OXFORD

New Oxford Textbook of Psychiatry

THIRD EDITION

EDITED BY
John R. Geddes
Nancy C. Andreasen
Guy M. Goodwin

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Preface

This is the third edition of the textbook. We decided to rethink the size and content completely when planning this edition. Our sense was that a larger and larger archive of accumulated knowledge is no longer feasible or desirable in the digital age. We wanted to produce a single volume with a more defined point of view, that better reflects the challenge of the future.

Psychiatry is a medical specialty. Medicine took its origins in simple observation and classification and the serendipitous discovery of palliative treatments. The application of science has transformed much of medicine by providing an understanding of mechanisms of pathology. The scientific method provides the only way to reliable knowledge, and medical science is slowly developing rational treatments that are potentially curative. However, aside from treatable infections, we have a long way to go. The trajectory of medical advance in the practice of psychiatry has been slower than for other disease areas in recent years, but neuroscience is difficult. What underwrites our confidence in what is sometimes disparagingly described as the medical model is the fact that psychiatric disorders, especially severe disorders, have a genetic basis. Genetic risks are largely unidirectional and they are biological. They guarantee some kind of future biological explanation for the phenomena they describe. So if you decide that schizophrenia is a myth, a social construct, or a plot by psychiatrists to enhance their social status, you have to explain why its inheritance is what it is.

If, like us, you find the genetic data compelling, then you accept the grand challenge of working out the neurobiology of psychiatric disorder. We cannot know how quickly it will translate into improved treatments, but we think there are already promising developments from molecular biology and neuroimaging. Imaging has been particularly important because it has stimulated the development of a completely brain-based cognitive neuroscience. This is a major intellectual shift. Forty years ago, an experimental psychologist would have said that the brain was unimportant for the study of mental mechanisms and even less important for the development of psychological treatments. As this view changes, so the advances of neuroscience can be translated into patient benefit as scientifically guided psychotherapy.

Our authors are drawn from all over the world, and they illustrate the simple truth that science is universal. We thank them most sincerely for their efforts in bringing the project to completion.

The layout of the book

The content of chapters was not highly pre-specified, and the chapters themselves have not been edited for conformity with the editors' views. They can be read as free-standing contributions. Accordingly, there is both overlap and divergence in how topics are covered, which will reflect the writers' priorities and interests.

In the previous edition of the textbook, the editors identified convergence as an important theme of the book. We are not convinced further convergence has occurred since 2001. Instead we have seen a surprising amount of divergence in the claims made about psychiatry. Our section on approaches to psychiatry reflects some of the key issues relating to the patient's perspective, stigma, the global challenge of mental disorder, practical ethics, and the foundations of psychiatry as phenomenology and a medical discipline. It further sets the scene for current controversies around diagnosis, psychopathology, evidence, and drug terminology.

The chapters in the section on the scientific basis of psychiatric aetiology and treatment provide simple introductions to the relevant disciplines that underpin our scientific understanding.

Individual disorders are covered in sections that follow the structure of the *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-5). DSM-5 was published in 2013. It had been envisaged that it would be possible to make major changes to the approach of DSM-IV. Thus, major advances in genetics, imaging, and neurobiology were widely expected to transform psychiatry, following the success of the human genome project and the decade of the brain. This transformation has not yet happened. Hence, DSM-5 (and the International Classification of Diseases, eleventh revision) follow a much more conventional, clinically led summary of how patients present with psychiatric disorder. We see no reason to deny the utility of symptom-based diagnoses and the consensus that created the current categories. However, the project of applying neuroscience to psychiatry has not failed, as has sometimes been implied by criticism of DSM-5. For these reasons, we have included chapters on genetics, neurobiological targets, and imaging in the sections of the book focused on specific disorders.

We have also included sections on service provision and forensic psychiatry because these are critical to the context in which psychiatric disorder is managed.

We thank the staff of OUP for their support and encouragement and Andy Richford who has been our project manager sans pareil.

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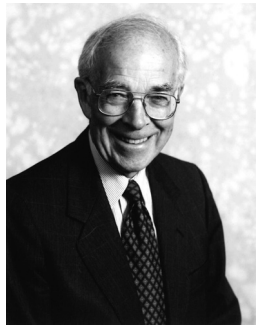
Professor Michael Gelder (1929–2018)

Michael Gelder, one of the founding editors of the New Oxford Textbook of Psychiatry, *sadly died in 2018. We dedicate this new edition of the book to Michael's memory.*



Michael was the first WA Handley Professor of Psychiatry at the University of Oxford and founded the Department of Psychiatry in 1969. He led the Department for 27 years until he retired in 1996. Before arriving in Oxford, at the Institute of Psychiatry, Michael developed a treatment for anxiety based on desensitization, in which gradual exposure to the feared stimulus was coupled with physical relaxation. He described the first controlled trial of this psychological therapy in patients with severe agoraphobia in his seminal 1966 publication with Isaac Marks.

Michael possessed remarkable organizational abilities and leadership skills and he built a thriving Department of Psychiatry in Oxford with a particular focus on developing both psychological and physical treatments. This departmental focus continues into the present. When JRG interviewed him in 2018, very shortly before he died, Michael admitted to being particularly proud of the Department's development of cognitive behaviour therapy (CBT) under his leadership. These treatments include highly effective forms of CBT for anxiety disorders, post-traumatic stress disorder, chronic fatigue syndrome, and eating disorders. All have been widely adopted in clinical practice and have benefited enormous numbers of people worldwide. Michael also developed a psychopharmacology research unit based on powerful cross-departmental collaboration within the University. The unit has a strong track record of investigating the mechanisms of action of antidepressants and anxiolytics and its work has fundamentally shaped our understanding of the biology underlying psychiatric disorder.

Michael was also a committed and inspirational teacher and the driving force behind a successful series of psychiatry textbooks. The first, in 1983, was the *Oxford Textbook of Psychiatry* (now in its seventh edition). Translated into six languages, this became the standard textbook for psychiatric trainees. Then came the *Concise Textbook* (aimed at medical students and now in its fifth edition) and the current *New Oxford Textbook of Psychiatry* (targeted at postgraduates—this is the third edition).

As he passed the age of 80, Michael had finally retired from editing textbooks (although he was delighted that his colleagues continue to revise them!), but he closely followed the development of the Department. He will be greatly missed. Michael was a truly remarkable clinical academic, inspirational in his ability to combine research with clinical practice, teaching, and leadership.

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Abbreviations

α-MSH	alpha-melanocyte-stimulating hormone
G × E	gene and environment
µg	microgram
AA	arachidonic acid
AAO	age at onset
AAS	ascending arousal system
AASM	American Academy of Sleep Medicine
ABA	applied behavioural analysis; activity-based anorexia
Abeta	amyloid beta
AC	adenylyl cyclase
ACC	anterior cingulate cortex
ACE	angiotensin-converting enzyme; adverse childhood experience
ACE(R)	Addenbrooke Cognitive Examination (Revised)
aCGH	array-comparative genomic hybridization
ACh	acetylcholine
ACMG	American College of Medical Genetics and Genomics
ACQ	Agoraphobia Cognition Questionnaire
ACT	acceptance and commitment therapy; assertive community treatment
ACTH	adrenocorticotrophic hormone
AD	axial diffusivity; Alzheimer's disease; Alzheimer's dementia; adjustment disorder
ADAMHA	US Alcohol, Drug Abuse, and Mental Health Administration
ADAPT	Adaption and Development After Persecution and Trauma (model)
ADAS-cog	Alzheimer's Disease Assessment Scale-cognitive subscale
ADD	attention deficit disorder
ADDUCE	Attention Deficit Hyperactivity Disorder Drugs Use Chronic Effects
ADH	alcohol dehydrogenase; antidiuretic hormone
ADHD	attention-deficit/hyperactivity disorder
ADP	adenosine diphosphate
A&E	accident and emergency
aFTLD-U	atypical fronto-temporal lobar degeneration with ubiquitinated inclusions
AGD	argyrophilic grain disease
AgRP	agouti-related protein
AHI	apnoea–hypopnea index
aHR	adjusted hazard ratio
AICD	APP intracellular domain
AIDS	acquired immune deficiency syndrome
AIMS	Abnormal Involuntary Movement Scale
AL	allostatic load
ALDH	acetaldehyde dehydrogenase
ALIC	anterior limb of the internal capsule
ALFF	amplitude of low-frequency fluctuations
ALS	amyotrophic lateral sclerosis
AMBIT	adolescent mentalization-based integrative therapy
AMDP	Association for Methodology and Documentation in Psychiatry; alternative DSM-5 model for personality disorders
AMP	adenosine monophosphate-activated protein; amphetamine
AMPA	α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid
AMTS	Abbreviated Mental Test Score
AN	anorexia nervosa
ANA	antinuclear antibody
ANP	atrial natriuretic peptide
AN-R	restrictive subtype of anorexia nervosa
AO	assertive outreach
aOR	adjusted odds ratio
AOS	apraxia of speech
AP	agoraphobia; area postrema
APA	American Psychiatric Association
APD	antisocial personality disorder
APOE	apolipoprotein E
APP	amyloid β precursor protein
APS	attenuated psychotic symptoms
ARFID	avoidant restrictive food intake disorder
ARID	autosomal recessive forms of intellectual disability
ARMS	at-risk mental state
ARP	aripiprazole
AS	anxiety sensitivity
ASCOT	Adult Social Care Outcome Toolkit
ASD	autism spectrum disorder; acute stress disorder
ASI	Anxiety Sensitivity Index
ASIC	acid-sensing ion channel
ASL	arterial spin labelling
ASN	asenapine
AsPD	antisocial personality disorder
ASPD	antisocial personality disorder
ASPS	advanced sleep phase syndrome
ASWPD	advanced sleep–wake phase disorder
ATC	Anatomical Therapeutic Chemical
ATF6	activating transcription factor 6

