

University of Groningen

Prevalence of somatoform disorders and medically unexplained symptoms in old age populations in comparison with younger age groups

Hilderink, P. H.; Collard, R.; Rosmalen, J. G. M.; Voshaar, R. C. Oude

Published in:
Ageing Research Reviews

DOI:
[10.1016/j.arr.2012.04.004](https://doi.org/10.1016/j.arr.2012.04.004)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2013

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Hilderink, P. H., Collard, R., Rosmalen, J. G. M., & Voshaar, R. C. O. (2013). Prevalence of somatoform disorders and medically unexplained symptoms in old age populations in comparison with younger age groups: A systematic review. *Ageing Research Reviews*, 12(1), 151-156.
<https://doi.org/10.1016/j.arr.2012.04.004>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.



Review

Prevalence of somatoform disorders and medically unexplained symptoms in old age populations in comparison with younger age groups: A systematic review

P.H. Hilderink^{a,*}, R. Collard^b, J.G.M. Rosmalen^c, R.C. Oude Voshaar^c

^a Pro Persona Centre for Integrative Mental Health Care, Division Old Age Psychiatry, Nijmegen, The Netherlands

^b Radboud University Nijmegen Medical Centre, Department of Psychiatry and Nijmegen Centre for Evidence Based Practice, The Netherlands

^c University Center for Psychiatry and Interdisciplinary Center for Pathology of Emotion, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands

ARTICLE INFO

Article history:

Received 29 February 2012

Received in revised form 9 April 2012

Accepted 23 April 2012

Available online 28 April 2012

Keywords:

Somatoform disorders

Medically unexplained symptoms

Old age

Epidemiology

ABSTRACT

Objective: To review current knowledge regarding the prevalence of somatization problems in later life by level of caseness (somatoform disorders and medically unexplained symptoms, MUS) and to compare these rates with those in middle-aged and younger age groups.

Method: A systematic search of the literature published from 1966 onwards was conducted in the Pubmed and EMBASE databases.

Results: Overall 8 articles, describing a total of 7 cohorts, provided data of at least one prevalence rate for somatoform disorders or MUS for the middle-aged (50–65 years) or older age (≥ 65 years) group. Prevalence rates for somatoform disorders in the general population range from 11 to 21% in younger, 10 to 20% in the middle-aged, and 1.5 to 13% in the older age groups. Prevalence rates for MUS show wider ranges, of respectively 1.6–70%, 2.4–87%, and 4.6–18%, in the younger, middle, and older age groups, which could be explained by the use of different instruments as well as lack of consensus in defining MUS.

Conclusion: Somatoform disorders and MUS are common in later life, although the available data suggest that prevalence rates decline after the age of 65 years. More systematic research with special focus on the older population is needed to understand this age-related decline in prevalence rates.

© 2012 Elsevier B.V. All rights reserved.

1. Introduction

Medically unexplained symptoms (MUS) are physical symptoms of which presence, severity or consequences cannot be conclusively explained by any detectable physical disorder (Lipowski, 1988). MUS are common in the general population with reported prevalence rates in primary care varying between 25 and 50% (Burton, 2003; Escobar et al., 2010; olde Hartman et al., 2009). Within the International Classification of Diseases version 10 (ICD-10) as well as the Diagnostic and Statistical Manual for Mental Disorders version IV (DSM-IV), medically unexplained symptoms are classified under the section of somatoform disorders. In order to meet the official criteria for any of these somatoform disorders, the ICD-10 places emphasis on 'a psychological cause' of bodily symptoms, whereas in the DSM-IV for most somatoform disorders a psychological cause has to be assumed and most emphasis is placed on the presence of significant impairment in social, occupational and/or other areas of functioning due to MUS. Reported prevalence

rates for all forms of somatoform disorders together vary from 10 to 25% in primary care (de Waal et al., 2004; Dekker et al., 2008; Faravelli et al., 1997; Roca et al., 2009; Steinbrecher et al., 2011). Whether somatization, the tendency to express psychological distress with somatic complaints, is more common in old age remains a matter of debate (Creed and Barsky, 2004; Schneider and Heuft, 2011; Sheehan and Banerjee, 1999).

Patients with MUS or somatoform disorder report significant decreases in quality of life, impairment in daily functioning, increased high health care utilization, and often undergo medical examinations and treatments unnecessarily (Barsky et al., 2005; Koch et al., 2007; Margalit and El-Ad, 2008). In an adult population, MUS double the costs for both inpatient and outpatient health care utilization compared to patients without MUS when adjusted for the presence of comorbid psychiatric and somatic disease (Barsky et al., 2005). Moreover, the increase of health care utilization over a follow-up period of 5 years was higher in MUS patients than in patients without MUS (Barsky et al., 2005). Furthermore, this increase was higher than the increase associated with depressive disorder or anxiety disorders, disorders that are also associated with increased health care consumption over time (Grabe et al., 2009). Increased medical consumption is not only problematic from an economical viewpoint, but also increases the risk of iatrogenic

* Corresponding author at: Pro Persona, PO Box 7049, 6503 GM Nijmegen, The Netherlands. Tel.: +31 24 3283456; fax: +31 24 3283606.

