CORE
Metadata, citation and similar papers at core.ac.uk
Provided by University of Bath Research Portal

Citation for published version:
Thew, GR & Salkovskis, PM 2016, 'Hoarding among older people: An evaluative review', The Cognitive Behaviour Therapist, vol. 9, e32. https://doi.org/10.1017/S1754470X16000180

DOI:
10.1017/S1754470X16000180

Publication date:
2016

Document Version
Peer reviewed version

Link to publication

This article has been published in Cognitive Behaviour Therapist a1) https://doi.org/10.1017/S1754470X16000180. This version is free to view and download for private research and study only. Not for re-distribution, re-sale or use in derivative works. © British Association for Behavioural and Cognitive Psychotherapies 2016 .

University of Bath

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

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.

Download date: 13. May. 2019

Running Head: *Hoarding among older people*

Hoarding among older people: An evaluative review

Graham R Thew[1] and Paul M Salkovskis[1]

[1]Department of Psychology, University of Bath, Claverton Down, Bath, BA2 7AY, UK

Corresponding Author
Graham Thew
Present address: Department of Experimental Psychology, University of Oxford, South Parks Road, Oxford OX1 3UD, UK. Email: graham.thew@psy.ox.ac.uk

Financial Support
This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Conflicts of interest
None

Ethical Standards
The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Abstract

While there is considerable evidence that the factors involved in hoarding typically begin to manifest early in life (mostly in adolescence), the majority of those sampled in research studies are in their later years. As so much of our understanding of the psychological factors involved in hoarding is derived from those who are older and more chronically affected, the core hoarding psychopathology may have been masked, overlaid or even disregarded in previous research and in our approaches to clinical intervention. That is, factors relating primarily to chronicity of the problem and feelings of demoralisation, hopelessness, loss and the extent of the damage caused to the person's life may swamp the processes which led to and maintain the problem. The present review examines the extent to which this is so and considers theoretical and clinical implications. The literature relevant to hoarding in later life was reviewed evaluatively in relation to a number of questions placing hoarding in a lifespan developmental context. Many studies relied on purely descriptive methodologies, meaning that typical case presentations and case histories are well documented, with less attention paid to underlying causal and maintaining mechanisms. Efforts to identify and control for factors relating to age or problem chronicity were minimal. A key future direction is the identification of younger samples of people who hoard in order to identify more clearly the processes which drive acquisition and retention of excessive amounts of material.

Keywords: Hoarding; ageing; older adults; review

Learning Objectives

- To consider the gap between onset and presentation of hoarding difficulties, how this compares to other disorders, and how this may be problematic for our understanding of hoarding psychopathology and treatment
- To understand the main themes and issues within the literature on hoarding among older adults.

- To consider the need to distinguish primary (i.e. hoarding psychopathology) from secondary (i.e. age or chronicity related) problems in research and clinical interventions.

Hoarding among older people: An evaluative review

Introduction

Hoarding has been defined as "the acquisition of, and failure to discard, possessions which appear to be useless or of limited value" (Frost & Gross, 1993, p. 367). The phenomenology of this problem is well-described (e.g. Steketee & Frost, 2003), and has formed the basis of the DSM-V criteria for Hoarding Disorder introduced in 2013. The principal criteria are difficulty discarding possessions, a perceived need to save items, clutter of active living areas, and significant distress or functional impairment (see Mataix-Cols et al., 2010; Mataix-Cols & Pertusa, 2012). What is less clearly understood is why the need to save items is important or why discarding may be distressing, and more widely, the processes that underlie the development and maintenance of such problems.

Cognitive-behavioural approaches suggest that hoarding is driven by beliefs about the nature of possessions, their value, and the purpose of saving, and that these beliefs may have become exaggerated or biased over time. Frost and Hartl (1996) reported that people may show a marked need to maintain control over their possessions, feeling responsible for their protection, and are therefore less able to share or have people handle them (see also Frost, Hartl, Christian, & Williams, 1995). Measures such as the Saving Cognitions Inventory (Steketee, Frost, & Kyrios, 2003) have been used to show differences in beliefs between those who do and do not hoard (e.g. Luchian, McNally, & Hooley, 2007).

A number of studies have begun to explore hoarding development and maintenance from a range of perspectives, including cognitive behavioural, attachment, genetic, and neuropsychological approaches. Typically, the participants in these studies have a mean age of approximately 50-55, with a standard deviation of around 10 (Gordon, Salkovskis, & Oldfield, 2013; Grisham, Frost, Steketee, Kim, & Hood, 2006; Landau et al., 2011; Pertusa et al., 2008; Tolin, Frost, & Steketee, 2007; Tolin, Frost, Steketee, Gray, & Fitch, 2008), noticeably older than comparable studies in OCD or depression where mean ages of 35 (SD

approximately 10) and 40 (SD approximately 10) respectively appear to be more typical (e.g. Blake, Dobson, Sheptycki, & Drapeau, 2016; Cottraux et al., 2001; S. K. Kim et al., 2016; Luyten et al., 2007; Rimes & Watkins, 2005; Visser, van Oppen, van Megen, Eikelenboom, & van Balkom, 2014; Volpato Cordioli et al., 2003; Ward et al., 2000).

