A literature review

Psychiatric disorders in late life

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Summary

Psychiatric disorders in the elderly population are common, with an estimated 12-month prevalence of around 25% [1]. Many of them are unrecognised, wrongly or un-treated, and associated with poor health outcomes. Keeping these challenges in mind, the epidemiological evidence available so far has to be interpreted with some caution. Nonetheless, there is no doubt that the demographic trend will lead to a significant increase of psychiatric disease in old age in the upcoming decades. The aim of the present article is to describe the current prevalence of mental disorders in the elderly.

Introduction

The proportion of elderly people throughout the industrial countries has tripled and life expectancy has doubled during the past 120 years. Consequently, quality of life and the expected span of healthy life-years in people aged >50 years are continuously expanding to an unprecedented extent [2, 3]. The increasing groups of young elderly (≤75 years) and older (>75 years) people will lead to an increase in the absolute numbers of older people with psychiatric diseases during the upcoming years. This demographic explosion with an initial focus on the younger elderly will challenge healthcare systems owing to increasing rates of substance- and non-substance-related addiction disorders, affective disorders, schizophrenia, somatisation disorders, autism spectrum disorders, eating disorders, attention deficit / hyperactivity disorder and personality disorders. Dementia and assisted suicide rates will subsequently rise with higher age. Thus, the epidemiology of psychiatric disorders in old age may depend on the development of healthcare systems, cultural influences and socioeconomic factors.

Increasing age leads to: (1) somatic and cerebral polymorbidity, (2) overlapping of somatic and psychiatric symptoms, (3) symptom shift from mental to somatisation complaints and (4) social as well as psychological changes in this population. The study evidence presented here has therefore to be interpreted throughout with some caution. Uncertainty remains as to: (a) whether lower rates of psychiatric disorders in old age reflect a true decline in psychiatric disorders, or (b) if they result either from methodological biases, or (c) from the inadequacy of current diagnostic instruments in detecting and diagnosing mental disorders in old age [4–6].

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Methods

We conducted a literature review via a pubmed.gov search in August 2021. As a first step we used the MeSH terms “prevalence, epidemiology, mental or psychiatric diseases, old age” or “elderly”. In a second step we introduced the terms of the diagnostic entities discussed here. As filter “age 50 plus and 65 plus” were used. Additional sources were used: (1) from the literature that has been extracted by this strategy, such as cross references, or (2) in a further step by hand search in textbooks.

Disease groups

Dementia and related disorders

Dementia is one of the 10 leading contributors to the disability adjusted life year burden among people aged ≥60 years according to the World Health Organization (WHO) Global Burden of Disease Report [7, 8].

The age-specific prevalence almost doubles every 5 years, from 1.5% in persons aged 60–69 years to 40% in nonagenarians. The global crude prevalence is estimated to be around 5.9% in Europe, 6.4% in the Americas, 4.7% in Asia (with considerable variation between subregions) and 4.6% in Africa. In Europe, the number of people with dementia is expected to increase from 10.5 million in 2015 to 18.7 million in 2050, which is equal to a 78% proportionate increase of cases [9]. More recent pooled meta-analyses estimated the standardised prevalence of dementia in Europe to be between 7.1%, [6, 4] and 7.3% [9–11]. The distribution of the various prevalent dementia disorders in Europe is 61% Alzheimer disease, 27.6% vascular dementia and 11.1% others [12]. The point prevalence of frontotemporal dementia accounts for, on average, 2.7% of all dementia cases (range 0–9,1%) in subjects ≥65 years and 10.2% (range 2.8–15,7%) in subjects <65 years in studies analysed in a systematic review [13].

The annual incidence rate for dementia due to Alzheimer disease in community settings (aged 60+) has

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been estimated (by meta-analysis) to be about 15.8/1000 (confidence interval [CI] 12.9–19.4%) and doubles every 6.3 years [9, 14]. Peak numbers are reached between 80 and 89 years of age and then decline with increasing age. However, there is large variation between pertinent reports of incidence measures [12]. Recent evidence is pointing to stabilising and/or decreasing dementia incidence in western high-income countries, without allowing robust conclusions [15].

