

# Contents

List of Contributors	xiii		
Preface	xvii		
<b>1. Concepts and issues in mental health and aging</b>	<b>1</b>		
<i>Nathan Hantke and Ruth O'Hara</i>			
Critical issues in mental health	2		
Mental health disorder in older adults	2		
The interplay of neurobiology, cognition, and psychiatric symptoms	3		
A reflection on intervention	3		
Psychotherapy	3		
Summary	4		
References	4		
<b>2. Epidemiology of selected mental disorders in later life</b>	<b>7</b>		
<i>Brenna N. Renn, Patricia A. Areán and Jürgen Unützer</i>			
Introduction and scope of the chapter	7		
Psychiatric epidemiology in later life	7		
Selected disorders	10		
Depressive disorders	10		
Neurocognitive disorders	12		
Anxiety disorders	13		
Bipolar disorders	14		
Posttraumatic stress disorder	15		
Substance use disorders	16		
Suicide	18		
Summary and future directions	19		
Acknowledgments	20		
References	20		
<b>3. Culture and ethnicity in the mental health of older adults</b>	<b>23</b>		
<i>Lucas Torres, Claire Bird and Felicia Mata-Greve</i>			
Culture and ethnicity in the mental health of older adults	23		
<b>Cultural factors associated with mental health</b>	<b>24</b>		
Racial/ethnic discrimination	24		
Cultural adaptation	25		
Cognition and ethnicity	26		
Religion and spirituality	27		
<b>Access to mental health care</b>	<b>28</b>		
Mental health stigma and negative attitudes toward treatment	28		
Structural barriers to care	29		
<b>Discussion</b>	<b>30</b>		
<b>References</b>	<b>31</b>		
<b>Further reading</b>	<b>35</b>		
<b>4. Stress, mental health, and aging</b>	<b>37</b>		
<i>Raeanne C. Moore, Elizabeth Straus and Laura M. Campbell</i>			
Introduction	37		
Biological impact of stress in late life	38		
Cellular aging and stress	38		
The immune system and inflammation	39		
Neuroimaging and stress in later life	39		
Genetics, stress, and aging	40		
<b>Stress on cognitive health in older adults</b>	<b>40</b>		
Stress and objective cognitive functioning	40		
Day-to-day stress fluctuations and cognition	41		
Stress and subjective cognitive complaints	41		
Early and midlife stress on late-life cognitive functioning	41		
Dementia worry	41		
<b>Impact on everyday functioning</b>	<b>42</b>		
<b>The impact of stress on quality of life in older adults</b>	<b>43</b>		
Chronic health conditions and quality of life	43		
Mental health and quality of life	43		
<b>Alzheimer's disease caregivers—a use-case example of how stress directly impacts mental health in older adults</b>	<b>44</b>		
<b>Stress-related anxiety disorders in older adults</b>	<b>45</b>		
Posttraumatic stress disorder in older adults	46		
Generalized anxiety disorder in older adults	46		
The special case of the veteran population	47		