E-mail address: p.hilderink@propersona.nl (P.H. Hilderink).

damage due to unnecessary additional diagnostic and treatment procedures or significant doctor's delay (by not taking patients seriously anymore). These risks are probably even more relevant in later life, as older persons are frailer, have a higher a priori chance of underlying somatic diseases, and are more dependent on carers.

The past decades, several psychiatric interventions for MUS and somatoform disorders have been proven effective (Sumathipala, 2007). This optimism is tempered by the experience that numerous patients with MUS refuse "psychological treatment" (Martens et al., 2010). Older people may be at double risk for withdrawal of adequate treatment. First, older people are less often offered psychological therapy (Cooper et al., 2010). Nevertheless, age does not seem to be a factor associated with the acceptance of psychological treatment for functional symptoms (Martens et al., 2010). Secondly, in case of older patients, physicians are often faced with somatization in the context of chronic somatic diseases. Higher comorbidity rates as well as higher a priori chances of underlying physical illnesses as explanation for MUS in older people may caution physicians to diagnose MUS or a somatoform disorder (Nimnuan et al., 2000). Therefore, data showing increased numbers of somatic explained symptoms with increasing age and no or only a very weak correlation between MUS and age are difficult to interpret (Clarke et al., 2008; Kingma et al., 2009; Little et al., 2001). For example, frequent attenders, often used as a proxy for MUS, are more common among older persons than younger persons (Ladwig et al., 2010), but when corrected for all other significant factors, such as number of chronic diseases, age itself was not associated with frequent attending (Little et al., 2001). Furthermore, prevalence studies in Dutch primary care have yielded inconsistent findings for older patients, showing lower rates for somatoform disorders, but increased prevalence rates for persistent MUS (de Waal et al., 2004; Verhaak et al., 2006).

To our knowledge, only two reviews have published on somatoform disorders in the elderly specifically (Sheehan and Banerjee, 1999; Schneider and Heuft, 2011). The review by Sheehan and Banerjee (1999) was conducted before the majority of epidemiological studies on the prevalence of somatoform disorder in later life have been published. Nevertheless, these authors concluded that somatization disorder in itself is rare in the older population, but that clinically relevant somatization occurs frequently. Although the authors warn to use "masked depression" as explanation for somatization in older persons, they acknowledge the high comorbidity between somatoform and mood disorders. The importance to disentangle somatization from pure anxiety or depression is substantiated by another review, not specifically focussed on older persons. It shows that having numerous somatic symptoms or illness worry is associated with impairment and health care utilization independent of anxiety and depressive symptoms (Creed and Barsky, 2004). A German, more recent and systematic review on the effect of aging on somatization stated that ageing per se is not associated with an increased level of somatization, but that the scarcity of empirical data preclude final conclusions (Schneider and Heuft, 2011). Both reviews identified problems caused by between-study differences in the definition of somatization problems, instruments used to measure somatization, and finally the setting of the research population.

The objective of the present study is to estimate the prevalence of somatization problems in the older population. More specifically, we will first estimate prevalence rates according to the level of caseness, i.e. MUS and somatoform disorders according to DSM or ICD criteria. Secondly, we will compare prevalence rates of MUS and somatoform disorders in older age groups (≥ 65 years) with those found in middle aged (50–65 years) and younger populations (<50 years).

2. Methods

We performed systematic searches of the PubMed and EMBASE databases for the period 1966 through June 2011 using the keywords: medically unexplained symptoms, somatoform disorder, aged, prevalence, epidemiology. If applicable to the keyword, MeSH terms were included and then combined with the search.

We used the following criteria for inclusion of articles:

- Firstly, articles had to provide prevalence rates of somatoform disorders or MUS. Acknowledging the scarcity of empirical data, we did not apply a time-reference to the prevalence rate, but we will report the time-reference of the included studies systematically.
- Secondly, prevalence rates had to be described for different age categories, including at least one age group above 50 years of age. We defined older persons as those aged 65 years or older, as in most developed countries the chronological age 65 years coincides with retirement and is generally accepted as a cut-off for defining the elderly (Roebuck, 1979). Acknowledging that this definition of old age is somewhat arbitrary, we also defined a middle-aged group consisting of persons aged 50–65 years as this is a period in which many chronic physical conditions start to develop.
- Thirdly, somatoform disorders had to be classified according DSM criteria and/or ICD criteria using standardized instruments. MUS are defined as physical symptoms of which presence, severity or consequences cannot be explained by any detectable physical disorder. Acknowledging the lack of consensus for defining MUS, we did not apply specific restrictions with respect to definition or classification if methods were described in a reproducible manner.
- Fourthly, the study had to be conducted in the general population and/or primary care setting.

We did not apply any restrictions on the language of the article.

We performed two searches in Pubmed to identify articles about somatoform disorders and MUS, respectively. Using the keywords: medically unexplained symptoms, aged, prevalence yielded 116 hits. A second search using the keywords: somatoform disorder, aged, prevalence and epidemiology yielded 117 hits. Screening of all titles resulted in further examination of 38 abstracts and 35 full text articles, from which finally only six articles met our inclusion criteria. References were checked and provided two more useful articles. Repeating our search strategy in EMBASE did not yield any additional articles. Searches were performed independently by both PH and RC, where after results were compared and discussed. In case of disagreement RCOV was consulted for a final decision.