People who are experiencing a noticeable decline in cognitive abilities that does not substantially interfere with activities of daily function are classified as having mild cognitive impairment and are at elevated risk of developing Alzheimer disease or other types of dementia. Some authors believe that mild cognitive impairment might be a mandatory transition to clinically overt dementia. Meta-analysis estimates of the incidence of mild cognitive impairment per 1000 person-years were 22.5 (age 75–79 years), 40.9 (80–84 years) and 60.1 (85+ years) [16]. Overall prevalence in the elderly population has been estimated as 25% in community samples. For this population, stable disease rates have been reported as 59% (42–77%), the reversion rate as 26% (15–37%), rate for conversion into overt dementia 25% (17–32%) and Alzheimer disease rate 19% (14–24%) in a recent meta-analysis [17].

In the absence of any treatment option to cure Alzheimer disease and related dementias, there is increasing evidence that the implementation of preventive measures might represent an effective strategy to slow down dementia risk. Meanwhile, the WHO has launched the first-risk reduction guidelines for cognitive impairment and dementia [9, 18, 19].

Delirium

Delirium is an acute and very common condition in old age, with cognitive and attentional impairment. This condition can be easily misinterpreted and overlooked, with fatal outcome, especially if not treated adequately.

The prevalence in community settings depends on age with 1–2% at age >65 years, rising up to 10% >85 years [20–23]. During presentation in emergency departments, delirium was diagnosed in 8–17% of older patients. In intensive care units (ICUs) a 50% prevalence and 82% incidence of delirium have been reported [24, 25].

In at-risk populations such as people with dementia, delirium is observed in 22%, in nursing home residents up to 70% [21, 26, 27]. However, very large studies (n >10,000) reported a prevalence of full delirium of 7% and 2% and subsyndromal states of 32% and 40% respectively [28, 29]. Factors that influence these prevalence rates are age, assessment tools, population, observation period and difficulties in establishing a firm diagnosis.

Delirium in old age is consistently associated with (1) meaningful long-term negative cognitive outcomes (including elevated risk for dementia), (2) an odds of 2.4 for (re-)institutionalisation, (3) persistent impairment of functional recovery and (4) high mortality rates (2- to 4-fold increased risk) (e.g., after cardiac and non-cardiac surgery, ICU treatment) as compared with populations without delirium [24, 30, 31].

There are several non-modifiable risk factors such as age, cognitive impairment, multi-morbidity, chronic renal or hepatic disease, male sex and a history of delirium, stroke, fall or gait disorders. Yet, potentially modifiable risk factors should be systematically minimised, among those sensory impairment, intercurrent illness (e.g., dehydration, infections), immobilisation, polypharmacy and certain medications, metabolic derangement, environmental conditions, pain, emotional distress and sleep deprivation [32, 33]. First data point out very high rates of delirium in cases of severe illnesses for all ages (60–70%) in patients who are hospitalised due to COVID-19 [24, 34–36].

Addiction

Alcohol-associated disorders

The epidemiology of substance abuse disorders in old age is strongly influenced by cohort effects that exhibit specific characteristics, which societies and addiction medicine have to account for. E.g., during the economic crisis in Europe at the end of the 2000s, the relative risk for problematic alcohol consumption increased significantly by a factor of 1.55 (95% CI 1.08–2.23) [37].

The 12-month prevalence of alcohol-associated disorders in people >65 years varies widely and is estimated to be between 0.5% and 8.5%, subthreshold alcohol-associated disorders are diagnosed in 5.2% of study populations, and binge-drinking in men is observed in 14% and in women in 3% [5, 6, 38–40]. The prevalence of problematic alcohol consumption behaviour in a cohort of >75-year-old non-demented people was estimated at about 6,5% in the German population [41]. In nursing homes, the estimated prevalence of alcohol associated disorders is between 8% and 53%, and between 0% and 31% [42, 43]. Problematic alcohol consumption decreases with age [44].

Results of "Swiss Suchtmonitoring" indicate an increase of daily alcohol consumption with increasing age, from 0.3% in 15- to 19-year-old subjects, to 22.2% in 65- to 74-year-olds and 26.6% in people aged ≥75 years (average in adult population 9.4%). Hence, binge-drink-

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ing clearly decreases with growing age, to 5.1%/3.8% at 65–74/≥75 years vs 6.4% in the entire adult Swiss population [45]. Cognitive disturbances occur independently of age and disease duration [46, 47]. Further data point to an elevated risk for cognitive disturbances and neuropsychiatric complications in patients aged >64 years by a factor of 5, as compared with younger subjects [48].