Futhermore, investigations into the onset of hoarding difficulties suggest that these typically begin in adolescence (Tolin, Meunier, Frost, & Steketee, 2010), raising questions around the chronology of hoarding, such as whether and why there might be a distinction between the age of onset, and age of presentation. We know that mental health conditions often change over the lifespan, though consistent patterns of change are not always evident (Jorm, 2000). While the 'burnout' of anxiety disorders has some empirical support (Jorm, 2000), other studies highlight the high prevalence rates of anxiety within older populations (Beekman et al., 1998; Halbreich, 2003; Krasucki, Howard, & Mann, 1998; Manela, Katona, & Livingston, 1996) and suggest that cohort effects, poorer detection rates, anxiety-related mortality, and comorbidity with cognitive impairment may be underlying any apparent reductions in prevalence. The lack of longer term longitudinal work means that ageing effects and cohort effects cannot be effectively distinguished at present (Jorm, 2000).

As there may be changes in problem severity or presentation over time, perhaps in response to life events, but also due to the ageing process more generally, it could be hypothesised that the presentation of hoarding problems in older adults may to some degree reflect problems caused by the chronicity of the condition (e.g. extent of clutter, hopelessness, beliefs about the possibility of change). Given that much of our current understanding of hoarding is based on studies using relatively older adult samples, it is questioned whether these age-related factors may be confounding our understanding of the core psychological factors involved in hoarding development and maintenance.

This study aimed to evaluate the extent to which the older adult hoarding literature may be confounded or overly-influenced by age-related factors such as problem chronicity, cognitive function, or demographic characteristics, and to consider the implications for theoretical and empirical work in hoarding. To explore this, the authors reviewed the literature in relation to the following questions:

- What is the prevalence of hoarding in older adults, and how does this fit with the idea of 'anxiety burnout'?
- What are the common demographic features of older adults with hoarding problems?
- Is hoarding in later life predominantly a chronic problem with an early age of onset, or is late-life onset common among this cohort?
- Is there evidence to suggest that age-related cognitive decline is associated with an increase in hoarding symptoms?
- Are hoarding difficulties in later life more severe? Is this due to progressive accumulation of items over time, or are motivating beliefs and anxieties also stronger?
- Is there a link between stressful life events and later-life hoarding?
- What are the help seeking behaviours within this group?
- What implications do the above have for theoretical accounts and models of hoarding?

Method

Literature searches were conducted to identify published papers on hoarding among older adult (i.e. predominantly over 55) populations. Papers were required to have undergone peer-review, and could consist of empirical studies, reviews, case studies or series, or conceptual/theoretical papers. Year of publication was not set as a search criterion due to the relative recency of the field. A variety of medical, psychological, and nonspecialised databases were searched (e.g. MEDLINE, APA PsycNet, Scopus, National Library for

Health, Web of Knowledge, Cochrane, Google Scholar), and reference trails from obtained papers were followed. Search terms incorporated accepted synonymous words or phrases to minimise the risk of missing relevant material (i.e. hoarding/"compulsive hoarding"/"obsessive hoarding"/"obsessional hoarding"/"hoarding disorder"; "older adult"/"late life"/"later life"/ gerontology/geriatric/elderly/aged). Mesh terms were also used, and specific journals searched (including: Journal of Gerontological Social Work, International Journal of Geriatric Psychiatry, Geriatrics and Gerontology International, International Journal of Aging and Later Life, Journal of Anxiety Disorders, Journal of Obsessive Compulsive and Related Disorders). Additionally, descriptive case-based articles from the wider hoarding literature were searched for material pertaining to older adults (e.g. an older adult described as part of a case series).

Studies were assessed for findings of specific relevance to the review questions described above, and reviewed from a critical perspective. A total of 45 papers were reviewed, see Table 1.

[TABLE 1 ABOUT HERE]

Results

Prevalence

A frequently cited prevalence study of hoarding in adults was undertaken by Samuels and colleagues (2008) who reported that 3.7% (5.3% weighted) of the general population in eastern Baltimore show 'pathological' hoarding behaviours. They noted that the prevalence among older people (6.2% aged 55-94) was nearly three times greater than the youngest group sampled (2.3% aged 34-44; p.840). They also found it to be twice as common in men than women, a finding inconsistent with other literature (see 'Risk Factors and Demographics'). Other studies have reported prevalence rates of 1.5-4.6% of general population samples (Mueller, Mitchell, Crosby, Glaesmer, & De Zwaan, 2009; Nordsletten et

al., 2013), though the finding of greater prevalence among older age groups has not been shown consistently (see Mueller et al., 2009).

The idea that hoarding might be more prevalent among older adults compared to working-age adults seems to go against the general pattern of 'anxiety burnout' as age increases (see Jorm, 2000). Jorm makes the important point however that this declining pattern can be easily and significantly masked by the influence of covarying risk factors such as marital status, gender, level of education, income, and employment status (p.16). The anxiety burnout trend is only visible when these factors are statistically controlled for, something not done in the reviewed studies. Alternatively it may be true that hoarding is an exception to the rule, in that it only becomes a problem in later life due to the accumulation of possessions. More rigorous age comparison studies with large population samples are required to ascertain clearly whether hoarding fits the general pattern.