ATL	anterior temporal lobe
ATP	adenosine triphosphate
ATPD	acute and transient psychotic disorder
ATX	atomoxetine
AUC	area under the curve
AUD	alcohol use disorder
AUDADIS-IV	Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV
AVP	vasopressin
AvPD	avoidant personality disorder
AVPD	avoidant personality disorder
BBB	blood–brain barrier
BBV	blood-borne virus
BD	bipolar disorder
BDD	body dysmorphic disorder
BDI	Beck Depression Inventory
BDNF	brain-derived neurotrophic factor
BDSM	bondage, dominance and submission, sadism, and masochism
BED	binge eating disorder
BET	brief eclectic therapy
BF	basal forebrain
BI	behavioural inhibition
BIA	budget impact analysis
BIBD	basophilic inclusion body disease
BIPS	Brief Intermittent Psychotic Symptoms
BIT	behavioural intervention team
BLA	basolateral amygdala
BLIPS	Brief Limited Intermittent Psychotic Symptoms
BMI	body mass index
BMP	bone morphogenetic protein
BN	bulimia nervosa
BNM	biophysical network model
B/NRT	bupropion/nicotine replacement therapy
BOLD	blood oxygen level-dependent
BOTMP	Bruininks–Oseretsky Test of Motor Proficiency
BP	blood pressure
BPD	borderline personality disorder; bipolar disorder
BPI	bipolar disorder type I
BPII	bipolar disorder type II
bpm	beats per minute
BPRS	Brief Psychiatric Rating Scale
BPSD	behavioural and psychological symptoms of dementia
BS	basic symptoms
BSE	bovine spongiform encephalopathy
BTSAS	Behavioural Treatment for Substance Abuse in Severe and Persistent Mental Illness
bvFTD	behavioural-variant fronto-temporal dementia
BWLT	behavioural weight loss therapy
BZD	benzodiazepine
C&A	children and adolescents
Ca^{2+}	calcium
CAA	cerebral amyloid angiopathy
CAARMS	Comprehensive Assessment of At-Risk Mental State
CAC	Clinical Assessment of Confusion
CAD	coronary artery disease
CADASIL	cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy
CAM	Confusion Assessment Method
CAMCOG(R)	Cambridge Cognitive Assessment (Revised)
CAMHS	child and adolescent mental health services
cAMP	cyclic adenosine monophosphate
CAPA	Child and Adolescent Psychiatric Assessment
CAPP	Comprehensive Assessment of Psychopathic Personality Disorder
CART	cocaine- and amphetamine-related transcript
CAS9	CRISPR-associated protein 9
CAT	cognitive analytic therapy
CATCH-IT	Competent Adulthood Transition with Cognitive Behavioural and Interpersonal Training
CATIE	Clinical Antipsychotic Trial of Intervention Effectiveness (study)
CBA	cost-benefit analysis
CBC	complete blood count
CBCL	Child Behavior Problems Checklist
CBCM	cognitive behavioural case management
CBD	cortico-basal degeneration; cannabidiol
CBF	cerebral blood flow
CBG	cortico-basal ganglia
CBG-GSH	guided self-help cognitive behavioural therapy
CBI	classroom-based intervention
CBIT	Comprehensive Behavioral Intervention for Tics
CBO	community-based organization
CBS	cortico-basal syndrome
CBT	cognitive behavioural therapy
CBT-E	enhanced cognitive behavioural treatment
CBTi	cognitive behavioural therapy for insomnia
CBT-PD	cognitive behavioural therapy for personality disorder
CC	collaborative care
CCA	cost-consequences analysis
CCK	cholecystokinin
CCK-4	cholecystokinin tetrapeptide
CCL	conventional consultation liaison
CCM	collaborative care management
CD	coeliac disease
CDC	Center for Disease Control and Prevention
CDDG	*Clinical Descriptions and Diagnostic Guidelines* (from *ICD-10 Classification of Mental and Behavioral Disorders*)
CEA	cost-effectiveness analysis
CEST	chemical exchange saturation transfer
CET	cue-exposure treatment
CETA	Common Elements Treatment Approach
CFIR	Consolidated Framework for Implementation Research
CFS	chronic fatigue syndrome
CGAS	Child Global Assessment Scale
CGE	caudal ganglionic eminence
CGI-I	Clinical Global Impression of Improvement
cGMP	cyclic guanosine monophosphate
CGMV	cortical grey matter volume
CH	congenital hypothyroidism

CHARGE	Cohorts for Heart and Aging Research in Genomic Epidemiology
CHAT	Comprehensive Health Assessment Tool
CHMP	Committee for Medicinal Products for Human Use
CHMP2B	charged multivesicular body protein 2b
CHOICE	CHOosing Interventions that are Cost-Effective (project)
CHOP	Children's Hospital of Philadelphia
CHR	clinical high-risk
CI	confidence interval
CIDI	Composite International Diagnostic Instrument
CIR	Clutter Image Rating
CJD	Creutzfeldt–Jakob disease
CLiPS	Collaborative Longitudinal Personality Disorders Study
CLP	consultation-liaison psychiatry
CLPDS	Collaborative Longitudinal Personality Disorders Study
CLPS	Collaborative Longitudinal Personality Study
cm	centimetre
CM	contingency management; crisis management
CMA	chromosomal microarray analysis; chaperone-mediated autophagy; cost-minimization analysis
CMAT	Changes to the Matrix Council
CMD	common mental disorder
CMHD	common mental health disorder
CMHT	community mental health team
CMP	comprehensive metabolic panel
CMS-R	Comorbidity Survey-Replication
CNGC	cyclic nucleotide-gated channel
CNS	central nervous system
CNV	copy number variant
COG	centre of gravity
COGA	Collaborative Studies on Genetics of Alcoholism
COGEND	Collaborative Genetic Study of Nicotine Dependence
COMT	catechol-*O*-methyltransferase
CONSORT	Consolidated Standards of Reporting Trial
CONVERGE	China, Oxford, and Virginia Commonwealth University Experimental Research on Genetic Epidemiology
COPC	chronic overlapping pain condition
C9ORF72	chromosome 9 open reading frame 72
CoSA	Circles of Support and Accountability
COX-2	cyclo-oxygenase-2
CP	choroid plexus
CPA	Care Programme Approach
CPES	Collaborative Psychiatric Epidemiological Studies
CPR	Civil Procedure Rules
CPT	cognitive processing therapy
Cr	creatine
CR	cognitive rehabilitation; conditioned response
CRA	community reinforcement approach
CREB	cAMP response element binding protein
CRF	corticotropin-releasing factor
CRF1	corticotropin-releasing factor 1
CRH	corticotropin-releasing hormone
CR/HT	crisis resolution/home treatment
CRISPR	clustered regularly interspaced short palindromic repeat
CRN	correct related negativity
CRP	C-reactive protein
CrPR	Criminal Procedure Rules
CRSWD	circadian rhythm sleep–wake disorder
CS	conditioned stimulus; compulsive shopping
CSA	child sexual abuse
CSB	compulsive sexual behaviour
CSF	cerebrospinal fluid
CSS	chromosomal substitution strain
CSTC	cortico-striato-thalamo-cortical
CT	computed tomography
CTD	chronic tic disorder
CTE	chronic traumatic encephalopathy
CTO	community treatment order
CU	callous-unemotional
CUA	cost-utility analysis
CUtLASS	Cost Utility of the Latest Antipsychotic drugs in Schizophrenia Study
CVD	cardiovascular disease
CVO	circumventricular organ
CWMV	cerebral white matter volume
CY-BOCS	Children's Yale-Brown Obsessive Compulsive Scale
DA	dopamine
dACC	dorsal anterior cingulate cortex
DACCP	Dundee ADHD Clinical Care Pathway
DAG	diacylglycerol
DAGK	diacylglycerol kinase
DALY	disability-adjusted life year
DAMP	damage-associated molecular pattern
DAPP	Differential Assessment of Personality Pathology
DARI	dopamine reuptake inhibitor
DAT	dopamine; dopamine transporter
DAWS	dopamine agonist withdrawal syndrome
DBH	dopamine-beta-hydroxylase
DBS	deep brain stimulation
DBT	dialectical behaviour therapy
DCD	developmental co-ordination disorder
DCM	dynamic causal model
DCR	Diagnostic Criteria for Research (from *ICD-10 Classification of Mental and Behavioral Disorders*)
DCS	d-cycloserine
DD	delay discounting
DDA	direct detection assay
DDP	dynamic deconstructive psychotherapy
DEX	dextroamphetamine
DFC	dorsolateral prefrontal cortex
2-DG	2-deoxyglucose
DHA	docosahexaenoic acid
DHPG	dihydroxyphenylethylene glycol
DIAN	Dominantly Inherited Alzheimer Network
DIRT	Danger ideation reduction therapy
DIRUM	Database of Instruments for Resource Use Measurement
DIS	Diagnostic Interview Schedule
DISC	Diagnostic Interview Schedule for Children
DISC1	Disrupted in Schizophrenia 1

