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978-0-521-84734-6 - Empathy in Mental Illness

Edited by Tom F. D. Farrow and Peter W. R. Woodruff

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Empathy in Mental Illness

The lack of ability to empathize is central to many psychiatric conditions. Empathy (or social cognition) is probably affected by several factors, such as neurodevelopmental problems, brain damage and the onset of psychiatric illness. It is also amenable to manipulation and can be measured by neuropsychological assessment (both state and trait) and neuroimaging techniques. This book focuses specifically on the role of empathy in mental illness. It starts with the clinical psychiatric perspective and covers empathy in the context of mental illness, adult health, developmental course and explanatory models. Psychiatrists, psychotherapists and related mental health professionals will find this a very useful encapsulation of what is currently known about the role of empathy in mental health and illness.

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Foreword

Professor Peter W. R. Woodruff

Empathy literally means ‘the power of understanding things outside ourselves’ after the Greek *empathia*, but has come to imply a reliance on ‘inner feeling’, from the German *ein* (in) *fuhlung* (feeling), and even an implied sense of ‘cure’ from ‘em-pathy’ the suffix-*pathy* meaning a ‘method of cure’. It is after all through examination of our inner feelings that we gain a deeper understanding of ourselves. Our ability to relate to those feelings we see expressed by others depends on an ability to compare them with those we may have experienced ourselves, which allows us to infer ‘what the other person must be going through’. The accuracy of our inference depends upon *empathia*.

Much of psychotherapy depends on helping individuals to analyse and hence reach some emotional understanding of their inner world to enable them to relate more adaptively to people and events outside themselves. In this sense there is an assumption that individuals possess the ‘capacity’ to empathize. This capacity may be encouraged and developed through therapy. There is also an assumption that there may be individuals who lack such a capacity or, if they do possess it, may use it in a maladaptive way which can cause difficulties in their relationships. This raises the question of whether the ‘psyche’ or its substrate (the brain) lacks a necessary processing capacity or ‘neural network’ to empathize adequately. It would seem reasonable therefore to use current technology to uncover what brain mechanisms may underlie these deficits, and further investigate whether these mechanisms are sensitive to the effects of therapy. Hence we come back to the concept of ‘therapy or cure’ implied by the word itself.

Much of our understanding of ‘normal’ function relies upon the need to understand and treat mental conditions that result from ‘abnormal’ function, or ‘dysfunction’. The clinical imperative is to understand the factors that lead to these conditions and hence treat them. With this in mind, we have started the book from the viewpoint of the clinical conditions that present to clinical psychiatrists: the ‘dysempathy in psychiatric samples’. From the clinical position we move to a

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refined concept of empathy as applied to ‘health’ and, from that, proposed models for empathy and how to measure, monitor and regulate it in health and mental illness. Then more at a societal level the book explores how we detect concepts of empathy and their influence through literature.

This book attempts to bring together different ways of analysing the meaning of empathy from the point of view of ‘normal’ psychology, to how we can gain greater understanding of it by analysis of the behaviour of those in whom this facility is lacking (and impact of this on others). As with many aspects of normal psychology, we gain our understanding through examining examples where components are lacking. Much as studies of lesions in pathology can give us examples of what apparatus is necessary for the normal functioning of the body, studies of conditions where behaviour denotes a lack of empathy may give us insight into the necessary psychological, and possibly anatomical, substrate for its function.

Empathy is such a necessary means of every day communication between individuals and for social cohesion that we may take it for granted. However, as the contributors to the book make clear, because it is such a necessary component of healthy co-existence, its lack may lead to profound disturbance and dysfunction, both in causing mental illness itself and, through the resulting behavioural impact on others, may perpetuate the impact of the mental illness on the individual. Hence empathy is important to study. Its complexity requires the applied knowledge gained through the different approaches offered by the Arts, Medicine, Neuroscience and Psychology, and techniques that include neuroimaging and genetics.

