

Index

- abuse
 - children 42, 160–1, 231
 - in relationships 403, 423
- accuracy of empathy 408–9, 422–4
 - autism and 420–1, 423
 - borderline personality disorder (BPD) and 421–2, 423
 - clinical implications of empathic accuracy research 414
- couples’ therapy and 416–20
 - motivated accuracy 418–19, 423
 - motivated attributional bias 419–20, 423
 - motivated inaccuracy 417–18, 422
- empathic accuracy paradigm 409
 - obtaining measure of empathic accuracy 412
 - reliability 412–13
 - standard stimulus paradigm 411
 - unstructured dyadic interaction paradigm 410–11
 - validity 413–14
- individual differences in empathic accuracy 414–16
 - selecting for empathic accuracy 415
 - training empathic accuracy 415–16
- action representation networks, motivational-affective processing compared with 348
- action understanding 451–5
 - understanding of intransitive actions 454–5
 - understanding of object-related actions 452–4
- addiction 292
 - dopaminergic rewarding mechanism 294
- adrenal glands 301
- Advanced Theory of Mind test 5
- affective cue perception 18–19
- affective disturbances, schizophrenia and 20, 21, 23, 25
- affective empathy 94
- affective sharing 239, 240–2
- agency, self-awareness and 245–7
- aggression 79
 - antisocial personality disorders and 39
 - empathy and 37, 38, 76–7, 81–3
 - empathy training as inhibitor of aggression 83–5
 - indirect 77–8
 - social intelligence and 77, 79–80, 81–3
 - neuroimaging 213
 - sex differences in 77–8, 80
- Aggression Replacement Training (ART) 84
- agoraphobia 488
- alexithymia 291
- altruism 392
 - depression and 55, 56, 57, 58, 61
 - evolutionary theories of altruism 64–8
 - evolution and 169
- American Psychiatric Association, Diagnostic and Statistical Manual (DSM)* 3
- amphetamine-type stimulants (ATS) 295
- amygdala 8, 11, 13, 23, 24, 41, 56, 69, 106, 207, 223, 253, 301, 367, 368, 377
- Angelman syndrome 276
- anger, facial expressions 8–9, 10, 11, 368
- anorexia nervosa 119, 265
 - genetics and 275
- anterior cingulate cortex (ACC) 211, 337–40, 341–2, 343, 344, 351
- anterior insula 211
- anterior paracingulate cortex 206
- antisocial personality disorder (APD) 3–4, 19
 - diagnostic criteria 34
 - emotional information processing in 41
 - child abuse 42
 - narcissism 43
 - sex offenders 20, 41–2

496 Index

- antisocial personality disorder (APD) (cont.)
 - empathy and 38–40, 44
 - frontal lobe dysfunction and 232
 - Theory of Mind (cognitive empathy) and 39, 40–1
- Antisocial Process Screening Device 4
- anxiety
 - emotion recognition and 366
 - guilt/depression and 60
 - literature on 487
- arousal theories for development of empathy 146, 147–9
- arts *see* humanities-based training in empathy
- arylcyclohexylamines 295, 304
- Asperger’s syndrome 113–15, 270, 332
 - empathy quotient (EQ) and 112
 - neuroimaging 206
 - personality and 266, 268
 - Theory of Mind and 264
 - Tourette syndrome and 117
- attachment
 - attunement among dyads theories for
 - development of empathy 146, 149–52
 - evolutionary theories of social bonding and attachment 180
- attention-deficit/hyperactivity disorder (ADHD)
 - 115–16, 121, 265, 271
 - empathy quotient (EQ) and 113
 - frontal lobe dysfunction and 233
 - genetics and 274, 277
- attitudes to empathy 389
 - medical profession 473–5
- attunement
 - attunement among dyads theories for
 - development of empathy 146, 149–52
 - intentional 448–9, 467
 - autism and 464–6
 - schizophrenia and 462–4
- atypical autism 117
- autism 111, 126, 150, 271, 322–3
 - ADHD and 116
 - atypical 117
 - emotion and 131, 134–5, 136–7
 - empathy and 126–30, 138–9, 263–6, 332
 - cognitive development 137–8
 - developmental implications 135–8
 - early manifestations 130–3
 - empathic accuracy 420–1, 423
 - identification 136–7, 138
 - perception-action model (PAM) 439
 - research with older children and adolescents 132, 133–5
 - self-awareness 135–6
 - empathy quotient (EQ) and 112
 - frontal lobe dysfunction and 233
 - genetics and 264, 274, 275–7, 278, 280
 - high-functioning 114, 265, 332
 - intentional attunement and 464–6
 - neurofunctional studies 138
 - personality and 266–8
 - schizophrenia and 20
 - systemizing and 323
 - Theory of Mind (cognitive empathy) and 5, 6, 20, 98, 137–8, 264–6
- autonomic nervous system 173–6, 225
- autosomal recessive lissencephalopathy 277
- aversive conditioning 6
- balanced emotional empathy scale (BEES) 191
- bankers paradox theory 65
- bias, motivated attributional bias 419–20, 423
- biobehavioural preparedness 226–7
- bipolar disorder
 - childhood 10, 120–1
 - literature on 487
- borderline personality disorder (BPD)
 - empathic accuracy and 421–2, 423
 - frontal lobe dysfunction and 232
- brain anatomy *see* neuroanatomical basis of empathy
- brain damage, impaired empathy and 95–7, 106, 218, 220–2
 - case of Theory of Mind 97–9
 - frontotemporal dementia studies 99–101
 - neural network for organization of empathic response 104–6
 - perception-action model (PAM) and 439–40
- brain types 329–32
 - taxonomy of brain types based on differences between empathy and systemizing 328–9
- brain-derived neurotrophic factor (BDNF) 52, 64
- bulimia nervosa 119
 - genetics and 275
- causality 49
- 2C-B 295, 303
- cheater detection 67
- children
 - abuse 42, 160–1, 231
 - depression and 51