The prevalence estimates are also likely to be affected by significant variation in how hoarding is defined across different studies. Samuels et al. (2008) defined pathological hoarding as whether the hoarding criterion within the Obsessive Compulsive Personality Disorder (OCPD) DSM-IV category was met. Other definitions include reaching a cutoff on the German Compulsive Hoarding Inventory (Mueller et al., 2009), or simply the presence of hoarding behaviours that cause distress or functional impairment (Stein, Laszlo, Marais, Seedat, & Potocnik, 1997). As would be expected, studies using broader hoarding definitions such as 'the presence of a hoarding or hiding behaviour several times per week' (see Marx & Cohen-Mansfield, 2003) found much higher prevalence estimates, in this case 25% within their older adult community sample (see also Ellis, Mullan, & Worsley, 2011, who reported high prevalence rates of medication hoarding).

Studies exploring hoarding in the context of neurodegenerative and other conditions have tended to find much higher prevalence rates, such as 22.6% in a sample of dementia

patients aged 65-91 (Hwang, Tsai, Yang, Liu, & Ling, 1998), 13% in older adults with later life depression (Mackin, Areán, Delucchi, & Mathews, 2011), and 27.8% in older adults with Parkinson's Disease, where impulsive-compulsive behaviours are also displayed (O'Sullivan et al., 2010).

The lack of consistent definitions and approaches to the assessment of hoarding difficulties perhaps calls into question the validity of these prevalence estimates. A further point for consideration is the conceptual clarity within the prevalence literature. Some studies view hoarding as a manifestation of 'self-neglect' (also referred to in the literature as living in squalor, or Diogenes Syndrome; see Dong, Simon, Mosqueda, & Evans, 2012). Others view self-neglect not as the underlying problem, but a consequence of hoarding (see Maier, 2004 for discussion). It is perhaps likely that the DSM-5 criteria will help to standardise the identification of hoarding (see Nordsletten et al., 2013), and mean that more reliable and comparable prevalence estimates will become available as these become more widely adopted.

Risk factors and demographics

A number of studies have looked at the broad demographics of older people with hoarding problems. These suggest that the majority are female, with proportion estimates ranging between 69% and 86% (Ayers & Dozier, 2015; Chapin et al., 2010; H. J. Kim, Steketee, & Frost, 2001; Marx & Cohen-Mansfield, 2003). However, it could be argued that these figures are an artefact of longer life expectancy for women, in that as age increases, there are relatively more women than men in the population to present to, or come to the attention of, services for hoarding problems. It seems that when a wider age range is sampled, gender differences are not present (Mueller et al., 2009), though replication would help establish this more clearly.

The literature generally reports that older adults with hoarding problems tend to be widowed, divorced, or never married (Andersen, Raffin-Bouchal, & Marcy-Edwards, 2008; Ayers & Dozier, 2015; Chapin et al., 2010; H. J. Kim et al., 2001). There is some evidence suggesting that living alone is common (Ayers, Saxena, Golshan, & Wetherell, 2010; H. J. Kim et al., 2001), though one study that incorporated an older adult nonhoarding control group suggested this may be no more frequent that in the general population (Steketee, Schmalisch, Dierberger, DeNobel, & Frost, 2012). It is suggested that future studies utilise control groups to ensure that participants experiencing hoarding difficulties can be described in context rather than in isolation.

Other potential 'risk-factors' for hoarding problems in later life include social isolation (Andersen et al., 2008; Ayers et al., 2010; Chapin et al., 2010; Samuels et al., 2008), comorbid physical or mental health problems (Ayers et al., 2010; Calamari, Pontarelli, Armstrong, & Salstrom, 2012; Chapin et al., 2010; Lee & LoGiudice, 2012; Stein et al., 1997), and estrangement from family (Franks, Lund, Poulton, & Caserta, 2004; Thomas, 1998). However, some studies (Marx & Cohen-Mansfield, 2003; Steketee et al., 2012) suggest these factors are perhaps more age-related than they are hoarding-related. For example Steketee and colleagues (2012) found no difference in rates of social isolation between older adults (aged 58-90) with and without hoarding problems. The potential for age-related factors to confound the risk factors for hoarding may be significant here, meaning some of the above factors cannot be considered 'risk-factors' at all until a direct and statistically-sound association with hoarding is demonstrated; again the use of control groups in these studies is critical.