Empathic dysfunction in psychiatric populations

Psychopathy

The clinical exploration of empathy begins with that in ‘psychopathy’. Here, we have a disorder that encapsulates the essence of a *lack* of empathy, where we can gain an understanding of the nature of empathy through the behaviour of those who lack an appropriate ‘empathic response’. James Blair sets the scene by distinguishing ‘cognitive empathy’ (Theory of Mind) from ‘emotional empathy’. It appears that whereas some individuals with autism may show impaired performance on ‘cognitive’ Theory of Mind tasks, those with psychopathy (as well as other populations in whom antisocial conduct is prevalent) do not. On the other hand, he presents evidence that individuals with psychopathy have an impairment in processing facial emotional expression *selective* for fearful, sad and disgusted expressions (as distinct from angry, surprised or happy expressions) which he purports to be suggestive of amygdala dysfunction. He finally raises the prospect of improved long-term prognosis of psychopathy if treatment is aimed at increasing

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the empathic reaction of children with psychopathic tendencies. A greater understanding of the underlying basis for these psychological and neural mechanisms would take us further along this path.

Schizophrenia

The clinical picture is expanded into schizophrenia in the chapter by Kwang-Hyuk Lee. Here he draws a comparison between the autistic features and affective blunting in schizophrenia described by Bleuler and possible deficits in empathy observed in the disorder. Poor recognition of facial emotional expression and others' feelings, abnormal gaze patterns at faces, and emotional responsivity to the emotions of others may explain some of the associated 'negative' symptoms in schizophrenia. Likewise paranoid symptoms may be associated with an inappropriately exaggerated response to threat. He hints at some early work by the Sheffield Cognition and Neuroimaging Group that attempts to explore how neuroimaging can be used to map changes in prefrontal cortical response whilst performing tasks that invoke empathy processing in response to treatment. Here, for example, an enhanced response of prefrontal cortex correlated with improved social functioning.

Antisocial personality disorder

The clinical theme continues with Mairead Dolan and Rachael Fullam's exploration of the relationship between empathy, offending behaviour and antisocial personality disorder. They expose the complexities of empathy by disentangling its component processes (and by introducing the concept of sympathy as a possible further component responsible for 'feeling' concern for others). These definitions assume practical significance when studies report measures of empathy in clinical samples. For instance, how can we compare results from studies that report measures that differ in their relative weighting of cognitive and emotional aspects of empathy? Also, self-report measures may be unreliable in criminal populations. And some tasks, developed in young people with developmental disorders such as autism, may be insensitive at detecting subtle impairments in criminal samples. Despite these difficulties some meta-analyses support the suggestion that low levels of 'cognitive empathy' (as distinct from 'affective empathy') were particularly associated with offending. People with antisocial personality disorder (ASPD), however, appear not to have difficulties reading emotions from facial expressions. Empathy deficits seem to be generalized across sex offenders, and here may have a common association with those individuals with narcissistic personality disorder. Empathy is identified as an essential ingredient for effective parenting, and as a protective factor against the possibility of aggression by a mother directed at a distressed infant.

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[More information](#)**xii Foreword****Depression**

Following the theme of distress, Lynn O'Connor and colleagues explore how empathy may become turned on the self and lead to depression. Their starting point is that depression may be considered as a disorder of 'concern for others' where abnormally elevated levels of empathy could lead to excess self-blame and guilt for pain felt by others. Depression is increasingly prevalent worldwide, affecting 12% of women and 7% of men, with similar rates in children. Depression rates may be underestimated, however, in groups where the illness has an atypical presentation, e.g. in children (angry and defiant behaviour) and the elderly. To some extent, as recognition of these manifestations increases, reported rates of depression may also. One important facet of recognition is to identify vulnerability markers for depression. Here, empathy may play a part. For instance, O'Connor and colleagues cite work that reveals a correlation between empathy for distress in others and depression. They propose a model that links empathic concern to interpersonal guilt and both altruism and depression. Here, the concept of 'survivor guilt', following that felt by those who lost loved ones in the Nazi concentration camps and who became depressed, is extended to those with depression who feel guilt about their own fortune or happiness being at the expense of others, which may lead to submissive, self-destructive or altruistic behaviour. In turn, altruism may have some survival advantage in mate selection by giving the signal that the altruist has surplus resources in order to exercise this behaviour (and may therefore be a desirable mate). O'Connor and colleagues also attempt to disentangle the relationship between 'sub-scales' of empathy and survivor guilt and neuroticism. In doing so, they raise the possibility that empathic responses to others that aids social cohesion may also indirectly contribute to the current 'epidemic' of depression. On a positive note, empathy-induced guilt may act as an internal warning to let the person know that they need to help someone else, and hence may aid moral judgements.

