dvojković, Biljana Kosanović Rajačić, Tihana Bagarić) and so far, three scientific papers have been published in highly cited journals (40–42).
7. Project of the University of Zagreb: Impact of acute reaction to stress and depressive disorder on the pathology of the vascular system. The project has been implemented since 2018. As part of the project, two doctoral dissertations are being prepared (Sonja Udovičić, Sara Medved).

Employees of the Division are actively involved not only in scientific work, but are also mentors in numerous doctoral dissertations. Table 2 shows the defended dissertations where employees of the Division of Clinical Psychiatry acted as mentors.

A total of 18 dissertations are being prepared under the mentorship of the employees of the Division of Clinical Psychiatry. Furthermore, in cooperation with colleagues from other divisions and institutions, continuing medical education courses in the field of psychopharmacology are regularly organised, resulting in the establishment of the “Zagreb School of Psychopharmacology”, which has been operating for 12 years. Furthermore, employees are frequently invited to give

TABLICA 2. Obranjene dizertacije pod mentorstvom djelatnika Zavoda za kliničku psihijatriju
TABLE 2. Defended dissertations mentored by employees of the Division of Clinical Psychiatry

Djelatnik Zavoda za kliničku psihijatriju / Employee of the Division of Clinical Psychiatry	Obranjene disertacije / Defended dissertations	Godina obrane / Year
Prof. dr. sc. Alma Mihaljević-Peješ / Professor Alma Mihaljević-Peješ, MD, PhD	Dr. sc. Marina Šagud: Trombocitni serotonin, trombocitna MAO i serumski lipidi u dijagnostici i liječenju poremećaja raspoloženja / Marina Šagud, MD, PhD: Platelet serotonin, platelet MAO and serum lipids in diagnosing and treating mood disorders	2007
	Dr. sc. Maja Živković: Povezanost genskih polimorfizama DRD2, DAT i COMT u oboljelih od shizofrenije s terapijskim odgovorom na antipsihotike i ekstrapiramidnim nuspojavama / Maja Živković, MD, PhD: The association of genetic polymorphisms of DRD2, DAT and COMT in schizophrenic patients with therapeutic response to antipsychotics and extrapyramidal side-effects	2013
	Dr. sc. Suzan Kudlek Mikulić: Koncentracija moždanog neurotrofičnog čimbenika u bolesnika sa shizofrenijom u akutnoj fazi liječenja novim antipsihoticima / Suzan Kudlek Mikulić, MD, PhD: Concentration of brain-derived neurotrophic factor in patients with schizophrenia in the acute phase of treatment with new antipsychotics	2016
Izv. prof. dr. sc. Marina Šagud / Associate Professor Marina Šagud, MD, PhD	Dr. sc. Suzana Vlatković: Neuroimunomodularni učinak <i>Toxoplasme gondii</i> u shizofreniji (mentor 2: dr. sc. Dubravka Švob Štrac) / Suzana Vlatković, MD, PhD: Neuroimmunomodulatory effect of <i>Toxoplasma gondii</i> in schizophrenia (second mentor: Dubravka Švob Štrac, MD, PhD)	2018
	Dr. sc. Ivona Šimunović Filipčić: Rani početak kroničnih tjelesnih multimorbiditeta u bolesnika s poremećajem iz shizofrenog spektra i njihova povezanost s ishodom psihijatrijskog liječenja / Ivona Šimunović Filipčić, MD, PhD: Early onset of chronic bodily multimorbidities in patients with schizophrenia spectrum disorder and their association with the outcome of psychiatric treatment	2020
	Dr. sc. Zoran Madžarac: Povezanost polimorfizma gena za katehol-O-metil transferazu i monoaminooksidazu tipa B s anhedonijom u bolesnika sa shizofrenijom (mentor 2: prof. dr. sc. Nela Pivac) / Zoran Madžarac, MD, PhD: The association between catechol-O-methyl transferase and monoamine oxidase type B gene polymorphisms and anhedonia in patients with schizophrenia (second mentor: Professor Nela Pivac, MD, PhD)	2021
Izv. prof. dr. sc. Martina Rojnić Kuzman / Associate Professor Martina Rojnić Kuzman, MD, PhD	Dr. sc. Ivana Kekin Brzina cerebralnog protoka u pacijenata s prvom psihotičnom epizodom / Ivana Kekin, MD, PhD: Velocity of cerebral blood flow in patients with first psychotic episode	2019
	Dr. sc. Dina Bošnjak: Prepoznavanje emocija iz izraza lica u osoba s prvom epizodom psihoze / Dina Bošnjak, MD, PhD: Recognising emotions from facial expressions in persons with the first episode of psychosis	2021

djelatnici su pozvani predavači na brojnim tečajevima trajne medicinske edukacije, kao i na domaćim i međunarodnim kongresima.

