

# A mental health professional's guide to commonly used medications

SECOND EDITION

Herbert Mwebe

First published in 2018 by Critical Publishing Ltd Reprinted in 2019 and 2020 Second edition published in 2021

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British Library Cataloguing in Publication Data A CIP record for this book is available from the British Library

ISBN: 978-1-914171-44-4

This book is also available in the following e-book formats:

EPUB ISBN: 978-1-914171-45-1 Adobe e-book ISBN: 978-1-914171-46-8

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Cover design by Out of House Limited Text design by Greensplash Project management by Newgen Publishing UK Printed and bound in Great Britain by 4edge, Essex

Critical Publishing 3 Connaught Road St Albans AL3 5RX

www.criticalpublishing.com

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# **Meet the author**



**Herbert Mwebe** is a senior teaching fellow and a senior lecturer in Mental Health in the School of Health and Education at Middlesex University. Within the Department of Mental Health, Herbert delivers physical health training for both undergraduate and postgraduate programmes. Herbert is the Continuing Professional Development programme lead in the Department of Mental Health, and his teaching and research interest focus on improving physical health in severe mental illness and psy-

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# **Mental illness**

## **CHAPTER AIMS**

This chapter covers:

- the brief history of psychiatric drugs and alternative interventions used in mental health settings;
- the aetiology of mental illness;
- neurodevelopment and biochemical theories implicated in the aetiology of mental illness;
- the most common neurotransmitters, their role and function;
- the role of mental health nurses, prescribers and others in medication management;
- clinical decision making in mental health nursing.

## **1.1 INTRODUCTION**

Psychiatric medicine as well as contemporary mental health nursing relies heavily on psychotropic drugs. The phrase 'psychotropic drugs' is a technical term for psychiatric medicines that alter chemical levels in the brain which impact mood and behaviour. Medications can play a role in treating many mental illnesses and conditions. Psychiatric drugs have been available for more than six decades; also referred to as neuroleptic drugs, they are used to treat and manage symptoms of organic psychoses and mania. Psychiatric drugs just like any other medication have side effects, ranging from minor to more complex and serious adverse effects for the patient. There is now a well-established body of evidence relating to the clinical effects of psychiatric drugs, and past as well as current research has focused on the health implications of taking these pharmaceutical agents. Psychiatric drug use in clinical settings has indeed revolutionised the understanding around theory and practice of mental health nursing. The mental health nurse's role in monitoring the use of these drugs in clinical psychiatry including evaluation of the side effects associated with psychiatric drugs is therefore a vital aspect of the patient's care plan and management. Firstly, the nurse must be able to identify and evaluate side effects of the medication because the side effects may mirror the symptoms of mental conditions; this could present challenges in developing a clearly focused care plan for the patient in relation to their specific needs identified and aligning these with the necessary and most effective interventions.

Medicines are usually more effective when combined with alternative interventions for people with mental illness; non-pharmacological interventions routinely used in psychiatric settings include but are not limited to cognitive behavioural therapy (CBT), counselling, interpersonal therapy, family therapy, psychoeducation, healthy eating, sleep hygiene, empathetic listening, problem solving, exercise and budgeting. In some cases, medication can help to reduce the severity of psychiatric symptoms so that other methods of interventions in care planning can become more effective. In acute psychiatric presentation, it is common to trial pharmacological interventions first and once the acute symptomatology is reduced and there is a degree of noticeable improvement in the patient's overall presentation (mood, thinking, perceptions, cognition, etc), it would be prudent to consider psychosocial approaches alongside the primary intervention. It is important to explore the usefulness of all interventions (pharmacological and psychosocial treatment strategies) when considering care planning and to not focus on a single intervention. For instance, a commonly used antidepressant called sertraline may lessen some significant symptoms of major depression and CBT may help the patient to change negative attitudes and patterns of thinking. Predicting patient response to medication is not always straightforward, as some medications could work better for one person than for another (National Institute for Health and Care Excellence [NICE], 2018b). Prescribers (doctors, nurses and/or pharmacists) should review the evidence base and clinical records to see if there is evidence for recommending one type of medicine over another. For example, mirtazapine, a common antidepressant, may be preferred over citalopram when there is problematic chronic insomnia; this is because it has been shown to enhance sedation and sleep even at lower doses compared to citalopram. Various factors should be considered by prescribers when planning pharmacological interventions, ie side effects, family history, existing physical health conditions, contra-indications, a patient's concordance to medication, lifestyle behaviours, allergies and consideration for other drugs (prescribed or recreational) the patient may be taking. The mental health nurse, by working alongside medical and non-medical prescribers, patients and carers, must ensure that patients receiving psychopharmacological interventions are closely monitored in relation to safe medication usage and management. The ultimate aim of safe and effective medicine management in clinical psychiatry is to optimise the benefits that psychopharmacological or other pharmacological agents offer and achieve the best outcome for the patients.

It is not unusual for the patient to try more than one drug at the initiation of treatment to establish the most appropriate drug; factors such as the patient's symptom profile, side effects and any past or previous response to other drugs should form part of the initial assessment. Patient involvement and active participation in the process of decision making is vital to create a collaborative working partnership between the healthcare professional and the patient. The success of this shared care partnership is vital for the development of care plans that are person-centred. Family members and other carers should also be included in these discussions where possible and if the patient gives their consent. Some drugs used in mental health settings work guickly. For example, lorazepam, which is commonly used for short-term treatment and management of anxiety, produces a calming effect and improvement in patients can be evident within hours. Other drugs may have a slow onset of action, requiring some patients to take the medication for several weeks before any improvement is seen. Medication therapy may be a short-term treatment strategy in which medications may be taken for a few weeks to months. In other cases, medication therapy may be a long-term or even lifelong treatment strategy. Patients may be afraid that consuming medication may change their personality and lives; however, most patients find that taking the medication allows them to take charge of their situation and enables them to become more independent and actively participate in care planning to further improve their guality of life. In all situations, the mental health nurse plays a crucial role as the main frontline staff in engaging the patient, offering encouragement and reassurance, particularly where patients may report or present with queries and doubts about the efficacy of taking psychiatric drugs; some may question the benefits of the drugs on their overall symptoms count, and fear becoming addicted to medications. Apart from anti-anxiety drugs (benzodiazepines), which can induce both physical and psychological dependence, there is no evidence that antipsychotics, mood stabilisers, antidementia drugs and antidepressants are associated with inductive dependence effects in those who are prescribed and administered these drugs.