2.1. Statistical methods

Although we originally intended to perform formal meta-analyses, we deemed a descriptive overview of the data more appropriate for the following reasons. Firstly, the number of articles was small. Secondly, results were heterogeneous, also after differentiating between somatoform disorders and MUS.

3. Results

Overall eight articles, describing a total of seven cohorts, were found that met our criteria (see Table 1). In four of these seven cohorts somatoform disorders as well as MUS were assessed. The prevalence data of somatoform disorders and MUS in one cohort have been described in separate articles (Fröhlich et al., 2006; Jacobi et al., 2004). The three other cohorts only focussed on somatoform

Table 1
Summary of prevalence rates (%) for somatoform disorders and MUS by age.

Study	Setting	Number	Diagnostic instrument		Age-group		
			Name	Time-window	<50 years	>50–65 years	>65 years
Somatoform disorders							
Hardy 1995	General population	N = 504	Telephonic interview	12 months	21	20	13
Jacobi 2004	General population	N = 1321	CIDI	12 months	10.7	11.7	
Leiknes 2007	General population	N = 1247	CIDI	6 months	11.4 (m:7.3; v:15.1)	9.9 (m:3.8; v:16.4)	4.9 (m:3.5; v:6.5)
Hiller 2006 ^a	General population	N = 2552	SOMS-7	7 days	12.6	26.8 ^b	
Waal de 2004 ^a	Primary care	N = 1046	SCAN	6 months	21.8	15.3	5.4
Lyness 1999	Primary care	N = 224	SCID	Point prevalence			1.5 (m:1.3; v:1.6)
Medically unexplained symptoms							
Frohlich 2005	General population	N = 1321	CIDI	12 months	28.8 (m:22.9; v:34.8)	27.2 (m:21.3; v:33.1)	
Leiknes 2007	General population	N = 1247	CIDI	6 months	26.3 (m:17.0; v: 34.8)	23.4 (m:15.3; v:32.2)	18.4 (m:16.3; v:20.8)
Hiller 2006 ^a	General population	N = 2552	SOMS-7	7 days	69.7	87.1 ^b	
Waal de 2004 ^a	Primary care	N = 1046	SCAN	6 months	27.8	22.4	7.2
Verhaak 2006 ^a	Primary care	N = 225,013	Persistent MUS ^c	12 months	1.6	2.4	4.6

Abbreviations: CIDI, Composite International Diagnostic Interview; SOMS-7, Screening for Somatoform Symptoms – 7 days version; SCAN, Schedules for Clinical Assessment in Neuropsychiatry.

^a Age cut-off for the younger age group was set at 45 years.

^b This prevalence rate provides all persons of the age of 45 years or above (range 45–92 years).

^c Persistent MUS were defined as: at least four contacts with a functional symptom and without a medical diagnosis as an explanation for the symptoms during 1 year.

disorders (Hardy, 1995; Lyness et al., 1999) or on MUS (Verhaak et al., 2006), respectively.

3.1. Age groups

Four studies provided prevalence data for persons aged 65 years or above (de Waal et al., 2004; Hardy, 1995; Leiknes et al., 2007; Verhaak et al., 2006), with one study applying an age cut-off at 60 years (Lyness et al., 1999). The age cut-off for the middle-aged persons was even less consistent, with three studies using a cut-off at 45 years (de Waal et al., 2004; Hiller et al., 2006; Verhaak et al., 2006) and four studies at 50 years (Hardy, 1995; Fröhlich et al., 2006; Jacobi et al., 2004; Leiknes et al., 2007). Nevertheless, two of these former studies (de Waal et al., 2004; Verhaak et al., 2006) also reported prevalence data for those aged above 65 years or age (and were thus of interest). The other study (Hiller et al., 2006) only used the cut-off of 45 years did not provide further differentiation regarding the higher age group.

3.2. Populations

We found four population surveys conducted in three different countries: two papers described data from the same German sample (German Health Survey (GHS), $n = 1321$), one about somatoform disorders and one about MUS (Fröhlich et al., 2006; Jacobi et al., 2004); another paper also described a German sample ($n = 2552$) (Hiller et al., 2006), one paper described a Norwegian sample ($n = 1247$) (Leiknes et al., 2007) and finally the last described a French sample ($n = 504$) (Hardy, 1995).

Three other studies, two from the Netherlands (de Waal et al., 2004; Verhaak et al., 2006) ($n = 1046$ and $n = 225013$, respectively) and one American study (Lyness et al., 1999) ($n = 224$), described prevalence rates in primary care.

3.3. Used instruments

None of the studies included in the review used a similar diagnostic procedure. The most important differences were (1) whether or not a screening procedure was used, (2) type of diagnostic instrument that was used, and (3) the time-window that was applied.