Provode se brojna znanstvena istraživanja, u suradnji sa drugim zavodima Klinike za psihijatriju i psihološku medicinu, te drugim klinikama i zavodima KBC-a Zagreb, poput Zavoda za laboratorijsku dijagnostiku (14,19,51,52), Zavoda za endokrinologiju Klinike za unutarnje bolesti (21,22), Klinike za bolesti srca i krvnih žila (53-55), Klinike za anesteziologiju (56,57) i Klinike za neurologiju (20,58), KP Vrapče (npr. 46,50,59) i PB Sveti Ivan (npr. 9,60,61).

lectures at numerous medical education courses as well as at national and international congresses.

Numerous scientific research projects are carried out in cooperation with other divisions of the Department of Psychiatry and Psychological Medicine and other departments and divisions of the University Hospital Centre Zagreb, such as the Division of Laboratory Diagnostics (14, 19, 51, 52), Division of Endocrinology of the Department of Internal Medicine (21, 22), Department of Cardiovascular Diseases (53–55), Department of Anaesthesiology (56, 57) and Department of Neurology (20, 58), University Psychiatric Hospital Vrapče (e.g. 46, 50, 59) and Psychiatric Hospital Sveti Ivan (e.g. 9,

Provodi se intenzivna suradnja sa Institutom „Ruđer Bošković“ (npr. 17, 18,43-50), Hrvatskim institutom za istraživanje mozga (49, 62), te brojnim inozemnim stručnjacima u sklopu velikih multinacionalnih istraživanja (22,23,63,64), kao i u izradi međunarodnih smjernica za individualno doziranje klopazina (65).

Djelatnici su uključeni u rad, ali i upravljanje stručnim društvima. Prof. Mihaljević-Peleš predsjednica je Hrvatskog psihijatrijskog društva i Hrvatskog društva za afektivne poremećaje, a prof. Rojnić Kuzman tajnica je Hrvatskog psihijatrijskog društva, te članica upravnog odbora Europskog psihijatrijskog društva. Svi djelatnici aktivno sudjeluju u brojnim stručnim društvima. Nadalje, djelatnici su uključeni u izradu smjernica za liječenje različitih psihijatrijskih poremećaja. Prof. Rojnić Kuzman, prim. dr. sc. Jasmina Grubišin, dr. sc. Zoran Madžarac i dr. Kosanović Rajačić sudjelovali su u izradi smjernica Hrvatskog psihijatrijskog društva o primjeni elektrokonvulzivne terapije, 2020. g. Prof. Mihaljević Peleš uključena je izradu „Informirani pristanak na liječenje u psihijatrijskoj ustanovi“ – smjernice za psihijatre, 2020. g. te Smjernica za liječenje bipolarnog poremećaja (prilagođeno prema smjernicama Britanskog udruženja za psihofarmakologiju) 2020. g. Prof. Mihaljević-Peleš, prof. Šagud, doc. Vuksan Ćusa i dr. sc. Živković uključene su u izradu Hrvatskih smjernica za liječenje depresije 2020., te prof. Šagud i prof. Rojnić Kuzman Hrvatskih smjernica za liječenje shizofrenije i drugih poremećaja 2019. Sve navedene smjernice objavljene su na *web* stranicama Hrvatskog psihijatrijskog društva.