## **1.2 AETIOLOGY OF MENTAL ILLNESS**

Mental illness can arise from many different sources. To date, there is no single confirmed or reliable accepted cause established. A common belief is that mental illness arises when genetic vulnerabilities and environmental factors interact, with the latter often acting as a catalyst to expose genetic vulnerabilities. This model has been theorised explicitly by the diathesis-stress model (Sullivan, 2009) and similarly the stress vulnerability model proposed by Zubin and Spring (1977). To put it simply, when stress factors (eq bereavement, poverty, loss of employment, complex interpersonal dynamics) and vulnerability (ie genetic, chronic physical illness, stressful life events) interact beyond a threshold, mental illness emerges. People with traumatic brain injuries are at greater risk of developing mental health-related conditions and environmental factors surrounding pregnancy and birth complications have also been implicated, although it is conceivable that the pregnancy and birth complications may reflect rather than cause mental illness. There is also wider acknowledgement of a strong relationship between complex mental illness in adults and abuse (physical, emotional, sexual) and psychological trauma in early years. As such, psychosocial and interpersonal theories have also become a focus of recovery-orientated strategies to understand how factors such as environmental, social, economic and upbringing may affect the course of mental illness.

Research has shown that genes play an important role in the development of mental illness, but there has been little progress linking specific genes to specific mental health conditions. It has traditionally been assumed that changes in DNA structure are exclusively accountable for the development of schizophrenia. However, twin studies show that it is also conceivable that an epigenetic mechanism may contribute to the development of schizophrenia. Genetic contribution to the course of mental illness is significant and has been demonstrated by twin, family and adoption studies (Duncan et al, 2004; Gejman et al, 2010). In relation to schizophrenia and twin studies, a concordance rate of around 45–50 per cent has been reported for monozygotic twins, compared to only a 10–15 per cent concordance rate for fraternal twins. This commonly cited evidence in a wider body of literature is largely considered the most significant piece of evidence supporting the biological theory of schizophrenia and seen as modest proof underpinning this theory relating to the course of schizophrenia (Joseph, 2003; Rapp et al, 2003). However, the lack of 100 per cent concordance rates in monozygotic twins is also evidence that aetiology is not entirely genetic. A study by Rasic et al (2014) found that offspring of parents with severe mental illness had a 32% probability of developing severe mental illness (SMI).

While the cause of depression has not been fully established, several theories have been reported in the pathophysiology of depression. Genetic contribution has been established, with twin studies indicating that certain presentations of depressive disorder appear to be genetic. There is a reported increase in risk of bipolar disorder in the relatives of patients with bipolar disorder. Relatives of both bipolar and unipolar patients are also at increased risk of unipolar depression (Cuellar et al, 2005). Previous history of a mental illness (depression, schizophrenia, bipolar disorder) may increase the risk of further episodes. Major depressive disorder is also two to three times more common in women; similarly, unipolar depression in women is double that seen in males (Blows, 2011).

Psychoanalytic theories have also been proposed to explain the cause of mental illness. To this end, the theories offer rationality in relation to unresolved internal and interpersonal relational conflicts. Similarly, the attachment theory, which is often applied to understanding psychopathology, is informed by evolutionary psychology approaches that focus on the role early object relations play, ie early caregiver-child relationships, and uncovering any tensions (anger, frustration, resentment) and the need to find satisfying positive object relations in adult life. Psychoanalytic theorists incorporate and assimilate the biopsychosocial model in their approach. The biopsychosocial model is now commonly used in the western world, but while it emphasises the biological, social and psychological entities with regard to understanding aetiology of disease and illness, psychiatric care in the west continues to be mostly dominated by the medical model (disease model/ biopsychiatric model). Distinctions are commonly made between the disease model (focusing on presence or absence of symptoms) and the social model (recovery model) of mental illness, which aims to homogenise the biopsychosocial understanding of psychopathology by focusing on social derivatives and constructions. The biopsychiatric model continues to dominate most psychiatric-led interventions (psychiatric medications) in mental health settings. Critiques of the psychiatric disease model have often blamed the increased evidence of cardiometabolic effects reported in people administered with psychiatric drugs on its wider application in clinical psychiatry, often with lower emphasis on the use of psychosocial approaches in this patient population (Pilgrim, 2015; Beyond Blue, 2019; Russell, 2019).

Biochemical theories implicate abnormalities in neurotransmitter circuit systems of dopamine, glutamate, serotonin, gamma-aminobutyric acid (GABA), adrenaline/noradrenalin and acetylcholine in the causes of mental illness. The next subsections look at this in more detail.

### **1.3 NEURODEVELOPMENTAL THEORIES**

Neurodevelopmental theories are supported by abnormalities in the physiology of the brain, its structures and functions in the post-mortem of patients with schizophrenia. When reporting abnormalities, neuroscientists have discovered both structural and functional changes, ie enlarged lateral and third cerebral ventricles (cavities in the brain filled with cerebrospinal fluid [CSF]) and a decrease in whole-brain volume are consistent findings. Patients with schizophrenia, including people who have never been treated, have a reduced volume of grey matter in the brain, especially in the temporal and frontal lobes, hippocampus, amygdala and parahippocampal gyrus. Neuroscientists have found grey matter loss of up to 25 per cent in some regions of the brain. The loss, which had started in the parietal or outer regions of the brain, had spread to the rest of the brain over a five-year period. The patients with most brain tissue loss also had the worst symptoms, including hallucinations, delusions, bizarre and psychotic thoughts, hearing voices and depression (Hata et al. 2003; Vital et al. 2012; Brent et al. 2013). Suggested associations between reduced frontal lobe activity and negative (affective) symptoms commonly exhibited by patients have been reported as well as associations linking positive symptoms (delusions, auditory hallucinations) and increases in regional cerebral blood flow in brain language areas (Duncan et al, 2004; Castelnovo et al, 2015).

Associations between impaired perceptual/cognitive processing (Gong et al, 2016; Rozycki et al, 2017; Wu et al, 2018) in brain structures in schizophrenia and clinical psychotic symptoms (Nakamura et al, 2008; Chen et al, 2020) have been reported, where particularly extensive reduction of grey matter volume evident in the temporal and frontal brain structures is reported to be further linked with dysfunction of both cognitive and response inhibition (Nakamura et al, 2008; Tarcijonas and Sarpal, 2019). Furthermore, grey matter volume in the cortical brain regions (frontal, temporal, parietal) in individuals with schizophrenia is adversely correlated with delusion and hallucination symptom severity (Asami et al, 2012; Vieira et al, 2020; ZhiHong et al, 2020).

#### **Neurons and neurotransmitters**

The central nervous system (CNS) controls most functions of the body and mind. It consists of two parts: the brain and the spinal cord. The brain is central to thoughts, emotions, behaviours, understanding and interpreting our external environment, muscle and motor control. Neurons and neurotransmitters play a significant role in moderating all these body processes and thus contribute to our daily well-being. Neurons are the main cells of chemical communication in the brain and come in different sizes, lengths and shapes, which determines their roles and function inside the brain. There are tens of billions of neurons that connect to thousands of other neurons within the brain. Neurotransmitters are chemical messengers between different neurons in the brain. There are between 30 and 100 neurotransmitter molecule types, with ten of these doing 99 per cent of the work. Neuroscience and biopsychiatry research has mainly focused on the following main categories of neurotransmitters: glutamate, GABA, dopamine, serotonin, noradrenaline, ace-tylcholine and histamine (National Institute of Mental Health, 2016; Whishaw et al, 2016). Abnormalities in these biochemical neurotransmitter circuit systems of the brain have been the focus of neuroscience research in relation to the conceptualisation of biopsychiatric pathogenesis, presentation and how recovery-related models are influenced by our understanding of the pharmacokinetics and pharmacodynamics of psychiatric medicines on the body.