Five of the studies used a two-stage screening procedure. Four studies started with a screening questionnaire and if positive,

performed a diagnostic interview for somatoform disorders (de Waal et al., 2004; Fröhlich et al., 2006; Jacobi et al., 2004; Leiknes et al., 2007). The study of Lyness used the Center of Epidemiologic Studies Depression Scale (CES-D) as screening (Lyness et al., 1999). All persons above the cut-off point of 21 were included and a random sample of persons scoring under the cut-off point, aiming to oversample the amount of depressive disorders. The diagnostic instruments that have been used varied from fully structured interviews (Fröhlich et al., 2006; Jacobi et al., 2004; Leiknes et al., 2007; Lyness et al., 1999), to a semi-structured interview (de Waal et al., 2004) to a self-report questionnaire (Hiller et al., 2006), to chart-review (Verhaak et al., 2006) and finally to a telephonic interview (Hardy, 1995). Even the two studies that used the somatoform section of the fully structured computerized Composite International Diagnostic Interview (CIDI) were not fully comparable by taking a different time-windows describing respectively 12-month (Fröhlich et al., 2006; Jacobi et al., 2004) and 6-month prevalence rates (Leiknes et al., 2007). One study assessed current somatoform disorders with a duration of at least 6 months by using the semi-structured Schedules for Clinical Assessment in Neuropsychiatry (SCAN) (de Waal et al., 2004). The SCAN leaves room for further exploration and clinical judgement by experienced mental health professionals and is often considered the gold standard for diagnosing psychiatric disorders. Another study used the Screening for Somatoform Symptoms (SOMS-7), a standardized questionnaire that asks for symptoms in the last seven days (Hiller et al., 2006). One study used a two stage telephonic interview based on the classification according to DSM-IV to identify somatoform disorders in the last year (Hardy, 1995). Finally, the last study used data extracted from electronic records of 225,013 patients of 104 general practices based on the International Classification of Primary Care (ICPC). This study focussed on chronic MUS, defined as four or more contacts for a somatic complaint, without a medical diagnosis in the period of a year. They argued that this definition is most close to clinically relevant somatoform problems (Verhaak et al., 2006).

3.4. Prevalence rates

Table 1 shows prevalence rates for different age categories for somatoform disorders in the included articles. Given prevalence rates are for all different forms of somatoform disorders together. Prevalence rates in the general population range from 11 through

21% in the younger age group (below 45–50 years), 10 through 20% in the middle-aged group (45–50 to 60–65 years), and from 1.5 through 13% in the older age group (60–65 years or above). None of the studies found any differences between the younger and middle age groups, whereas the prevalence rate in the older age groups were consistently lower. Only one study found increasing prevalence rates above the age of 45 years, but this study did not report prevalence rates for persons aged 45–65 years and persons aged over 65 years separately (Hiller et al., 2006).

Reported prevalence rates for MUS are even more heterogeneous with highest prevalence rates for MUS defined as at least one symptom of mild severity in the past seven days (Hiller et al., 2006) and lowest prevalence rates for chronic persistent MUS in primary care (Verhaak et al., 2006). Interestingly, the study reporting persistent MUS in primary care found increasing prevalence rates with age, i.e. 1.6% below the age of 45 years, 2.4% for the age group between 45 and 65 years and finally 4.6% for those aged 65 or above (Verhaak et al., 2006). The age-effects in the other three studies were in line with those reported for somatoform disorders, i.e. no difference in prevalence rates between the age groups below 50 years and between 50 and 65 years, but clearly lower prevalence rates in the age group above 65 years (de Waal et al., 2004; Fröhlich et al., 2006; Leiknes et al., 2007).

4. Discussion

Acknowledging the scarce literature on somatoform disorders and MUS in later life, our data suggest that somatoform disorders and MUS are common in older populations, although prevalence rates are lower than in younger populations. The differences between studies can partly be explained by the use of different diagnostic instruments, whereas the applied time-window may be less important. It seems plausible that semi-structured interview methods are more restrictive and therefore find lower prevalence rates than questionnaires (Schneider and Heuft, 2011). For example, all semi-structured interviews take only symptoms into account that have led to health care utilization. Looking at the population surveys we included, we indeed found the highest prevalence rates in the study that used a questionnaire (Hiller et al., 2006). The lowest prevalence rate of 1.5%, found among American older patients in primary care by using the Structured Clinical Interview for DSM-IV disorders (SCID) in a sample with relative oversampling of depressive persons, may seem puzzling (Lyness et al., 1999). The most likely explanation is that the authors only reported prevalence rates for pain disorder and body dysmorphic disorder, whereas the more prevalent somatoform disorders like undifferentiated somatoform disorder and hypochondria were not assessed. A second, but less likely explanation is the inclusion in this study of patients from private internal medicine practices, as these patients might have had higher socio-economic backgrounds.

Although only four of the included studies did report prevalence rates for the age group above 65 years, the results suggest that prevalence rates of somatoform disorders and MUS are stable until the age of 65 years and decrease thereafter. The only exception to this finding is the study concerning persistent MUS, showing increased prevalence rates above the age of 65 years (Verhaak et al., 2006). These findings are in line with studies of somatoform disorders in highly selective samples (that had to be excluded for the present review for this reason (Balestrieri et al., 2005; Heun and Hein, 2005; Lish et al., 1995)). Using the SCREENER questionnaire to screen for psychiatric disorders in a medical outpatient clinic population, 18% of the patients below the age of 63 years had a somatoform disorder versus 11% of those aged above 63 years (Lish et al., 1995). A study among a later life subpopulation (above the age of 55 years) of families of patients with Alzheimer's dementia

or depression yielded a prevalence rate of 5% for somatoform disorder as assessed by the CIDI (Heun and Hein, 2005). This is similar to later life prevalence rates in included studies that used the CIDI as diagnostic instrument that found a prevalence rate of 5% above 65 years of age (Leiknes et al., 2007). Nevertheless, also some lower than expected figures have been reported. Among long-term older benzodiazepine users who visited their general practitioner, a prevalence rate of 8% for somatoform disorders was found using the PRIME-MD questionnaire (Balestrieri et al., 2005). This seems in line with other reported findings, although among benzodiazepine users the expected prevalence rate would be higher (Mol et al., 2005).