Drug-associated disorders: benzodiazepines and related z-substances, opioid drugs, illicit drugs, nicotine

Benzodiazepines are primarily prescribed to elderly people to manage anxiety, sleep disorders and dementia-associated behavioural problems. Their frequent use sharply contrasts with low to questionable empirical evidence for their efficacy, particularly in the treatment of anxiety disorders and dementia. Data from large epidemiological cohorts are scarce and report 12-month prevalences for drug abuse or dependency in the elderly population of 0.2% and 1.5%, respectively [38, 40]. Reports that address illicit drug abuse reveal inconsistent results between 0% and 0,9% [6, 39)]. The estimated number of unreported cases of legal drug abuse is considered to be very high.

A continuously rising intake of sleep medication, tranquilizers and potent analgesics with growing age is observed. The 30-day prevalence of 4.1%/1.8% between 15 and 19 years substantially increases to 18.4%/13.5% in elderly persons over 74 years [45].

Nicotine dependency is reported to account for 0.4% to 6.6% of the study cohorts that have been evaluated (in various age groups >55 years) and might show a decrease with age [38–40, 49]. The rate of consumption of tobacco in the Swiss adult population is lowest for people >65 years. Yet strong nicotine dependency predominately appears in the very old population aged 75+ and 96% of daily smokers in this age group do not intend to stop smoking [45].These data are important, as stopping smoking in elderly people still leads to a reduction of nicotine-associated morbidity, raises life expectancy and strengthens quality of life.

Non-substance-associated dependencies: geriatric gambling disorders

The extensive number of social factors that might be associated with gambling in older people include being male, parental gambling, having a limited and fixed income, loss of a partner, living alone, loneliness, smaller and less satisfying social network, comorbid physical and mental health problems and many others [50]. It is further noteworthy that no study has addressed the role of neurocognitive impairment in gambling disorders of the elderly, which is crucial for the interpretation of study results.

The estimated 12-month lifetime rates of current pathological gambling among older adults as extracted from empirical studies ranged from <1% to 10.4% [51–55]. This wide range may be explained by the fact that surveys were conducted in very different settings, and by the use of divergent diagnostic criteria, definitions and assessment tools, which make it difficult to compare study results [56]. More recent data from a population-based German study revealed an overall prevalence rate of 2.1% (age 35–74 years), with a lower rate in the elderly population of 1.3% (60–69 years) and 1.4% (70–79 years) as compared to younger adults, with 3.1% (40–49 years) and 2.1% (50–60 years) prevalence rates [57]. Comparisons of prevalence rates suggest that gambling disorders among older adults were lower than those among younger adults [51].

The presence of comorbid mental disorders is high, up to 70.2% for anxiety, mood and substance abuse disorders in subjects ≥55 years [58]. Depending on the sample, 13.4% of subjects report onset of pathological gambling at ≥55 of age [59]. Data from Finland (2011–15) indicate that women's gambling, at-risk and problem gambling have increased. During recent years [60] patients with Parkinson disease are frequently treated in old age psychiatry settings. They showed an overall point prevalence of gambling / compulsive disorders / behaviour between 4.9% and 6.1%, which remained remarkably stable over a period of 2 years [61].

Schizophrenia spectrum

Suspiciousness is a common condition and reported to occur in more than 13% of the elderly population [62–65]. Psychotic symptoms and delusions are likewise observed frequently in the elderly non-demented population, in 10.1% of people with 85 years and 7.4% with 95 years; 2.4% fulfilled the full ICD-10 diagnostic criteria for schizophrenia in the latter group [62, 63].

The concept of late-onset psychotic disorders is cloudy and heterogeneous. However, much Anglo-American research relies on the definition of late-onset schizophrenia as a clinical manifestation at >40 years of age and very late-onset schizophrenia-like psychosis as a clinical manifestation >60/65 years [66–68]. The age-associated clinical presentation does not justify a clear-cut diagnostic separation [69].

Results of a population-based cohort study of 3 million people in Sweden revealed an incidence of very late onset schizophrenia-like psychosis of 37.7 per 100,000 person-years at risk, with evidence that rates increased more with age for women [70]. Rates were higher among migrants, for those with low income, death of a

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Table 1: Prevalence of different psychiatric conditions.