Neurons (or nerve cells) are the functional units of the CNS; neurotransmitters are chemical messengers between one neuron and another. The neurotransmitters carry impulses (messages) between neurons at specific junctions called synapses. Synapses are connections between neurons in the brain, also commonly referred to as the nervous system, containing a complex 'hard-wired' synaptic inter-junction between neurons. Psychopharmacologist and professor of psychiatry Dr Stahl argues that '*the anatomically addressed brain is thus a complex wiring diagram, ferrying electrical impulses to wherever the wire is plugged in, eg at a synapse*' (Stahl, 2017, p 1). All nerve impulses or chemical reactions originate within the neuron. Impulses resulting from neurotransmission travel along the axon of the nerve to initiate one of many actions inside or outside the brain, for example:

- · triggering another nerve impulse;
- a muscle contraction;
- a glandular secretion.



Figure 1.1 Neurons and neurotransmitter mechanism of action

In Figure 1.1, the onset of a nerve impulse excites the release of neurotransmitters from vesicles. The released neurotransmitter travels across the presynaptic nerve cell membrane to the synapse. The neurotransmitters pass across the synaptic cleft or synapse, bind to special molecules (proteins) called receptors and open channels located on the postsynaptic neuron of the target organ/muscle/nerve cell. The charged particles subsequently enter and trigger a second impulse. This process happens with quick precision and is repeated as the signal or impulse is passed at split-second speed from neuron to neuron (Südhof, 2004). The mechanism by which the neuron releases neurotransmitters has been the focus of considerable research. Neurotransmitters (see Table 1.1) are packaged or produced in the firing neuron (presynaptic nerve terminal) like air loaded in an inflated balloon ready to escape, and then fired out towards the receiving neuron (postsynaptic nerve terminal). Scientists found that neurotransmitters are stored in small, bubble-like cubicles called vesicles. Each vesicle will usually hold a single type of neurotransmitter, such as dopamine, which is associated with memory and other cognitive skills, or serotonin, which helps regulate mood, appetite and aids in digestion. The vesicles travel like foot soldiers towards the end of the discharging neuron where they dock, waiting to be released through the synapse to eventually bind to the receptors of the receiving neuron. After the neurotransmitter binds with the receptor (a site on the postsynaptic nerve cell), the neurotransmitter can produce one of three effects: (1) exciting or stimulating the receiving neuron or organ, (2) inhibition (dampening or blocking action) or (3) some neurotransmitters can have both inhibitory and excitatory effects on the postsynaptic neuron activity (shown in Table 1.1). The neurotransmitter breaks away from the receptor and is either recycled back (re-uptake) into the releasing neuron by a neurotransmitter responder or deactivated by enzymes in the synaptic space (Südhof and Rothman, 2009). Following neurotransmitter release, the neuron recycles the empty vesicles, refilling and reusing them several more times before they are replaced. Changes in functioning of any part of this process – if a neuron fails to do its job properly or if the vesicles release their neurotransmitters at the wrong speed can result in the development of serious problems, including effects on health and wellbeing. Scientists have discovered that in the brains of people with depression, serotonin, which is responsible for regulating mood and enabling sleep, is low and not transmitted effectively between brain nerve cells. Behavioural symptoms may occur when neurons or neurotransmitter systems malfunction. It is proposed that alteration in the level of function within these neurotransmitters may offer understanding of the pathogenesis of some psychiatric disorders, such as schizophrenia, depression, anxiety states, attention deficit hyperactivity disorder (ADHD), mood disorders and other neurodegenerative conditions such as dementia and parkinsonism. A common conceptualisation of the mechanism of action of psychiatric drugs is that they alter neuronal function; the implication for this is that behavioural symptoms reported in individuals with a mental illness may be relieved, worsened or induced.

Each neurotransmitter has one or two important roles at the receptor sites; the neurotransmitter either has an excitatory or inhibitory effect, or both. Neurotransmitter role and function may include regulating bodily functions such as thinking, feelings, motor and sensory activity, thermoregulation, behavioural control, digestion, etc.

Neurotransmitter	Key role	Effects of increased	Effects of reduced
Serotonin (excitatory and inhibitory)	Inhibits behaviour and activity, enhances sleep time, tem- perature regulation, pain perception and mood states	Induces sedation, but if significantly raised can result in mania and hallucinations	Depression, sleep dis- turbances, irritability and hostile behaviour
Dopamine (excitatory)	Decision making, thinking, fine muscle move- ments, integration of emotions and thought processes	Loose associa- tions, disorgan- ised thoughts, stereotypical behaviours, tics and psychosis	Parkinson's disease and movement dis- orders, depres- sion, fatigue, mood swings
GABA (inhibitory)	Balances and regulates excitatory neurons, regulates and restricts neuro- electric activity and involved in allergies	Excessive drowsi- ness may induce narcolepsy	Difficulty thinking or concentrat- ing, tremors, stress, loss of motor control, personal- ity changes, anxiety
Noradrenaline (excitatory and inhibitory)	Alertness, capacity to focus, attention, capacity to be orientated, fight or flight (sympa- thetic response)	Loss of appetite, hypervigilance, anxiety, paranoia	Low energy, dull feeling, depre- ssion, low blood pres- sure, lethargy, inattention
Adrenaline (excitatory)	Adrenal medulla releases adrena- line. Adrenaline causes many physi- ological changes to prepare the body for fight or flight (eg increased heart rate, pupil dilation, etc)	Paranoia, mania, weight loss or gain, muscle weakness, depression, anxi- ety, fatigue, sleep disturbances, excess facial and body hair and/ or irregular peri- ods in women	Low energy, dull feeling, depression, fatigue, loss of appetite

 Table 1.1 A summary of neurotransmitter types and effects in the body

(continued)