ZAVOD ZA KLINIČKU PSIHIJATRIJU SUTRA: POGLED U BUDUĆNOST

Zavod za kliničku psihijatriju nastoji pratiti brzi razvoj novih metoda liječenja, prije svega neuromodulatornih, novih psihofarmaka, uključujući i brzodjelujuće antidepresive čiju primjenu uskoro planiramo. U budućem radu s našim bolesnicima planiramo još intenzivnije uključiti prevenciju i liječenje somatskih komorbiditeta. To znači suradnju s Odjelom za kliničku prehranu u sklopu koje bi započela edukacija bolesnika o zdravoj prehrani u okviru dnevnih bolnica naše Klinike, kao i sustavno praćenje metaboličkih parametara. Pri tome planiramo uvesti rano utvrđivanje povećanog rizika kardiovaskularnih i metaboličkih poremećaja redovitim praćenjem rutinskih pokazatelja, ali i nekih novih, poput arterijske krutosti, perifernih čimbenika kronične upale i čimbenika rasta neurona. Osmišljavamo edukativne radionice radi popularizacije fizičke aktivnosti. Želimo koristiti psihofarmake na najbo-

60, 61). There is active cooperation with Ruđer Bošković Institute (e.g. 17, 18, 43–50), Croatian Institute for Brain Research (49, 62) and numerous foreign experts as part of large multinational research projects (22, 23, 63, 64), as well as in the development of international guidelines for individual dosing of clozapine (65).

Employees are involved in the work, but also the management, of professional associations. Professor Mihaljević-Peleš is the president of the Croatian Psychiatric Association and the Croatian Society for Affective Disorders, and Professor Rojnić Kuzman is the secretary of the Croatian Psychiatric Association and a member of the board of the European Psychiatric Association. All employees are active in numerous professional associations. Furthermore, they are involved in developing guidelines for the treatment of various psychiatric disorders. Professor Rojnić Kuzman, Chief Physician Grubišin, Doctor Madžarac and Doctor Kosanović Rajačić participated in the development of guidelines of the Croatian Psychiatric Association on the use of electroconvulsive therapy in 2020. In the same year Professor Mihaljević-Peleš was involved in the development of guidelines for psychiatrists “Informed consent to treatment in a psychiatric institution” and guidelines for the treatment of bipolar disorder (adapted according to the guidelines of the British Association for Psychopharmacology). Professor Mihaljević-Peleš, Professor Šagud, Assistant Professor Vuksan Ćusa and Doctor Živković were involved in the development of the Croatian guidelines for the treatment of depression in 2020, and Professor Šagud and Professor Rojnić Kuzman in the development of the Croatian guidelines for the treatment of schizophrenia and other disorders in 2019. All these guidelines are published on the website of the Croatian Psychiatric Association.

DIVISION OF CLINICAL PSYCHIATRY TOMORROW: A LOOK INTO THE FUTURE

The Division of Clinical Psychiatry is trying to keep pace with the rapid development of new treatment methods, primarily neuromodulatory methods, new psychopharmaceuticals, including fast-acting antidepressants, the use of which is foreseen soon. In the future work with our patients, we plan to include even more intensively the prevention and treatment of somatic comorbidities. This means cooperation with the Division of Clinical Nutrition, which would provide education to patients about healthy diet in day hospitals of our Department and systematic monitoring of metabolic parameters. We plan to introduce early detection of increased risk of cardiovascular and metabolic disorders through regular monitoring of routine indicators, but also some new ones, such as arterial stiffness, peripheral factors of chronic inflammation and neuronal growth factors. We design educational workshops to popularise

lji mogući način, prilagođeno biološkim i psihološkim obilježjima, u najnižoj djelotvornoj dozi. Zato u budućnosti planiramo još intenzivniju primjenu farmakodinamskih i farmakokinetičkih parametara, posebice u slučajevima terapijske rezistencije i/ili nepodnošenja lijekova. Nastavljamo razvijati mobilne timove, te uvoditi nove psihosocijalne metode u svrhu poboljšanja ishoda liječenja.

Želimo i dalje prenositi naša znanja i iskustva sadašnjim i budućim generacijama. Također, planiramo završiti postojeća i započeti nova istraživanja. Ovisno o mogućnostima financiranja, područje budućeg interesa uključuje metabolomiku, proteomiku, cirkulirajuće ekstracelularne vezikule, kao i strukturalne i funkcionalne prikaze mozga.