Nevertheless, two studies included in the review reported increasing prevalence rates for somatoform disorders and MUS with increasing age. Both studies, however, might be biased by the limited ability to separate medically explained and unexplained symptoms, leading to an overrepresentation of somatoform complaints of which an organic cause is not excluded (Schneider and Heuft, 2011). The first study, only differentiating between patients under and above 45 years of age, used a self-report questionnaire (SOMS-7) assessing all 53 physical symptoms reported in the DSM-IV criteria for somatoform disorders (Hiller et al., 2006). Recently, we showed that in older persons the Patient Health Questionnaire (PHQ-15), a screenings instrument used to establish symptoms that point to somatoform disorders, had a similar correlation with an index of hypochondriasis (Whiteley Index) as an index of the burden of underlying chronic somatic diseases (Cumulative Illness Rating Scale) (Benraad et al., submitted for publication). This means the physical symptoms assessed by the DSM-IV might be less specific for somatoform disorders in older people, than in younger people. The second study used a very specific definition, which included a minimum of four visits a year at the GP for a somatoform complaint. This definition may have led to biased results, as older persons with somatoform complaints tend to be more frequent attenders than younger adults (Ladwig et al., 2010).

4.1. Why do prevalence rates for somatoform disorders and MUS decrease in the elderly?

Current classification systems for somatoform disorders are not deemed appropriate for clinical use (Escobar et al., 1998; Kroenke et al., 1997). The formal criteria for a somatization disorder are quite restrictive. These criteria may be especially restrictive for elderly (Escobar et al., 2010; Wijeratne et al., 2003). For example, the inclusion criterion for somatization disorder is a presence of symptoms before onset of 30 years. Poor patient recall will bias and lower rates (Robins et al., 1984; Simon and Gureje, 1999). Overall prevalence rates of somatoform disorders may thus be lowered artificially, further substantiated by much higher prevalence rates for suggested abridged forms of somatization disorder (Creed and Barsky, 2004).

Secondly, used interview methods are not validated for an elderly population, which may lead to lower estimated prevalence rates for somatoform disorders. Epidemiological studies using standardized diagnostic interviews for other mental disorders, especially depression, have consistently demonstrated lower current and lifetime prevalence estimates in later life populations compared to younger populations (Anon., 1992; Regier et al., 1984). Analyses of epidemiologic data in a population from 25 to 64 years based on the Diagnostic Interview Schedule (DIS) showed that older people more often attributed their symptoms to a physical condition in probe questions designed to identify the degree to which symptoms were caused by factors other than psychological. It was suggested that this response was due to the fact that the complexity of the formalized questions exceeded the cognitive capacity. "Working memory capacity" appeared to be a good predictor of

this response behavior, also when corrected for co-morbid physical conditions (Knäuper and Wittchen, 1994). Because working memory capacity decreases with on-going age (Palladino and De Beni, 1999), this effect might become more prominent among older persons. The attribution of symptoms to a physical condition will lead to exclusion of diagnosis of somatoform disorder and thus to lower established prevalence rates for somatoform disorders. Thirdly, not only do older patients attribute bodily symptoms to physical disorders, older persons also have more co-morbid somatic disorders, which makes doctors reluctant to exclude a somatic origin of the complaint. We previously have reported that 50% of patients referred to our outpatient clinic for MUS had a somatic disorder that partly explained their symptoms (Hilderink et al., 2009). Excluding patients with a partial, but not sufficient somatic origin of their symptoms, will lead to substantial lower prevalence rates. Indeed some studies reported to exclude patients in which there was any doubt about a somatic cause for the complaint (de Waal et al., 2004). Because of confusing terminology for somatoform disorders within the DSM-IV with implicit mind-body dualism and the unreliability of assessments of MUS, the American Psychiatric Association has proposed to rename the chapter of somatoform disorders into 'somatic symptom disorders'. The DSM-V Somatic Symptom Disorder Task Group has proposed to lump somatization disorder, hypochondriasis, undifferentiated somatoform disorder and pain disorder together in one disorder named Complex Somatic Symptom Disorder (Dimsdale et al., 2009). This is in line with empirical findings showing that the number of medically explained and unexplained symptoms are more informative for a dimensional diagnosis of somatization than the clustering of specific symptoms into separate somatoform disorders or functional syndromes (Nimnuan et al., 2001; olde Hartman et al., 2004; Rosmalen et al., 2010). As the DSM-V will focus more on the number of bodily symptoms, irrespective of explainability or unexplainability of these symptoms or their associated dysfunctional cognitions, these new criteria may better serve older people. A final explanation could be that in old age subsyndromal forms of somatoform disorders are more common than somatoform disorders meeting full DSM criteria. This could be similar to depressive disorders in later life, where minor depression is much more common than major depression (Beekman et al., 1995). This latter explanation, however, cannot fully explain the lower prevalence rates of somatoform disorders in later life as MUS, which can be considered a subsyndromal somatoform disorder, also decreases with age.