#### Table 1.1 (Cont.)

Neurotransmitter	Key role	Effects of increased	Effects of reduced
Acetylcholine (excitatory)	Stimulates muscles, helps in memory function, activates pain responses and regulates endo- crine secretions	Self-consciousness, over inhibition, depression, psycho-somatic complaints and anxiety	Anticholinergic effects (eg dry mouth, blurred vision), lack of inhibition, poor memory, euphoria, parkinsonism, antisocial behav- iour, speech problems, manic behaviour
<b>Glutamate</b> (major excitatory neurotransmitter; <i>N</i> -methyl-D- aspartate [NMDA] receptors)	Involved in typical met- abolic functions such as energy production and ammonia purifi- cation in addition to protein synthesis. Neural communication, memory formation, learning, thinking and regulation	Increased levels of glutamate over- stimulation leads to further neural death/degenera- tion, which results in poor memory function/learning Alzheimer's disease	Glutamatergic abnormalities are implicated in schizophre- nia due to hypofunction of glutamater- gic systems
Anandamide is a member of a new class of neuro- transmitters. It is not a monoam- ine, amino acid, or a peptide – it is a lipid	Anandamide is a lipid mediator that acts as an endogenous ligand of CB1 recep- tors. These recep- tors are also the primary molecular target responsible for the pharma- cological effects of tetrahydrocan- nabinol (THC), the psychoactive ingre- dient in cannabis. Anandamide plays a role in the regulation of feeding behaviour and the neural gen- eration of motiva- tion and pleasure	Antidepressant effects Regulating mood, fear anxiety Increased levels of happiness	Can induce anxiety, depression, other forms of mental health issues

# 1.4 CLINICAL DECISION MAKING IN PRACTICE, AND MEDICINE MANAGEMENT AND OPTIMISATION

Decision making in acute care nursing requires an evaluation of many complex factors; relating to care delivered by nurses, clinical decision making is a vital aspect of their clinical practice and has a direct impact on the health and well-being of the patients they care for. Providing care in dynamic care environments requires mental health nurses to be competent decision makers so as to respond to patients' needs in a timely fashion. Regarding care of the individual with mental illness, the mental health nurse should be able to filter and break down information on symptoms, medication types, side effects, health determinants, make decisions and appropriately make clinical decisions in practice to improve patient outcomes; often this takes place in the context of a multidisciplinary team environment. The ability for mental health nurses to make the right decisions is an essential skill informed by their clinical experience, application of the relevant evidence base and collaborative working; these are some of the important factors that influence and can affect the quality of care provided in mental health nursing (Nibbelink and Brewer, 2018).

Mental health professionals play a critical role in meeting patients' needs and promoting care that is of high quality and safe. For example, the Nursing Midwifery Council (NMC) professional code of conduct stipulates that registered nurses are accountable for providing compassionate care, leading and co-ordinating nursing care interventions tailored to a person's needs (NMC, 2015a). To achieve this, nurses must work collaboratively, involving patients, their families, carers and partners with healthcare professionals and a range of services to meet the patients' health and social care needs, and doing this while consulting the most current evidence base (Mwebe, 2017; NMC, 2017). The way in which healthcare is provided has undergone various changes since the inception of the National Health Service (NHS) in the late 1940s. Healthcare professionals work constantly in cultures of change against a backdrop of challenging environments. providing care for individuals from a diverse background with often complex care needs. For example, in mental health care settings, patients receiving care either via primary or secondary mental health services may present with psychosocial health determinants (poor housing, poverty, social stigma) or unhealthy lifestyle choices. The responsibility to assist these patients lies with frontline mental health professionals, who offer advice and negotiated referrals into clinical pathways where these individuals can be afforded appropriate interventions. Often, the complexity of the recorded health and social care needs, and the challenges of navigating a complex health and social care system, may impact access to appropriate interventions for patients. The Australian Public Service Commission report (2007) used the term 'wicked' in relation to complex societal, systemic and individual determinants of health, which are often difficult to define and are caused by factors of varying degrees. For example, unhealthy lifestyle behaviours such as smoking, drug and alcohol misuse, unhealthy eating and sedentary lifestyles are significantly more prevalent in people with mental illness than in people without mental illness (Dunstan, 2010; Szatkowsk et al, 2015). In particular, people with severe mental illness smoke significantly more, have increased levels of nicotine dependency and are therefore at even greater risk of smoking-related harm (Mental Health Foundation, 2016; Office for National Statistics, 2016; Mwebe, 2018). It is unsurprising that people with severe mental illness die on average 10–20 years earlier than people without mental illness (Action on Smoking and Health, 2018). Among other factors, this disparity is often due to low emphasis on strategies to screen for physical health problems in people with mental illness and inadequate targeted practices such as monitoring for adverse effects of psychotropic drugs and screening for unhealthy lifestyle behaviours (Mwebe, 2017; Mwebe et al, 2020). The rates of metabolic syndrome (a risk factor for developing cardiovascular disease (CVD), diabetes, stroke) are reported to be as high as 60 per cent in people with severe mental illness (Crump et al, 2013). Mortality and morbidity from physical/medical problems in this patient population is a direct consequence of unhealthy lifestyle behaviours, genetic vulnerabilities, metabolic side effects of medications and effects of suffering and living with chronic mental ill health.

It is important that mental health professionals providing care for people accessing mental health services are equipped with the right knowledge and skills and are confident to participate in the necessary decision-making processes in practice to respond to the complex and diverse needs of patients (Mwebe, 2018; Mwebe et al, 2020). An integrative review of literature into clinical decision making in nursing by Nibbelink and Brewer (2018) found that there is a correlation between the skills-knowledge gap and the nurse's practice ability: the importance of possessing the right skills and being up to date with knowledge reflecting the nurse's area of practice can enhance the nurse's confidence in clinical decision making. A lack of knowledge and a lack of awareness of potential factors affecting the nurse's ability to reflect and implement accurate clinical decisions can have an adverse effect on the health outcomes of patients. Mental health nurses must consider numerous, potentially competing factors when making decisions to meet the needs of patients and any needs of their carers. Trainee mental health nurses and registered mental health nurses are obligated by the NMC (2015a) to act with professionalism, communicate and exhibit relationship-building skills when undertaking nursing procedures and clinical decisions utilising the APIE (Assessment, Planning, Implementation, Evaluation) process in defining and tackling population health needs. Mutsatsa (2015) argues that mental health nurses must ensure that any clinical decisions made must involve the patient, putting emphasis on a shared decision-making process between the nurse, the patient and/or others involved in their care to promote shared learning and trustworthiness.

Mental health nurses' knowledge and skills regarding pharmacological and physical care interventions in people with mental illness has been questioned in research studies (Offredy et al, 2008) and by nurses themselves (Bradley et al, 2006). Mwebe (2017) and Mwebe et al (2020) found varying levels of practice and knowledge among inpatient mental health nurses in relation to the physical health care needs of people with mental illness. Mental health nursing education in the UK is now more inclusive in that physical health training at both undergraduate and postgraduate levels is integrated into the curriculum, where registered and student nurses are provided with training to equip them with theoretical and practical skills knowledge to enable them to deal with these needs in people with mental health nurses and nurse prescribers are dutifully prepared and are able to confidently make appropriate clinical decisions in practice, as not doing so can affect public and patient trust in the profession and mental health services. For example, mental health nurse prescribers and mental health nurses may consider reflecting on the following questions when consulting and preparing a prescription or administering a medication for a patient.