DLB	dementia with Lewy bodies
DLMO	dim light melatonin onset
dlPFC	dorsolateral prefrontal cortex
DLPFC	dorsolateral prefrontal cortex
DM	diabetes mellitus
DMH	dorsomedial nucleus of the hypothalamus
DM-ID	Diagnostic Manual-Intellectual Disabilities
DMN	default mode network
DMT	dimethyltryptamine
DNA	deoxyribonucleic acid
DNIC	diffuse noxious inhibitory control
DOMINO	Donepezil and Memantine in Moderate to Severe Alzheimer's Disease (study)
DOMS	delayed onset of muscular soreness
DOR	delta opioid receptor
DOSS	Delirium Observation Screening Scale
DPD	dependent personality disorder
DPMS	descending pain modulatory system
DR	dorsal raphe
DRD4	dopamine receptor type 4
DRG	diagnosis-related group
DRN	dorsal raphe nuclei
DRPLA	dentatorubropallidoluysian atrophy
DRS-R-98	Delirium Rating Scale-Revised-98
DS	dorsal striatum
DSED	disinhibited social engagement disorder
DSM	*Diagnostic and Statistical Manual of Mental Disorders*
DSM-III	Third revision of the Diagnostic and Statistical Manual of Mental Disorders
DSM-III-R	DSM-III-Revised
DSM-IV-TR	DSM-IV 'Text Revision'
DSM-5	5th edition of the Diagnostic and Statistical Manual of Mental Disorders
DST	daylight saving times; dexamethasone suppression test
DSWPD	delayed sleep–wake phase disorder
DTC	democratic therapeutic community
DTI	diffusion tensor imaging
DTS	diffusion tensor spectroscopy
DUB	deubiquitinating enzyme
DUD	drug use disorders
DUI	daytime urinary incontinence; duration of untreated illness
DUP	duration of untreated psychosis
DURG	Drug Utilisation Research Group
DVA	domestic violence and abuse
DWI	diffusion-weighted imaging
DXA	dual-energy X-ray absorptiometry
DY-BOCS	Dimensional Yale-Brown Obsessive Compulsive Scale
DZ	dizygotic
EAGG	European ADHD Guideline Group
EAS	euthanasia or assisted suicide
EC	enhanced care
ECA	Epidemiologic Catchment Area (study)
ECG	electrocardiography
ECNP	European College of Neuropsychopharmacology
ECT	electroconvulsive therapy
ED	elimination disorder; emergency department; eating disorder; erectile disorder
EDNOS	eating disorder not otherwise specified
EDSP	Early Developmental Stages of Psychopathology (study)
EEG	electroencephalogram
EFFEKTE-E	*E*ntwicklungsförderung in *F*amilien: *E*ltern- und *K*inder-*T*raining in *e*motional belasteten Familien
EGF	epidermal growth factor
EHS	essential hypersomnia syndrome
EI	early intervention
EMA	European Medicines Agency; ecological momentary assessment
EMDR	eye movement desensitization and reprocessing
EMG	electromyography
ENCODE	Encyclopedia of DNA Elements
ENIGMA	Enhancing NeuroImaging Genetics through Meta-Analysis (Consortium)
EOG	electro-oculography
EOS	endogenous opioid system
EP	explaining pain
EPA	eicosapentanoic acid
EPAD	European Prevention of Alzheimer's Dementia Consortium
EPDS	Edinburgh Postnatal Depression scale
EPI	echo planar imaging
ePREP	Prevention and Relationship Enhancement Programme
EPS	extra-pyramidal side effect
EPSE	extra-pyramidal side effect
ER	endoplasmic reticulum
ERF	event-related field
ERK	extracellular regulated kinase
ERN	error-related negativity
ERP	event-related potential; exposure and response prevention
ES	effect size
ESDM	Early Start Denver Model
ESR	erythrocyte sedimentation rate
ESS	Epworth Sleepiness Scale
ESSENCE	Early Symptomatic Syndromes Eliciting Neurodevelopmental Clinical Examination
EU	European Union
EUFEST	European First Episode Schizophrenia Trial
EULAR	European League Against Rheumatism
EUnetHTA	European Network for Health Technology Assessment
FA	fractional anisotropy
FACT	functional assertive community treatment
fAD	familial Alzheimer's disease
FASD	fetal alcohol spectrum disorders
fcMRI	functional connectivity magnetic resonance imaging
FDA	US Food and Drug Administration
FDG	fluorodeoxyglucose
FDOPA	18F-fluorodopa
FEP	first-episode psychosis
FFI	fatal familial insomnia
FFM	five-factor model of personality

FFT	family-focused therapy; functional family therapy
FGA	first-generation antipsychotic
FGCB	Family Group Cognitive-Behavioural
FGF	fibroblast growth factor
FI	faecal incontinence
FINGER	Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (study)
FLAIR	fluid-attenuated inversion recovery
FL-APM	first-line dopamine antagonist medication
FM	fibromyalgia
fMRI	functional magnetic resonance imaging
FMRP	fragile X mental retardation protein
FMT	6-18F-fluoro-l-m-tyrosine
FNSD	functional neurological symptom disorder
FOCUS	Families OverComing Under Stress
FPN	frontal-parietal network
FPR	Family Procedure Rules
FSCD	Family Study of Cocaine Dependence
FSIAD	female sexual interest/arousal disorder
fT	femtotesla
FTD	fronto-temporal dementia
FTDC	International Behavior-variant FTD Criteria Consortium
FTE	full-time equivalent
FTI	family therapeutic intervention
FTLD	fronto-temporal lobar degeneration
FTLD-ni	fronto-temporal lobar degeneration without inclusions
FTLD-tau	fronto-temporal lobar degeneration with tau-positive inclusions
FTLD-UPS	fronto-temporal lobar degeneration with immunohistochemistry against proteins of the ubiquitin proteosomal system
FUS	fused in sarcoma (protein)
FXS	fragile X syndrome
g	gram; effect size
GA	Gamblers Anonymous
GABA	gamma aminobutyric acid
GAD	generalized anxiety disorder
GAF	Global Assessment of Functioning (scale)
GAPD	General Assessment of Personality Disorder
GAR	Global Attentiveness Rating
GBA	glucocerebrosidase
GBD	Global Burden of Disease (studies)
GBL	gamma butyrolactone
GCAN	Genetic Consortium for Anorexia Nervosa
GCase	β-glucocerebrosidase 1
GCMS	gas chromatography–mass spectrometry
GCS	Glasgow Coma Scale
GCT	gender-confirming treatment
GCTA	genome-wide complex trait analysis
GD	gender dysphoria; gambling disorder
GDNF	glial cell-derived neurotrophic factor
GDP	guanosine diphosphate; gross domestic product
GET	graded exercise therapy
GF	germ-free
GHB	gamma hydroxybutyrate
GHRF	growth-hormone releasing factor
GI	gyrification index; gender incongruence
GID	gender identity disorder
GIDC	gender identity disorder of childhood
GIDYQ-AA	Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults
GIP	G protein-coupled receptor-interacting protein
GJ	gap junction
GLM	general linear model
GM	grey matter
GMV	grey matter volume
GnIH	gonadotrophin-inhibitory hormone
GnRH	gonadotrophin-releasing hormone
GnRHa	gonadotrophin-releasing hormone analogue
GO	Gene Ontology
GORD	gastro-oesophageal reflux disease
GPCR	G protein-coupled receptor
GPPPD	genito-pelvic pain/penetration disorder
GR	glucocorticoid receptor
GRADE	Grading of Recommendations, Assessment, Development, and Evaluations
GRDS	genetic risk and deterioration syndrome
GRE	gradient echo
GREML	genomic-relatedness-matrix restricted maximum likelihood
GRK	G protein-coupled receptor kinase
GRML	genomic relationship–matrix restricted maximum likelihood
GRN	granulin
GRS	genetic risk scoring
GSK-3β	glycogen synthase kinase-3β
GSS	Gerstmann–Sträussler syndrome
GTP	guanosine triphosphate
GWA	genome-wide association
GWAS	genome-wide association studies
GWES	genome-wide exome sequencing
HAI	health care-associated infection
HAROLD	Hemispheric Asymmetry Reduction in Old Adults (model)
HbA1c	glycated haemoglobin
HBV	hepatitis B virus
HCR-20	Historical, Clinical Risk Management-20
HCV	hepatitis C virus
HD	Huntington's disease; hoarding disorder
HDAC	histone deacetylation
HD-D	Hoarding Disorder Dimensional Scale
HDE	humanitarian device exemption
HDL	high-density lipoprotein
HDRS	Hamilton Depression Rating Scale
HF	high frequency
HFS	high-frequency stimulation
5-HIAA	5-hydroxyindoleacetic acid
HIC	high-income country
HiTOP	Hierarchical Taxonomy of Psychopathology
HIV	human immunodeficiency virus
HKD	hyperkinetic disorder
HLA	human leucocyte antigen
HoNOS	Health of the Nation Outcome Scales
HOT	hyperbaric oxygen therapy

HPA	hypothalamus–pituitary–adrenal
HPD	histrionic personality disorder
HPLC	high-performance liquid chromatography
HPPD	hallucinogen persisting perceptual disorder
HPRD	human protein reference database
HR	heart rate; hazard ratio
HRI	high risk index
HR-QoL	health-related quality of life
HRS-I	Hoarding Rating Scale-Interview
HRS-SR	Hoarding Rating Scale-Self Report
HRT	habit reversal training; hormone replacement therapy
HSP90	heat shock protein 90
5-HT	5-hydroxytryptamine
HTA	health technology appraisal; health technology assessment
HTAi	Health Technology Assessment international
HTT	huntingtin
HVA	homovanillic acid
HYE	health year equivalent
Hz	hertz
IADL	instrumental activity of daily living
IAPT	Improving Access to Psychological Therapies
IBD	inflammatory bowel disease
IBMPFD	inclusion body myopathy with Paget's disease of bone and fronto-temporal dementia
IBS	irritable bowel syndrome
ICA	independent component analysis
ICCS	International Children's Continence Society
ICD	impulse-control disorder
ICD	International Classification of Diseases
ICD-10	International Classification of Diseases, tenth revision
ICD-11	International Classification of Diseases, eleventh revision
ICECAP	ICEpop CAPability
ICER	incremental cost-effectiveness ratio
ICF	International Classification of Functioning and Disability
ICOCS	International College of Obsessive–Compulsive Spectrum Disorders
ICSD-3	International Classification of Sleep Disorder, third edition
ICU	intensive care unit
ID	intellectual disabilities; insomnia disorder
IDD	intellectual developmental disorder
IDO	indoleamine 2,3-dioxygenase
IED	intermittent explosive disorder
IFC	inferior frontal cortex
IFG	inferior frontal gyrus
IFN	interferon
IGF	insulin-like growth factor
IGF-1	insulin-like growth factor 1
IgG	immunoglobulin G
IHSC	interhemispheric spectral coherence
IL	interleukin
IL-2	interleukin 2
IL-6	interleukin 6
IM	intramuscular
ImPACT	Immediate Post-Concussion Assessment and Cognitive Testing
IMPase	inositol-1-monophosphatase
IMPC	International Mouse Phenotyping Consortium
INAHTA	International Network of Agencies for Health Technology Assessment
INN	international non-proprietary name
iNOS	inducible nitric oxide synthase
IOCDF-GC	International OCD Foundation Genetics Collaborative
IOM	Institute of Medicine
IP_3	inositol 1,4,5-triphosphate
IPDE	International Personality Disorders Examination
IPL	inferior parietal lobe
iPSC	induced pluripotent stem cell
IPSRT	interpersonal and social rhythm therapy
IPT	interpersonal psychotherapy
IPV	intimate partner violence
IQ	intelligence quotient
IR	immediate release; insulin resistance
IRE1	inositol-requiring enzyme 1
IRGC	intermediate radial glia cell
IRLSS	International Restless Legs Syndrome Study Group
IRT	item response theory; individual resilience training; imagery relief therapy
ISBD	International Society for Bipolar Disorders
ISC	International Schizophrenia Consortium
ISoS	International Study of Schizophrenia
isvz	inner subventricular zone
ISWRD	irregular sleep–wake rhythm disorder
ITP	inferior thalamic peduncle
IUPHAR	International Union of Basic and Clinical Pharmacology
IVF	*in vitro* fertilization
JASPER	Joint Attention, Symbolic Play, Engagement and Regulation
K	kelvin
K^+	potassium
kb	kilobase
kDa	kilodalton
KEGG	*Kyoto Encyclopaedia of Genes and Genomes*
KFS	Keeping Families Strong
kg	kilogram
KO	knockout
KOR	kappa opioid receptor
K-SADS	Schedule for Affective Disorders and Schizophrenia for School Age Children
L	litre
LAI	long-acting injected
LB	Lewy body
LBD	Lewy body dementia
LC	locus caeruleus
LD	linkage disequilibrium; learning disability
L/D	light/dark
LDL	low-density lipoprotein
L-dopa	levodopa
LDX	lisdexamfetamine