- development of empathy in *see* development of empathy
- empathy disorders *see individual disorders*
- maternal neglect 159–60
- newborn *see* neonatal antecedents for empathy
- cingulate cortex 23
 - anterior (ACC) 211, 337–40, 341–2, 343, 344, 351
 - posterior 208
- clinical empathy 474
- cocaine 296
- cognitive empathy *see* Theory of Mind (cognitive empathy)
- cognitive neuropsychology of empathy 239–40
 - adopting perspective of the other 247–50
 - affective sharing between self and other 240–2
 - agency and self-awareness 245–7
 - beyond perception-action coupling 242–5
 - from covert to overt representation of others’ mental states 253–6
 - emotion regulation 250–1
 - multiple facets of empathy disorders 251–3
- common coding theory 240
- communication
 - evolutionary theories of vocal communication 168, 170–2
 - non-verbal 291, 310
- compassion fatigue 401
- competition 289, 347
- components of empathy 18–20, 93–5, 262–3
- concern 35, 390, 391
- conduct disorder (CD) 3–4, 121–2, 270
- conflict resolution 80, 83
- contagion, emotional 367–74, 390
- costs of empathy 389, 392, 398, 399–400
 - overshooting cognitive empathy 403
 - overshooting emotional empathy 402
 - undershooting cognitive empathy 402–3
 - undershooting emotional empathy 400–2
- couples’ therapy, accuracy of empathy and 416–20
 - motivated accuracy 418–19, 423
 - motivated attributional bias 419–20, 423
 - motivated inaccuracy 417–18, 422
- cultural evolution 65
- deception 99
- deconstruction of empathy 261–2
- definitions of empathy 4, 33–6, 94, 111, 239, 290–1, 390–2, 428, 473
- dehumanizing strategy 394
- dementia 253
 - dementia praecox 17
 - frontotemporal dementia studies 99–101
- depression 49–51, 69–70
 - aetiology 52–3
 - altruism and 55, 56, 57, 58, 61
 - evolutionary theories of altruism 64–8
- diagnosis 52, 61
- emotion recognition and 364–6
- empathy and 54–6, 58–62
 - current neuroscience 68–9
 - empirical studies 62–3
 - evolutionary theories 63–4
 - perception-action model (PAM) and 440
- evolutionary theories and 64–8
- genetics and 52–3, 68
- guilt and 50, 54, 56, 58–62
 - survivor guilt 56–8, 60, 61, 67
- literature on 486–7
- prevalence 51–2
- theories for neonatal development of empathy and 147, 148, 151
- depressogenic adjustment measure 191, 192
- derogation of victims 394
- desensitization 393, 400–2
- designer drugs 294–5
- development of empathy 146–55
 - biobehavioural preparedness 226–7
 - dysfunctional socialization experiences
 - influencing development of empathy 158–61, 229–32
 - evolutionary theories 180–4
 - models 146–55
 - attunement among dyads theories 146, 149–52
 - learning and modelling theories 146, 154–5
 - stage theories 146, 152–4
 - temperament/newborn arousal and regulation theories 146, 147–9, 227–8
 - neuroanatomical basis of empathy 225–6
- developmental coordination disorder (DCD) 115–16
- developmental psychology 126
 - depression and 54–6
- DHEA 296
- dieting 64
- discretion 423
- disgust 8, 10, 11
 - motivational-affective processing and 337–40, 342–7
 - beyond vicarious responding 346–7