- What is the therapeutic effect of the medication? Is it necessary and/or appropriate?
- What is the past and current medical history?
- What are the alternatives?
- · What is the patient's view of the clinical benefits of the drug?
- What is the patient's experience?
- · What are the patient's expectations from treatment?
- Is there a conflict and do you feel under pressure to prescribe?
- Is there problematic recreational drug use?
- · What physical health co-morbidities must I consider?
- What level of engagement is needed to ensure the patient is an active partner in their care planning?
- What is the route of the medication?
- Do I have the correct patient details?
- What is the allergy status?
- · Has the patient been consulted and are they consenting?

The current pre-registration education and practice standards (NMC, 2017) reflect the future/current needs of the public for expert nursing care; the revamped educational and practice standards framework for nurse training reflects the expected competencies for nurses in view of the four themes of the professional code of conduct for all nurses (prioritising people, practising effectively, preserving safety, promoting professionalism and trust). Mental health nursing care and practice should reflect these values in all aspects of patient care, for the nurse to be able to make and qualify any decisions made, provide a high quality of patient care and show accountability in doing so. Higher education institutions (HEIs) that deliver nurse training are mandated by the professional regulatory body (NMC) to develop nursing curricula that reflect the current and future needs of the NHS. and to evaluate the clinical knowledge and skills of pre-registration and post-registration nurses, relating to theoretical and practical competencies and essential skills in areas such as non-medical prescribing, medicine management, professional values and physical health care. This is to ensure that NMC registrants are equipped with a wide range of clinical skills (Royal Pharmaceutical Society, 2016; NMC, 2020). For trainee mental health nurses this requires a sound knowledge of the pathology of mental and physical illness, assessment and risk management and pharmacotherapeutics.

In practice, decisions to treat symptoms related to mental illness are not taken lightly and often involve a multidisciplinary team approach to plan for various patient needs including social, environmental, biological and psychological. The future mental health nurse or mental health prescriber must not only appreciate the impact of these factors on a person's health, but exercise awareness of different interventions and safely apply these to individual cases, adopting a person-centred approach. In particular, decision making in practice around psychopharmacological interventions requires a sound understanding of pharmacodynamics and pharmacokinetics of how psychotropic drugs work in the body and the obligatory monitoring measures to ensure drugs are used safely in line with the current evidence base, clinical guidelines and statutory frameworks to minimise risk of harm to patients (Hemingway, 2016). The clinical decisions made by mental health professionals (mental health nurses, social workers, psychologists, psychiatrists) have significant implications for the patient's well-being. Mental health professionals need to reflect continuously on how they engage patients, and how to evaluate and incorporate evidence in their day-to-day clinical decision making and professional judgement.

The Medicines and Healthcare Products Regulatory Agency (MHRA, 2008, p 9) defines medicine management as 'the clinical, cost-effective and safe use of medicines to ensure patients get the maximum benefit from the medicines they need, while at the same time minimising potential harm'. The concepts of medicine management and optimisation are closely related. The National Prescribing Centre (2014) defines medicine management as 'A system of processes and behaviours that determines how medicines are used by the NHS and patients'. Medicine optimisation, which is often applied and used in practice, relates to 'The safe and effective use of medicines to enable the best possible outcomes', as stated by NICE (2015d). The Royal Pharmaceutical Society (2021) details that medicine optimisation means that the right patients receive the right medicines at the right time. It further emphasises and examines how patients may stop or start their medicines and why/how, how they use the medications over time and how lifestyle changes (including health beliefs) or non-medical therapies might reduce the need for medicines. Good medicine optimisation in mental health nursing requires impeccable decision making including the administration of psychotropic drugs, prescribing and supporting people with mental illness to take their medicines correctly following medical guidance and advice (Royal College of Nursing, 2021). This requires that the nurse possesses up-to-date knowledge of the medication and is able to confidently articulate and or discuss its uses and effects with the patient. Effective medicine management places the patient as the main focus, thus delivering better targeted care interventions and ensuring that the patient is informed.

Similarly, the Royal Pharmaceutical Society's best practice document on 'professional quidance on administration of medicines' details an exemplary standard for effective medicine management. It clearly states that all registered healthcare professionals (eg nurses, pharmacists, doctors) must possess the necessary knowledge and skills to understand how medicines work, why/how these are used and the adverse effects and contraindications of prescribed medicines when administered to patients (NMC, 2015b; NMC, 2018; Royal Pharmaceutical Society, 2021). Mental health professionals are responsible for opportunistic screening and continued assessment of patients under their care. It is commonly evidenced in practice that psychotropic drugs can cause significant physiological and homeostatic changes, leading to poor physical health outcomes in patients. Mental health nurses are responsible for monitoring these medication-related effects in patients and any other changes in the patient's physiological parameters, adopting tools such as the National Early Warning Score (NEWS 2) to monitor these changes (NHS England, 2016; Care Quality Commission, 2017; Royal College of Physicians, 2021). The management and assessment of risk to promote the safe use of medicines should involve a clear and responsive model of inter- and intra-professional working partnerships. The Royal Pharmaceutical Society good practice guidance urges that medicine optimisation is essential and a vital step in the patient journey that requires collaborative working between patients, their families, carers and healthcare professionals (Royal Pharmaceutical Society, 2021). The NMC Essential Skills Clusters developed about nurses' fitness to practice at the point of registration emphasises mandatory requirements that pre-registration nurses must demonstrate competency in the medicine administration and calculation domain. Currently, facilitating student nurse learning and assessment in practice is undertaken by registered mental health nurses (practice assessors) and other healthcare professionals (practice supervisors) to prepare student nurses with the right attitude, skills and knowledge to be able to meet NMC pre-registration requirements (NMC, 2020). For trainee mental health nursing students in practice, a collaborative effort from different healthcare professionals contributing to the learning and assessment of students is of added benefit to engender personal and professional development from novice to competent practitioners capable of participating in medicine management care activities. Facilitating this learning involves developing the trainee nurse's knowledge and confidence to recognise the biopsychosocial influences on the health and well-being of individuals with mental illness, physical health complaints in severe mental illness, most commonly used psychiatric drugs, side effects and recommended monitoring. A team approach to supporting students remains key in facilitating student learning to develop their knowledge, confidence and skills in medicine management, with recognition that students benefit by learning from a range of clinicians within practice (Royal College of Nursing, 2020).

The example below shows a typical learning scenario in relation to medication administration, linking theoretical learning to practice.



side of Tom's medication chart. Later that day, Tom becomes aroused and agitated in presentation; the team try non-pharmacological de-escalation techniques to manage Tom's presentation but to little effect. The team decide to offer Tom a dose of haloperidol 5 mg and 2 mg of lorazepam to take orally. Tom agrees and takes the medication. A few hours later, Tom reports to Rose that he is experiencing dizziness, light-headedness, drowsiness, headache and muscle stiffness.