	Prevalence 12 month estimation: *	
Dementia [9–11]	5–7,5% >60Y	Age-specific prevalence is believed to double every five years (40% in nonagenarians). Implementation of preventive measures might represent a strong strategy to slow down dementia risk during life time.
Delirium(20-23)	Age-depended prevalence in community settings: 1–2% >65Y, 10% >85Y	In clinical settings, nursing homes and risk populations, higher prevalence rates are observed. Untreated delirium is consistently associated with negative outcome. Modifiable risk-factors should be minimized.
AddictionAlcohol associated disorders (5, 6, 38, 40, 47, 49, 124)	0,5–8,5% >65Y	Daily alcohol consumption is increasing with age.
Drug associated disorders (38, 40)	0,2–1,5% >65Y	Intake of sleep medication, tranquillizers, potent analgesics is rising with age by factor >4. Very old smokers are not motivated to stop smoking.
Gambling disorders (51-55, 61)	1–10%	Presence of co-morbid mental disorders and Parkinson disease is high.
Schizophrenia spectrum (62, 63, 70, 83)	Incidence Very Late Onset Schizophrenia (VLOS)*: 0,4% >60Y	Psychotic symptoms/delusions are age dependent, 10,1 % for 85 years, 7,4% for 95 years.VLOS risk is associated with lower socio-economic status. Paranoid syndromes are common and heterogenous by origin.
Mood Disorders Bipolar disorder(BD) (6, 39, 49, 84-87, 159)	1% >65Y 5–10% thereof with first manifestation in old age	Substantial conversion from unipolar to bipolar I disorder has been described in old age. Secondary mania tends to occur more commonly in older patients.
Depression (6, 38-40, 49, 84, 93, 94, 97, 99, 100)	7% (major depression) – 14% >75Y (highly different results depending on used variables)	Growing age bears a high risk for chronic or intermittent disease course.Late onset depression is reported to occur in 52% /71 %, depending on the population that has been investigated.
Anxiety disorders(5, 6, 38-40, 49, 84, 101-104, 108, 109, 112, 113)	4–17% >60Y	43% report a late onset disease (>50Y). AD are a hidden co-morbidity in many psychiatric and somatic diseases, with important impact on outcome.
Somatization disorders (116, 117, 119)	4–10% adult population	Women are of higher risk than men and minorities, refugees seem to be more afflicted in relation to the established population. Extensive overlap of somatic symptoms in somatic disorders and SD is challenging.
Eating disorders (120-123, 125, 126)	3–4% >60Y	Knowledge about ED in old age is rare. ED in old age seem to be a domain of women, as it is the case in younger individuals. Anorectic symptoms might be flawed by psychiatric co-morbidity.
Personality Disorders (128-131)	9–15% >50Y, possibly decreasing with growing age.	Obsessive-complusive PD seem to be most prevalent. The physiologic aging process might mimic symptoms of PD.
Autism spectrum disorders (135, 136)	1–2% >60Y	Demasking of ASD-like symptoms due to changing social environment or disease might occur in old age.
Attention deficit hyperactivity disorder (ADHD) (138, 140, 141, 143, 145, 146)	2–5% >60Y	Symptoms of ADHD only partially persist to oldest age and should be reviewed thoroughly.
Suicide (149, 152)	17% of suicide victims world wide are >65Y.	Assisted suicide ≥65Y increased by factor 6,8 (female) 8,5 (male) during the past two decades, whereas non-assisted suicide decreased.

* rounded values are used. In order to obtain a comprehendible brief overview, outlier data have not been illustrated in these tables

partner or of a child in infancy, without partner or child, or with a child who had a psychotic disorder. These incidences appear higher than results from earlier studies [71–80].

One explanatory factor for these discrepancies might be the difference in life expectancy between the younger and elder cohorts under investigation. On the other hand, among first admission medical records from patients with schizophrenia, 1.3% inpatients developed their first psychotic symptoms at the age of 40–59 years and 0.7% at the age of ≥60 years [81]. In a report from 1988, the weighted mean proportion of late onset schizophrenia (>40 years) was 86% with age of onset before 60 years and 14% with onset after the age of 60. In other words, onset in the fifth decade represent 13%, in the seventh decade 7%, and 3% thereafter [82].