498 Index

- disgust (cont.)
 - from learning to communication 345–6
 - from motivation to movement 344–5
 - neuroimaging 210
- distress 35, 42, 66, 182, 227, 390, 391, 402
 - associations between newborn distress studies and empathy 155–7
- DMT (dimethyltryptamine) 295, 303–4
- DOB 295
- DOM 295, 303
- dominance hierarchy theory of depression 63
- dopaminergic rewarding mechanism 294
- dorsolateral prefrontal cortex (DLPFC) 23, 206, 207
- dorsomedial prefrontal cortex (DMPFC) 206
- DPT 295
- drugs *see* empathogenic agents
- ears, evolutionary theories of origin of parental behaviours and 168, 170–2
- eating disorders 64, 119
 - anorexia nervosa 119, 265
 - genetics and 275
 - bulimia nervosa 119
 - genetics and 275
- ecstasy *see* MDMA (ecstasy)
- egocentrism 402, 403
- electroencephalogram (EEG) activity 218, 220–2
- embodied simulation 448–51
 - experiencing actions of others as embodied action simulation 455–6
- emotion 204, 456–9
 - antisocial personality disorder and 41
 - autism and 131, 134–5, 136–7
 - contagion 367–74, 390
 - inability to express (alexithymia) 291
 - linguistic emotional processing 263
 - mirror neurones and 169, 176–8, 204, 229, 240, 311–13, 317–19, 377–8
 - analogy with motivational-affective processing 347–52
 - links between mirror neurones and limbic system 313–14
 - neuroimaging 208, 312
 - role in understanding emotional states 178–80
 - role in understanding intentions 177–80
 - self-recognition and 315–17
 - Shared Manifold Hypothesis and 452–3, 454–5
- neuroimaging
 - emotional mimicry studies 209–10
 - general emotional processing 209
 - mirror neurones 208, 312
- recognition 35, 134–5, 178–80, 360–1, 380
 - perceptually mediated empathy and 361–3
 - relationships between emotional state and emotion recognition performance 363–6
 - via primitive emotional contagion 367–74
 - via simulation 374–9
- regulation 69, 148, 239, 250–1
- replication 35
- shared emotional experiences 430–3
- suppression 393, 400–2
- theories for neonatal development of empathy
 - and 145, 147, 148, 149, 152, 155, 162
- emotional empathy 4, 5, 6–9, 94, 390
 - antisocial personality disorder (APD) and 41
 - child abuse and 42
 - narcissism and 43
 - psychopathy and 9–12, 50
 - regulation 392–5
 - exposure control 394–5
 - overshooting 402
 - reframing strategies 393–4
 - suppression of emotion/empathy 393, 400–2
 - undershooting 400–2
 - sex offenders 20, 41–2
- emotional intelligence 79
- empathic accuracy paradigm 409
 - obtaining measure of empathic accuracy 412
 - reliability 412–13
 - standard stimulus paradigm 411
 - unstructured dyadic interaction paradigm 410–11
 - validity 413–14
- empathogenic agents 289–90, 294, 306
 - arylhexylamine-type substances 295, 304
 - concept of recreational use and addiction 292
 - designer drugs 294–5
 - dopaminergic rewarding mechanism 294
 - MDMA (ecstasy) 295, 296–302
 - effects 297–8
 - empathy and imitation behaviours 301–2
 - history 296
 - neurobiochemical aspects 299
 - neuroendocrine modifications 303
 - presentation 296
 - serotonergic deficiency syndrome 300
 - serotonergic system and 299–300
 - testing 298
 - ordeal and near-death experience 293