Aggression

The idea that empathy may be protective against inter-personal aggression is further explored by Kaj Björkqvist, who makes the case for engaging empathic processes in children and adolescents as a means of reducing their aggression. He introduces the concept of indirect (non-physical) aggression, dependent upon social manipulation, which in turn is dependent on social intelligence. This form of aggression, considered more common in girls than boys, uses covert strategies and induces discomfort via psychological rather than direct physical means. On the other hand, direct verbal and physical aggression is more commonly employed by boys than girls. Social intelligence is considered to have perceptual, cognitive analytical and behavioural components, skills that may develop earlier in girls than

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boys. For instance, girls appear to develop the skills at decoding and encoding non-verbal signals faster than boys. Björkqvist presents compelling data that support the idea that, whereas social intelligence is required for conflict resolution, empathy is a necessary ingredient for peaceful (non-aggressive) conflict resolution. Hence empathy training may be useful for encouraging positive social behaviours.

Patients with brain lesions

The theme moves on in the chapter by Simone Shamay-Tsoory to the study of neuropsychological deficits in patients with localized brain lesions. Here she expands on the idea that the substrate for empathy resides in a network that depends on ventromedial (VM) prefrontal cortex. The story begins with the example of Phineas Gage and to more recent clinical examples that provide evidence for the central role of the VM prefrontal cortex in social cognition and empathy, through a discussion of cognitive models of VM cortex and social cognition towards an integrative view of the neuroanatomy of empathy. She reviews evidence from animal work and studies from patients with lesions that converge on the idea that empathic abilities of people with VM damage are most apparent when correct interpretation of social situations demands integration of cognitive and emotional processes. Shamay-Tsoory further suggests that right (posterior) hemisphere damage is particularly associated with difficulties with affective processing (voice intonation and facial expression identification), which is a prerequisite for feeling empathy. Right frontal damage may be responsible for difficulties in response expression. Hence, she concludes that the right VM plays a central role in mediating empathy through integrating inputs from dorso-lateral cortex (affective processing, retrieval of past events, cognitive flexibility) as well as from the amygdala and autonomic nervous system.

Asperger's syndrome, attention deficit hyperactivity disorder and autism

Christopher Gillberg describes 'empathy disorder' in a wide range of (mainly developmental) non-autism clinical conditions such as Asperger's syndrome and attention deficit hyperactivity disorder (ADHD). He argues that empathy may be normally distributed in the population (like the intelligence quotient, IQ) and that those with certain disorders of empathy may lie at the extreme end of this spectrum. Despite sharing difficulties with empathy, autistic disorder, he argues, is associated with low verbal IQ, and Asperger's syndrome with higher verbal IQ. Apparent lack of empathy in children with ADHD may reflect their failing to attend to, rather than being impaired in their understanding of, other people's perspectives. The link he makes between extreme impulsivity in Tourette's syndrome patients and empathy problems in those with autism spectrum disorders

being associated with severe cognitive dysfunction parallels the neuroanatomical discussion in the chapter by Shamay-Tsoory. It is clear from Gillberg's account that empathy deficits occur in a range of apparently disparate childhood disorders that share characteristics with autism spectrum disorders as well as in adult personality disorders that have their origins in early development.

Peter Hobson explores the nature of empathy through observations of behaviour in autism (where lack of empathy is a defining characteristic). He describes clinical examples which clearly illustrate how people with autism have profound difficulties relating to other people and engaging with them at a personal level. He emphasizes the point that our normal cognitive and social development depends upon understanding the world through other people. Here, Hobson asserts, a limit to the awareness of the emotional life of others restricts consciousness of themselves. He goes on to claim that identification with others' emotions, feeling the other's emotions and being 'moved to' the emotional stance of others are key facilities lacking in children with autism. He ends on the optimistic note that interventions may facilitate emotional engagement between children with autism and others.

From the clinical examples given, the book moves on to explore the concept of empathy in health. Throughout, we return to the clinical relevance of these concepts; for example, in understanding drug addictions, Asperger's syndrome and schizophrenia.