# Clinical decision-making process (linking theory to practice)

Rose immediately recalls theory from a university lecture that antipsychotic medications can induce unwanted physiological effects when administered to patients. Rose offers one-to-one support to Tom and reassures him that the effects reported are likely to be caused by haloperidol, which had been administered to Tom earlier. Given her level of training and experience, Rose informs the nurse in charge about the situation and her own interpretations. The nurse in charge confirms and agrees with Rose and she explains to Tom that the side effects are related to haloperidol, which is known for inducing extrapyramidal side effects, including muscle spasm/stiffness, shaking/tremor, restlessness, masklike facial expression and drooling. The nurse in charge offers another medication called procyclidine, which is used in clinical settings to mitigate against extrapyramidal side effects induced by mostly older antipsychotic drugs, eg haloperidol, chlorpromazine.

The nurse in charge informs Tom that dizziness and light-headedness can increase the risk of falling, so Tom is advised by both the nurse and Rose to get up slowly when rising from a sitting or lying position. Rose offers to carry out a set of vital signs checks to assess any changes in blood pressure, pulse and respiratory parameters. Due to the risk of falls, the nurse in charge requests a support assistant to stay with Tom for the remainder of the shift to monitor for any further changes in presentation to ensure Tom's safety while he remains under the care of the ward. The junior doctor is informed about Tom's situation and offers to assess the patient at the next available opportunity, but advises the nursing team not to administer haloperidol any further. In Chapter 2, extrapyramidal side effects and other effects associated with the use of antipsychotic medications are covered in detail.

The events in this scenario also demonstrate the opportunity and the need for a multidisciplinary team (MDT) working approach. An MDT is a partnership of specialised and non-specialised social and healthcare professionals who have distinctly different skills, knowledge and expertise,

yet work together towards the common goal of providing the best patient care across variable services. The MDT is inextricably connected to the shared objective of providing effective care interventions (screening, monitoring, follow up) and overall care management to promote patients' health and well-being. Pharmacists among others (social workers, psychologists, occupational therapists, activity workers, independent mental health advocates) form part of the wider MDT in both inpatient and community mental health teams. In this scenario, the junior doctor, the registered nurse and the student nurse may consider involving a pharmacist who may provide further advice to address any medication management issues arising from Tom's care.

Generally, to aid clinical decision making in practice regarding medication management, healthcare professionals have access to and may refer to the following resources at their disposal.

- The Maudsley Prescribing Guidelines in Psychiatry. www.maudsleyprescribing-guidelines.co.uk/
- British National Formulary (BNF). https://bnf.nice.org.uk/
- World Health Organization: Third Global Patient Safety Challenge, Medication Without Harm. www.who.int/patientsafety/medicationsafety/en/
- National Institute for Health and Care Excellence Clinical Guidelines. www.nice.org.uk/
- The electronic Medicines Compendium (eMC) contains up-to-date, easily accessible information about medicines licensed for use in the UK. www.medicines.org.uk/emc
- The Mental Health Act 1983 as amended by the 2007 Act. www.legislation.gov.uk/ukpga/2007/12/contents
- United Kingdom Teratology Information Service. www.uktis.org/
- Medicines and Healthcare Products Regulatory Agency (E-learning medicine modules). www.gov.uk/government/publications/e-learningmodules-medicines-and-medical-devices/e-learning-modulesmedicines-and-medical-devices
- The NHS Specialist Pharmacy Service (SPS) supports medicines optimisation across the NHS. www.sps.nhs.uk/
- MIND (mental health charity). www.mind.org.uk/
- HeadMeds gives young people in the UK general information about medication. https://youngminds.org.uk/youngminds-professionals/ our-projects/headmeds/
- Choice and Medication and NHS 24 provide advice on mental health conditions and medications. www.choiceandmedication.org/
- Royal Pharmaceutical Society's Competency Framework for all Prescribers (RPS, 2021). www.rpharms.com/resources/frameworks/ prescribers-competency-framework

- Care Quality Commission: Medicines in health and adult social care. Learning from risks and sharing good practice for better outcomes.
- Medicine Act 1968.
- Local NHS Trust medicine management policy.
- Local NHS Trust physical health policy.
- Local NHS Trust rapid tranquilisation policy.
- Local NHS Trust Prescribing Formulary.

### Psychosocial interventions in mental health settings

Psychosocial interventions refer to all of the interventions in which psychological, counselling or behaviour management interventions are used. Psychosocial interventions, such as behavioural therapy, cognitive behaviour therapy, mindfulness cognitive behaviour therapy, family therapy, counselling and social skills therapy, are often delivered alongside pharmacotherapies in people with severe mental illness by mental health nurses, counsellors and psychologists. These are normally offered as either individual or group-based interventions depending on specificity of health needs (McFarlane, 2016). This section provides a brief overview of family therapy and cognitive behaviour therapy (CBT) interventions for psychotic symptoms, examining the evidence base of application when these interventions are used as an adjunct alongside pharmacotherapies in severe mental illness (SMI). A number of early studies focused on the usefulness of family environment and the social contexts of patients in the maintenance of psychosis and/or schizophrenia, which subsequently led to the concept of expressed emotion (Brown et al, 1972). Family therapy was developed as a therapy approach aimed at reducing levels of expressed emotions in family members (or carers) of people living with mental illness. This therapeutic approach is now a well-recognised factor in the treatment and management of schizophrenia (Edge et al. 2016). The development of family therapeutical interventions triggered discussions around family members of patients, the social constructions of family units, the involvement or lack of it of family members in the care management of individuals with mental illness and their added voice in providing clinicians useful insight into the patient journey and its effect on family members. This has also led to efforts to help improve the interactions and communications between family members, carers and clinicians.

Families with highly expressed emotions not only report psychological distress and turmoil in trying to cope with the condition (schizophrenia, bipolar affective disorder, etc), but may manifest overly critical and undermining behaviours, or sometimes even show hostility towards the patient or the clinical team involved in the management of the patient. Over-involvement may be a consequence of distrust or lack of faith in the system that families with highly expressed emotion may present. Maslow's hierarchy of needs, a theory of motivation of human needs (Cherry, 2015) and Zubin and Spring's (1977) stress–vulnerability model stress the importance of environmental factors, such as love, family, security, housing and food, all of which can influence and impact the state of health and well-being. In the case of mental illness, the stress–vulnerability model

provides us insight into how the nature of the family unit may influence the course and prognosis of schizophrenia, where exacerbations of an individual's symptoms may be due to the interaction between environmental stress and the individual's pre-disposition to the illness (genetics, etc). Therefore, family interventions aim to address or drive down environmental stress on the patient's symptoms by adopting strategies to address the root causes within the individual's environment – often these may be family members or other psychosocial stressors, such as poor housing, poverty, social stigma and isolation (Nazarko and Thorne, 2020).