Protective role of positive psychological traits	47	8. Accelerated brain molecular aging in depression	87
Stress and social support	48	<i>Rammohan Shukla and Etienne Sibille</i>	
Stress and resilience	48	Introduction	87
Interventions to improve mental health and stress	49	Neuronal correlates of cognitive changes in depression and aging	87
Future directions for research and conclusions	50	Peripheral and central biomarkers of “molecular aging” of the human brain	88
References	51	Deviation of molecular age from chronological age in disease states	88
5. Structural changes in the aging brain	59	Proposed model of age-by-disease interaction	90
<i>Meghan Riddle and Warren D. Taylor</i>		Conclusion	91
Introduction	59	References	91
Gray matter structure	60	9. Cognitive dysfunction in late-life psychiatric disorders: phenotypes, risk factors, and treatment targets	93
Ventricular changes	63	<i>Christina F. Chick, Casey Buck and Ruth O'Hara</i>	
White matter structure	63	Using cognitive profiles to refine late-life psychiatric phenotypes	93
Clinical translation and utility of neuroimaging data	65	Depression	94
References	65	Anxiety	94
6. Sleep-dependent cellular chemical changes in the aging brain	71	Schizophrenia and bipolar disorder	94
<i>Gordon X. Wang and Philippe Murrain</i>		Posttraumatic stress disorder	94
Introduction	71	Differentiating anxiety from depression in late life	95
Plasticity, synapses, aging, and sleep	71	Differentiating schizophrenia from bipolar disorder in late life	95
Amyloid beta and the Fragile X mental retardation protein	72	Worry	95
Amyloid, astrocytes, and the glymphatic system	73	Neurophysiology associated with cognitive impairment in late-life psychiatric disorders	96
Cellular metabolism and the astrocytes	74	Depression	96
Sleep, chromosome dynamics, and DNA repair in neurons	75	Anxiety	96
Animal models for aging and neurochemical changes	77	Schizophrenia	97
Conclusion	77	Disentangling late-life psychiatric symptoms from prodromes of other neurodegenerative disorders	97
References	77	Psychiatric disorders as a risk factor for subsequent cognitive decline	98
7. Biomarkers of cognitive impairment in late-life depression	81	Cognitive function as a predictor of pharmacologic and psychotherapeutic treatment response	98
<i>Breno S. Diniz and Meryl A. Butters</i>		Developing and identifying treatment targets such as cognitive training and augmentation	99
Introduction	81	Offering a window to neurocircuitry and the development of transdiagnostic measures for geriatric psychiatry	100
Cognitive impairment in late-life depression	81	Conclusion	101
Neuroimaging findings	81	References	101
Inflammatory changes in late-life depression	82	Further reading	105
Neurotrophic factors in late-life depression	83		
The insulin signaling cascade/glycogen synthase kinase $\beta$ 3 in late-life depression	83		
Multiplex biomarker changes related to cognitive impairment in late-life depression	83		
Conclusion	84		
References	84		

<b>10. Suicide in late life</b>	<b>107</b>	<b>12. Bipolar disorders in older adults</b>	<b>135</b>
<i>Joshua T. Jordan and Lauren A. Anker</i>		<i>Laura Hein, Annemiek Dols and Lisa T. Eyler</i>	
<b>Prevalence</b>	<b>107</b>	<b>Introduction/epidemiology</b>	<b>135</b>
Suicidal ideation	107	<b>Early versus late-onset</b>	<b>136</b>
Suicide attempts and death by suicide	107	<b>Secondary mania</b>	<b>136</b>
Suicide method	108	<b>Clinical presentation</b>	<b>137</b>
<b>Risk factors</b>	<b>108</b>	<b>Suicide</b>	<b>137</b>
Gender	108	<b>Psychiatric comorbidity</b>	<b>137</b>
Race and ethnicity	108	<b>Physical health</b>	<b>137</b>
Socioeconomic status	108	<b>Cerebrovascular disease</b>	<b>138</b>
Social factors	109	<b>Obesity</b>	<b>138</b>
Mental illness	109	<b>Cognition</b>	<b>138</b>
Physical illness and functional impairment	109	<b>Brain abnormalities</b>	<b>139</b>
Neurodegeneration, cognition, and suicide	110	<b>Clinical care</b>	<b>140</b>
<b>Contemporary psychological theories of suicide</b>	<b>111</b>	Psychiatric medications	141
<b>Suicide risk assessment</b>	<b>112</b>	Electroconvulsive therapy	142
<b>Management and treatment</b>	<b>113</b>	Psychotherapy	142
<b>Summary and future directions</b>	<b>116</b>	Exercise and nutrition	142
<b>References</b>	<b>116</b>	<b>Limitations and future directions</b>	<b>143</b>
		<b>References</b>	<b>143</b>
<b>11. Anxiety and its disorders in old age</b>	<b>121</b>	<b>13. Positive Psychiatry and successful aging in people with schizophrenia</b>	<b>149</b>
<i>Sherry A. Beaudreau, Christine E. Gould, Susan Sharp Kolderup and Nehila Mashal</i>		<i>Dilip V. Jeste, Ryan Van Patten and Ellen E. Lee</i>	
<b>Introduction</b>	<b>121</b>	<b>Introduction</b>	<b>149</b>
<b>Overview</b>	<b>121</b>	Historical background of positive psychiatry	149
<b>Anxiety disorders</b>	<b>122</b>	Schizophrenia	150
<b>Common anxiety disorders</b>	<b>122</b>	Assessment in positive psychiatry	150
Specific phobia	122	<b>Positive psychosocial characteristics</b>	<b>151</b>
<b>Social anxiety disorder</b>	<b>122</b>	<b>Cognition</b>	<b>152</b>
<b>Generalized anxiety disorder</b>	<b>123</b>	<b>Successful biopsychosocial aging</b>	<b>152</b>
<b>Panic disorder</b>	<b>123</b>	<b>Biology</b>	<b>153</b>
<b>Agoraphobia</b>	<b>124</b>	Potential biomarkers of positive psychiatry	153
<b>Anxiety disorders due to substances, medications, or medical conditions</b>	<b>124</b>	<b>Clinical implications</b>	<b>154</b>
<b>Other specified anxiety disorder/unspecified anxiety disorder</b>	<b>124</b>	<b>Limitations</b>	<b>155</b>
<b>Less common anxiety disorders</b>	<b>125</b>	<b>Future directions</b>	<b>155</b>
<b>Anxiety in the context of neurocognitive disorders</b>	<b>125</b>	<b>Conclusion</b>	<b>156</b>
<b>Diagnostic challenges</b>	<b>126</b>	<b>References</b>	<b>156</b>
<b>Assessment of anxiety in older adults</b>	<b>126</b>	<b>14. Alzheimer's disease and other neurocognitive disorders</b>	<b>161</b>
<b>Treatment approaches</b>	<b>128</b>	<i>Lucy Y. Wang, Beth Ann LaBardi, Murray A. Raskind and Elaine R. Peskind</i>	
Cognitive behavioral therapy	128	<b>Introduction</b>	<b>161</b>
Other psychotherapeutic approaches	129	<b>Terminology</b>	<b>161</b>
<b>Conclusion</b>	<b>130</b>	<b>General diagnostic approach</b>	<b>162</b>
<b>References</b>	<b>130</b>	<b>Alzheimer's disease</b>	<b>163</b>
<b>Further reading</b>	<b>134</b>	Clinical features	163
		Management	164