Empathy in health

Early development of empathy

Miguel Diego and Nancy Jones review the development of empathy from the neonatal period through infancy and childhood. They explore ideas that the imitation of emotions in newborns suggests the existence of the *capacity* for empathy upon which social experience can operate. Temperament indicates early predispositions in neonates, which allow them to evaluate the salience of different emotions. They present evidence that newborns of depressed mothers may already be biased in their (lack of) responses to the emotional expressions of others. Patterns of emotional responsiveness (and its physiological correlates) may be evident from the neonatal period, and hence the basis for social interactions and empathy may be established very early in brain development. Bonding between mother and child and the ability of the infant to discriminate features (voice, face, smell) of mother from those of others may be precursors for empathic responses later in life. 'Empathic competence' may depend on how well physiological and emotional processes between mother and infant are coordinated, or 'attuned'. The interaction of temperament and maternal characteristics are generally considered

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key factors in the development of empathy. Difficulties with these processes may be associated with autistic behaviour or depression later in life.

Evidence is presented for the existence of neural mechanisms underlying affect and empathy shortly after birth. For instance, newborn's distress is associated with hearing distress in another's cries as early as 18 months old. Maternal psychological state profoundly influences that of the infant, particularly during the early years when substantial re-modelling of synapses takes place. Maternal neglect and abuse both adversely affect empathy in later life. Emotionally neglected infants develop attachment problems, and are less able to differentiate between emotions in others and thus develop empathy. Abused infants may develop aberrant neural pathways that lead to aggressive rather than empathic means to achieve their ends. Help with parenting skills focused on mother-child interaction and heightened awareness that this intervention may help prevent the establishment of less desirable traits in later life may be worthwhile.

Evolution of empathy

James Harris approaches the concept of empathy from an evolutionary perspective. He refers to 'mutual aid' as a necessary prerequisite for social cooperation. Thus those groups that exhibit mutual aid are at an evolutionary advantage over those who do not. It may be for instance that the 'fittest' help others and hence altruism prevails in the population. It is possible that the evolution of social cooperation depended upon an advanced hearing mechanism and the sensitivity to higher frequencies of sounds akin to speech in mammals. Also, the evolution of the autonomic nervous system would allow awareness by individuals of their 'visceral tone', be it calmness induced in an infant rocked by their mother, or nausea associated with social distress. Mirror neurones are those that respond to performing an action and perceiving that same action performed (see Chapter 24). They thus provide a substrate for understanding the intentions of others. Applied to emotions this mechanism would allow for an understanding of other's emotions. Harris refers to work by Gallese and others that identifies the insula as a key brain region involved in both feeling and observing disgust and imitating facial expressions, hence his conclusion that 'empathic resonance takes place through communication between action representation networks and limbic areas via the insula'.

Empathy in healthy populations

John Nezlek and colleagues describe the variability of empathy in the general population. In particular they explore how empathy may depend on social environment. They refer to this variability as 'state empathy'. They present data from two major studies that measured empathic state, self-esteem depressogenic

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adjustment, mood and daily events over time. Intra-individual variability in empathy scores were as great as inter-individual variability, an observation they argue provides evidence for the existence of both trait *and* state empathy. Stronger daily (negative and positive) emotions were associated with greater empathy. The occurrence of social events was associated with increased empathy, including negative social events that were associated with negative emotions. Another study examined the interaction between the social setting of the event and the empathy of the interaction. Here, empathic ability was greatest when people were in pairs, and exchanged affection, and least in large gatherings and during focused work activity. In concluding, the authors question any assumption that empathy is always adaptive, and may in some circumstances actually lead to a negative effect on well-being, e.g. taking on the feelings of anxiety of those around. There may, therefore, be an ‘optimal’ level of state empathy which people need to regulate (see Chapter 21).

Sara Hodges and Robert Biswas-Diener shed light on the idea that we may need an optimal amount of empathy, i.e. it is not an unqualified ‘good thing’. There may be a ‘cost’ if for instance a person experiences an excess of unpleasantness as a result of empathizing with another’s misfortunes. We need strategies for regulating empathy if we are to succeed in human interactions. Possible mechanisms discussed include: suppression, reframing (to distance the empathiser from the empathisee) and controlling exposure to factors that cause us to feel empathy. Empathizing is hard work and relies on motivation. When these processes fail to regulate empathy optimally, individuals may suffer in various ways including by the development of mental distress or possibly illness.