499 Index

- other phenylethylamine-type substances 302–3
- other psychoactive substances 304–6
- raves and pursuit of empathy 291–2
- smart drugs 295–6
- tryptamine-type substances 295, 303–4
- Zuckerman sensation-seeking scale (SSS-V) 293
- empathy
 - definitions 4, 33–6, 94, 111, 239, 290–1, 390–2, 428, 473
 - see also individual topics*
- empathy quotient (EQ) 112–13, 323
 - ‘sexing’ the brain and 324–7
 - interpretation of results 328
- endocrine system
 - maternal 158
 - neuroendocrine modifications and MDMA (ecstasy) 303
- ephedrine 296
- evolutionary theories 168–9, 184, 217
 - autonomic nervous system 173–6
 - depression and 63–4
 - development of empathy in childhood 180–4
 - mirror neurones 169, 176–8, 204, 229, 240, 311–13, 317–19, 377–8
 - analogy with motivational-affective processing 347–52
 - links between mirror neurones and limbic system 313–14
 - role in understanding emotional states 178–80
 - role in understanding intentions 177–80
 - self-recognition and 315–17
 - Shared Manifold Hypothesis and 452–3, 454–5
 - mutual aid as driver of evolution 168, 169
 - origin of parental behaviours 168, 170–2
 - oxytocin and social behaviour 168, 172–3, 277
 - social bonding and attachment 180
- exercise 64
- existential empathy 310–11, 319
 - existential neuroscience and 317–19
 - human homologues of macaque mirror neurone areas 312–13
 - imitation and empathy between self and other 310–11
 - mirror neurone system and self-recognition 315–17
 - neural precursors of imitation and empathy 311–12
- exposure control 394–5, 396
- expressions *see* facial expressions
- externalizing behaviours, empathy and 37
- eyes
 - gaze avoidance 22
 - reading 6, 21
- facial expressions 7, 18
 - antisocial personality disorder and recognition of 40–1
 - emotion recognition and 360–1, 380
 - relationships between emotional state and emotion recognition performance 363–6
 - via primitive emotional contagion 367–74, 390
 - via simulation 374–9
 - indexes of empathy 37, 38
 - motivational-affective processing and 345–6
 - perceptually mediated empathy and emotion recognition 361–3
 - psychopathy and recognition of 7, 8–9, 10, 11, 12, 13
 - schizophrenia and recognition of 21–2, 23, 24
 - vicarious arousal 18, 19, 22
- false beliefs 207, 262
 - Theory of Mind and 98
- fantasy 35
- Faux Pas task 207, 251
 - antisocial personality disorder and 40
 - brain damage and 98
- Fear of Envy Scale 60
- fearful expressions 7, 8, 10, 11, 13
- flunitrazepam 295
- forgiveness 212
- Fragile X syndrome 275
- Freudian psychology, guilt in 56, 58
- friendship groups 78
- frontal lobes 224–5, 232–3
 - perception-action model (PAM) and damage to 439–40
- frontotemporal dementia 253
- functional magnetic resonance imaging (fMRI) 202
- functional neuroimaging 201
- fusiform gyrus 24
- gambling task 103
- gaze avoidance 22
- GBL 295
- gender 63
 - aggression and 77–8, 80
 - depression and 51, 62

500 Index

- gender (cont.)
 - empathy and 322, 332
 - development 36
 - taxonomy of brain types based on 328–9
- EQ/SQ and ‘sexing’ the brain 324–7
 - interpretation of results 328
- overshooting cognitive empathy and 403
- roles 397
- systemizing and 322, 332
 - taxonomy of brain types based on 328–9
- genetics 261, 271
 - autism and 264, 274, 275–7, 278, 280
 - depression and 52–3, 68
 - empathy and 148, 149, 153, 227, 262, 271–2
 - adoption, twin and extended family research 272–5
 - association with specific genetic disorders 275
 - candidate gene research 276–7
 - implications for further research 280–1
 - importance of gene–gene and gene–environment interactions 278–80
 - linkage studies 275–6
 - schizophrenia and 17
 - selfish gene theories 64, 65
- gesture indexes of empathy 37, 38
- GHB (gamma-hydroxybutyric acid) 296, 304–5
- GHN 295
- grooming 347
- guards 401
- guilt 68
 - autism and 135, 136
 - depression and 50, 54, 56, 58–62
 - survivor guilt 56–8, 60, 61, 67
 - empathy and 66
 - facial expressions and 41
- happy expressions 7, 8, 11, 12
- high-functioning autism 114, 265, 332
- hinting tasks 27
- hippocampus 56, 301
- Hogan’s Empathy Scale (HES) 36
- hormonal system *see* endocrine system
- humanities-based training in empathy 475–6
 - limitations and possibilities 488–91
 - literature relevant to specific psychiatric disorders 484–8
 - mental illness as curricular challenge 483–4
 - mental illness as exemplar of ‘otherness’ 481–3
 - research 480–1
 - theoretical model 476–9
 - translational applications 479–80
- Huntington’s disease 253
- hypochondriasis 488
- hypothalamus 301
- identification, autism and 136–7, 138
- imaging *see* neuroimaging
- imitation
 - empathy between self and other 310–11
 - links between mirror neurones and limbic system 313–14
 - MDMA (ecstasy), empathy and imitation behaviours 301–2
 - neural precursors of imitation and empathy 311–12
- indirect aggression 77–8
 - social intelligence and 77, 79–80, 81–3
- individual differences theories of empathy 218–19
- inference of empathy 408
- inferior parietal cortex 246
- inferior parietal lobule 211
- inhibition hypothesis 102
- insular cortex 246
- intentional attunement 448–9, 467
 - autism and 464–6
 - schizophrenia and 462–4
- intentions, understanding 177–80
- Intermittent Explosive Disorder 10
- interpersonal intelligence 79
- Interpersonal Reactivity Index (IRI) 37
- intersubjectivity 20
- joke appreciation tasks 27
- ketamine 295, 304
- learning deficits, ventromedial prefrontal cortex and 101
- learning theories for development of empathy 146, 154–5
- Lesch–Nyhan syndrome 277
- lexical decision tests 263
- limbic system 222–3
 - amygdala 8, 11, 13, 23, 24, 41, 56, 69, 106, 207, 223, 253, 301, 367, 368, 377
 - hippocampus 56, 301
 - links between mirror neurones and 313–14
- linguistic emotional processing 263
- literature *see* humanities-based training in empathy
- LSD (lysergic acid diethylamide) 295, 296, 305–6