Age of onset and chronicity

The literature is generally consistent in reporting that a significant proportion of older adults with hoarding problems first showed symptoms of hoarding behaviours in childhood or adolescence, with estimates ranging from 34.6% to 83% (Ayers et al., 2010; Grisham et al.,

2006; Steketee et al., 2012; Tolin et al., 2010). Ayers and colleagues (Ayers et al., 2010) suggested that “Compulsive hoarding is a progressive and chronic condition that begins early in life” (p.142), and the chronicity of problems is supported by other studies who make use of retrospective interviews and ‘hoarding timelines’ (Grisham et al., 2006; Steketee et al., 2012; Tolin et al., 2010). The participants seeking help for hoarding in the Grisham et al. (2006) study had a mean age of 51 (range 26-71), suggesting a substantial time gap between onset and treatment. While this requires more robust empirical investigation, it does suggest that hoarding may have a longer onset-treatment gap compared to other anxiety disorders such as social anxiety disorder (10-15 years; Grant et al., 2005), or OCD (7.5 years; Altamura, Buoli, Albano, & Dell'Osso, 2010).

What is not considered however, is the question of base rates, i.e. what proportion of children and adolescents in the general population show hoarding type behaviours, and how commonly do these transition into difficulties in adulthood? If this is extremely common among young people, it is not surprising that most older adults can recall childhood experiences of this type, and these experiences may not be causally linked to the ‘onset’ of hoarding problems. An additional complicating factor is the possibility of bias during retrospection. It may be for example, that the process of being interviewed about your history of hoarding problems may encourage the expression of childhood experiences. Retrospective designs are clearly pragmatic for many of the studies in this review, but longitudinal work exploring changes across the lifespan is an obvious need within the literature.

The notion of late onset hoarding seems more controversial, with some studies (Ayers et al., 2010) ruling this out, and others (Steketee et al., 2012; Tolin et al., 2010; Turner, Steketee, & Nauth, 2010) suggesting this does occur in a minority of cases. Dozier and colleagues (2016) found that 19 of the 82 older adults with hoarding problems sampled (aged 60-86) reported onset after the age of 40, though through further investigation noted that the

majority of these were experiencing at least one hoarding symptom prior to this. Some case reports describe late onset, such as the case described by Cermele et al. (2001) whose difficulties began when she was approximately 62. Not all case reports describe the development and history of hoarding behaviours, and this is therefore recommended. There is some support for a bimodal distribution of onset ages, with peaks around adolescence and approximately age 50 (see Steketee et al., 2012). However, the definition of 'onset' needs clarity, as the reviewed papers do not always state their criteria to determine this, and sometimes conflate the onset of saving behaviours with the onset of a hoarding problem.

In late onset cases, it would be helpful to explore in detail the 'triggers' surrounding this. Tolin and colleagues (2010) suggested that the presence of close family members has an inhibitory effect on hoarding, meaning that hoarding becomes unconstrained when these people are no longer present (through bereavement, divorce, moving away). The Cermele et al. (2001) case report is consistent with this, and it is questioned whether all instances of late onset hoarding reflect the removal of limitations to a pre-existing hoarding tendency, rather than genuine symptom 'onset'.

Dementia, memory and cognitive decline

There is a small body of research exploring hoarding behaviours in the context of neurodegenerative conditions such as Parkinson's Disease (O'Sullivan et al., 2010) and various dementias (Hwang et al., 1998; Marx & Cohen-Mansfield, 2003; Stein et al., 1997) including a number of case reports (Baker, LeBlanc, Raetz, & Hilton, 2011; Franks et al., 2004; Lee & LoGiudice, 2012; Thomas, 1998).

One criticism of this work is that at times, the implicit assumption is made that hoarding is explained by dementia. As a result, descriptions of participants' histories and pre-dementia hoarding behaviours are often insufficient or absent altogether. While it may be true that hoarding behaviours may have multiple aetiologies, and dementia could be one of these

(Stein et al., 1997 could be seen as supporting this view), case reports such as Shroepfer and Ingersoll-Dayton (2001) highlight that childhood experiences and saving-related beliefs may still be present in, and pre-date the onset of, dementia.

Other studies have taken a neuropsychological approach, assessing cognitive function among individuals with hoarding problems. Kim and colleagues (H. J. Kim et al., 2001) found that the majority (76%) of their sample (aged 65-92) showed no cognitive problems or problems with memory (67%). Where deficits are identified they tend to be in the areas of memory (Ayers, Bratiotis, Saxena, & Wetherell, 2012; Ayers et al., 2013; Hogstel, 1993; Mackin et al., 2011), processing speed (Mackin et al., 2011) and executive functioning, specifically categorisation and sorting (Ayers, Dozier, Wetherell, Twamley, & Schiehser, 2016; Ayers et al., 2013; Dozier, Wetherell, Twamley, Schiehser, & Ayers, 2016; Mackin et al., 2011), planning, problem solving, and flexibility (Ayers, Bratiotis et al., 2012). It is suggested that these deficits may underlie people's limited responses to current CBT treatment protocols (Ayers, Bratiotis et al., 2012; Ayers, Wetherell, Golshan, & Saxena, 2011).

Taken in isolation, the reported cognitive deficits offer little in the way of explaining hoarding behaviours (causally or otherwise). Some studies have hypothesised possible mechanisms as to why deficits might manifest in hoarding behaviours. Hogstel (1993) suggested that memory problems might mean it is difficult to discriminate between important and nonimportant objects. Other suggestions include the idea that hoarded objects hold useful information or memories that can be referred to if memory fails, or that hoarding is an activity that feels meaningful but requires little cognitive effort (Andersen et al., 2008).