<b>Vascular dementia</b>	<b>165</b>	Over-the-counter drugs	199
Clinical features	165	Tobacco use disorder	201
Diagnosis	165	Polysubstance use disorders	203
Management	166	<b>Looking ahead</b>	<b>203</b>
<b>Lewy body disease</b>	<b>166</b>	Predicting future case volume	203
Parkinson's disease dementia	166	Research directions	203
Dementia with Lewy bodies	167	Planning services	204
Imaging	167	Prevention	204
Management	167	<b>References</b>	<b>204</b>
<b>Frontotemporal lobar degeneration</b>	<b>167</b>		
Clinical features	167	<b>16. Sleep disorders and aging</b>	<b>211</b>
Imaging	169	<i>Logan Schneider, Rosy Karna, Makoto Kawai</i>	
Treatment	169	<i>and Kai Parker-Fong</i>	
<b>Common psychiatric symptoms in dementia and their management</b>	<b>170</b>	Quantifying sleep	211
Apathy	170	Normal sleep with aging	211
Agitation	171	Sleep disturbance and comorbidities	213
Psychosis	174	Sleep disturbance and cognition	213
Depression	175	Insomnia in late life	214
Anxiety	177	Excessive daytime sleepiness in late life	215
<b>References</b>	<b>177</b>	Sleep-disordered breathing in late life	216
		Summary and future directions	217
<b>15. Substance use disorders in the elderly</b>	<b>185</b>	References	217
<i>Tylor J. Jilk and Martin S. Mumenthaler</i>			
<b>Introduction</b>	<b>185</b>	<b>17. Aging of persons with neurodevelopmental disabilities</b>	<b>223</b>
<b>Epidemiology</b>	<b>185</b>	<i>Lauren A. Anker, Christina F. Chick and</i>	
Risk factors for substance use disorders	185	<i>Joachim F. Hallmayer</i>	
Underrecognition of substance use disorders in later life	186	<b>Features and diagnostic criteria of neurodevelopmental disorders</b>	<b>223</b>
Comparative prevalence of substance use disorders	187	Autism spectrum disorder	224
<b>Principles of assessment and management</b>	<b>187</b>	Down syndrome	224
Assessment of substance use disorders	187	<b>Demographic trends</b>	<b>225</b>
Management and treatment	188	Autism spectrum disorder	225
<b>Alcohol use disorders</b>	<b>188</b>	Down syndrome	225
Epidemiology	188	<b>Life expectancy</b>	<b>225</b>
Patterns of alcohol use and abuse	189	Autism spectrum disorder	226
Clinical features of alcohol use disorders	191	Down syndrome	226
Course	192	<b>Cognitive abilities</b>	<b>226</b>
Management and treatment	192	Autism spectrum disorder	227
<b>Prescription psychoactive drug use disorders</b>	<b>193</b>	Down syndrome	227
Epidemiology of sedative-hypnotic drug use and problems	193	<b>Physical health</b>	<b>228</b>
Clinical features and complications of benzodiazepine dependence	195	Autism spectrum disorder	228
Assessment and management of benzodiazepine use disorders	196	Down syndrome	228
Opioid use disorder	197	<b>Mental health</b>	<b>229</b>
Prescription analgesic drug use and abuse	198	Autism spectrum disorder	229
<b>Other substances</b>	<b>198</b>	Down syndrome	229
Illegal drugs	198	<b>Functional abilities</b>	<b>230</b>
		Autism spectrum disorder	231
		Down syndrome	231
		<b>Service use and availability</b>	<b>231</b>
		Autism spectrum disorder	232