In the chapter by Farrow he explains the approach common to many neuroimaging studies of trying to deconstruct the component cognitive processes thought to be responsible for the psychological response or behaviour. Functional neuroimaging depends on mapping the brain’s response to a *difference* between two or more conditions. This approach is complicated when applying, to schizophrenia, as complex a faculty as empathy. Farrow states that empathy depends on attention, a capacity for ‘Theory of Mind’, self-awareness, simulation of other’s actions and appropriate emotional and autonomic responses. By reviewing neuroimaging literature on these key component processes, he concludes that there are likely to be ‘core’ brain regions such as the medial prefrontal cortex, posterior cingulate and temporal cortex involved in empathy, with other related regions such as the anterior cingulate, orbitofrontal cortices, amygdala, insula and precuneus brought into play as ‘secondary’ regions. In common with a number of authors, Farrow indicates that it is the connections between key regions that provide the substrate for the function. Connections such as those between superior temporal regions and inferior frontal cortexes to the limbic system via the insula may turn

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out to be crucial. Here, studies in patient groups who lack empathy or its components are important. Already some neuroimaging work in Asperger's syndrome, post-traumatic stress disorder and schizophrenia (as outlined in other chapters) has made a start in this direction.

Nancy Jones and Chantal Gagnon describe the neurophysiological basis of empathy. They outline evidence to suggest that empathy is linked to temperament (see Chapter 9). EEG changes during early brain development suggest that complex interaction between limbic and higher cortical regions becomes established in early childhood. They describe findings that link heart rate variability and emotional expressivity in newborns. Heart rate deceleration may be an index of other-orientated attention (empathy) whereas heart rate acceleration may be an index of self-orientated attention (anxiety and fear). Patterns of EEG responses may differ in groups defined by their empathic behaviours, particularly as observed in frontal cortex.

The cognitive neuropsychological approach attempts to simplify empathy into its component processes each underpinned by a purported neural system. Jean Decety and colleagues identify four basic components in their model: shared neural representations, self-awareness, mental flexibility and emotion regulation. Perception action coupling relies on mirror neurones (see Chapter 24). Facial expressions are accompanied by feeling the corresponding emotion. Empathy relies upon an intact executive system as well as a network involving inferior parietal, prefrontal and insula involved in the ability to discriminate between self and others. Medial paracingulate cortex is thought to reflect a 'de-coupling' mechanism that allows us to hold representations detached from their reality. Decety and colleagues propose that medial prefrontal cortex activation is related to the cognitive load associated with disengagement of the representation of others' feelings from explicit cues that are perceived. Drawing from neuroimaging and neuropsychological evidence, they argue that there are distinct neural underpinnings for cognitive and affective aspects of empathy.

Henrik Anckarsäter and Robert Cloninger review the genetics of empathy and its disorders. In doing so they acknowledge the difficulties of studying genetics of a characteristic that is dependent upon social context and subject to significant inter-individual variation. They approach the problem from the point of personality traits and the study of conditions associated with 'dysempathy' such as autism. Monozygotic twins are more concordant than dizygotic twins for traits relevant to empathy, such as: callousness, intimacy problems, restricted expression of affect and social avoidance. Twin studies show high levels of heritability for altruistic traits. Genetic influences seem to be more important for temperamental, aggressive antisocial behaviour persistent into adulthood compared with non-aggressive behaviour limited to adolescence. It is likely that most genetic

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factors interact with environmental influences in modifying expression of the behaviour. For instance DRD4 polymorphisms are associated with high novelty-seeking behaviour; this behaviour is modified (reduced) by the level of cooperativeness in parenting. Hence their conclusion, that ‘personality is comprised of multiple heritable dimensions of unique partially overlapping sets of epistatic genes, that modulate brain states by modifying the transitory connections between changing distributed networks of neurones’, provides us with a model for further investigation.

Dan Velea and Michel Hautefeuille explore the relationship between drug-taking and the role drugs have in ‘filling a gap’ in the emotional life of people who take them. Here, alexithymia (inability to express emotions) and need for self-empathy (or self-acceptance) may be important predisposing factors to drug-taking, particularly those drugs with empathy-inducing properties such as ecstasy, MDMA, ketamine, phencyclidine and lysergic acid diethylamide (LSD). ‘Raves’ are an example of imitation where emotions and sensations are shared, and drug-taking may facilitate a ‘quest for empathy’ in addition to other sensations. They explore the hypothesis that those who are constitutionally deficient in serotonergic neurotransmitter activity (with associated anhedonia) may compensate by taking drugs that compensate (at least temporarily) for such deficiency.