LF	low frequency
LFP	local field potential
LGD	likely gene disrupting
LGE	lateral ganglionic eminence
*l*GI	local gyrification index
LH	lateral hypothalamic
LHA	lateral hypothalamus
LHb	lateral habenula
LHRH	luteinizing hormone-releasing hormone
LMIC	low- and middle-income country
lncRNA	long non-coding ribonucleic acid
LOC	loss of consciousness
LOD	logarithm of the odds
LoF	loss of function
LOS	length of stay
LPFS	Level of Personality Functioning Scale
LPS	lipopolysaccharide
LSD	lysergic acid diethylamide
LTC	long-term care
LTD	long-term depression
LTG	lamotrigine
LTP	long-term potentiation
LUR	lurasidone
LUTS	lower urinary tract symptoms
MABC	Movement Assessment Battery for Children
MADRS	Montgomery-Åsberg Depression Rating Scale
MAM	mitochondria-associated membrane
MANTRA	Maudsley Model of Anorexia Nervosa Treatment for Adults
MAO	monoamine oxidase
MAOA	monoamine oxidase A
MAOA-H	monoamine oxidase-high (allele)
MAOA-L	monoamine oxidase-low (allele)
MAOI	monoamine oxidase inhibitor
MAP	mitogen-activated protein; microtubule-associated protein
MAPK	mitogen-activated protein kinase
MAPS	Multidisciplinary Association for Psychedelic Studies (project)
MAPT	microtubule-associated protein tau
MARAC	multi-agency risk assessment conference
MAYSI-2	Massachusetts Youth Screening Instrument-Version 2
MBCT	mindfulness-based cognitive therapy
MBP	myelin basic protein
MBSR	mindfulness-based stress reduction
MBT	mentalization-based treatment
MBT-A	mentalization-based treatment for adolescents
MBU	mother and baby unit
MCA	middle cerebral artery
MCC	mid cingulate cortex
MCDA	multi-criteria decision analysis
MC4R	melanocortin-4 receptor
MCH	melatonin-concentrating hormone
MCI	mild cognitive impairment
MCMI-III	Millon Clinical Multiaxial Inventory-III
MCTQ	Munich ChronoType Questionnaire
MD	mean diffusivity
MDA	methylenedioxyamphetamine
MDAS	Memorial Delirium Assessment Scale
MDD	major depressive disorder
MDI	manic–depressive illness
MDMA	3,4-methylenedioxymethamphetamine
MDMA-AP	MDMA-assisted psychotherapy
MDT	mode deactivation therapy
ME	myalgic encephalomyelitis
M/EEG	MEG and EEG
MEG	magnetoencephalography
MET	motivational enhancement therapy
MFB	medial forebrain bundle
MFC	medial frontal cortical (regions)
MFG	medial frontal gyrus
MGB	microbiota–gut–brain (axis)
MGD	Mouse Genome Database
MGE	medial ganglionic eminence
mGluR	metabotropic glutamatergic receptor
MGMH	Movement for Global Mental Health
MHC	major histocompatibility complex
mhGAP	Mental Health Gap Action Programme
MHIN	Mental Health Innovation Network
MHP	mental health professional
MHPG	3-methoxy-4-hydroxyphenylglycol
MHRA	Medicines and Healthcare products Regulatory Agency
MHS	mental health services
MI	motivational interviewing
MIBG	^{123}I-metaiodobenzylguanidine
MID	monetary incentive delay
MIPS	*myo*-inositol-3-phosphate synthase
miRNA	microribonucleic acid
mm	millimetre
MMN	mismatch negativity
MMPI	Minnesota Multiphasic Personality Inventory
MMSE	Mini-Mental State Examination
MND	motor neuron disease; Malingered Neurocognitive Dysfunction
MOA	mechanism of action
MoCA	Montreal Cognitive Assessment
mOFC	medial orbitofrontal cortex
MOR	mu-opioid receptor
mPFC	medial prefrontal cortex
MPH	methylphenidate
MPP^+	1-methyl-4-phenylpyridinium
MPTP	methyl-4-phenyl-1,2,3,6-tetrahydropyridine
MR	mineralocorticoid receptor; magnetic resonance
mRASS	modified Richmond Agitation and Sedation Scale
MRF	modifiable risk factor
MRI	magnetic resonance imaging
MRN	medial raphe nuclei
mRNA	messenger ribonucleic acid
MRS	magnetic resonance spectroscopy
MSA	multiple system atrophy
MSAD	McLean Study of Adult Development
MSF	mid-sleep on free day
MSH	melanocyte-stimulating hormone
MSI-2	Multiphasic Sex Inventory-2

MSLT	multiple sleep latency test
MSR	magnetically shielded room
MST	multi-systemic therapy
MSW	mid-sleep on workdays
MT	magnetization transfer
mTBI	mild traumatic brain injury
mtDNA	mitochondrial DNA
MTFC	multi-dimensional treatment foster care
mTOR	mammalian target of rapamycin
MTR	magnetization transfer ratio
MVPC	multivariate pattern classification
MZ	monozygotic
Na^+	sodium
NA	noradrenaline
NAA	*N*-acetyl aspartate
NAC	nucleus accumbens; *N*-acetylcysteine
NAcc	nucleus accumbens
nAChR	nicotinic acetylcholine receptor
NAM	negative allosteric modulation
NAMHC	National Advisory Mental Health Council
NaSSA	noradrenergic and specific serotonergic antidepressant
Natsal-3	third National Surveys of Sexual Attitudes and Lifestyles
NB	net benefit
NbN	Neuroscience-based Nomenclature
NcAcc	nucleus accumbens
NCD	neurocognitive disorder
NCDLB	neurocognitive disorder with Lewy bodies
NCGS	non-coeliac gluten sensitivity
ncRNA	non-coding RNA
NCS	National Comorbidity Survey
NCS-A	National Comorbidity Survey Adolescent Supplement
NCS-R	National Comorbidity Survey-Replication
NDA	National Institute of Mental Health Data Archive; new drug approval
NDD	neurodegenerative disease
NDRI	noradrenaline/dopamine reuptake inhibitor
NE	nocturnal enuresis
NEAT	non-exercise activity thermogenesis
NES	night eating syndrome
NESARC	National Epidemiological Survey on Alcohol and Related Conditions
NET	noradrenaline (norepinephrine) transporter; narrative exposure therapy
NF-κB	nuclear factor κB
nfvPPA	non-fluent-variant primary progressive aphasia
NGF	nerve growth factor
NGO	non-governmental organization
NGS	next-generation sequencing
NHMRC	National Health and Medical Research Council
NICE	National Institute for Health and Care Excellence
NIDA	National Institute of Drug Abuse
NIFID	neuronal intermediate filament inclusion disease
NIH	National Institutes of Health
NIMH	National Institute of Mental Health
NIMH-RGR	NIMH Repository and Genomics Resource
NJRE	Not Just Right Experience
NK-1	neurokinin 1
NMDA	*N*-methyl-*D*-aspartate
NMDAR	*N*-methyl-*D*-aspartate receptor
NMR	nuclear magnetic resonance
NMS	neuroleptic malignant syndrome
NND	number needed to detain
NNI	NMDAR-neuromodulator interaction
NNP	number needed to prevent
NNT	number needed to treat
NO	nitric oxide
NOS	not otherwise specified; nitric oxide synthase
NPC	neural progenitor cell
NPD	narcissistic personality disorder
NPI	neuropsychiatric inventory
NPS	novel psychoactive substance; neuropeptide S
NPY	neuropeptide Y
NREM	non-rapid eye movement
NRI	selective noradrenergic reuptake inhibitor
NRT	nicotine replacement therapy
NSAID	non-steroidal anti-inflammatory drug
NSS	neurological soft sign
NSSI	non-suicidal self-injury
NSSID	non-suicidal self-injury disorder
N24SWD	non-24-hour sleep–wake disorder
NTD	neurofibrillary tangle dementia
Nu-DESC	Nursing Delirium Screening Scale
NVAWS	National Violence Against Women Survey
OAB	overactive bladder
OC	obsessive–compulsive
OCD	obsessive–compulsive disorder
OCDUS	Obsessive Compulsive Drug Use Scale
OCGAS	OCD Collaborative Genetic Association Study
OCPD	obsessive–compulsive personality disorder
OCRD	obsessive–compulsive and related disorder
OCSD	obsessive–compulsive spectrum disorder
ODD	oppositional defiant disorder
OECD	Organisation for Economic Co-operation and Development
OED	other eating disorder
OFC	orbitofrontal cortex
OLZ	olanzapine
ONS	Office of National Statistics
OPD	operational psychodynamic diagnostics
OPM	optically pumped magnetometer
OPRI	octapeptide repeat insertion
OR	odds ratio
OSA	obstructive sleep apnoea
OSE	other stressor event
OSFED	other specified feeding and eating disorders
OST	opiate substitution therapy
osvz	outer subventricular zone
OxCAP-MH	Oxford CAPabilities questionnaire-Mental Health
OXTR	oxytocin receptor
PA	periaqueductal
PACAP	pituitary adenylyl cyclase-activating polypeptide
PACT	Preschool Autism Communication Trial
PAF	population-attributable fraction