Patients with an F2 spectrum diagnosis have been mostly excluded from epidemiological prevalence studies owing to the nature of the disease. Late onset schizophrenic spectrum presentations feature a considerable body of paranoid and other syndromes that require scrupulous differential diagnosis for possible underlying somatic (organic) causes [83].

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Mood disorders

Bipolar disorder

The 12-month prevalence of bipolar disorders has been estimated in representative cohort studies to be 4.7% [49], and with rates of 0,.9%/0.3%/0.2% [39, 84, 85] or 0% in smaller studies [6]. In 5–10% of all bipolar patients, the first episode is considered to occur at >50 years of age [86, 87]. The prevalence of mania in the elderly population has been considered to decrease with increasing age [88]. More recently, evidence for a substantial conversion from a unipolar disorder to a bipolar I (1% per year) or II (0.5% per year) disorder has been described [89]. However, bipolar disorders seem to occur slightly less commonly than in younger patients, as shown in a large public health database [90].

Late onset mania in bipolar patients has been reported to account for 44% of psychiatric inpatients in an unrepresentative study [86]. Late life mania could be primary (early and late onset bipolar disorder) and secondary (due to underlying somatic illness or medication), which tends to occur more commonly in older patients. However, data that may serve as a diagnostic specifier are lacking [17, 91]. Prevalence data from bipolar patients in nursing homes are difficult to analyse, owing to the paucity of data [92].

Depression

The definition of depression in old age comprises different types of depressive episodes: age of onset >60 years, first manifestation of a depressive disorder, recurrent depression, or chronic disease. Depressive mood disorders in the old population are frequently associated with a high burden of impaired quality of life and a very high risk for suicide, as well as mortality not associated with suicide. The 12-month prevalence for major depression at age >75 years has been recently estimated to be about 7.3%, and for depressive symptoms in a dimensional view to be about 17.1% [93]. A second large meta-analysis revealed a prevalence of 19.5% in the population aged >50 years [94]. According to epidemiological studies from the last 10 years, the 12-month prevalence of major depression in the elderly ranges between 2.4% and 10.2% (for any depressive disorder 2.4–12,4%) [6, 38–40, 49, 84]. After the age of 70 years, the prevalence of major depression seem to slow down [84], but with a high risk for a chronic or intermittent course in 40% [93].

Depressive syndromes that do not fulfil diagnostic criteria seem to accumulate in the elderly population and are defined as "subthreshold" depression. This may be explained by a variable clinical presentation of depression, with an emphasis on somatic complaints and symptoms. Within the elderly population, a peak of depressive episodes around retirement might be due to a profound change of role in society. Loss of authority during the last period of professional life, loss of social prestige, challenges in partnership, an "empty nest" situation at home and first experiences with limitations of physical fitness may all contribute to the risk of developing depression during this period.

Frequently, a first episode of depression in old age is associated with structural abnormalities of the brain, such as microangiopathic lesions or hippocampal atrophy, which are considered to be morphological correlates with an increased risk for developing dementia [95]. Nursing-home populations have a high proportion of residents who suffer from depression [96].

The difference between early onset (first major depressive episode before 60 years) and late onset (>60 years) has been highlighted in several studies. Phenotypically, early and late onset are similar in their clinical presentation; however the difference should be considered when it comes to aetiological background. A positive psychiatric family history, dysfunctional relationship on the maternal pathway and personality abnormalities are reported to be more common in early onset than late onset depression [97]. In contrast, factors such as pain, disability, a poor physical condition and low social support seem to be predisposing to late onset depression in an elderly population [98]. Evidence from the Australian study that was cited above showed that 52% of a geriatric in- and out-patient sample from a mood disorders unit had their first onset at age of 60 years or older [97]. In a further study, 71% of an old age population from a home care nursing unit developed their first depressive episode at age >65 years [99, 100].

Dysthymia

The 12-month prevalence of dysthymia is 0.8% to 3.7% in the elderly population [6, 38–40]. The large differences between these studies indicate significant methodological questions, which make it difficult to directly compare results. The proposed use of age-adapted assessment instruments such as the CIDI65+ would substantially reduce possible bias and lead to more concise results for older cohorts [5].