However, without adequate baseline or premorbid measures of cognitive functioning, it is difficult to differentiate longstanding deficits from age-related ones. Again, without detailed information regarding participants' neurological and hoarding histories, we cannot be certain

that the observed deficits are age-related at all, let alone being linked to the onset or worsening of hoarding.

Extent of hoard and severity of symptoms over time

There are very few studies assessing whether and how hoarding symptoms change over time. Defining the severity of a hoarding problem is complex, in that there are both situational (i.e. amount of clutter) and cognitive (beliefs about saving and possessions) factors to consider. While these two factors are moderately correlated (Reid et al., 2011), it is not possible to definitively infer one from the other.

The amount of hoarded possessions generally increases over time, and this can lead to people self-rating their hoarding as more severe (Ayers et al., 2010). However, Reid and colleagues (2011) studied nonclinical older adults aged 56-93 and found no correlations between age and either hoarding behaviours or hoarding cognitions. Consistent findings were reported by Diefenbach and colleagues (2013) using a cross-sectional design, and by Ayers and Dozier (2015) but as highlighted by Reid et al. (2011), these findings may be limited by the truncated age range of participants. More recently, one study has reported evidence suggesting that clutter, difficulty discarding, and saving behaviours all increase with age, with the latter two stabilising during the fifth decade of life, and clutter continuing to increase (Dozier, Porter et al., 2016).

There are theoretical reasons why hoarding problems may worsen with age, for example if the act of hoarding can provide “a sense of purpose and meaning to their lives” (Andersen et al., 2008, p. 211), it may become a more significant activity in older age, where some people are more functionally impaired (Ayers, Najmi, Mayes, & Dozier, 2015; Ayers, Schiehser, Liu, & Wetherell, 2012) and feel increasingly isolated socially due to retirement, mobility problems, bereavement of partners/friends and other age-related factors. The potential inhibitory effect of the presence of others (Tolin et al., 2010) is again relevant here, an idea

with empirical support, particularly regarding clutter severity (Ayers & Dozier, 2015; Eckfield & Wallhagen, 2013) which also highlight the impact of changes to health status and social roles on hoarding behaviours.

Hoarding may also be reinforced by the behaviour of others. Calamari and colleagues (2012) describe 'Ms. Smith', whose family would occasionally stop by her house to pick up items that they thought she might have. A reinforcement pattern such as this is likely to increase hoarding behaviours, and possibly cognitions, and therefore the problem severity over time. Other case reports describe a sense of things 'getting out of hand' once the person's age begins to limit their capacity to sort or categorise possessions (e.g. Thomas, 1998).

Given that hoarding is considered a mental health difficulty, it is surprising so few studies have explored the development of related beliefs and cognitions over time, instead focusing almost exclusively on behavioural and situational aspects of the problem. This is a clear need in the literature for longitudinal work, or cross-sectional studies comparing age groups. These may have important implications for the development of effective psychological therapies for these problems.

Stressful life events

Stressful life experiences are frequently reported among people with later-life hoarding problems. The case studies reviewed provide a good overview of the range of events experienced. These include bereavement of spouse, parent, or child (Calamari et al., 2012; Franks et al., 2004; Thomas, 1998), childhood sexual abuse (Franks et al., 2004), domestic violence (Cermele et al., 2001), loss of possessions in a house fire (Schroepfer & Ingersoll-Dayton, 2001), wartime experiences (Hogstel, 1993; Schroepfer & Ingersoll-Dayton, 2001) and family members moving away (Cermele et al., 2001). Other events reported include divorce, including multiple divorces (Franks et al., 2004) and being raised in an orphanage (Lee & LoGiudice, 2012), though it is not necessarily the case that these events were

experienced as stressful. Other than wartime experiences, which are more specific to the older adult cohort, the presence and type of events experienced seem in line with that in the general hoarding literature.

Grisham and colleagues (2006) found that 55% of their sample of people with hoarding problems (aged 26-71) reported a stressful life event at the onset of symptoms, and only 19% of these were considered 'hoarding-related' (such as eviction, or loss of possessions). They stated that "individuals who did not report a stressful life event at the time of onset of hoarding symptoms showed a significantly earlier age of onset than those who did" (p.682). While this study is perhaps limited by its retrospective design, it does seem to suggest that stressful events are not necessary, but could be sufficient, to trigger hoarding behaviours.

It is important to note that because older people have lived longer lives the probability of having experienced a stressful event is likely to be higher than average. This may artificially inflate their perceived association with hoarding within this client group. It is unclear as to whether the frequency and type of these events is different compared to older adults without hoarding problems, and this may warrant investigation.

Help seeking behaviours

Generally, the literature consistently finds that older adults with hoarding problems rarely seek help for these directly. Most clients come to the attention of services through other agencies such as the emergency services, local councils, animal protection organisations, and public health authorities (Chapin et al., 2010). Kim and colleagues (H. J. Kim et al., 2001) found that 73% of referrals were made in this way, while 21% arose from direct complaints, 3% from service delivery workers, and the remaining 3% from self-referral.