PAG	periaqueductal grey
PAI	Personality Assessment Inventory
PAL	paliperidone
PAM	positive allosteric inhibitor; positive allosteric modulation
PAMP	pathogen-associated molecular pattern
PANDAS	Paediatric autoimmune neuropsychiatric disorder associated with streptococcal infections
PANESS	Physical and Neurological Examination for Soft Signs
PaPA	Perceptions and Practicalities Approach
PAR	population-attributable risk
PATS	Preschoolers with ADHD Treatment Study
PBMC	peripheral blood mononuclear cell
PBP	Parent-Based Prevention
PCBD	persistent complex bereavement disorder
PCC	posterior cingulate cortex
PCL	paracentral lobule
PCL-R	Psychopathy Checklist Revised
PCL-YV	Psychopathy Checklist: Youth Version
PCP	primary care physician
PCPA	para-chlorophenylalanine
PCS	post-concussion syndrome
PD	panic disorder; proton density; Parkinson's disease; personality disorder
PDAQ	Penn Daily Activities Questionnaire
PD-CFRS	PD-Cognitive Function Rating Scale
PDD	pervasive developmental disorder; Parkinson's disease dementia
PDE	phosphodiesterase
PDE-5	phosphodiesterase type 5
PD-MCI	Parkinson's disease with mild cognitive impairment
PD-TS	personality disorder–trait specified
PE	prolonged exposure; premature ejaculation
PEG	polyethyleneglycol
PEPS	psychoeducation with problem-solving
PERK	protein kinase RNA-like endoplasmic reticulum kinase
PET	positron emission tomography
PET-MR	positron emission tomography–magnetic resonance
PFA	psychological first aid
PFC	prefrontal cortex
PGAD	persistent genital arousal disorder
PGC	Psychiatric Genetics Consortium
PGC-ED	Eating Disorders Working Group of the Psychiatric Genomics Consortium
PGE_2	prostaglandin E_2
PGRS	polygenic risk score
PI	phosphoinositide/phosphoinositol; polarity index
PiB	Pittsburgh compound B
PIGD	postural instability gait disorder
PIP_2	phosphotidyl inositol 4,5-biphosphate
piRNA	piwi-interacting ribonucleic acid
PKA	protein kinase A
PKC	protein kinase C
PKU	phenylketonuria
PLC	phospholipase C
PLE	psychotic-like experience
PM+	Problem Management Plus
PMA	paramethoxyamphetamine
PMDD	premenstrual dysphoric disorder
PMMA	paramethoxymethamphetamine
PND	postnatal depression
PoA	preoptic area
POMC	pro-opiomelanocortin
PP	post-partum (puerperal) psychosis
PPAR	peroxisome proliferator-activated receptor
PPD	paranoid personality disorder
P&PD	DSM-5 Personality and Personality Disorders Work Group
PPG	penile plethysmography
PPI	protein–protein interaction
PPV	positive predictive value
pRGC	photosensitive retinal ganglion cell
PRIME	Programme for Improving Mental Health Care (study)
PROM	patient-reported outcome measure
PrP	prion protein; Penn Resilience Program
PrP^C	cellular prion protein
PrP^{Sc}	scrapie form of prion protein
PRS	polygenic risk scoring
PSA	prostate-specific antigen
PSD	post-synaptic density; post-stroke depression
PSE	Present State Examination
PSG	polysomnography
PSP	progressive supranuclear palsy
PSQI	Pittsburgh Sleep Quality Index
PST	problem-solving therapy
PTA	post-traumatic amnesia; Positive Thoughts and Action Program
p-tau	phosphorylated tau
PTE	potentially traumatic event
PTSD	post-traumatic stress disorder
PU	premonitory urge
PUFA	polyunsaturated fatty acid
PVE	partial volume effect
PVFS	post-viral fatigue syndrome
PVN	paraventricular hypothalamic nucleus
QALY	quality-adjusted life year
QOF	quality and outcomes framework
QoL	quality of life
QTL	quantitative trait locus
QTP	quetiapine
rACC	rostral anterior cingulate cortex
RAD	reactive attachment disorder; Reynolds Adolescent Depression
RAID	Rapid Assessment, Interface, and Discharge (model)
RANZP	Royal Australian and New Zealand College of Psychiatrists
RAP	Resourceful Adolescent Program
RAR	retinoic acid receptor
RBANS	Repeatable Battery for the Assessment of Neuropsychological Status
RBD	rapid eye movement sleep behaviour disorder
rCBF	regional cerebral blood flow
rCMRglu	regional cerebral metabolic rate for glucose

RCT	randomized controlled trial
RCV	rare coding variant
RD	radial diffusivity
RDC	Research Diagnostic Criteria
RDoC	Research Domain Criteria
RdoCdb	Research Domain Criteria Database
REE	resting energy expenditure
REM	rapid eye movement
REMS	risk evaluation and mitigation strategies
RESH	Repeated Episodes of Self-Harm (score)
REST	RE1-silencing transcription factor
RF	radiofrequency
RFLP	restriction fragment length polymorphism
RGS	G-protein signalling protein
RHT	retinohypothalamic tract
RLE	real life experience
RLS	restless legs syndrome
RNA	ribonucleic acid
RNP	ribonucleoprotein
ROADMAP	Real world Outcomes across the Alzheimer's Disease spectrum for better care: Multi-modal data Access Platform
ROI	region of interest
ROM	routine outcome measure
ROS	reactive oxygen species
ROSE	Reach Out, Stand Strong, Essentials for new mothers (programme)
RPS	risk profile scoring
RR	relative risk
RRBI	restricted and repetitive behaviours and interests
RRT	rapid response team
RS	rumination syndrome
rsfMRI	resting-state functional magnetic resonance imaging
RSN	resting state network
rTMS	repetitive transcranial magnetic stimulation
RT-QuIC	real-time quaking-induced conversion
RVM	rostral ventromedial medulla
RYGB	Roux-En-Y gastric bypass
sAD	sporadic Alzheimer's disease
SAD	social anxiety disorder; seasonal affective disorder
SANS	Scale for the Assessment of Negative Symptoms
SAPS	Scale for the Assessment of Positive Symptoms
SAPS-PD	Scale for Assessment of Positive Symptoms in Parkinson's Disease
SARI	serotonin antagonist and reuptake inhibitor
SAVRY	Structured Assessment of Violence Risk in Youth
SCAN	Schedule for Clinical Assessment in Neuropsychiatry
SCC	subcallosal cingulate cortex
SCD	social (pragmatic) communication disorder
SCFA	short-chain fatty acid
SCID-II	Structured Clinical Interview for DSM-IV Axis II personality disorders
sCJD	sporadic Creuztfeldt–Jakob disease
SCL-90	Symptom Checklist-90
SCM	structured clinical management
SCN	suprachiasmatic nucleus
SCO	subcommissural organ
SCRD	sleep and circadian rhythm disruption
SCZ	schizophrenia
SD	sleep deprivation
SDQ	Strengths and Difficulties Questionnaire
SDS	standard deviation score
SEID	systemic exertion intolerance disease
SERCA	sarco(endo)plasmic reticulum calcium ATPase
SERT	serotonin; serotonin transporter
SES	socio-economic status
SF-36	Short Form Health Survey 36
SFO	subfornical organ
SFT	schema-focused therapy
SG	somatosensory gating
SGA	second-generation antipsychotic
sgACC	subgenual anterior cingulate cortex
sgp130	soluble glycoprotein 130
sgRNA	single-guide ribonucleic acid
SHA	System of Health Accounts
SHORT IQ-CODE	short form of the Informant Questionnaire on Cognitive Decline in the Elderly
SHQ	Clarke Sex History Questionnaire
SIADH	syndrome of inappropriate antidiuretic hormone
SIDP-IV	Structured Interview for DSM-IV Personality Disorders
SIH	stress-induced hyperthermia
SIHD	Structured Interview for Hoarding Disorder
SIPP	Severity Indices of Personality Problems
SIPS	Structured Interview for Prodromal Syndromes; Structured Interview for Psychosis-Risk Syndromes
SI-R	Saving Inventory-Revised
siRNA	short interfering ribonucleic acid
SIT	stress inoculation training
SLC	solute carrier
slMFB	superolateral branch of the medial forebrain bundle
SMA	supplementary motor area
SMD	standardized mean difference
SMG	supramarginal gyrus
SMI	severe mental illness
SMIT 1	sodium/*myo*-inositol transporter 1
SMOC	second messenger-operated channel
SMR	standard mortality ratio; standardized mortality rate
SN	substantia nigra
SNAP	Swanson, Nolan, and Pelham (scale); Schedule for Nonadaptive and Adaptive Personality
SNP	single-nucleotide polymorphism
SNR	signal-to-noise ratio
SNRI	serotonin/noradrenaline reuptake inhibitor
SNV	single nucleotide variant
SOC	store-operated channel
SOC-7	Standards of Care for the Health of Transsexual, Transgender, and Gender-Non-conforming People, Version 7
SOD	superoxide dismutase
SOFAS	Social and Occupational Functioning Assessment Scale
SORAG	Sex Offender Risk Appraisal Guide
SOREMP	sleep-onset REM period
SP	specific phobia; subplate (zone)
SPD	schizotypal personality disorder