4.2. Limitations

For proper interpretation, some limitations should be acknowledged. Firstly, empirical data are scarce. Therefore, we choose to apply the cut-off for our a priori chosen age-categories liberally in order to be able to provide a more detailed overview of the literature. Nevertheless, the general neglect of somatoform disorders and MUS in old age still raises the question whether the few studies reported can be considered representative for the community-dwelling elderly population. Overall prevalence rates of somatoform disorders and MUS in the included studies, however, were in line with the prevalence rates in studies that also including middle-aged (50–65 years) and/or older persons (aged >65 years) but that did not report age-specific data. For example, a German study using the CIDI found an overall prevalence rate for any somatoform disorder of 11% in the general population ($n=4181$) aged from 18 to 65 (Dekker et al., 2008). An Italian study of the general population ($n=673$) reports a prevalence of 20% for all somatoform disorders using a semi-structured interview by a trained interviewer (Faravelli et al., 1997) and a Spanish study in primary care ($n=7936$) found a prevalence of 29% using the PRIME-MD questionnaire (Roca et al., 2009).

Secondly, the use of different instruments for assessing somatoform disorders limits direct comparison between studies. Although these limitations are also applicable to the younger population, research in old age psychiatry is further limited by fact that most diagnostic instruments for somatoform disorders are not validated for use in the elderly (Knäuper and Wittchen, 1994). Moreover, no consensus exist on the definition of MUS, whereas the criteria for somatoform disorders remain also highly debated and have led to widely different solutions within research projects varying from the introduction of other diagnostic entities such as abridged somatization disorder (Escobar, 1997) and multi-somatoform disorder (Kroenke et al., 1997).

4.3. Conclusion

So far, little research has focused on somatoform disorders in the elderly. The existing evidence shows that somatoform disorders and MUS are still common in later life, although the available data suggest that prevalence rates decline after the age of 65 years. To understand why prevalence rates decrease beyond the age of 65, more systemic research with special focus on the old aged population is needed. Especially adaptation and validation of instruments to detect somatoform disorders in the elderly is needed for this purpose. To reveal the clinical relevance and natural course of subsyndromal somatoform disorders, research should focus on studying diversity, severity and chronicity of MUS rather than differentiating into separate diagnostic categories with arbitrary thresholds (Rosmalen, 2010). Because of the lack of consensus on the definition of MUS, the prevalence rates for somatoform symptoms that do not fulfill the DSM-IV criteria are difficult to interpret and the clinical importance of subsyndromal somatoform disorders remains uncertain. Suggestions for future classification should consider the appropriateness for old age populations.

References

- Anon., 1992. The changing rate of major depression. Cross-national comparisons. Cross-National Collaborative Group. *Journal of American Medical Association* 268, 3098–3105.
- Balestrieri, M., Marcon, G., Samani, F., Marini, M., Sessa, E., Gelatti, U., Donato, F., 2005. Mental disorders associated with benzodiazepine use among older primary care attenders—a regional survey. *Social Psychiatry and Psychiatric Epidemiology* 40, 308–315.
- Barsky, A.J., Orav, E.J., Bates, D.W., 2005. Somatization increases medical utilization and costs independent of psychiatric and medical comorbidity. *Archives of General Psychiatry* 62, 903–910.
- Beekman, A.T., Deeg, D.J., van Tilburg, T., Smit, J.H., Hooijer, C., van Tilburg, W., 1995. Major and minor depression in later life: a study of prevalence and risk factors. *Journal of Affective Disorders* 36, 65–75.
- Benraad, C., Hilderink, P.H., van Driel, T.J.W., Disselhorst, L., Lubberink, B., van Wolferen, L., Olde Rikkert, M.G.M., Oude Voshaar, R.C. Physical functioning of older patients suffering from somatoform disorders: a pilot study, submitted for publication.
- Burton, C., 2003. Beyond somatisation: a review of the understanding and treatment of medically unexplained physical symptoms (MUPS). *British Journal of General Practice* 53, 231–239.
- Clarke, D.M., Piterman, L., Byrne, C.J., Austin, D.W., 2008. Somatic symptoms, hypochondriasis and psychological distress: a study of somatisation in Australian general practice. *Medical Journal of Australia* 189, 560–564.
- Cooper, C., Bebbington, P., McManus, S., Meltzer, H., Stewart, R., Farrell, M., King, M., Jenkins, R., Livingston, G., 2010. The treatment of Common Mental Disorders across age groups: results from the 2007 Adult Psychiatric Morbidity Survey. *Journal of Affective Disorders* 127, 96–101.
- Creed, F., Barsky, A., 2004. A systematic review of the epidemiology of somatisation disorder and hypochondriasis. *Journal of Psychosomatic Research* 56, 391–408.
- de Waal, M.W., Arnold, I.A., Eekhof, J.A., van Hemert, A.M., 2004. Somatoform disorders in general practice: prevalence, functional impairment and comorbidity with anxiety and depressive disorders. *British Journal of Psychiatry* 184, 470–476.
- Dekker, J., Peen, J., Koelen, J., Smit, F., Schoevers, R., 2008. Psychiatric disorders and urbanization in Germany. *BMC Public Health* 8, 17.
- Dimsdale, J., Creed, F., Disorders, D.-V.W.o.S.S., 2009. The proposed diagnosis of somatic symptom disorders in DSM-V to replace somatoform disorders in DSM-IV—a preliminary report. *Journal of Psychosomatic Research* 66, 473–476.