Anxiety spectrum disorders in late life: neglected emotional distress in old age

Anxiety disorders represent the most prevalent group of mental diseases across the life span. Despite different prevalence rates, these data point consistantly to a prominent and pervasive role of anxiety disorders in older adults, even into the oldest years. The distribution of relevant anxiety symptoms in the elderly population is wide, with a prevalence between 15% and 52%

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[101]. In contrast, the diagnostic criteria of anxiety disorders are fulfilled significantly less frequently.

In population-based studies from the past 20 years, the overall 12-month prevalence of any anxiety disorder was between 4.1% and 17.1%, with a tendency to decline with increasing age [5, 6, 38–40, 49, 84, 102]. Prevalence rates dropped by 40% to 47% and 20% to 12.4% within the lifespan investigated [5, 40]; nevertheless relapse rates and persistence of anxiety disorders are considered to be high [4].

Age of onset for generalised anxiety disorder in older adults shows a bimodal distribution with 57% reporting early onset (<50 years) and 43% reporting a late onset (>50 years) [103], with a decrease starting in the fifth life-decade [104]. Recent studies point to persistence in one third of anxiety disorders (30% over a period of 3 years) [38]. Psychiatric and somatic comorbidities are considered to be frequent. Generalised anxiety disorder has been reported to be a protective factor in acute coronary syndrome [105, 106]. Anxiety is common in geriatric psychiatric units (up to 65%), regardless of the primary diagnosis and might be a hidden comorbidity in many psychiatric disorders [107]. Weighted 12-month prevalence estimates for generalised anxiety disorder between 0.7% and 3.1% have been reported [5, 38, 39].

The 12-month prevalence of specific phobias was estimated to be within a range of 5.3% to 12.8% [38, 40, 49, 84]. Agoraphobia accounted for >1% to 10.4% and social phobias varied between 1.2% and 5.1% of the elderly population (>55/>65 years) [5, 6, 38–40, 49, 84, 108, 109], with severe depression, trait anxiety and poor visuospatial memory as risk factors [110]. Women have been found to suffer from social phobias more than twice as often as men [111]. Phobic objects in the elderly include natural environment > animals > blood-injections-injuries > situational modalities.

Panic disorders were diagnosed in 1.1% to 3.8% for current as well as for 12-month prevalence [5, 6, 38–40, 49, 84, 112, 113].

Lower prevalence rates have been found for posttraumatic stress disorder (PTSD) and obsessive compulsive disorder, at 0.7% to 2,1% and 0.8% respectively [5, 6, 39, 61, 84, 114]. To establish a diagnosis of PTSD in late life is associated with a set of certain impediments. Elderly people might be strongly influenced by external triggers, such as health threats in terms of physical problems, domestic as well as urban violence and accidents, or war images presented in the mass-media [105]. Even though prevalence data on PTSD in late life are limited, certain predictable risk factors have been identified and explored. For instance, neuroticism, poor self-rated health and adverse childhood events have been identified as high-risk factors that eventually may lead to a de novo PTSD diagnosis in old age [101]. Core results from a population-based study in a German population aged 60–85 years showed 1-month prevalence rate of 4.0% for PTSD, and 12.2% fulfilled criteria for partial PTSD [115]. A possible gender-specific predisposition remains debatable, since inconclusive results have been reported so far [5], in contrast to a female-gender proclivity to be diagnosed with PTSD [101].

Somatisation disorder

Despite of inconsistent epidemiological data, there is currently less doubt that the prevalence of somatisation disorder in people >65 years is in the same range as in younger adults [116, 117]. Available data indicate a prevalence in the population ranging between 4% and 10%. This is in contrast to prevalence rates of 26–35% or 50% among the patients presenting with somatisation disorders to general practitioners and in specialised practice, respectively [116, 118]. In psychotherapeutic and psychosomatic contexts even >70% of the patients would display a somatisation disorder, which may reflect the extensive use of healthcare providers by these patients [116]. However, these results have to be interpreted with caution, because in clinical practice other psychiatric diagnosis are weighted as more important and/or would explain somatisation disorder-like symptoms sufficiently. Independently from age, women are reported to suffer more frequently from somatisation diorders (by a factor of 1.5–3:1) than the male population; the same may be the case in ethnic minorities or refugees in relation to the established population [116]. It is of particular interest for the old age multi-morbid population, that the diagnosis of a somatisation should be made thoroughly and promptly–which is a diagnostic and therapeutic challenge in daily practice, due to the extensive overlap of somatic symptoms in somatic disorders and somatisation disorder [119].