Therefore, the development and application of family intervention programmes aims to reduce the impacts of mental illness on patients and their families by addressing issues relating to increased re-hospitalisation, relapse and family support and appreciation of the effects of the condition on patients. A model of patient care that has gained popularity over the last decade is open dialogue (OD) therapy, a recovery-orientated approach which originated in western Lapland in the 1980s and is based on social care network wider principles of provision of care at the grassroots (families, communities) level by staff trained in family therapy interventions (Freeman et al, 2018). Razzaque and Stockmann (2016) emphasise that the fundamental organisational principle and aim of OD is to capitalise on the social network context, to provide timely help, responsibility, flexibility and psychological consistency and support where needed. This could lead to an increase in patients' social functioning and help reduce family burden and improve the quality of life of patients and families (Gordon et al, 2016).

However, despite the availability of research evidence of efficacy of family interventions, these approaches are not widely available in clinical mental health practice. While a review of evidence in support of use of OD by Freeman et al (2018) found that this was of low quality due to methodological issues in some of the studies, the authors found that OD was welcomed by patients, staff and carers. In addition, there was evidence of resistance from practitioners as well as evidence that families had found the format of the approach too confusing and challenging.

Antipsychotic medication has reduced abilities to improve cognitive impairments in schizophrenia. Adding psychosocial treatment may result in marked improvements in cognitive function as compared to antipsychotic treatment alone. An 18-month follow-up clinical trial of 256 stabilised patients with schizophrenia offered comprehensive family therapy found that comprehensive family therapy can be easily adapted and may provide additive benefits for improving cognitive function in patients with schizophrenia. The programme provides a potential approach for cognitive rehabilitation for schizophrenia patients in the community (Cai et al, 2015).

Overall, there is strong evidence of the effectiveness of psychosocial approaches and that they are just as effective as the routine interventions (Taylor and Perera, 2015); family interventions are effective in reducing expressed emotions in relatives, family burden and relapse rate over 1–2 years (Gamble and Brennan, 2006; Casarella, 2021). Fadden (1998) points out that family interventions used alongside pharmacotherapeutic interventions have been shown to result in at least fourfold reduction in relapse rates at one year

following interventions, and that while relapse rates increase in the second year, the rates are only half compared to situations where no family interventions are added to the patient's treatment care plan.

Overall, implementing family interventions and psychosocial interventions remains a difficult and cumbersome task in practice (Gamble and Brennan, 2006; Eassom et al, 2014; Freeman et al, 2018). Although most of the obstacles relate to organisational and structural hindrances (eg adequate time resources for clinicians to carry out interventions, low/ lack of training), the main obstacle to successful implementation is due to what remains to be an overly medicalised approach adopted in clinical psychiatry for the treatment and management of mental disorders. The over-reliance on pharmaco-agents throughout primary and secondary services affects recovery-orientated approaches and successful implementation in favour of benefits of chemical agents. According to the *British Medical Journal*, the number of prescriptions for antidepressants in England has doubled in the past decade. New data from NHS Digital (2020) show that 70.9 million prescriptions for antidepressants were given out in 2018, compared with 36 million in 2008 (lacobucci, 2019). This number steadily increased year-on-year, with 64.7 million prescriptions given out in 2016 and 67.5 million prescribed in 2017.

CBT is a structured psychological approach that was initially developed for the management of depression (Beck et al, 1979; Laws et al, 2018). Modern CBT theory is informed by the concept of behaviourism, where there is emphasis on behaviour change in overcoming or addressing mental health problems, while the cognitive domain focuses on understanding and changing the meaning the individual attaches to events or occurrences. Modern CBT theorists and practitioners routinely link problems in terms of interactions between four dimensions:

- behavioural dimension actions of a person reported by others or observed by the person or others;
- cognitive dimension what the person imagines, thinks or perceives;
- physiological dimension the effects on the person's body, sensations, any signs of arousal; and
- affective dimension the emotions of the person and how they define these.

The application of CBT interventions alongside pharmacotherapeutic approaches in people with severe mental illness taking psychiatric medications aims at helping the patient to address particular, recognisable problems in order for the person to be able to apply the essential skills and techniques learnt in therapy to the real world in the absence of the therapist. The main focus here when delivered by a suitably qualified therapist is to assist the patient/client to make a link between the cognitive–affective–behaviour components in view of the presenting symptoms and the impact these may have on the individual's ability to function (Fordham et al, 2018). In particular, the behavioural therapy component emphasises and focuses on highlighting and changing observable, quantifiable patient behaviours compared to other therapeutic approaches, and hence CBT interventions may be brief or time-limited. For instance, CBT interventions may be particularly useful to address how an individual's health beliefs about taking medication or accessing vital healthcare services may be interfering with their ability to manage their illness by staying concordant with components on their care plan. The aim is not to remake personality but to help alter an individual's behaviour (often this might be due to the severity and nature/ degree of the mental illness) and the outcome in terms of success is often the much-desired change, alteration or cessation of specific behaviours.

Research evidence shows an increased prevalence of maladaptive behaviours (unhealthy diets, sedentary behaviours, substance use, overweight issues, smoking and alcohol use) in people with severe mental illness (Kalinowska et al, 2021). The use of CBT approaches alongside medication interventions in this patient cohort has shown efficacy in targeting patients' maladaptive behaviours and thoughts and challenges them in order to encourage individuals to consider other ways of thinking and acting to help improve the physical and psychological outcomes in this patient population (Burns et al, 2014; Ballesio et al, 2018; Laws et al, 2018). Turner et al (2020) conducted a meta-analysis of 20 randomised controlled trials investigating the effectiveness of CBT in psychosis, particularly to assess the sufficiency and stability of the evidence base for hallucinations and delusions. The results of the review found sufficient and stable evidence of CBT effectiveness in psychosis on hallucinations and delusions and that this is consistent with other research findings (Turner et al, 2020).

A single-blind, randomised, controlled pragmatic pilot and feasibility study conducted by Morrison et al (2018) evaluating the evidence of efficacy comparing antipsychotics, CBT, and antipsychotics plus CBT showed that antipsychotic use alongside CBT was substantially more effective than CBT alone, but the difference between the use of antipsychotics plus CBT and antipsychotics alone was not significant. The challenge of effectively implementing CBT intervention in psychiatric settings may depend on the patient's motivation, the distress caused by the illness, and/or associated with positive and negative symptoms, the nature and degree of the patients' cognitive deficits. Furthermore, most evidence of effectiveness of CBT for psychosis is derived from randomised controlled trials where CBT is provided alongside antipsychotics (ie a combination of both antipsychotics and CBT intervention); preliminary, earliest evidence showed that CBT intervention might be more efficacious in people who are not taking antipsychotics (Morrison et al, 2014). Other research findings have found little or no evidence of efficacy when CBT was used as an intervention alongside medication in reducing relapse in people with schizophrenia (Burns et al, 2014).