- Escobar, J.I., 1997. Developing practical indexes of somatization for use in primary care. *Journal of Psychosomatic Research* 42, 323–328.
- Escobar, J.I., Cook, B., Chen, C.N., Gara, M.A., Alegria, M., Interian, A., Diaz, E., 2010. Whether medically unexplained or not, three or more concurrent somatic symptoms predict psychopathology and service use in community populations. *Journal of Psychosomatic Research* 69, 1–8.
- Escobar, J.I., Gara, M., Silver, R.C., Waitzkin, H., Holman, A., Compton, W., 1998. Somatization disorder in primary care. *British Journal of Psychiatry* 173, 262–266.
- Faravelli, C., Salvatori, S., Galassi, F., Aiazzi, L., Drei, C., Cabras, P., 1997. Epidemiology of somatoform disorders: a community survey in Florence. *Social Psychiatry and Psychiatric Epidemiology* 32, 24–29.
- Fröhlich, C., Jacobi, F., Wittchen, H.U., 2006. DSM-IV pain disorder in the general population. An exploration of the structure and threshold of medically unexplained pain symptoms. *European Archives of Psychiatry and Clinical Neuroscience* 256, 187–196.
- Grabe, H.J., Baumeister, S.E., John, U., Freyberger, H.J., Völzke, H., 2009. Association of mental distress with health care utilization and costs: a 5-year observation in a general population. *Social Psychiatry and Psychiatric Epidemiology* 44, 835–844.
- Hardy, P., 1995. *Epidémiologie des troubles somatoformes dans la population générale française*. L'Encephale, 191–199.
- Heun, R., Hein, S., 2005. Risk factors of major depression in the elderly. *European Psychiatry* 20, 199–204.
- Hilderink, P.H., Benraad, C.E., van Driel, D., Buitelaar, J.K., Speckens, A.E., Olde Rikkert, M.G., Voshaar, R.C., 2009. Medically unexplained physical symptoms in elderly people: a pilot study of psychiatric geriatric characteristics. *American Journal of Geriatric Psychiatry*, 1085–1088.
- Hiller, W., Rief, W., Brähler, E., 2006. Somatization in the population: from mild bodily misperceptions to disabling symptoms. *Social Psychiatry and Psychiatric Epidemiology* 41, 704–712.
- Jacobi, F., Wittchen, H.U., Holting, C., Höfler, M., Pfister, H., Müller, N., Lieb, R., 2004. Prevalence, co-morbidity and correlates of mental disorders in the general population: results from the German Health Interview and Examination Survey (GHS). *Psychological Medicine* 34, 597–611.
- Kingma, E.M., Tak, L.M., Huisman, M., Rosmalen, J.G., 2009. Intelligence is negatively associated with the number of functional somatic symptoms. *Journal of Epidemiology and Community Health* 63, 900–905.
- Knäuper, B., Wittchen, H.U., 1994. Diagnosing major depression in the elderly: evidence for response bias in standardized diagnostic interviews? *Journal of Psychiatric Research* 28, 147–164.
- Koch, H., van Bokhoven, M.A., ter Riet, G., van der Weijden, T., Dinant, G.J., Bindels, P.J., 2007. Demographic characteristics and quality of life of patients with unexplained complaints: a descriptive study in general practice. *Quality of Life Research* 16, 1483–1489.
- Kroenke, K., Spitzer, R.L., deGruy, F.V., Hahn, S.R., Linzer, M., Williams, J.B., Brody, D., Davies, M., 1997. Multisomatoform disorder. An alternative to undifferentiated somatoform disorder for the somatizing patient in primary care. *Archives of General Psychiatry* 54, 352–358.
- Ladwig, K.H., Marten-Mittag, B., Lacruz, M.E., Henningsen, P., Creed, F., Investigators, M.K., 2010. Screening for multiple somatic complaints in a population-based survey: does excessive symptom reporting capture the concept of somatic symptom disorders? Findings from the MONICA-KORA Cohort Study. *Journal of Psychosomatic Research* 68, 427–437.
- Leiknes, K.A., Finset, A., Moum, T., Sandanger, I., 2007. Current somatoform disorders in Norway: prevalence, risk factors and comorbidity with anxiety, depression and musculoskeletal disorders. *Social Psychiatry and Psychiatric Epidemiology* 42, 698–710.
- Lipowski, Z.J., 1988. Somatization: the concept and its clinical application. *American Journal of Psychiatry* 145, 1358–1368.
- Lish, J.D., Zimmerman, M., Farber, N.J., Lush, D., Kuzma, M.A., Plescia, G., 1995. Psychiatric screening in geriatric primary care: should it be for depression alone? *Journal of Geriatric Psychiatry and Neurology* 8, 141–153.