501 Index

- magnetic resonance imaging (MRI) 202, 204
 - manic-depressive illness *see* bipolar disorder
 - MBDB 295, 300, 303
 - MDA 295, 297, 300, 302
 - MDEA 295, 300, 302
 - MDMA (ecstasy) 295, 296–302
 - effects 297–8
 - empathy and imitation behaviours 301–2
 - history 296
 - neurobiochemical aspects 299
 - neuroendocrine modifications 303
 - presentation 296
 - serotonergic deficiency syndrome 300
 - serotonergic system and 299–300
 - testing 298
 - measures of empathy 36–7, 183, 408–9, 422–4
 - autism and 420–1, 423
 - borderline personality disorder (BPD) and 421–2, 423
 - couples' therapy and 416–20
 - motivated accuracy 418–19, 423
 - motivated attributional bias 419–20, 423
 - motivated inaccuracy 417–18, 422
 - empathic accuracy paradigm 409
 - obtaining measure of empathic accuracy 412
 - reliability 412–13
 - standard stimulus paradigm 411
 - unstructured dyadic interaction paradigm 410–11
 - validity 413–14
 - individual differences in empathic accuracy 414–16
 - selecting for empathic accuracy 415
 - training empathic accuracy 415–16
 - media, violence in 76
 - medial prefrontal cortex (MPFC) 23, 24, 26, 209, 247
 - medical profession 401
 - problematic role of empathy in 473–5
 - rapport with patients 20
 - training in empathy 473
 - humanities-based *see* humanities-based
 - training in empathy
 - melatonin 296
 - mental flexibility 239
 - mescaline 303
 - military 394, 400–1
 - mimicry studies 209–10
 - mirror neurones 169, 176–8, 204, 229, 240, 311–13, 317–19, 377–8
 - analogy with motivational-affective processing 347–52
 - comparison between M-A and action representation networks 348
 - differences 351–2
 - similarities 348–51
 - links between mirror neurones and limbic system 313–14
 - neuroimaging 208, 312
 - role in understanding emotional states 178–80
 - role in understanding intentions 177–80
 - self-recognition and 315–17
 - Shared Manifold Hypothesis and 452–3, 454–5
- mirroring 50, 94
 - mismatch theory 63
 - modafinil 296
 - modelling theories for development of empathy 146, 154–5
 - models for development of empathy 146–55
 - attunement among dyads theories 146, 149–52
 - learning and modelling theories 146, 154–5
 - stage theories 146, 152–4
 - temperament/newborn arousal and regulation theories 146, 147–9, 227–8
 - modernism 473, 475
 - moral insanity 3
 - motivation 397
 - motivated accuracy 418–19, 423
 - motivated attributional bias 419–20, 423
 - motivated inaccuracy 417–18, 422
 - motivational-affective processing 335–6, 352
 - analogy with mirror neurones 347–52
 - comparison between M-A and action representation networks 348
 - differences 351–2
 - similarities 348–51
 - pain/disgust and 337–40, 342–7
 - beyond vicarious responding 346–7
 - from learning to communication 345–6
 - from motivation to movement 344–5
 - parsing pain 342–4
 - vicarious responding (empathy) 337–40
 - vicarious responding (empathy) in 336–42
 - motivational-affective framework 340–2
 - pain and disgust 337–40
 - studying vicarious responding 336–42
 - motor empathy 4
 - Multiple Complex Developmental Disorder (MCDD) 117
 - mutism, selective 119
 - mutual aid, evolution and 168, 169