ZAKLJUČAK

Zavod za kliničku psihijatriju pod ovim imenom postoji od 2019. godine. Međutim, njegov razvoj pratimo od 70-ih godina prošlog stoljeća na temeljima koje su izgradili svi dosadašnji predstojnici naše Klinike. Osnovna djelatnost Zavoda je pružanje kontinuiteta bolničke i izvanbolničke skrbi osobama oboljelima od shizofrenije i drugih psihotičnih poremećaja, afektivnih i anksioznih poremećaja, te kognitivnih poremećaja. U sklopu navedenog liječenja provode se biološke i psihosocijalne metode liječenja, te se njeguje individualni pristup. Druge dvije ključne djelatnosti Zavoda su edukacija specijalizanata i studenata, te znanstveni rad. Na kraju, ali ne i najmanje važno, Zavod ne postoji u izolaciji, nego se ostvaruje suradnjom s drugim zavodima naše Klinike, kao i drugim psihijatrijskim ustanovama, institutima, te brojnim drugim stručnjacima iz zemlje i svijeta.

physical activity. We want to use psychopharmaceuticals in the best possible way, adapted to biological and psychological characteristics and in the lowest effective dose. Therefore, we plan to intensify the application of pharmacodynamic and pharmacokinetic parameters, especially in cases of therapeutic resistance and/or drug intolerance. We continue with the establishment of mobile teams and with the introduction of new psychosocial methods to improve treatment outcome.

We want to continue to pass on our knowledge and experience to present and future generations. We also plan to finish existing and start new research projects. Depending on funding opportunities, our areas of future interest include metabolomics, proteomics, circulating extracellular vesicles as well as structural and functional images of the brain.

CONCLUSION

The Division of Clinical Psychiatry has existed under this name since 2019. However, we have been following its development since the 1970s on the foundations built by all previous heads of our Department. The main activity of the Division is to provide continuity of inpatient and outpatient care to patients suffering from schizophrenia and other psychotic disorders, affective and anxiety disorders and cognitive disorders. As part of this treatment, biological and psychosocial methods of treatment are implemented and individual approach is preferred. Other two key activities of the Division are education of residents and students and scientific work. Last but not least, the Division does not exist in isolation, but operates in cooperation with other divisions of our Department as well as other psychiatric institutions, institutes and numerous other national and international experts.

LITERATURA / REFERENCES

1. Mihaljević-Peleš A. (ur.). Klinika za psihijatriju, KBC Zagreb, Sveučilište u Zagrebu, Medicinski fakultet 1921.-1971.-2016. Zagreb: Medicinska naklada, 2016.
2. Štalekar V. O umjetnosti i psihoterapiji. *Soc psihijat* 2014; 42 (3): 180-9.
3. Štalekar V. Dinamika obitelji i prvi teorijski koncepti. *Medicina* 2010; 46 (3): 242-6.
4. Mihaljević-Peleš A, Bajs Janović M, Stručić A, Šagud M, Skočić Hanžek M, Živković M *et al.* Electroconvulsive therapy – general considerations and experience in Croatia. *Psychiatr Danub* 2018; 30(Suppl 4): 188-91.
5. Maric NP, Raballo A, Rojnic Kuzman M, Andric Petrovic S, Klosterkötter J, Riecker-Roessler A *et al.* European status and perspectives on early detection and intervention in at-risk mental state and first episode psychosis: Viewpoint from the EPA section for prevention of mental disorders. *Eur Psychiatry* 2017;46:48-50.
6. Maric NP, Petrovic SA, Raballo A, Rojnic-Kuzman M, Klosterkötter J, Riecher-Rössler A. Survey of the European Psychiatric Association on the European status and perspectives in early detection and intervention in at-risk mental state and first-episode psychosis. *Early Interv Psychiatry* 2018; 13(4): 853-8.
7. Rojnic Kuzman M, Bosnjak Kuharic D, Ganoci L, Makaric P, Kekin I, Rossini Gajsak L *et al.* Association of CNR1 genotypes with changes in neurocognitive performance after eighteen-month treatment in patients with first-episode psychosis. *Eur Psychiatry* 2019; 61: 88-96.
8. Rojnic Kuzman M, Makaric P, Bosnjak Kuharic D, Kekin I, Rossini Gajsak L, Boban M *et al.* Integration of complementary biomarkers in patients with first episode psychosis: research protocol of a prospective follow up study. *Psychiatr Danub* 2019; 31(2): 162-71.