SPECT	single-photon emission computed tomography
SPZ	subparaventricular zone
SQUID	superconducting quantum interference device
SRAI	structured risk assessment instrument
SRI	serotonin reuptake inhibitor
SRS	sex reassignment surgery
SRT	sleep restriction therapy
SSCM	specialist supportive clinical management
SSRI	selective serotonin reuptake inhibitor
STAT3	signal transducer and activator of transcription 3
STEP-BD	Systematic Treatment Enhancement Program for Bipolar Disorder
STEPPS	Systems Training for Emotional Predictability and Problem Solving
STL	superior temporal lobe
STN	subthalamic nucleus
StPD	schizotypal personality disorder
STPD	schizotypal personality disorder
STPP	short-term psychodynamic psychotherapy
SUD	substance use disorder
SUVr	regional standard uptake value
svPPA	semantic-variant primary progressive aphasia
SVT	symptom validity test
SWAN	Strengths and Weaknesses of ADHD-symptoms and Normal-behavior (scale)
SWI	susceptibility-weighted imaging
SWS	slow-wave sleep
T	tesla; testosterone
tACS	transcranial alternating current stimulation
TADS	Treatment for Adolescents with Depression Study
TAP-MS	tandem affinity purification and mass spectrometry
TAU	treatment as usual
TBARS	thiobarbituric acid reactive substances
TBI	traumatic brain injury
TBK1	TANK-binding kinase 1
TBSS	tract-based spatial statistics
TCA	tricarboxylic acid; tricyclic antidepressant
TCI	Temperament and Character Inventory
TD	typically developing; tardive dyskinesia
tDCS	transcranial direct current stimulation
T2DM	type 2 diabetes mellitus
TDP	TAR-DNA binding protein
TDP43	TAR-DNA binding protein 43
tds	three times daily
TEMPS	Temperament Evaluation scale from Memphis, Pisa, and San Diego
TENS	transcutaneous electrical nerve stimulation
TFBS	transcription factor binding site
TF-CBT	trauma-focused cognitive behavioural therapy
TFP	transference-focused psychotherapy
TGA	transient global amnesia
TGMD	Test for Gross Motor Development, second edition
Th2	T helper 2
THC	tetrahydrocannabinol
TIA	transient ischaemic attack
TIPS	Treatment and Intervention in Psychosis Study
TJ	tight junction
TLR	Toll-like receptor
TMF	Trzepacz, Meagher, and Franco (research diagnostic criteria)
TMN	tuberomammillary nucleus
TMS	transcranial magnetic stimulation
TNF	tumour necrosis factor
TOR	target of rapamycin
TPD	Tobacco Products Directive
TPJ	temporo-parietal junction
TR	repetition time
TRD	treatment-resistant depression
TRH	thyrotropin-releasing hormone
TRN	thalamic reticular nucleus
TRP	transient receptor potential
TS	Tourette's syndrome
TSC	tuberous sclerosis complex
TSF	12-step facilitation
TSH	thyroid-stimulating hormone
TSO	total sexual outlet
TSPO	translocator protein
TSST	Trier Social Stress Test
t-tau	total tau
TTFL	transcriptional–translational feedback loop
UA	uric acid
UDS	urinary drug screen
UGDS	Utrecht Gender Dysphoria Scale
UHR	ultra-high-risk
UHSS	UCLA Hoarding Severity Scale
UI	uncertainty interval
UK	United Kingdom cHECK 1-4!!!
UN	United Nations
UP	Unified Protocol for Transdiagnostic Treatment of Emotional Disorders
UPD	uniparental disomy
UPR	unfolded protein response
UPS	unspecified prodromal symptoms
US	unconditioned stimulus; United States
USD	United States dollar
USI-model	Universal, Selected and Indicated preventive model
uVNTR	upstream variable number of tandem repeats
VaD	vascular dementia
VasD	vascular dementia
VBM	voxel-based morphometry
VCFS	velo-cardio-facial syndrome
VCI	vascular cognitive impairment
vCJD	variant Creuztfeldt–Jakob disease
VCP	valosin-containing protein
VC/VS	ventral capsule/ventral striatum
VEGF	vascular endothelial growth factor
VIAAT	vesicular inhibitory amino acid transporter
VIP	vasoactive intestinal peptide
VLPO	ventrolateral preoptic
VMAT2	vesicular monoamine transporter-2
VMHC	voxel-mirrored homotopic connectivity
vmPFC	ventromedial prefrontal cortex
VNS	vagal nerve stimulation
VNTR	variable numbers of tandem repeat
VNUT	vesicular nucleotide transporter
VPA	valproate

VPAG	ventral periaqueductal grey
VR	virtual reality
VRAG	Violence Risk Appraisal Guide
VRAG-R	Violence Risk Appraisal Guide-Revised
VRET	virtual reality exposure therapy
VS/NcAcc	ventral striatum/nucleus accumbens
VTA	ventral tegmental area
WASO	wake after sleep onset
WCST	Wisconsin Card Sorting Task
WFSBP	World Federation of Societies of Biological Psychiatry
WHO	World Health Organization
WHO-DAS	World Health Organization Disability Assessment Schedule
WM	white matter
WMH	World Mental Health; white matter hyperintensity
WPA	World Psychiatric Association
WTCCC3	Wellcome Trust Case-Control Consortium 3
XMRV	xenotropic murine leukaemia virus-related virus
Y-BOCS	Yale-Brown Obsessive Compulsive Scale
YFAS	Yale Food Addiction Scale
Y2H	Yeast 2 Hybrid
YLD	year of life lived with disability
YLL	year of life lost
YSR	Youth Self-Report
ZIP	ziprasidone

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SECTION 1

The subject matter and approach to psychiatry

1

The patient's perspective

Kay Redfield Jamison and Adam Ian Kaplin

Introduction

It is difficult to be a psychiatric patient, but a good doctor can make it less so. Confusion and fear can be overcome by knowledge and compassion, and resistance to treatment is often, although by no means always, amenable to change by intelligent persuasion that leads to better healing. The devil, as the fiery melancholic Byron knew, is in the details.

Delivering the diagnosis, prognosis, and plan

Patients, when first given a psychiatric diagnosis, are commonly both relieved and frightened—relieved because often they have been overwhelmed by pain, anxiety, and hopelessness for a considerable period of time, and frightened because they do not know what the diagnosis means, what the treatment will entail, and their likelihood of obtaining a meaningful response. They do not know if they will return to the way they once were, whether the treatment they have been prescribed will or will not work, and, even if it does work, at what cost it will be to them in terms of their notions of themselves, potentially unpleasant side effects, and the reactions of their family members, friends, colleagues, and employers. Perhaps most disturbing, they do not know if their depression, psychosis, anxieties, or compulsions will return to become a permanent part of their lives. Caught in a state often characterized by personal anguish, social isolation, and confusion, newly diagnosed patients find themselves on a quest to regain a sense of mastery of themselves and their surroundings. One of the main goals of therapies of all types is to empower the patient and give them some control back over their world and rechart the meaning and purpose of their lives under altered circumstances.

The specifics of what the doctor says and the manner in which he or she says it are critically important from the start and will colour the patient's ongoing treatment course for years to come. Most patients who complain about receiving poor psychiatric care do so on several grounds—their doctors, they feel, spend too little time explaining the nature of their illnesses and treatment; they are reluctant to consult with, or actively involve, family members; they are patronizing and do not adequately listen to what the patient has to say; they do not encourage questions or sufficiently address the concerns of the patient; they do not discuss alternative treatments, the risks of treatment, and the risks of no treatment; and they do not thoroughly forewarn about side effects of medications.

Most of these complaints are avoidable. Time, although difficult to come by, is well spent early on in the course of treatment when the manifestations of confusion and hopelessness are greatest, the risk of non-adherence is highest, and the possibility of suicide substantially increased. Hope can be realistically extended to patients and family members, and its explicit extension is vital to those whose illnesses have robbed them not only of hope, but also of belief in themselves, their future, and the very meaning of their lives. The hope provided needs to be tempered, however, by an honest and realistic explication of possible difficulties yet to be encountered: unpleasant side effects from medications; a rocky time course to meaningful recovery which will often consist of many discouraging cycles of feeling the progress of marching towards wellness, only to stumble and slide temporarily backwards towards illness again; and the probable personal, professional, and financial repercussions that come in the wake of having a psychiatric illness.

Importance of doctor–patient communication

It is terrifying to lose one's sanity or to be seized by a paralysing depression. No medication alone can substitute for a good doctor's clinical expertise and the kindness of a doctor who understands both the medical and psychological sides of mental illness. Nor can any medication alone substitute for a good doctor's capacity to listen to the fears and despair of patients trying to come to terms with what has happened to them. A good doctor is a therapeutic optimist who is able to instil hope and confidence to combat bewilderment and despair. Great doctors are able to provide the unwavering care to their patients that they would want a member of their own family to receive, blending empathy and compassion with expertise and confidence.

Doctors need to be direct in answering questions, to acknowledge the limits of their understanding, and to encourage specialist consultations when the clinical situation warrants it. They also need to create a therapeutic climate in which patients and their families feel free, when necessary, to express their concerns about treatment or to request a second opinion. There must also be a willingness by

doctors to collaborate across medical disciplines in the care of their psychiatric patients because of the influence and, likewise, the impact of somatic diseases on mental illness—for example, there is evidence that depression predisposes people to conditions such as myocardial infarction, diabetes, and multiple sclerosis, all of which conversely increase the likelihood of depression. Moreover, persons with major depression and schizophrenia have a 40–60% greater chance of dying prematurely than the general population, due to physical health problems that are often left unattended or exacerbated by the side effects of psychotropic medications. Doctors are also frequently called upon to advocate for their psychiatric patients who are frequently stigmatized and therefore at great risk of being discriminated against by being deprived of their professional, economic, social, and cultural rights. Particular care must be taken by doctors to prevent their patients from receiving substandard care by refusing to share, against their patient's better judgement, important aspects of their mental illness with non-mental health medical practitioners.

Treatment non-adherence, one of the major causes of unnecessary suffering, relapse, hospitalization, and suicide must be addressed head-on. Unfortunately, doctors are variable in their ability to assess, predict, and facilitate adherence in their patients [1]. Asking directly and often about medication concerns and side effects, scheduling frequent follow-up visits after the initial diagnostic evaluation and treatment recommendation, and encouraging adjunctive psychotherapy or involvement in patient support groups can make a crucial difference in whether or not a patient takes medication in a way that is most effective. Aggressive treatment of unpleasant or intolerable side effects, minimizing the dosage and number of doses, and providing ongoing, frequently repetitive education about the illness and its treatment are likewise essential, if common-sense, ways to avert or minimize non-adherence.

Communication in the digital age

The ever-expanding availability of health information technology, ranging from assistive devices (that permit regular tracking of symptoms and reminders to facilitate treatment adherence such as automated texting and telemedicine) to therapeutic tools (that provide interventions such as online cognitive behavioural therapy), will continue to improve the ease with which care can be delivered. But in the end, it is the therapeutic alliance between patient and clinician, honed and proven over two and a half millennia since the time of Hippocrates, that will and must remain central to the healing process. Technology can assist and enhance, but not replace, the doctor–patient relationship.