Formal supports	232	Late-life depression and cognitive decline	266
Down syndrome	233	Cognitive models linking late-life depression and cognition	267
Family and informal supports	233	Late-life anxiety and cognitive performance	267
Informal supports	233	Late-life anxiety and cognitive control	268
Summary and future directions	234	Anxiety and cognitive decline	268
References	235	Co-occurring anxiety and depression	268
Further reading	242	Cognitive models linking late-life anxiety and cognition	268
<b>18. Bereavement and grief</b>	<b>245</b>	Conclusion	269
<i>Danielle K. Glorioso, Alana Iglewicz and Sidney Zisook</i>		References	269
Introduction	245	Further reading	275
Terminology: bereavement, grief, and mourning	245	<b>20. Integrative precision-medicine approach to cognitive assessment in older adults</b>	<b>277</b>
Historical background	246	<i>Sharon Naparstek, Omer Linkovski and Limor Gertner</i>	
Two forms of “normal” grief: acute and integrated	246	Introduction	277
Acute grief	246	Case description	277
Integrated grief	247	Beyond-symptoms approach	278
Complicated grief	247	Brain atrophy and connectivity	278
Depression in the context of grief	248	An open-science approach	280
Posttraumatic stress disorder	250	Incorporating technology in the assessment	280
Bereavement and medical morbidity	251	Conclusion	281
Cognition	251	References	281
Suicide bereavement	251	<b>21. Functional assessment in geriatric mental health</b>	<b>285</b>
Clinical recommendations	252	<i>Adriana Seelye, Sarah Brown, Katherine Dorociak, Jeffrey Kaye, Katherine Wild and Snezana Urošević</i>	
Conclusion	253	Introduction	285
References	253	Classification and assessment of function in older adults	285
Further reading	256	Conceptual framework for cognitively mediated daily function in older adulthood	286
<b>19. Neuropsychology with older adults</b>	<b>257</b>	Assessment of daily function in normative aging, mild cognitive impairment, and Alzheimer’s disease	287
<i>Nathan Hantke and Nicholas T. Bott</i>		Functional assessment in older adult mental health	289
Introduction	257	Assessment of daily function in older adult depression	290
Cognitive changes associated with aging	257	Assessment of daily function in older adult schizophrenia	291
Aging and frontal lobe functions	257	Assessment of daily function in older adult bipolar disorder	291
Aging and memory	258	Conclusions	291
Summary	259	References	292
Role of neuropsychology in differential diagnosis of pathological cognitive decline	259		
Tracking of preclinical cognitive change	260		
Mild cognitive impairment	260		
Alzheimer’s disease	262		
Vascular dementia	263		
Lewy Body dementias	263		
Frontotemporal dementia	264		
Behavioral variant frontotemporal dementia	264		
Primary progressive aphasia	265		
Cognition and mental health in older adults	265		
Late-life depression and cognitive performance	266		

## 22. Psychotherapeutic interventions with older adults: now and into the future 299

*Leander K. Mitchell and Nancy A. Pachana*

<b>Introduction</b>	<b>299</b>
CALTAP: a transdisciplinary model of working with older adults	299
Therapeutic modalities	299
<b>Psychotherapeutic approaches</b>	<b>300</b>
Psychodynamic approach	300
Cognitive behavior therapy	300
Interpersonal psychotherapy	301
Motivational interviewing	301
Third-wave therapeutic approaches	302
Problem-solving therapy	304
<b>Strengths-based approaches</b>	<b>305</b>
Positive psychology	305
Reminiscence	305
Wisdom	306
Resilience	307
<b>Future focus</b>	<b>307</b>
Telehealth modalities	308
Web-based interventions	308
Mobile applications ("Apps")	308
Gaming and virtual reality	309
<b>Conclusion</b>	<b>309</b>
<b>References</b>	<b>310</b>
<b>Further reading</b>	<b>314</b>