Psychological processes

Marco Iacoboni brings to the theme of empathy the concept that to empathize successfully requires an appreciation of self versus other where we are able to internalize the feeling of what others feel rather than just imagine those feelings. We do this by imitating others, a process that commences at 18–30 months old. Here, the chameleon effect is discussed. This is a phenomenon that may result from non-conscious mimicry of postures, mannerisms and facial expressions of people while they interact with others in social situations. Also discussed is the idea that imitation of others leads to a liking of them. These ideas raise interesting testable hypotheses about which brain networks and regions are likely to underlie their function. For instance much evidence presented points to the insula as a key relay that connects and possibly coordinates sensory and association cortices with executive and limbic regions responsible for modulating a person’s emotional response to situations that involve social interactions (see Chapter 24).

Nigel Goldenfeld and colleagues propose the idea that empathizing and systematizing balance one another. Systematizing is a process that occurs when a person analyses or constructs a system according to rules that govern that system. The authors maintain that empathizing and systematizing compete for common neural resources. Hence a balance between the two tendencies can be reached. Here, a combined score on both is taken as evidence of their competing with

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(or compensating for) each other. Generally they find that males tend to systematize at the expense of empathy, and females tend to empathize at the expense of systematizing. This pattern is also observed in patients with autism and Asperger's syndrome whereby systematizing predominates over empathy. They conclude that scores that represent the difference between systematizing and empathizing could be used to classify five different brain types between the extremes on the scale of systematizing tendency on one hand and empathizing tendency on the other.

India Morrison introduces the term 'vicarious responding' in place of empathy. She explains that vicarious responding is a requisite for emotional experience. For instance, vicarious responding to pain and disgust may depend upon learning and preparation of motivated, affectively valenced skeletomotor movements of aversion. She emphasizes the connection between somatosensory cortex, where bodily representations reside, and affectively laden material, related to others. She cites evidence for the concurrence of anterior cingulate and insula activations with the experience of pain and seeing pain inflicted on others. The sensory-discriminatory system, responsible for spatial localization of pain, is distinguished from the motivational-affective system (that determines affective unpleasantness).

Facial expressions coincident with the experience of disgust or pain also communicate a warning signal to others. Similarly such expressions may convey empathy with another's discomfort. Morrison emphasizes the importance of parietal cortex in integrating sensory input to the motor response in these aversive situations. Morrison postulates the existence of a motivational-affective (M-A) brain system that allows learning flexible responses to the properties of objects (will it bite?) together with a system concerned with kinaesthesia and discerning object proportions (where is it?). She asserts that it is 'too early to make the explanatory leap from vicarious responding to the rich scope of full-fledged affective experience evoked by the word "empathy"'.

Tony Atkinson also attempts to distinguish the perception of others' emotions from actually experiencing those emotions. He argues that emotions may be perceived either by computational (rule-based) systems that look for physical properties of the stimulus, or by processes specifically underpinning emotional experience. He then examines evidence for and against the idea that (1) we either perceive emotions through what he terms 'emotional contagion' whereby we engage primitive emotional systems within ourselves either directly or via facial mimicry, or (2) that we perceive emotion via body state (e.g. visceral sensations) or motor simulation (e.g. of facial movements).

The final section of the book concentrates on how we may model and measure empathy as well as educate students in empathy.

Modelling and measuring empathy

Marianne Schmid Mast and William Ickes describe methods for measuring empathic accuracy, for example by rating recorded interviews. They suggest ways of applying these techniques to help train therapists engaged in, for instance, couple therapy. Empathic accuracy is certainly central to social relationships, though they give examples of where knowing too much may destabilize a relationship, or trying too hard to know more (about the other) may lead to anxiety or suspiciousness and jealousy (that can in turn lead to aggression). They challenge some of what they refer to as ‘clinical stereotypes’, such as the assumption that autistic individuals are poor, and borderline personality disorder individuals good, at inferring other people’s thoughts and feelings. On the other hand, they claim that the atypical nature of thoughts and feelings in people with borderline personality makes it difficult for others to make accurate inferences about them.