Commonly people do not acknowledge there is a problem, with a tendency to see it "not as a problem but as a lifestyle choice or as normal behaviour, even though they take the effort to

conceal it from others" (Franks et al., 2004, p. 80). Where a problem is identified it is a lack of storage space (Thomas, 1998). The literature frequently reports that people are "not willing to voluntarily receive treatment" (Thomas, 1998, p. 52), which is understandable if people do not find their living conditions distressing, even if others perceive this as clutter or squalor. This can lead to active refusal of and resistance to intervention (Koenig, Leiste, Spano, & Chapin, 2013; Lee & LoGiudice, 2012; Reinisch, 2009), and can result in agencies imposing fines and threats of prosecution on public health grounds (Lee & LoGiudice, 2012; Thomas, 1998).

Where direct help-seeking does take place, it may be delayed by shame and embarrassment about the person's living conditions (e.g. Cermele et al., 2001) and seems to require the presence of a trusting relationship with a health professional (Koenig et al., 2013). The prevailing view in the literature is that multiagency and interdisciplinary working is recommended as the most effective method of intervention in these cases (Chapin et al., 2010; Koenig, Chapin, & Spano, 2010; Koenig et al., 2013; Lee, 2010; Poythress, Burnett, Naik, Pickens, & Dyer, 2007; Whitfield, Daniels, Flesaker, & Simmons, 2012), though there are as yet no studies comparing different models of intervention. Further enquiry into hoarding stigma, the impact of media programming on public perceptions and treatment expectations, and barriers to help-seeking is recommended given their potential impact on the gap between onset and treatment.

Table 2 summarises the findings in relation to each review question.

[TABLE 2 ABOUT HERE]

Implications

By exploring the hoarding literature pertaining to older adults, this review has highlighted a relatively small but growing body of work in this area. Two general observations are made: firstly, the literature is overly descriptive and is hindered by a lack of good quality empirical studies and appropriate theoretical frameworks, and secondly, there is an overemphasis on behavioural aspects of the condition at the expense of motivation and cognition.

While a range of study designs is used, including some cross-sectional work, work with analogue nonclinical populations, and some initial interventive designs, the vast majority of the literature is descriptive in nature. These studies include both case reports and more structured qualitative studies using interview methodologies. While these studies help to develop an understanding of older adults' hoarding experiences, the management of cases and procedures undertaken, and the experiences of the professionals involved, they are limited in their capacity to generate and test explanatory hypotheses regarding problem onset, maintenance, and development over time.

As a result, distinctions between adult and older adult hoarding populations are difficult to analyse, as hoarding-related, and age-related factors cannot be effectively separated. This means the present review can only point to certain elements of the literature that may be more relevant to older adult populations. These include the findings around dementia and memory, though it is unclear whether these problems simply exacerbate existing hoarding tendencies, or should be considered causally linked to hoarding. Other factors that seem to be more marked in this literature and are likely to be age-related are the extent of clutter, which accumulates over time, and the degree of functional impairment, which occurs both due to clutter and other factors such as social isolation, physical health problems and mobility issues. Health and mobility problems seem to be linked to the self-neglect/Diogenes syndrome/squalor literature, which therefore features prominently in this age group.

There seems to be an overemphasis on behavioural aspects of hoarding within this literature, with studies tending to favour descriptions of the extent of clutter, self-neglect, or acquisition behaviours over saving cognitions and beliefs about possessions. In part this is understandable as cases are more likely to come to the attention of services when these behavioural aspects get 'out of control', but a greater focus on the beliefs and cognitive processes involved is required in order to fully understand the psychological aspects of these difficulties. Similarly this behavioural bias plays out in the literature's focus on the management of hoarding problems in the community (such as hoarding 'Task Forces', multiagency working techniques, removal of clutter), as opposed to a focus on understanding the thoughts and beliefs that underpin the difficulties and distress experienced.

Consequently, there is a clear need for good quality empirical data in this field, employing longitudinal and systematic cross-sectional (with respect to age) designs with appropriate control groups. This will allow the development and testing of specific hypotheses around hoarding and its relationship to age, and be able to explore hoarding psychopathology without confounding age-related factors. It will also allow greater clarity on how and if hoarding in older adults differs from that in other age groups, along with the development of clinical interventions that can address core hoarding psychopathology more directly. Research in this area needs to move beyond simply describing cases and circumstances, and focus more on developing an understanding of why these problems have come about, underlying beliefs and cognitions, and the mechanisms by which they are maintained and/or exacerbated.

We believe there are some clear theoretical implications of the present findings. The studies reviewed provide support for some of the conceptual frameworks of hoarding. Examples of material deprivation, attachment problems, neuropsychological deficits, obsessive-compulsive difficulties and stressful life events can be found in the older adult literature,

while biological and genetic perspectives are not mentioned. However, it is hard to draw conclusions from this, in that the generally descriptive nature of the studies means there is insufficient evidence to say some perspectives are supported while others are not. The empirical observations have tended to drive models rather than theories, with the focus being on how any particular observation might account for hoarding, rather than seeking to conceptualise hoarding itself.