## 23. Psychopharmacologic treatment 315

*Vimal M. Aga, Mujeeb U. Shad, Hongru Zhu and Carl Salzman*

<b>Overview</b>	<b>315</b>
<b>Basic psychopharmacological principles</b>	<b>316</b>
Pharmacokinetics	316
<b>Issues specific to psychotropic drug prescribing in older adults</b>	<b>319</b>
Diagnostic issues	319
Polypharmacy and older adults	323
Potentially inappropriate medication use in older adults	326
Sociocultural factors	327
<b>Drug interactions in older adults</b>	<b>328</b>
Drug–drug interactions	328
Drug–herb interactions	331
Drug–food interactions	331
Drug–disease interactions	331
Drug–substance interactions	332
Drug–gene interactions	333
<b>Drug treatment of common psychiatric disorders in older adults</b>	<b>334</b>

Psychotic disorders in older adults	334
Bipolar disorder in older adults	340
Major depressive disorder in older adults	348
The dementias in older adults	359
Neurobehavioral symptoms in the dementias in older adults	365
Anxiety in older adults	372
Insomnia in older adults	375
<b>Summary and conclusions</b>	<b>381</b>
<b>References</b>	<b>381</b>

## 24. Technology-based mental health assessment and intervention 401

*Christine E. Gould, Flora Ma, Julia R. Loup, Christine Juang, Erin Y. Sakai and Renee Pepin*

<b>Introduction</b>	<b>401</b>
<b>Technology considerations for older users</b>	<b>401</b>
<b>Assessment using technology</b>	<b>402</b>
Assessment via telehealth	403
Computerized assessment	403
Experience sampling method	404
Other assessment modalities	405
<b>Interventions</b>	<b>406</b>
Telephone therapy	406
Telemental health interventions	406
Internet-based interventions	407
Interactive voice response and text message support	408
Mobile app interventions	408
<b>Summary</b>	<b>410</b>
<b>Acknowledgments</b>	<b>410</b>
<b>References</b>	<b>410</b>
<b>Further reading</b>	<b>414</b>

## 25. Community and home care for mentally ill older adults 417

*Erin Cassidy-Eagle*

<b>Introduction</b>	<b>417</b>
<b>Who is seeking mental health care?</b>	<b>417</b>
<b>Where do older adults with mental illness reside?</b>	<b>418</b>
<b>Residential care options</b>	<b>418</b>
<b>Conditions most frequently seen/treated in facilities</b>	<b>419</b>
<b>Opportunities and needs for mental health research—sleep as an example</b>	<b>419</b>
<b>Conclusion</b>	<b>420</b>
<b>References</b>	<b>420</b>

<b>26. Forensic and ethical issues</b>	<b>423</b>		
<i>Mousa S. Botros, Julie E. Guzzardi, Regina M. Carney, Spencer Eth and Gregory B. Leong</i>			
Competency	423	Medicare hospital insurance (Part A)	439
Competency in civil law	424	Supplemental medical insurance (Part B)	439
Voluntary informed consent	426	Medicare advantage	439
Competency in criminal law	430	Medicaid and dual-eligible populations	440
Confidentiality	432	Private insurance and out-of-pocket payments	441
Boundary issues	432	Policy and infrastructure innovation	442
Research consent in the elderly	433	Conclusion	443
Conclusion	434	References	444
References	434		
Further reading	436		
<b>27. The economics of geriatric mental health care</b>	<b>437</b>	<b>28. The future of mental health and aging</b>	<b>447</b>
<i>Nicholas T. Bott</i>		<i>Nathan Hantke, Ruth O'Hara, Sherry A. Beaudreau and Amit Etkin</i>	
Introduction	437	Introduction	447
The impact of health policy on geriatric mental health	437	Conceptualizing geriatric mental health within neural circuitry	448
Medicare fee-for-service	438	Repetitive transcranial magnetic stimulation	450
		Treatment innovation through technology	451
		Summary	451
		References	452
		Author index	455
		Subject index	483