Stephanie Preston elaborates on the ‘perception-action model’ of empathy referred to in previous contributions. Here, she refers to a shared emotional experience occurring when a person feels a similar emotion to another as a result of perceiving the other’s state. She uses behavioural and neuroimaging evidence to illustrate pertinent examples of how subjects use their own representations (such as shared past experiences, similarity and familiarity to the other’s situation) to understand and feel the state of others. To succeed, subjects need to attend to the other, experience a similar emotional state as the other, and respond appropriately by inhibiting contagious distress and maintaining focus on the other. She ends by pointing out a number of interesting further aspects of empathy for us to investigate, such as differences between empathy for positive and negative states, imagining being (versus what it would be like to be another) and change in empathy over time.

Vittorio Gallese gives a definitive account of ‘the shared manifold hypothesis’. He begins with the concept of ‘embodied simulation’ (a process that allows us a better understanding of events): first- and third-person experience of emotions and sensations and their neural underpinnings. He suggests ways in which these approaches may help us understand the ‘whole brain’ problem of schizophrenia and aspects of autism. He takes us through the ‘mirror neurone’ story with more recent examples of work in monkeys that elaborate the extent of mirror phenomena in everyday behaviour. For example, predictions about the goals of behaviour in others appear to be mediated by activity of motor neurones coding the goal of the same actions in the observer’s brain. Hence it seems the mirror matching system maps the goals and purposes of others’ actions. Embodied action simulation uses ‘equivalence’ of what is acted and perceived to predict the consequences of actions performed by others. Action observation automatically triggers action

simulation. Studies on the appreciation of disgust converge on the insula being a key region involved in both the capacity to experience disgust, as well as the ability to recognize it in others. Hence this work supports the idea that first- and third-person experiences of a given emotion share a neural substrate. Another example given is that of a shared neural system involved in experiencing touch and observing others being touched. He extends the concept of empathy to that of a 'shared manifold' within which we establish meaningful links between ourselves and others. This he argues can occur at the levels of phenomena (e.g. sense of similarity): function (*as if* modes of interaction enable models of self/other) and subpersonal systems (mirror matching circuits for directly sharing the experiences we infer others are experiencing).

Once again, we return to the clinical problems associated with empathy which need unravelling. Patients with schizophrenia may have 'defective attunement'. Here, Gallese refers to an 'incapacity to engage oneself in meaningful relations with others and to establish non-inferential, intuitive interpersonal bonds'. In autism, he argues that some of what is observed is a compensatory mechanism for lack of the more elementary cognitive skills to enable an experience of the world of others. Thus, he concludes, embodied simulation, as a basic brain mechanism that gives us an experiential insight of others' minds, may provide the first unifying perspective of the neural basis of social cognition.

Finally, Johanna Shapiro concludes with a chapter that argues that medical education, rather than fostering empathy, may hinder it. Hence she makes a case for introducing the Arts to medical student teaching to facilitate their understanding of others. This approach she argues is especially important in helping students understand mental illness, through, for example, subjective accounts written by those who have suffered mental illness in differing contexts. Involving readers in individual stories helps students see through the eyes of the patients, and, she states, has great potential to help learners understand how to be more empathic to their patients.

Hence, we move through from illness, to concepts and models and measurement of an elusive characteristic central to human understanding and interactions. Elusive it may be, but this book brings together experts in their fields in an attempt to elucidate the concept and to help us put the concept in the context of mental illness. Here we see in stark contrast to purely philosophical arguments about empathy, the ways in which loss of a core human faculty can cause such difficulty with social interactions and hence distress to patients and those close to them as well as the potential to perpetuate a vicious cycle of misunderstanding and stigma for those who suffer from mental illness. Much of the work refers to the neuroscience literature, and how our understanding of psychological processes relevant to empathy inform, and are informed by, recent developments in basic

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neuroscience. Understanding empathy relies on studying it from many sides, each complementing each other by shining light on the whole. The motivation for this search is continually driven by the clinical imperative of how we can help improve the lot of those who suffer from mental illness. Finally, we are presented with a perspective on medical education that some may find challenging. In this context, perhaps the challenge we face is in education more generally where a perceived need to ‘teach’ empathy may reflect the deficiencies of education in, and emphasis on, the Arts. After all, William Shakespeare described most of the human condition and psychopathology we encounter in clinical psychiatry, so why don’t all psychiatrists (and medical students) have this as compulsory reading? Not as a substitute for William Shakespeare’s *Complete Works*, but more as a complement to them, if this book helps us understand better the links between empathy and mental illness then it will have been worthwhile.

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