502 **Index**

- narcissistic personality disorder 43
 - diagnostic criteria 34
- near-death experience 293
- neglect 159–60
- neonatal antecedents for empathy 145–6, 162
 - associations between newborn distress studies and empathy 155–7
- autonomic nervous system and 173–6
- dysfunctional socialization experiences
 - influencing development of empathy 158–61, 229–32
- implications for practice when working with newborns and mothers 161–2
- maternal psychological and physiological functioning and prediction of development of empathy in children 157–8
 - maternal abuse 160–1
 - maternal neglect 159–60
- models for development of empathy 146–55
 - attunement among dyads theories 146, 149–52
 - learning and modelling theories 146, 154–5
 - stage theories 146, 152–4
 - temperament/newborn arousal and regulation theories 146, 147–9, 227–8
- new definition and future directions for study 161
- nervous system
 - autonomic 173–6
- mirror neurones 169, 176–8, 204, 229, 240, 311–13, 317–19, 377–8
 - analogy with motivational-affective processing 347–52
 - links between mirror neurones and limbic system 313–14
 - neuroimaging 208, 312
 - role in understanding emotional states 178–80
 - role in understanding intentions 177–80
 - self-recognition and 315–17
 - Shared Manifold Hypothesis and 452–3, 454–5
- oxytocin and evolution of social behaviour 168, 172–3, 277
- neuroanatomical basis of empathy 92–101, 234
 - associations between brain regions and empathy 222–5
 - autonomic nervous system 225
 - frontal lobes 224–5
 - limbic system 222–3
 - temporal lobes 223–4
 - composition of empathic ability 93–5
 - dysfunctional socialization experiences and changes in brain activation and empathic responding 229–32
- EEG activity 218, 220–2
- empirical studies 225–9
 - adults 228–9
 - biobehavioural preparedness 226–7
 - in development 225–6
 - heritability 227
 - individual contributions and temperament 227–8
- evolutionary theories 217
- frontal lobe dysfunction and consequences for empathic responding 232–3
- individual differences theories 218–19
- somatic theories 217–18
- neuroimaging 201–2
 - empathy 201, 202–5, 209–12, 213–14, 242
 - aggression 213
 - component parts of empathy 205–9
 - disgust 210
 - emotional mimicry studies 209–10
 - forgiveness 212
 - general emotional processing 209
 - mirror neurones 208, 312
 - pain 210–11
 - self-awareness 208
 - social exclusion 213
 - socially relevant stimuli 205
 - sympathy 211–12
 - Theory of Mind and social cognition 205–7
 - pain 343
- neuroticism, depression and 52
- non-verbal communication 291, 310
- nootropics 296
- obesity 64
- obsessive-compulsive disorder (OCD) 118, 265, 271
 - genetics and 275
- obsessive-compulsive personality disorder (OCPD) 118
- offending
 - empathy and 37–8
 - see also* sex offenders
- older people, depression and 52
- oppositional-defiant disorder (ODD) 121–2
- orbitofrontal cortex 23, 207, 252
- ordeal behaviours 293
- ‘other’
 - adopting perspective of the other 247–50
 - affective sharing between self and other 240–2

503 Index

- from covert to overt representation of others' mental states 253–6
- experiencing actions of others as embodied action simulation 455–6
- imitation and empathy between self and other 310–11
- mental illness as exemplar of 'otherness' 481–3
- self-other awareness 239, 247–50
- overcrowding 67
- oxytocin and social behaviour 168, 172–3, 277
- pain 243–4
 - motivational-affective processing and 337–40, 342–7
 - beyond vicarious responding 346–7
 - from learning to communication 345–6
 - from motivation to movement 344–5
 - parsing pain 342–4
 - neuroimaging 210–11
 - sensory-discriminative dimension 343
- PANAS measure 191
- panic disorder 488
- paranoid schizophrenia 17, 23
- parental empathy 145–6
 - associations between newborn distress studies and empathy 155–7
 - autonomic nervous system and 173–6
 - child abuse and 42, 160–1, 231
 - dysfunctional socialization experiences
 - influencing development of empathy 158–61, 229–32
 - evolutionary theories 168, 170–2
 - maternal psychological and physiological functioning and prediction of development of empathy in children 157–8
 - maternal abuse 160–1
 - maternal neglect 159–60
- models for development of empathy 146–55
 - attunement among dyads theories 146, 149–52
 - learning and modelling theories 146, 154–5
 - stage theories 146, 152–4
 - temperament/newborn arousal and regulation theories 146, 147–9, 227–8
 - reframing strategies 394
- PCP (phencyclidine) 295, 304
- perception 360–1
- perception-action model (PAM) 240–1, 242–5, 250, 428, 441
 - breakdown of concepts 428–37
 - attention 434–5
 - automatically 433–4
 - perception-action concept 428–30
 - representations 430, 431
 - shared emotional experiences and similar emotion 430–3
 - disorders of empathy 438–41
 - recent neuroscientific evidence 437–8
- personality 278
 - autism and 266–8
 - empathy and 268–70
- perspective taking 35
- pervasive developmental disorders not otherwise specified (PDD NOS) 116–17
- phenomenology 317
 - phenomenological psychiatry 20
- phenylethylamines 295, 302–3
 - see also* MDMA (ecstasy)
- picture/story assessments of empathy 36
- piracetam 296
- polyvagal theory 169, 173–6, 218
- positron emission tomography (PET) 201, 202
- posterior cingulate cortex 208
- post-modernism 475
- post-traumatic stress disorder (PTSD) 212
- power 289
- Prader–Willi syndrome 276, 277
- procaine hydrochloride 296
- psilocin 303
- psychiatric taxonomy, empathy and 270–1
- psychiatrists 401
 - rapprochement with patients 20
- psychoactive substances, empathy and *see* empathogenic agents
- psychopathy 3–4, 12–13, 267
 - empathy and 332
 - emotional empathy 9–12, 50
 - perception-action model (PAM) 439
 - Theory of Mind (cognitive empathy) 5–6, 12
- Psychopathy Checklist 4
- Questionnaire Measure of Emotional Empathy 18, 36
- questionnaires 18, 36–7, 38
- raves, pursuit of empathy and 291–2
- Reading the Mind in the Eyes test 6, 40–1
- recognition of emotion 35, 134–5, 178–80, 360–1, 380
 - perceptually mediated empathy and 361–3
 - relationships between emotional state and emotion recognition performance 363–6