Eating disorders

Among a community sample of 60- to 70-year-old women (n = 475), the prevalence for any eating disorder was 3.8%, 15 of them with an unspecified eating disorder , 2 with bulimia and 1 anorexia; 4.4% reported single symptoms of an eating disorder [120]. A recent study in older women (n = 118; >65 years old) reported a comparable prevalence for eating disorders of 3.25% (binge-eating 1.7%) and 18.9% for picking/nibbling; no case of anorexia nervosa was detected [121]. Picking/nibbling is associated with difficulties in weight maintenance, as known from bariatric medicine. Eating disorders are associated with comorbid psychiatric disorders, such as major depression [122]. Although some

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authors claim anorexia nervosa is the most common eating disorder among older people [123], current evidence is not sufficient to clarify this question, despite the apparent female preponderance in this age group. On the other hand, body dissatisfaction in elderly women seems to be common [124]. Eeating disorder should be part of routine differential diagnosis in old age, particularly in conjunction with weight loss, weight phobia, vomiting or metabolic disturbances [120, 125, 126].

Personality disorders

Knowledge about personality disorders in old age has influence on the diagnosis of psychiatric and somatic comorbidities as well as on psychotherapy planning and outcome [127]. The prevalence of personality disorders has been reported in a few recent studies, which revealed greatly different results, making comparisons difficult.

In a community-dwelling US sample aged 50+ (n = 16,884), the general prevalence was determined to be 10.6%, with the highest rate (6.5%) for obsessive-compulsive personality disorder [128]. Using a comparable methodological approach, another community-based study of people aged 50+ in the US (n = 12,312) revealed a general prevalence rate of 14.5%, again with obsessive compulsive diorder, at 6.5%, being most prevalent variant. However this study included schizoptypal, narcisistic and borderline personality diorders, which was not the case in the previous investigation [129]. Splitting into age subgroups revealed a peak value in the young-old (55–65 years) of 18.1%, and lowest values in the old-old (75–84 years) as well as in oldest-old (85+ years) of 10.4% and 107%, respectively. A methodologically different and small community dwelling study from central Africa (n = 1772 Central African Republic, n = 912 Republic of Congo) found a prevalence rate for dependent personality disorder (with normal cognitive status) of 12.7% [130]. The high rate of dependent personality disorder is mainly attributed to cultural factors, according to the authors.

A lower prevalence rate of personality disorder of 8.2% has been found in a further communitybased study in the St. Louis area in the US [131]. A methodologically very different approach investigated the prevalence of personality disorders in a sample of older people aged 55+ who lived in nursing centres or senior citizen clubs in France (n = 83) and revealed a general personality disorder odds of 57.8% [132]. Despite the different methods that have been used and the discrepancies in the results, it seems clear that personality disorders are highly prevalent in late life. This knowledge emphasises the need to integrate the hypotheses of secondary structural deficits in therapeutic evaluations in very old people, which are not primarily due to early development deficits but to factors that are associated with the ageing process (social cognition, self and affect perception, affective regulation) [133]. Given the high impact of personality disorders on daily life and therapy, clinicians should be aware of them and their diagnosis.

Autism spectrum disorders

A first diagnosis of autism spectrum disorders (ASDs) in elderly people is very difficult and makes it difficult to collect epidemiological data. Hence, a raising awareness for ASD at older age is evident [116, 134–136]. Despite a lack of specific epidemiological data, the probable prevalence of ASDs at >60 years of age is currently estimated to be 1–2% [136], which is higher than for schizophrenia disorders or epilepsy. ASDs are part of the neuronal and mental development disorders with a clinical core syndrome of deficits in social perception and cognition, deficits in communication and stereotypes, routines, special interests and restricted behaviour [137]. In cases of socially well compensated clinical presentations of high-functioning persons, unmasking of ASD-like symptoms in higher age through changing social environment or disease may occur and lead to overt social problems and diagnostic challenges. Especially mood disorders and incipient organic impairment have to be assessed [137]. Admission of patients with ASD to nursing homes requires expanding knowledge for the nursing and medical staff, who are not well prepared to take care of this vulnerable population.