- Little, P., Somerville, J., Williamson, I., Warner, G., Moore, M., Wiles, R., George, S., Smith, A., Peveler, R., 2001. Psychosocial, lifestyle, and health status variables in predicting high attendance among adults. *British Journal of General Practice* 51, 987–994.
- Lyness, J.M., Caine, E.D., King, D.A., Cox, C., Yoediono, Z., 1999. Psychiatric disorders in older primary care patients. *Journal of General Internal Medicine* 14, 249–254.
- Margalit, A.P., El-Ad, A., 2008. Costly patients with unexplained medical symptoms: a high-risk population. *Patient Education and Counseling* 70, 173–178.
- Martens, U., Enck, P., Matheis, A., Herzog, W., Klosterhalfen, S., Rühl, A., Zipfel, S., Sammet, I., 2010. Motivation for psychotherapy in patients with functional gastrointestinal disorders. *Psychosomatics* 51, 225–229.
- Mol, A.J., Gorgels, W.J., Oude Voshaar, R.C., Breteler, M.H., van Balkom, A.J., van de Lisdonk, E.H., Kan, C.C., Zitman, F.G., 2005. Associations of benzodiazepine craving with other clinical variables in a population of general practice patients. *Comprehensive Psychiatry* 46, 353–360.
- Nimnuan, C., Hotopf, M., Wessely, S., 2000. Medically unexplained symptoms: how often and why are they missed? *QJM* 93, 21–28.
- Nimnuan, C., Hotopf, M., Wessely, S., 2001. Medically unexplained symptoms: an epidemiological study in seven specialities. *Journal of Psychosomatic Research* 51, 361–367.
- olde Hartman, T.C., Borghuis, M.S., Lucassen, P.L., van de Laar, F.A., Speckens, A.E., van Weel, C., 2009. Medically unexplained symptoms, somatisation disorder and hypochondriasis: course and prognosis. A systematic review. *Journal of Psychosomatic Research* 66, 363–377.
- olde Hartman, T.C., Lucassen, P.L., van de Lisdonk, E.H., Bor, H.H., van Weel, C., 2004. Chronic functional somatic symptoms: a single syndrome? *British Journal of General Practice* 54, 922–927.
- Palladino, P., De Beni, R., 1999. Working memory in aging: maintenance and suppression. *Aging* 11, 301–306.
- Regier, D.A., Myers, J.K., Kramer, M., Robins, L.N., Blazer, D.G., Hough, R.L., Eaton, W.W., Locke, B.Z., 1984. The NIMH Epidemiologic Catchment Area program. Historical context, major objectives, and study population characteristics. *Archives of General Psychiatry* 41, 934–941.
- Robins, L.N., Helzer, J.E., Weissman, M.M., Orvaschel, H., Gruenberg, E., Burke, J.D., Regier, D.A., 1984. Lifetime prevalence of specific psychiatric disorders in three sites. *Archives of General Psychiatry* 41, 949–958.
- Roca, M., Gili, M., Garcia-Garcia, M., Salva, J., Vives, M., Garcia Campayo, J., Comas, A., 2009. Prevalence and comorbidity of common mental disorders in primary care. *Journal of Affective Disorders* 119, 52–58.
- Roebuck, J., 1979. When does old age begin? *Journal of Social History* 12, 16–28.
- Rosmalen, J.G., 2010. The way forward: a case for longitudinal population-based studies in the field of functional somatic syndromes. *Journal of Psychosomatic Research* 68, 399–401.
- Rosmalen, J.G., Tak, L.M., de Jonge, P., 2010. Empirical foundations for the diagnosis of somatization: implications for DSM-5. *Psychological Medicine*, 1–10.
- Schneider, G., Heuft, G., 2011. Medically unexplained and somatoform complaints and disorders in the elderly: a systematic review of the literature. *Zeitschrift für Psychosomatische Medizin und Psychotherapie* 57, 115–140.
- Sheehan, B., Banerjee, S., 1999. Review: somatization in the elderly. *International Journal of Geriatric Psychiatry* 14, 1044–1049.
- Simon, G.E., Gureje, O., 1999. Stability of somatization disorder and somatization symptoms among primary care patients. *Archives of General Psychiatry* 56, 90–95.
- Steinbrecher, N., Koerber, S., Frieser, D., Hiller, W., 2011. The prevalence of medically unexplained symptoms in primary care. *Psychosomatics* 52, 263–271.
- Sumathipala, A., 2007. What is the evidence for the efficacy of treatments for somatoform disorders? A critical review of previous intervention studies. *Psychosomatic Medicine* 69, 889–900.
- Verhaak, P.F., Meijer, S.A., Visser, A.P., Wolters, G., 2006. Persistent presentation of medically unexplained symptoms in general practice. *Family Practice* 23, 414–420.
- Wijeratne, C., Brodaty, H., Hickie, I., 2003. The neglect of somatoform disorders by old age psychiatry: some explanations and suggestions for future research. *International Journal of Geriatric Psychiatry* 18, 812–819.