Doctor as teacher

Education is, of course, integral to the good treatment of any illness, but this is especially true when the illnesses are chronic and shrouded in the secrecy that is caused by both social and personal stigma. The term 'doctor' derives originally from the Latin word for teacher, and it is in their roles as teachers that doctors provide patients with the knowledge and understanding to combat the confusion and unpredictability that surround mental illness. Patients and their family members should be encouraged to write down any questions they may have, as many individuals are intimidated once they find themselves in a doctor's office. Any information that is given orally to patients should be repeated as often as necessary (due to the cognitive difficulties experienced by many psychiatric patients, especially when acutely ill or recovering from an acute episode) and, whenever feasible, provided in written form as well. Additional information is available to patients and family members in books and pamphlets obtainable from libraries, bookstores, and patient support groups, but, ever more commonly, information is accessible through the Internet as videos, websites, and online support groups [2, 3]. Visual aids, such as charts portraying the natural course of the treated and untreated illness or the causes and results of sleep deprivation and medication cessation, are also helpful to many [4–6]. Finally, providing the patients with self-report scales to monitor their daily progress, such as mood charts in affective disorder, not only provides invaluable clinical data, but also teaches patients and their physicians to better understand the patient's illnesses and their response to therapeutic interventions and exacerbating stressors. Family members and significant others can, and usually do, play key roles as outside sources of information which can be critically important in ensuring that the proper diagnosis is made at the outset. Patients, when they are well, also often benefit from a meeting with their family members and their doctor that focuses upon drawing up contingency plans in case their illness should recur. These meetings also provide an opportunity to shore up the support system the patient has by educating their caregivers about the nature, cause, manifestations, and treatment of their loved one's mental illness. Such meetings may also include what is to be done in the event that a psychiatric emergency arises and hospitalization is required, a discussion of early warning signs of impending psychotic or depressive episodes, methods for regularizing sleep and activity patterns, techniques to protect patients financially, and ways to manage suicidal behaviour should it occur. Suicide, globally the second leading cause of death in 15- to 29-year olds, is the major cause of premature death in severe psychiatric illnesses [7, 8], and its prevention is of first concern. Those illnesses most likely to result in suicide (mood disorders, comorbid alcohol and drug abuse, and schizophrenia) need to be treated early, aggressively, and often for an indefinite period of time [2, 10]. Lithium, which has demonstrated significant efficacy in preventing suicide, should be considered when appropriate [11]. The increasing evidence that treatment early in psychiatric illness may improve the long-term course needs to be considered in light of the reluctance of many patients to stay in treatment [10, 12, 14].

Conclusions

The ancient proverb *medice, cura te ipsum* (physician, heal thyself) applies most pressingly to mental illness, because the rates of burnout, depression, and suicide among doctors are deeply concerning. A willingness to change the culture of medicine, so that more time, attention, and education is given to the critically important aspects of mental health, routine screening, and treatment of depression to encourage, rather than punish, seeking help.

No one who has treated or suffered from mental illness would minimize the difficulties involved in successful treatment. Modern medicine gives options that did not exist even 10 years ago, and there is every reason to expect that improvements in psychopharmacology, psychotherapy, and diagnostic techniques will continue to develop at a galloping pace. Still, the relationship between the patient and doctor will remain central to the treatment, as Morag Coate wrote more than 40 years ago in *Beyond All Reason* [13]:

> 'Because the doctors cared, and because one of them still believed in me when I believed in nothing, I have survived to tell the tale. It is not only the doctors who perform hazardous operations or give life-saving drugs in obvious emergencies who hold the scales at times between life and death. To sit quietly in a consulting room and talk to someone would not appear to the general public as a heroic or dramatic thing to do. In medicine there are many different ways of saving lives. This is one of them.'

FURTHER INFORMATION

Non-governmental mental health websites: USA
http://www.nami.org/
http://www.dbsalliance.org/site/PageServer?pagename=home
Governmental mental health websites: USA
http://www.nimh.nih.gov/
https://www.samhsa.gov/treatment
Non-governmental mental health websites: UK
http://www.mentalhealth.org.uk/
http://www.mind.org.uk
Governmental mental health websites: UK
https://www.nice.org.uk/guidance/conditions-and-diseases/mental-health-and-behavioural-conditions
http://mentalhealthcare-uk.com

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2

Public attitudes and the challenge of stigma

Nicole Votruba, Mirja Koschorke, and Graham Thornicroft

Introduction

Stigma can be considered as an overarching term that includes challenges faced by people with mental illness related to knowledge, attitudes, and behaviour [1]. The knowledge domain includes low levels of mental health literacy, for example among the general population (ignorance); the attitudinal domain relates to almost entirely negative affect towards people with experience of mental illness (prejudice), while the behavioural aspects reflect predominantly forces for the social exclusion and diminished citizenship for people with mental illness (discrimination). This chapter considers the evidence of the implications of these elements and also summarizes the literature on what can be done to effectively reduce stigma and discrimination.

The practical implications of stigma and discrimination

The consequences of stigma and discrimination are wide-reaching and severe, and affect people with mental disorders, their family members, mental health staff, institutions, and treatments, as well as society as a whole.

Discrimination, the behavioural consequence of stigma, adds to the disability of persons with mental illness and leads to disadvantages in many aspects of life, including personal relationships, education, and work [1, 2]. It limits the life opportunities of those affected, through loss of income, prolonged unemployment, reduced access to housing or health care, for example, and therefore reduced access to important means of recovery [3]. Commonly, people with mental disorders experience unequal treatment for physical health conditions, leading to rates of morbidity and mortality much beyond what is attributable to their primary mental disorder [4]. Discrimination because of mental illness is pervasive and universal—international studies of mental illness discrimination have shown that rates of both anticipated and experienced discrimination are consistently high across countries among people with mental disorders [5–8].

Yet another form of devaluation takes place when individuals affected by mental illness stigma accept the negative beliefs held against them and lose self-esteem, resulting in self-stigma (or 'internalized stigma') [9–11]. Internal consequences of stigma and discrimination have been the subject of a number of studies and include feelings of shame, a loss of emotional well-being, poor self-efficacy, and negative recovery outcomes [12–19].

What self-stigma can mean is vividly described in a quote by Gallo [20, pp. 407–8] quoted in Angell *et al.* (2005) [21]—a statement from a person with mental illness on how stigma and discrimination have changed the way she feels about herself:

> 'I perceive myself, quite accurately, unfortunately, as having a serious mental illness and therefore as having been relegated to what I called "the social garbage heap", I tortured myself with the persistent and repetitive thought that I would encounter, even total strangers, did not like me and wished that mentally ill people like me did not exist. Thus I would do things such as standing away from others at bus stops and hiding and cringing in the far corners of subway cars. Thinking of myself as garbage, I would even leave the side walk in what I thought of as exhibiting the proper difference to those above me in social class. The latter group, of course, included all other human beings.' [20][1]

Internal consequences of stigma and discrimination can further lead to hopelessness and depression, social withdrawal, and reduced participation in treatment programmes [3] and act as a stressor that perpetuates ill health and makes recovery more difficult [22, 23]. Coping responses, such as secrecy about the condition and avoidance of others, further feed into the cycle of isolation and alienation [3].

In addition to experiences of direct discrimination from others, persons suffering from mental illness face several forms of structural discrimination, for example manifest in the lack of resources allocated to the care of mental disorders, the location and quality of some treatment facilities, and inadequate attention to the physical health needs of people with mental disorders [24, 25].

Paradoxically, stigmatizing practices and even human rights violations are found within mental health services worldwide [26–28]. Undesirable conditions in mental health institutions, as well as the shame and fear of disclosure associated with attending them, act as a barrier for help-seeking and the effective treatment of mental health

[1] Reproduced from *Schizophr Bull.*, 20(2), Gallo KM, First person account: Self-stigmatization, pp. 407–410, Copyright (1994), with permission from Oxford University Press.

conditions [29]. For example, people with mental disorders may delay seeking treatment or terminate treatment prematurely for fear of being labelled and discriminated against [3, 30].

A statement from Diana on restrained treatment by health-care professionals in a psychiatric hospital:

> 'There were between six and eight staff members, I am not sure, I can't remember too much. I didn't have a very clear vision. I saw people surrounding me, holding me by the hand, holding me by the legs. I don't think it was something they had to do. There was no talking. They would have helped better if they would have been more understanding and more talking… more respect. I felt really bad. While I was in hospital I tried to complain but I don't know if anybody was listening. It was a nightmare.' [1, p. 87][2]

Another very commonly cited source of stigma is family members. Even although many people experience great support from their families, it is family members too who often hold negative attitudes towards people with mental illness and even within their families treat them in a discriminatory way.

> 'There I was, the eldest son suffering a sudden deep depression, crying and unable to work. Often threatened by my confused Dad as being "weak", "a fuck-up", and a "nutter". No-one else in the family going back generations had gone "mad like that". I was told not to tell any of the neighbours what was happening – to stop the gossip. (Paul)' [1, p. 2][3]

In many societies where services are scarce and support systems inadequate, families feel forced to resort to chaining and other practices to restrain relatives with mental illness [28, 31].

Research has shown that mental health professionals themselves hold negative stereotypes and attitudes similar to the general population and even more pessimistic views in the domain of recovery, possibly due to their disproportionate contact with those with poorer outcomes [32]. Service users commonly report lack of empathy and interest from health professionals, diagnoses being given with negative prognosis, and lack of information and involvement in decision-making [33].

> 'Some of the worst experiences I have had have been in psychiatric hospitals. I recognise the need to be kept safe but often I have felt that my rights and dignity have been stripped away. Being intimately searched again and again and constantly followed whilst under "close observation" just leaves me feeling singled out and perceived as little more than a nuisance ("there's to be no trouble on my shift") […] I have heard many comments along the lines of "Oh, she's cut again. Why doesn't she do it properly and kill herself". (Sandra) [1], p. 94][4]

Stigma and discrimination do not only affect persons suffering from mental illness, but also families [34–36]. The effect of negative attitudes towards the family members of people with mental illness has been described as 'stigma by association' and may lead to experiences of direct discrimination, as well as feelings of shame and self-blame [1]. In societies where the cohesion of family networks is strong, the impact of stigma by association may be severe and can include economic consequences, as well as impact on work or marital prospects [37].