What is clear from these findings is the heterogeneity of hoarding problems – there is no consistent pattern of past experiences among older adults who hoard, suggesting that there may be multiple routes leading to the expression of hoarding behaviours. It is questioned whether existing theories and models of hoarding problems fully take this heterogeneity into account, as it is tempting to design models to account for all circumstances, despite this resulting in a lack of specificity. For example, the model described by Frost and Hartl (1996) simply lists multiple causal factors, albeit tentatively, and even within individual case formulations are multiple mechanisms outlined (see Calamari et al., 2012, p. 145). Investigation of the mechanisms behind specific aspects of hoarding problems, such as acquisition, churning, and discarding, may be helpful in developing models that can more succinctly account for the development and maintenance of hoarding problems, rather than models that aim to account for all circumstances.

It is suggested that theoretical work at present may be being hindered by an overreliance on older adult populations, where hoarding is clearly manifested in behaviour and highly problematic. By primarily deriving theory from a single group such as this, it is difficult to determine whether factors represent causes or effects of hoarding, or if indeed they are relevant to the core psychopathology of hoarding at all, being ‘side-effects’ linked simply to the chronicity of problems, or the process of ageing. For example, social isolation, something described frequently in the reviewed studies, may lead someone to turn to possessions for comfort (cause), it may result from not being able to have people visit your home (effect), or

it may be that friends have passed away or that mobility problems make going out difficult (age-related artefact).

Conclusions

The reviewed literature provides effective descriptions of the presentations, difficulties, and management of older adults with hoarding problems. There is however a lack of good quality empirical studies, and insufficient focus on the motivating beliefs and cognitions that may represent the core psychopathology of this mental health difficulty. As a result this literature is limited in its power to inform conceptual and theoretical understandings of hoarding, and consequently the clinical interventions developed from these.

Older adults often form a large proportion of hoarding research samples, almost certainly due to more severe clutter making them easier to identify. As efforts to identify and control for age-related factors are uncommon in the literature, it is suggested that consequently there is a real risk that findings and related theorising may be misleading, being unduly affected by ageing-related, and chronicity-related confounds that may have nothing to do with the core psychopathology underpinning hoarding problems. Given that the average age of onset of hoarding is thought to be in adolescence, the study of wider age ranges and in particular younger people is likely to help avoid these confounds and better develop our understanding of what can be a lifelong and disabling condition.

Summary

- Although hoarding as a clinical problem typically has an early age of onset (in adolescence), people with this problem are typically seen by services in later life.
- It seems likely that the presentation of older people with hoarding problems will be affected by this discrepancy, so relevant literature is reviewed here.

- There are a number of factors which might differentiate people with hoarding at different stages across the lifespan; these include chronicity, aging, and shifts in belief about possessions and hoarding.
- Many studies use samples of older people; it may be that studies of the psychopathology of hoarding are primarily evaluating consequences of hoarding more than causes.
- For further reading, see Jorm (2000), Grisham et al. (2006), and Gordon et al. (2013).

References

Altamura, A. C., Buoli, M., Albano, A., & Dell'Osso, B. (2010). Age at onset and latency to treatment (duration of untreated illness) in patients with mood and anxiety disorders: A naturalistic study. International Clinical Psychopharmacology, 25(3), 172-179.

Andersen, E., Raffin-Bouchal, S., & Marcy-Edwards, D. (2008). Reasons to Accumulate Excess: Older Adults Who Hoard Possessions. Home Health Care Services Quarterly, 27(3), 187-216.

Ayers, C. R., Bratiotis, C., Saxena, S., & Wetherell, J. L. (2012). Therapist and patient perspectives on cognitive-behavioral therapy for older adults with hoarding disorder: A collective case study. Aging & Mental Health, 16(7), 915-921.

Ayers, C. R., & Dozier, M. E. (2015). Predictors of hoarding severity in older adults with hoarding disorder. International Psychogeriatrics, 27(07), 1147-1156.

Ayers, C. R., Dozier, M. E., Wetherell, J. L., Twamley, E. W., & Schiehser, D. M. (2016). Executive functioning in participants over age of 50 with hoarding disorder. The American Journal of Geriatric Psychiatry, 24(5), 342-349.

Ayers, C. R., Najmi, S., Mayes, T. L., & Dozier, M. E. (2015). Hoarding Disorder in Older Adulthood. The American Journal of Geriatric Psychiatry, 23(4), 416-422.

Ayers, C. R., Saxena, S., Golshan, S., & Wetherell, J. L. (2010). Age at onset and clinical features of late life compulsive hoarding. International journal of geriatric psychiatry, 25(2), 142-149.

Ayers, C. R., Schiehser, D., Liu, L., & Wetherell, J. L. (2012). Functional impairment in geriatric hoarding participants. Journal of Obsessive-Compulsive and Related Disorders, 1(4), 263-266. doi: http://dx.doi.org/10.1016/j.jocrd.2012.07.002

Ayers, C. R., Wetherell, J. L., Golshan, S., & Saxena, S. (2011). Cognitive-behavioral therapy for geriatric compulsive hoarding. Behaviour Research and Therapy.