9. Šimunović Filipčić I, Ivezić E, Jakšić N, Mayer N, Grah M, Rojnić Kuzman M *et al.* Gender differences in early onset of chronic physical multimorbidities in schizophrenia spectrum disorder: Do women suffer more? *Early Interv Psychiatry* 2020; 14(4): 418-27.
10. Bosnjak Kuharic D, Kekin I, Hew J, Rojnic Kuzman M, Puljak L. Interventions for prodromal stage of psychosis. *Cochrane Database Syst Rev* 2019; 11.
11. Bosnjak Kuharic D, Bozina N, Ganoci L, Makaric P, Kekin I, Prpic N *et al.* Association of HSPA1B genotypes with psychopathology and neurocognition in patients with the first episode of psychosis: a longitudinal 18-month follow-up study. *Pharmacogenomics J* 2020; 20(5): 638-46.
12. Stevović LI, Repišti S, Radojčić T, Sartorius N, Tomori S, Džubur Kulenović A *et al.* Non-pharmacological treatments for schizophrenia in Southeast Europe: An expert survey. *Int J Soc Psychiatry*. 2021; 14: 207640211023072.
13. Šagud M. Treatment-resistant schizophrenia: challenges and implications for clinical practice. *Psychiatr Danub* 2015; 27(3): 319-2.
14. Kudlek Mikulić S, Mihaljević-Peleš A, Šagud M, Bajs Janović M, Ganoci L, Grubišin J *et al.* Brain-derived neurotrophic factor serum and plasma levels in the treatment of acute schizophrenia with olanzapine or risperidone: 6-week prospective study. *Nord J Psychiatry* 2017; 71(7): 513-20.
15. Vlatković S, Šagud M, Švob Štrac D, Sviben M, Živković M, Vilibić M *et al.* Increased prevalence of *Toxoplasma gondii* seropositivity in patients with treatment-resistant schizophrenia. *Schizophr Res* 2018; 93: 480-1.
16. Šagud M, Vlatković S, Švob Štrac D, Sviben M, Živković M, Vilibić M *et al.* Latent *Toxoplasma gondii* infection is associated with decreased serum triglyceride to high-density lipoprotein cholesterol ratio in male patients with schizophrenia. *Compr Psychiatry* 2018; 82: 115-20.
17. Šagud M, Tudor L, Nikolac Perković M, Uzun S, Živković M, Konjevod M *et al.* Haplotypic and genotypic association of catechol-O-methyltransferase rs4680 and rs4818 polymorphisms and treatment resistance in schizophrenia. *Front Pharmacol* 2018; 9: 705.
18. Nikolac Perković M, Sagud M, Živković M, Uzun S, Nedic Erjavec G, Kozumplik O *et al.* Catechol-O-methyltransferase rs4680 and rs4818 haplotype association with treatment response to olanzapine in patients with schizophrenia. *Sci Rep* 2020; 10(1): 10049.
19. Ganoci L, Trkulja V, Živković M, Božina T, Šagud M, Lovrić M *et al.* ABCB1, ABCG2 and CYP2D6 polymorphism effects on disposition and response to long-acting risperidone. *Prog Neuropsychopharmacol Biol Psychiatry* 2021; 10: 110042.
20. Vuksan Ćusa B, Klepac N, Jakšić N, Bradaš Z, Božičević M, Palac N *et al.* The Effects of Electroconvulsive Therapy Augmentation of Antipsychotic Treatment on Cognitive Functions in Patients With Treatment-Resistant Schizophrenia. *J ECT* 2018; 34(1): 31-4.
21. Matovinović M, Tudor KI, Mustač F, Kovačević A, Vuksan-Ćusa Z, Baretić M *et al.* Lower Urinary Tract Symptoms in Croatian Obese Patients. *Psychiatr Danub* 2020; 32(Suppl 4): 562-7.
22. Roth C, Wensing M, Koetsenruijter J, Istvanovic A, Novotni A, Tomcuk A *et al.* Perceived Support for Recovery and Level of Functioning Among People With Severe Mental Illness in Central and Eastern Europe: An Observational Study. *Front Psychiatry*. 2021;12:732111.
23. Roth C, Wensing M, Kuzman MR, Bjedov S, Medved S, Istvanovic A *et al.* Experiences of healthcare staff providing community-based mental healthcare as a multidisciplinary community mental health team in Central and Eastern Europe findings from the RECOVER-E project: an observational intervention study. *BMC Psychiatry* 2021;21(1):525.
24. Shields-Zeeman L, Petrea I, Smit F, Hipple Walters B, Dedovic J, Rojnic Kuzman M *et al.* Towards community-based and recovery-oriented care for severe mental disorders in Southern and Eastern Europe: aims and design of a multi-country implementation and evaluation study (RECOVER-E). *Int J Ment Health Syst* 2020;14:30.
25. Medved S, Srkalović Imširagić A, Salopek I, Puljić D, Handl H, Kovač M *et al.* Case Series: Managing Severe Mental Illness in Disaster Situation: the Croatian Experience After 2020 Earthquake. *Front Psychiatry* 2022; 02 February- <https://doi.org/10.3389/fpsyt.2021.795661>.
26. Banovac I, Sedmak D, Rojnić Kuzman M, Hladnik A, Petanjek Z. Axon morphology of rapid Golgi-stained pyramidal neurons in the prefrontal cortex in schizophrenia. *Croat Med J* 2020;61(4):354-365.
27. Kekin I, Bosnjak D, Makaric P, Bajic Z, Rossini Gajsak L, Malojcic B *et al.* Significantly lower right middle cerebral artery blood flow velocity in the first episode of psychosis during neurocognitive testing. *Psychiatr Danub*. 2018;30(2):172-182.
28. Rojnic Kuzman M, Bosnjak Kuharic D, Kekin I, Makaric P, Madzarac Z, Koricancic Makar A *et al.* Effects of Long-Term Multimodal Psychosocial Treatment on Antipsychotic-Induced Metabolic Changes in Patients With First Episode Psychosis. *Front Psychiatry* 2018; 9:488.
29. Bosnjak Kuharic D, Makaric P, Kekin I, Bajic Z, Zivkovic M, Savic A *et al.* Neurocognitive Profiles of Patients with the First Episode of Psychosis and Schizophrenia Do not Differ Qualitatively: a Nested Cross-Sectional Study. *Psychiatr Danub* 2019; 31(1): 43-53.
30. Bosnjak Kuharic D, Makaric P, Kekin I, Lukacevic Lovrencic I, Savic A, Ostojic D *et al.* Differences in Facial Emotional Recognition Between Patients With the First-Episode Psychosis, Multi-episode Schizophrenia, and Healthy Controls. *J Int Neuropsychol Soc* 2019; 25(2): 165-73.
31. Rojnic Kuzman M, Makaric P, Bosnjak Kuharic D, Kekin I, Madzarac Z, Koricancic Makar A *et al.* General Functioning in Patients With First-Episode Psychosis After the First 18 Months of Treatment. *J Clin Psychopharmacol* 2020; 40(4): 366-72.
32. Bosnjak Kuharic D, Bozina N, Ganoci L, Makaric P, Kekin I, Prpic N *et al.* Association of HSPA1B genotypes with psychopathology and neurocognition in patients with the first episode of psychosis: a longitudinal 18-month follow-up study. *Pharmacogenomics J* 2020; 20(5): 638-46.