504 Index

- recognition of emotion (cont.)
 - via primitive emotional contagion 367–74, 390
 - via simulation 374–9
- reframing 393–4, 396, 400
- regulation of emotion 69, 148, 239, 250–1
- regulation of empathic response 389–90, 404
 - cognitive empathy 395–8
 - overshooting 403
 - shortcuts 398–9
 - undershooting 402–3
 - costs of poor regulation 399–400
 - overshooting cognitive empathy 403
 - overshooting emotional empathy 402
 - undershooting cognitive empathy 402–3
 - undershooting emotional empathy 400–2
- emotional empathy 392–5
 - exposure control 394–5
 - overshooting 402
 - reframing strategies 393–4
 - suppression of emotion/empathy 393, 400–2
 - undershooting 400–2
- regulation theories for development of empathy 146
- reification error 261
- representation
 - from covert to overt representation of others’
 - mental states 253–6
 - perception-action model (PAM) 430, 431
 - schizophrenia as disorder of 26
 - shared representations 241, 243
- restitution story of medicine 475
- Rett syndrome 277
- Rohypnol® 295
- role taking, antisocial personality disorder and 39
- sad expressions 7, 8, 9, 10, 11, 13
- Sally-Anne task 5, 19, 22
- schizoid personality disorder 119
- schizophrenia 17–18
 - childhood 120
 - emotion recognition and 364
 - empathy in 20–3, 27
 - empathy-related concepts in earlier descriptive and phenomenological psychiatry 20–1
 - future directions 27
 - neuroimaging empathy 23–5
 - recent experimental studies 21–3
 - symptomatology and 25–6
 - theoretical consideration 26–7
 - genetics and 17
 - intentional attunement and 462–4
 - literature on 485
 - Theory of Mind and 22–3, 24, 270
 - vicarious arousal and 22
- selective mutism 119
- self
 - self-awareness 23, 182, 204, 269, 291, 310
 - agency and 245–7
 - autism and 135–6
 - mirror neurone system and 315–17
 - neonates and 148, 152
 - neuroimaging 208
 - as shortcut to cognitive empathy 399
 - self-esteem 191, 192
 - self-harm 67
 - self-medication 289
 - self-other awareness 239, 247–50
 - silencing 403
- selfish gene theories 64, 65
- self-regulatory disorder 250
- sensation-seeking scale (SSS-V) 293
- serotonergic deficiency syndrome 300
- serotonergic system, MDMA (ecstasy) and 299–300
- sex *see* gender
- sex offenders
 - emotional empathy in 20, 41–2
 - narcissism and 43
- shared emotional experiences 430–3
- Shared Manifold Hypothesis 466–7
 - action understanding 451–5
 - understanding of intransitive actions 454–5
 - understanding of object-related actions 452–4
 - being ‘in touch’ 459–60
 - body of emotions 456–9
 - embodied simulation 448–51
 - experiencing actions of others as embodied action simulation 455–6
 - empathy and 461–2
 - intentional attunement 448–9, 467
 - autism and 464–6
 - schizophrenia and 462–4
 - shared representations 241, 243
 - shortcuts to cognitive empathy 398–9
- simulation 94
 - embodied 448–51
 - experiencing actions of others as embodied action simulation 455–6
 - recognition of emotion via 374–9
 - simulation theory 208, 263