Putting aside the counter debates on conflicting evidence of the effectiveness of CBT in clinical psychiatry, the reality for many patients and frontline staff is that chronic and severe enduring mental illness (schizophrenia, bipolar disorder) are progressive and debilitating illness manifesting often severe and complex care needs and symptoms in any sensory modality, these have the potential to seriously impair and affect both an individual's mental and physical health and well-being. Many patients with SMI continue to report residual symptoms and observable impaired functioning that persists throughout the course of the illness and often well into their adult life. While psychotropic interventions have been and remain

the primary and central form of treatment intervention and choice in this patient group (Taylor et al, 2015), it is recognisable that pharmacological approaches on their own are rarely adequate to address and improve outcomes of people receiving care under mental health settings. Firstly, antipsychotics are associated with a wide range of adverse effects; these are of particular concern for the patient and clinicians (this is discussed later in specific sections on groups of psychotropics in this resource). Increased prevalence of cardiometabolic side effects in people with SMI than the general population adversely affects psychological, physical and mental health outcomes in this patient group (Kalinowska et al, 2020; Mwebe et al, 2021; Miller, 2021); modern CBT theory and its application in practice may enhance recovery outcomes when used alongside other interventions.

Therefore, several clinical guidelines recommend that people with psychosis should be offered both antipsychotic medication and CBT, including other psychosocial interventions (eg family therapy, psychotherapy, counselling, behavioural support) and that individuals should be involved in shared decision making about treatment options (NICE, 2014a; Taylor and Perera, 2015; NHS England, 2019). Psychosocial approaches including family therapy and CBT can radically change the dyadic relationship between patients, clinicians and carers, where they all become actively involved in the management of an individual's healthcare needs. The benefit of these psychosocial approaches is that they foster a collaborative working relationship and a chance for patients to identify relapse signatures, and to learn strategies to help them develop awareness of the effects of illness on their life, their loved ones, etc. However, neither psychosocial approaches (CBT, counselling, family therapy) nor antipsychotics are effective for all patients, and the individual cost–benefit ratios of these interventions (eg the balance between efficacy and adverse effects) vary significantly between individual patients.

### CHAPTER SUMMARY

#### **Key points**

- Psychiatric drugs are the mainstay for the treatment and management of moderate to severe mental illness, but the use of psychiatric drugs should not define the role of mental health professionals.
- Treatment and management of mental illness involves a wide range of interventions; these include psychotropic drugs, CBT, counselling, interpersonal therapy, family therapy, psychoeducation, healthy eating, sleep hygiene, empathetic listening, problem solving, exercise, budgeting and others.
- The aetiology of mental illness is an interplay of genetic factors, neurodevelopmental and biochemical abnormalities and environmental factors, including social and interpersonal interactions.

- Biochemical theories implicate abnormalities in the neurotransmitter systems of the brain, ie dopamine, serotonin, noradrenaline, glutamate, GABA and acetylcholine, in the aetiology of mental illness.
- Mental health nurses and other mental health professionals must exercise vigilance when addressing complex care needs in people with SMI. To enable them to remain effective in their roles, staff must have up-to-date knowledge and skills and must involve patients in their care in order to make appropriate clinical decisions; most importantly, where patients have a history of taking or are currently taking psychotropic drugs.

#### **STUDY ACTIVITY 1: MULTIPLE CHOICE QUESTIONS**

- 1. Which one of the following is a correct interpretation of the abbreviation 'RPS'?
  - a. Royal Pharmaceutical Society.
  - b. Royal Pharmacological Society.
  - c. Royal Psychotic Society.
  - d. Royal Physiological Society.
- 2. Which one of the following interventions is recommended by NICE guidelines to be used as an adjunct treatment in people with schizophrenia taking antipsychotic medication?
  - a. Quetiapine.
  - b. Risperidone.
  - c. Cognitive behavioural therapy.
  - d. Smoking cessation.
- 3. CBT therapy can be thought of in terms of interactions between four dimensions; which of the following is not a correct dimension in CBT therapy?
  - a. Cognitive.
  - b. Affective.
  - c. Hallucinations.
  - d. Behaviour.
- 4. Medicine optimisation is about ensuring that the right patient gets the right choice of medicine, at the right \_\_\_\_\_ (select one).
  - a. Age.
  - b. Time.
  - c. Half-life.
  - d. Setting.

- 5. The case study in this chapter about Tom briefly discusses extrapyramidal side effects. Which one of the following is not an extrapyramidal side effect of antipsychotic medication?
  - a. Tardive dyskinesia.
  - b. Lower abdominal discomfort.
  - c. Akathisia.
  - d. Dystonia.

#### **CHAPTER 1 REVIEW QUESTIONS**

Now have a go at answering these questions. You might find it useful to refer to the content of the chapter to locate the correct information for each question.

- 1. What are antipsychotic medications?
- 2. What other name is usually used to refer to antipsychotic drugs?
- 3. What is the stress–vulnerability model and how does it contribute to the understanding behind the aetiology of mental illness?
- 4. What is a neuron? Give another name for a neuron.
- 5. Where do nerve impulses or chemical reactions originate from?
- 6. What is the space between two neurons called?
- 7. What do you call the cubicles where neurotransmitters are found?
- 8. What is the main difference between the presynaptic and postsynaptic neuron?
- 9. Give an example of a neurotransmitter.
- 10. Dopamine is found in the brain. True or false?
- 11. If someone has low serotonin levels in their brain, what are the likely health implications?
- 12. To understand how psychotropic medicines work, it is important to understand the theory behind neurotransmitter pathways and mechanisms in the brain. True or false?
- 13. What are the likely health effects of having low glutamate?

- 14. In Alzheimer's disease, low \_\_\_\_\_\_ neurotransmitter is likely to lead to poor memory. Fill in the missing word.
- 15. What does CNS stand for?
- 16. What might be the effects of having too much glutamate?
- 17. What might be the effects of having too much dopamine?
- 18. Name one excitatory and one inhibitory neurotransmitter.
- 19. The genetic contribution of genes has been demonstrated by what type of studies?
- 20. What are the clinical uses of lorazepam?
- 21. There are approximately between \_\_\_\_\_\_ neurotransmitter molecule types, with \_\_\_\_\_\_ of them doing 99 per cent of the work. Fill in the missing words.
- 22. A loss of motor control and changes in personality may occur when there is a lack of which neurotransmitter?
- 23. Impulses resulting from neurotransmission in the nerve cell may initiate one of many actions inside or outside the brain. Give examples of the actions.
- 24. What might be the effects of excess serotonin?
- 25. Give two examples of neurodegenerative conditions.
- 26. What is the relationship between neurotransmitters and vesicles?
- 27. What factors should be considered by psychiatrists and mental health nurse prescribers when preparing a prescription of psychotropic drugs?
- 28. What does CBT stand for? Give a brief description.
- 29. What condition could result from having low dopamine?
- 30. In the case scenario about Tom, which medication is responsible for him experiencing dizziness, light-headedness, drowsiness, headache and muscle stiffness?