33. Bosnjak Kuharic D, Makaric P, Kekin I, Rossini Gajsak L, Zivkovic M, Ostojic D *et al.* Changes of neurocognitive status in patients with the first-episode psychosis after 18 months of treatment-A prospective cohort study. *Psychiatry Res* 2021; 304: 114131
34. Rossini Gajšak L, Vogrinc Ž, Čelić Ružić M, Bošnjak Kuharić D, Bošković M *et al.* Salivary cortisol response to psychosocial stress in patients with first-episode psychosis. *Croat Med J* 2021; 62(1): 80-9.
35. Kuzman MR, Andlauer O, Burmeister K, Dvoracek B, Lencer R, Koelkebeck K *et al.* The PsyLOG mobile application: development of a tool for the assessment and monitoring of side effects of psychotropic medication. *Psychiatr Danub* 2017; 29(2): 214-17.
36. Rojnic Kuzman M, Andlauer O, Burmeister K, Dvoracek B, Lencer R, Koelbeck K *et al.* Effective assessment of psychotropic medication side effects using PsyLOG mobile application. *Schizophr Res* 2018; 192: 211-12.
37. Šagud M, Vuksan-Ćusa B, Jakšić N, Mihaljević-Peješ A, Živković M, Vlatković *et al.* Nicotine dependence in Croatian male inpatients with schizophrenia. *BMC Psychiatry* 2018; 18(1):18.
38. Madžarac Z, Tudor L, Sagud M, Nedic Erjavec G, Mihaljevic Peles A, Pivac N. The Associations between COMT and MAO-B Genetic Variants with Negative Symptoms in Patients with Schizophrenia. *Curr Issues Mol Biol* 2021; 43(2): 618-36.
39. Sagud M, Tudor L, Šimunić L, Jezernik D, Madžarac Z, Jakšić N *et al.* Physical and social anhedonia are associated with suicidality in major depression, but not in schizophrenia. *Suicide Life Threat Behav.* 2021; 51(3): 446-54.
40. Sagud M, Nikolac Perkovic M, Vuksan-Cusa B, Maravic A, Svob Strac D, Mihaljevic Peles A *et al.* A prospective, longitudinal study of platelet serotonin and plasma brain-derived neurotrophic factor concentrations in major depression: effects of vortioxetine treatment. *Psychopharmacology (Berl)*. 2016; 233(17): 3259-67.
41. Dvojkovic A, Nikolac Perkovic M, Sagud M, Nedic Erjavec G, Mihaljevic-Peles A, Svob Strac D *et al.* Effect of vortioxetine vs. escitalopram on plasma BDNF and platelet serotonin in depressed patients. *Prog Neuropsychopharmacol Biol Psychiatry* 2021; 105: 110016.
42. Sagud M, Nikolac Perkovic M, Dvojkovic A, Jaksic N, Vuksan-Cusa B, Zivkovic M *et al.* Distinct association of plasma BDNF concentration and cognitive function in depressed patients treated with vortioxetine or escitalopram. *Psychopharmacology (Berl)* 2021A; 238(6): 1575-84.
43. Zivkovic M, Mihaljevic-Peles A, Muck-Seler D, Sagud M, Ganoci L, Vlatkovic S *et al.* The lack of association between COMT rs4680 polymorphism and symptomatic remission to olanzapine monotherapy in male schizophrenic patients: A longitudinal study. *Psychiatry Res* 2019; 279: 389-90.
44. Nedic Erjavec G, Svob Strac D, Tudor L, Konjevod M, Sagud M, Pivac N. Genetic Markers in Psychiatry. *Adv Exp Med Biol* 2019; 1192: 53-93.
45. Grubor M, Zivkovic M, Sagud M, Nikolac Perkovic M, Mihaljevic-Peles A, Pivac N. *HTR1A, HTR1B, HTR2A, HTR2C* and *HTR6* Gene Polymorphisms and Extrapyramidal Side Effects in Haloperidol-Treated Patients with Schizophrenia. *Int J Mol Sci* 2020; 21(7). pii: E2345