Attention deficit hyperactivity disorder

According to meta-analytic reports, prevalence rate of attention deficit hyperactivity disoder (ADHD) in childhood and adolescence is estimated to be 3.4–7,2% [138] and considered to decrease to 2.5–5% in adulthood [139, 140]. In two thirds of patients with ADHD, impairment of daily living competences and symptoms partially persist up to the oldest age [141, 142]. First diagnosis of ADHD in old age is considered to be a methodologically challenging research field, because one has to evaluate typical symptoms of childhood or youth, which might date back 80 years or more. Studies from the Netherlands, Sweden and Australia have now reported prevalences for ADHD in old age within a range between 2.2% and 4.8% [143–145]. In Germany the prevalence at 60–99 years of age has been estimated recently to be 3.7% [146]. This research is of great concern, because as knowledge about ADHD expands in the general population, a growing body of elderly patients

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ask for modern psychotherapeutic and psychopharmaceutic interventions [147].

Suicide

Suicide in old age is reported to be associated with high levels of lethal intent and a decline in non-fatal suicidal behaviour [148]. According to WHO reports, worldwide 700,000 people per year die by suicide. Around 17% of these are aged 65 years and over, whereas this age group represents around 8% of the population [149]. Depression and social isolation are the most consistent findings as risk factors for suicidal behaviour in old age [148]. Further reports identify certain risk groups, such as patients who are hospitalised with adjustment disorders or who suffer from dementia [150]. The latter might be at risk particularly in the early stages, in the context of establishing a dementia diagnosis or in relation to depressive plus cognitive disorder [151]. In Switzerland the relative suicide rate increases with age in men from ≤20 (15–24 years) up to 25–40 (65–74 years) and 70–100 (≥85 years) per 100,000, and in women from <5 (15–24 years) up to <20 (>65 years) per 100,000 people. The absolute number of suicides in old age (excluding assisted suicide) considerably decreased between 1995 to 2018 by about one third in men and roughly half in women. Suicide rates are consistently higher in men than women, which is in accordance with world wide data [149, 152]. In contrast, registered assisted suicide rates at ages ≥65/≤65 years between 2003 and 2018 increased by factors 6.8/2.7 in the female population and by factor 8.5/3.6 in the male population, respectively. In 2018, 598/79 women and 431/68 men aged >65/<65 years, respectively, decided on assisted suicide [152]. These data indicate that assisted suicide is a domain of the elderly population in Switzerland. Critically high rates of close persons (20%), such as family members or friends, whoattended an assisted suicide experienced symptoms of full or subthreshold post-traumatic stress disorder [153].

Consequences of psychiatric disorders in old age

Despite a considerable variability between studies, attention may be drawn to the fairly high lifetime prevalence of mental disorders, which suggests that older people carry disease burden into their later years, posing a risk for persisting or recurrent disease episodes and comorbidities with somatic and other mental illnesses [94]. Whereas prevalence of highly problematic alcohol consumption decreases with age, various concerns have been raised about potentially increasing rates among the aging baby-boomer generation [94], which, however, still has to be demonstrated empirically. The Swiss Suchtmonitor suggests high daily alcohol consumption habits with increasing age [47].

Taking into account the demographic change during the upcoming 40 years, dementia, substance abuse, anxiety and mood disorders might represent the most challenging mental disorders worldwide. Health service needs and barriers to service use in the elderly population to decrease psychiatric burden require clarification. Discrepancies in prevalence of mental disorders between the elderly and younger age groups should be explained, for example, by introducing systematically cognitive functioning as a variable in longitudinal studies.

Apart from these questions, there is overwhelming evidence that mental disorders in late life are associated with a bunch of high risks: social deprivation paired with loneliness, poor quality of life, disability, increased use of health and home care system, decline in cognition, increased risk for somatic disorders, chronicity and recurrence, suicide, increased over-all mortality [154]. The greatest potential risk of developing mental disorders (particularly affective disorders) was noticed in elderly with non-marital status [6].

The Swiss National Dementia Strategy was launched in 2015 and might be an exemplary initiative that led to a favourable development of dementia care projects in Switzerland [155]. Development of specific treatment guidelines for mental diseases in old age represents a further successful strategy to strengthen the available professional knowledge in the field of psychiatric diseases in old age [156–158].

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