Contextual factors relevant to stigma and discrimination

The manifestations of stigma and discrimination are subject to the influence of a range of cultural and contextual factors [38]. Key domains through which culture shapes the manifestations of stigma include: (1) notions of 'mental illness' and explanatory models (for example, in many settings, psychiatric symptoms may not be seen as indicative of an 'illness'); (2) cultural meanings of the impairments and manifestations caused by the disorder and its stigma (for example, the impact of stigma on marital prospects may have more severe implications in cultural contexts where marriage is central); and (3) notions of self and personhood (for example, higher levels of family cohesion may offer more support but also go along with a more widespread impact of stigma across family members and generations).

Also socio-economic factors, such as poverty and access to health care, determine the context in which stigma is enacted and experienced [7, 9, 39, 40]. In low- and middle-income countries (LMICs) and other settings where most people with mental illness do not have access to social welfare benefits, the negative economic consequences of stigma, for example, through discrimination in work, may be so severe as to threaten the economic survival of entire families [41].

Global patterns of stigma and discrimination

There are few studies comparing the frequency of experiences of stigma and discrimination in different contexts, and recent research has sought to address this gap in the literature. International surveys of experienced and anticipated discrimination among people with schizophrenia (27 countries) and among people with depression (39 countries), for example, found rates of both outcomes to be consistently high across cultures [5, 7, 8]. Significant between-country variation was found for experienced discrimination, but not for anticipated discrimination reported by people with schizophrenia [7]. A report on the qualitative data collected as part of the same study, however, found few transnational differences [6]. Another study looking at public attitudes across 16 countries identified a 'backbone' of certain prejudices that were held across all settings, even where overall stigma was relatively low [42].

On the other hand, some smaller studies suggest stark differences between high-income country (HIC) and LMIC settings, for example, studies from China [43] and India [41], with rates of experienced discrimination much lower than those commonly reported from HIC studies, and qualitative differences in the meaning and appraisal of the experiences made. At first sight, this appears to support the findings of early cross-cultural research on stigma, suggesting that the stigma of mental illness may be less marked in non-industrialized societies due to a more supportive environment with more social cohesion, and

[2] Reproduced from Thornicroft G, *Shunned: Discrimination against people with mental illness*, p. 87, Copyright (2006), with permission from Oxford University Press.

[3] Reproduced from Thornicroft G, *Shunned: Discrimination against people with mental illness*, p. 2, Copyright (2006), with permission from Oxford University Press.

[4] Reproduced from Thornicroft G, *Shunned: Discrimination against people with mental illness*, p. 94, Copyright (2006), with permission from Oxford University Press.

therefore less risk of prolonged rejection, isolation, segregation, and institutionalization [44, 45; 46, 47 cited in 48]. The better prognosis of schizophrenia found in international studies by the World Health Organization (WHO) [49–52] has therefore commonly been attributed to less stigmatization in LMICs [53].

Yet, in contradiction to this, there is now a considerable body of evidence documenting that in many LMIC settings, experiences of stigma, discrimination, and human rights abuses due to mental illness are common and severe [5, 11, 27, 37, 54–62]. One international study using population-wide data from 16 countries found even higher rates of reported stigma among people with mental disorders in developing (31.2%) than in developed (20%) countries [55].

In conclusion, our understanding of global patterns of stigma and discrimination is still rather limited to date, and further high-quality cross-cultural research is needed to throw light on the forces that drive intercultural differences in the manifestation of stigma. Understanding the factors that shape stigma distinctly in different contexts will serve to inform the development of context-specific anti-stigma interventions.

How to measure stigma

Alongside the development of research into stigma, the creation and validation of instruments to measure stigma and discrimination took their beginnings in the 1960s. Early scales focused largely on the measurement of stigmatizing attitudes among the general population. Since, numerous scales have been developed, incorporating a wider range of perspectives on stigma and discrimination, notably the inclusion of the perspectives and experiences of service users and carers [63]. Nevertheless, there continues to be a distinct lack of measures developed or validated in LMIC settings and/or non-Western cultures [64]. Several methods have been put forward which seek to achieve cultural validity of measures of stigma and discrimination, including an approach by Yang *et al.* which proposes to focus on 'what matters most' in a given culture [65, 66]. A recent review concluded that future efforts in the domain of measuring stigma and discrimination should focus on: (i) procedures for achieving cultural validity of measurement tools, (ii) indicators for structural stigma and stigmatizing behaviour (underrepresented in current scales), and (iii) targeted or tailored measures for specific subgroups, all with a particular focus on LMIC countries where literature is sparse [63]. This is important as the appropriate measurement of stigma and discrimination is critical to understanding whether and how anti-stigma interventions are effective [63].

How to tackle stigma

The critical question to tackle stigma in mental health is: what interventions work? In the past years, research on anti-stigma interventions to change knowledge, attitudes, and behaviour towards people with mental illness has increased. Most interventions aim at changing one or several of these aspects through education, social contact, or behavioural interventions.

A recent narrative review concluded with the following main findings on the evidence of anti-stigma interventions [64]:

(1) 'at the population level there is a fairly consistent pattern of short-term benefits for positive attitude change, and some lesser evidence for knowledge improvement;
(2) for people with mental illness, some group-level anti-stigma inventions show promise and merit further assessment;
(3) for specific target groups, such as students, social-contact-based interventions usually achieve short-term (but less clearly long-term) attitudinal improvements, and less often produce knowledge gains;
(4) this is a heterogeneous field of study with few strong study designs with large sample sizes;
(5) research from low-income and middle-income countries is conspicuous by its relative absence;
(6) caution needs to be exercised in not overgeneralising lessons from one target group to another;
(7) there is a clear need for studies with longer-term follow-up to assess whether initial gains are sustained or attenuated, and whether booster doses of the intervention are needed to maintain progress;
(8) few studies in any part of the world have focused on either the service user's perspective of stigma and discrimination or on the behaviour domain of behavioural change, either by people with or without mental illness in the complex processes of stigmatisation.'[5]

It has been found that generally the effectiveness of the interventions depends much on the target group and the time frame of the intervention. However, most studies are short-term effectiveness studies looking at attitudes of the general public towards people with mental disorders in HICs. The most widely evaluated interventions are education/information and social contact [63].

Overall there remains a large knowledge gap for medium- to long-term anti-stigma interventions, and particularly for interventions in low-income countries where evidence is almost absent [63]. There is also a need for: (i) more high-quality interventions based on robust methods and validated measures, (ii) more systematic reviews on long-term effectiveness, (iii) more randomized controlled trials, and (iv) more evidence from LMICs [67].

Social contact-based interventions

Interventions using social contact as a key element have been found to be the most effective type of interventions [68]. At the same time, social contact is also the best evidence-based intervention, particularly in short-term outcomes. Evidence from systematic reviews suggests that social contact is the most effective intervention in terms of achieving short-term improvements in knowledge and attitudes among adults.

An account by a young man who participated in the German school project 'Crazy? So what!':

> 'Eight years ago I became ill: I developed schizophrenia […]. I've been feeling better now for two years. But I do have to take good care of myself. But hiding because of that? These times are over. I finally want to live now! Talking to the students is exhausting but also really great […] they discover that there are a lot more commonalities than differences between us, that their images of the 'crazy ones' are

[5] Reproduced from *The Lancet*, 387(10023), Thornicroft G, Mehta N, Clement S, *et al.*, Evidence for effective interventions to reduce mental-health-related stigma and discrimination, pp. 1123–1132, Copyright (2015), with permission from Elsevier.

not true. It feels really good to contribute to achieving that we finally can talk openly about mental illness, and that nobody has to hide because of a mental health problem.' [69][6]

Social contact is the most effective type of intervention in the short term, but it is not clear whether effectiveness is sustained in the medium to longer term [67]. While social contact has been reported to be the most effective intervention in adults, these evaluations are mostly based on intervention studies from HICs. There is a great need for more evidence from LMICs to assess whether social contact is as effective there and how to implement it to suit local requirements. In addition, more research is needed to investigate the long-term effectiveness of social contact interventions.

Educational interventions

'The […] practical way to stop stigma and discrimination is by better education of schoolchildren at an early age and to reinforce this message through lifelong learning. Each course or class should not only start with "household" messages about fire escapes, etc., but that bullying or discrimination will not be tolerated whilst on the course.' (Paul) [1]

(Thornicroft, 2006)

While direct social contact interventions have been found to be the most effective intervention in adults, systematic reviews have found that in students, educational interventions are more effective in reducing stigma in students' knowledge and attitudes in the short term. However, the evidence base for effectiveness in the medium to longer term is weak [64]. A meta-analysis found both social contact as well as educational interventions reduce stigma significantly and, importantly, irrespectively if these interventions are delivered face-to-face or via Internet programmes [70]. Moreover, Thornicroft *et al.* have found evidence that education and information seem to be the most effective interventions in the medium and long terms [64]. Evaluations in HICs have found that stigma and discrimination against people with mental illness can be reduced through focused, long-term information campaigns like Time to Change in the United Kingdom (UK) [71]. High-quality effectiveness evaluations for educational interventions are scarce for LMICs. Several national and regional campaigns from LMICs report qualitative changes in attitudes and behaviour; however, these effects lack high-quality evaluation for quantitative efficiency [72].

Behavioural domain

Overall the effect of behavioural therapy and psychotherapy has not been sufficiently researched. In persons with mental illness, psychoeducational therapy, including elements of cognitive behavioural therapy (CBT), seem to be effective in reducing self-stigma [73]. Yet, CBT has been found not to be effective in reducing stigma in other groups.

For medium- or long-term outcomes, systematic reviews have found there was not sufficient research to believe psychotherapy or entertainment/arts interventions can help to reduce stigma [64].

Conclusions

From this discussion, the authors draw the following conclusions. Stigma and discrimination appear to be universal in their presence and impact, although there are clear local and regional varations in their content and manifestations. Lay stigma by the general public constitutes a powerful force for social exclusion, and in addition there is also strong evidence that stigma among health-care professionals is a powerful barrier to the mental and physical health care needed by people with mental illness. There is now increasingly strong evidence that personal and social contact methods, including filmed/virtual contact, is the most strongly evidence-based method to reduce stigma and discrimination. This evidence is now accumulating at inter-personal, organizational, and national levels. But as yet, there are few longer-term studies to know if such gains are sustainable in the long term. Nearly all the research evidence is from HICs, with a distinct evidence gap from LMICs. For the future, it is clear that service users are the central pioneers/key active ingredients in anti-stigma programmes and that interventions specifically locally and culturally adapted for use in LMICs are a pressing priority.

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