46. Nedic Erjavec G, Nikolac Perkovic M, Tudor L, Uzun S, Kovacic Petrovic Z, Konjevod M *et al.* Moderating Effects of BDNF Genetic Variants and Smoking on Cognition in PTSD Veterans. *Biomolecules* 2021; 11(5): 641.
47. Nikolac Perkovic M, Sagud M, Tudor L, Konjevod M, Svob Strac D, Pivac N. A Load to Find Clinically Useful Biomarkers for Depression. *Adv Exp Med Biol* 2021; 1305: 175-202.
48. Sagud M, Tudor L, Pivac N. Personalized treatment interventions: nonpharmacological and natural treatment strategies in Alzheimer's disease. *Expert Rev Neurother* 2021; 21(5): 571-89.
49. Svob Strac D, Konjevod M, Sagud M, Nikolac Perkovic M, Nedic Erjavec G, Vuic B *et al.* Personalizing the Care and Treatment of Alzheimer's Disease: An Overview. *Pharmacogenomics Pers Med* 2021; 14: 631-53.
50. Pivac N, Nedic Erjavec G, Sagud M, Nikolac Perkovic M, Tudor L, Uzun S *et al.* The association between BDNF C270T genetic variants and smoking in patients with mental disorders and in healthy controls. *Prog Neuropsychopharmacol Biol Psychiatry* 2022; 113: 110452.
51. Šagud M, Božina N, Lovrić M, Ganoci L. Interakcije psihofarmaka-kada postaju značajne? 5. hrvatski kongres o psihofarmacima s međunarodnim sudjelovanjem. *Pharmaca* 2019; Suppl 2: 94-106
52. Zivkovic M, Mihaljevic-Peles A, Muck-Seler D, Sagud M, Ganoci L, Vlatkovic S *et al.* Remission Is not Associated with DRD2 rs1800497 and DAT1 rs28363170 Genetic Variants in Male Schizophrenic Patients after 6-months Monotherapy with Olanzapine. *Psychiatr Danub* 2020; 32(1): 84-91.
53. Šagud M, Jakšić N, Vuksan-Ćusa B, Lončar M, Lončar I, Peleš AM *et al.* Cardiovascular Disease Risk Factors in Patients with Posttraumatic Stress Disorder (PTSD): A Narrative Review. *Psychiatr Danub* 2017; 29(4): 421-43.
54. Medved S, Marčinko D, Bulum J, Mihaljević-Peješ A. Cardiac Symptoms through the Lens of a Psychodynamics Approach: A Case Report of Myocardial Infarction. *Psychiatr Danub* 2021; 33(Suppl 4): 681-3.
55. Medved S, Ostojić Z, Jurin H, Medved V. Takotsubo cardiomyopathy after the first electroconvulsive therapy regardless of adjuvant beta-blocker use: a case report and literature review. *Croat Med J* 2018; 59(6): 307-12.
56. Šagud M, Goluža E, Mihaljević Peleš A, Kosanović Rajačić B, Bradaš B, Božičević M. Electroconvulsive therapy: eighty years of Croatian and international experience. *Lijec Vjesn* 2020; 142: 251-62.
57. Uzun S, Sagud M, Pivac N. Biomarkers of Depression Associated with Comorbid Somatic Diseases. *Psychiatr Danub* 2021; 33(Suppl 4): 463-70.
58. Petelin Gadže Ž, Tudor Kl, Živković M, Bujan Kovač A, Đapčić Ivančić B, Nanković S *et al.* Depression and Quality of Life in Patients with Epilepsy - Single Centre Experience. *Psychiatr Danub* 2021 Spring-Summer;33(Suppl 4):486-9.
59. Tudor L, Konjevod M, Nikolac Perkovic M, Svob Strac D, Nedic Erjavec G, Uzun S *et al.* Genetic Variants of the Brain-Derived Neurotrophic Factor and Metabolic Indices in Veterans With Posttraumatic Stress Disorder. *Front Psychiatry* 2018; 9: 637.