505 Index

- skin conductance responses (SCRs) 371, 372
 - psychopathy and 9
 - schizophrenia and 22
- smart drugs 295–6
- social behaviour 36, 64
 - biobehavioural preparedness 226–7
 - dysfunctional socialization experiences 158–61, 229–32
 - empathy in naturally occurring social interaction 194–7
 - evolutionary theories
 - autonomic nervous system and 173–6
 - oxytocin and evolution of social behaviour 168, 172–3, 277
 - social bonding and attachment 180
 - see also* mirror neurones
 - ventromedial prefrontal cortex and 101–4
- Social Comparison Scale 60
- social exclusion 213
- social intelligence 79
 - aggression and 77, 79–80, 81–3
 - empathy and 80–3
 - measurement 80
- social responsiveness scale 264
- soldiers and empathy 394, 400–1
- somatic marker hypothesis 102, 103, 218
- somatic theories of empathy 217–18
- somatosensory cortexes 374, 376–7, 379
- stage theories for development of empathy 146, 152–4
- startle reflex 12
- state empathy
 - issues in studying states 189–90
 - variability in 187–9
 - daily variability 190–4
 - empathy in naturally occurring social interaction 194–7
 - implications for mental health 197–8
- STP 295, 303
- structural neuroimaging 201
- submission 57, 58
 - depression and 58, 63
 - Submissive Behaviour Scale 60
- suicide 51
- superior temporal sulcus (STS) 206
- suppression of emotion/empathy 393, 400–2
- survivor guilt, depression and 56–8, 60, 61, 67
- sympathy 33, 81, 290
 - neuroimaging 211–12
- systemizing
 - autism and 323
 - sex differences and 322, 332
 - taxonomy of brain types based on 328–9
- systemizing quotient (SQ) 323
 - ‘sexing’ the brain and 324–7, 328
- temperament and character inventory (TCI) 266, 267–8
- temperament theories for development of empathy 146, 147–9, 227–8
- temporal lobes 223–4
- temporo-parietal junction 207
- Theory of Mind (cognitive empathy) 4, 19, 49, 93, 94, 111, 180, 204, 262, 332, 391
 - antisocial personality disorder and 39, 40–1
 - autism and 5, 6, 20, 98, 137–8, 264–6
 - component cognitive processes relevant to empathy 202–5
 - guilt and 63
 - impairment following brain damage 97–101
 - neuroimaging 205–7
 - psychopathy and 5–6, 12
 - regulation strategies 395–8
 - overshooting 403
 - shortcuts 398–9
 - undershooting 402–3
 - schizophrenia and 22–3, 24, 270
 - simulation theory 208, 263
- theory-theory 208, 263, 362
- therapists *see* medical profession
- tic disorders 117–18
 - genetics and 275
 - see also* Tourette syndrome
- touch 459–60
- Tourette syndrome 117–18, 265, 271
 - empathy quotient (EQ) and 113
 - genetics and 275
- training in empathy 473
 - empathic accuracy 415–16
 - humanities-based 475–6
 - limitations and possibilities 488–91
 - literature relevant to specific psychiatric disorders 484–8
 - mental illness as curricular challenge 483–4
 - mental illness as exemplar of ‘otherness’ 481–3
 - research 480–1
 - theoretical model 476–9
 - translational applications 479–80
 - as inhibitor of aggression 83–5
 - military training in reducing empathy 400–1
- trait psychology 33

506 Index

- tryptamines 295, 303–4
- tuberous sclerosis 275
- variability in state empathy 187–9
 - daily variability 190–4
 - empathy in naturally occurring social interaction 194–7
 - implications for mental health 197–8
 - issues in studying states 189–90
- vasopressin 172, 173
- ventral striatum 368
- ventromedial prefrontal cortex (VMPFC) 23, 206, 211, 213
 - anatomy 90–2
 - impaired empathy and damage to 89–90, 95–7, 106
 - neural network for organization of empathic response 104–6
 - neuroanatomical basis of empathy 92–101
 - case of Theory of Mind 97–9
 - composition of empathic ability 93–5
 - frontotemporal dementia studies 99–101
 - impaired empathic ability following prefrontal lesions 95–7
 - social cognition and 101–4
- vicarious arousal 18, 19
 - schizophrenia and 22
- visual cortex 18
- vocal communication, evolutionary theories 168, 170–2
- William’s syndrome 275
- young children’s empathy measure 183
- Zuckermann sensation-seeking scale (SSS-V) 293