60. Jeleč V, Bajić Ž, Šimunović Filipčić I, Portolan Pajić I, Šentija Knežević M, Miloloža I *et al.* Utilization of somatic healthcare in Croatian patients with schizophrenia spectrum disorder, major depression, PTSD and the general population. *BMC Psychiatry* 2019; 19(1): 203.
61. Šimunović Filipčić I, Filipčić I, Glamuzina L, Devčić S, Bajić Ž, Braš M *et al.* The effect of chronic physical illnesses on psychiatric hospital admission in patients with recurrent major depression. *Psychiatry Res* 2019; 272: 602-8.
62. Šimić G, Tkalčić M, Vukić V, Mulc D, Španić E, Šagud M *et al.* Understanding Emotions: Origins and Roles of the Amygdala. *Biomolecules* 2021; 11(6): 823.
63. Maric NP, Latas M, Andric Petrovic S, Soldatovic I, Arsova S, Crnkovic D *et al.* Prescribing practices in Southeastern Europe - focus on benzodiazepine prescription at discharge from nine university psychiatric hospitals. *Psychiatry Res* 2017; 258: 59-65.
64. Bitter I, Mohr P, Raspopova N, Szulc A, Samochowiec J, Micluia IV *et al.* Assessment and Treatment of Negative Symptoms in Schizophrenia-A Regional Perspective. *Front Psychiatry* 2022; 12: 820801.
65. de Leon J, Schoretsanitis G, Smith RL, Molden E, Solismaa A, Seppälä N *et al.* An International Adult Guideline for Making Clozapine Titration Safer by Using Six Ancestry-Based Personalized Dosing Titrations, CRP, and Clozapine Levels. *Pharmacopsychiatry* 2022; 55(2): 73-86., Erratum in: *Pharmacopsychiatry*, 2022.