Ayers, C. R., Wetherell, J. L., Schiehser, D., Almklov, E., Golshan, S., & Saxena, S. (2013). Executive functioning in older adults with hoarding disorder. International journal of geriatric psychiatry. doi: 10.1002/gps.3940

Baker, J. C., LeBlanc, L. A., Raetz, P. B., & Hilton, L. C. (2011). Assessment and Treatment of Hoarding in an Individual With Dementia. Behavior Therapy.

Beekman, A. T. F., Bremmer, M. A., Deeg, D. J. H., Van Balkom, A., Smit, J. H., De Beurs, E. (1998). Anxiety disorders in later life: a report from the Longitudinal Aging Study Amsterdam. International journal of geriatric psychiatry, 13(10), 717-726.

Blake, E., Dobson, K. S., Sheptycki, A. R., & Drapeau, M. (2016). Changes in cognitive errors over the course of cognitive therapy for depression. Journal of Cognitive Psychotherapy, 30(1), 16-34.

Calamari, J. E., Pontarelli, N. K., Armstrong, K. M., & Salstrom, S. A. (2012). Obsessive-Compulsive Disorder in Late-Life. Cognitive and Behavioral Practice.

Cermele, J. A., Melendez-Pallitto, L., & Pandina, G. J. (2001). Intervention in Compulsive Hoarding A Case Study. Behavior Modification, 25(2), 214-232.

Chapin, R. K., Sergeant, J. F., Landry, S. T., Koenig, T., Leiste, M., & Reynolds, K. (2010). Hoarding Cases Involving Older Adults: The Transition From a Private Matter to the Public Sector. Journal of Gerontological Social Work, 53(8), 723-742.

Cottraux, J., Note, I., Yao, S. N., Lafont, S., Note, B., Mollard, E. (2001). A randomized controlled trial of cognitive therapy versus intensive behavior therapy in obsessive compulsive disorder. Psychotherapy and Psychosomatics, 70(6), 288-297.

Diefenbach, G. J., DiMauro, J., Frost, R., Steketee, G., & Tolin, D. F. (2013). Characteristics of Hoarding in Older Adults. The American Journal of Geriatric Psychiatry.

Dong, X., Simon, M. A., Mosqueda, L., & Evans, D. A. (2012). The Prevalence of Elder Self-Neglect in a Community-Dwelling Population Hoarding, Hygiene, and Environmental Hazards. Journal of Aging and Health, 24(3), 507-524.

Dozier, M. E., Porter, B., & Ayers, C. R. (2016). Age of onset and progression of hoarding symptoms in older adults with hoarding disorder. Aging & Mental Health, 20(7), 736-742.

Dozier, M. E., Wetherell, J. L., Twamley, E. W., Schiehser, D. M., & Ayers, C. R. (2016). The relationship between age and neurocognitive and daily functioning in adults with hoarding disorder. International Journal of Geriatric Psychiatry, DOI: 10.1002/gps.4438.

Eckfield, M. B., & Wallhagen, M. I. (2013). The synergistic effect of growing older with hoarding behaviors. Clinical Nursing Research, 22(4), 475-491.

Ellis, J. C., Mullan, J., & Worsley, T. (2011). Prescription medication hoarding and borrowing or sharing behaviours in older residents in the Illawarra, New South Wales, Australia. Australasian journal on ageing, 30(3), 119-123.

Franks, M., Lund, D. A., Poulton, D., & Caserta, M. S. (2004). Understanding Hoarding Behavior Among Older Adults. Journal of Gerontological Social Work, 42(3-4), 77-107.

Frost, R. O., & Gross, R. C. (1993). The hoarding of possessions. Behaviour Research and Therapy, 31(4), 367-381.

Frost, R. O., & Hartl, T. L. (1996). A cognitive-behavioral model of compulsive hoarding. Behaviour Research and Therapy, 34(4), 341-350. doi: http://dx.doi.org/10.1016/0005-7967(95)00071-2

Frost, R. O., Hartl, T. L., Christian, R., & Williams, N. (1995). The value of possessions in compulsive hoarding: patterns of use and attachment. Behaviour Research and Therapy, 33(8), 897-902.

Gordon, O. M., Salkovskis, P. M., & Oldfield, V. B. (2013). Beliefs and experiences in hoarding. Journal of Anxiety Disorders, 27(3), 328-339. doi: http://dx.doi.org/10.1016/j.janxdis.2013.02.009

Grant, B. F., Hasin, D. S., Blanco, C., Stinson, F. S., Chou, S. P., Goldstein, R. B. (2005). The epidemiology of social anxiety disorder in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. The Journal of Clinical Psychiatry, 66(11), 1351-1361.

Grisham, J. R., Frost, R. O., Steketee, G., Kim, H. J., & Hood, S. (2006). Age of onset of compulsive hoarding. Journal of Anxiety Disorders, 20(5), 675-686.

Halbreich, U. (2003). Anxiety disorders in women: a developmental and lifecycle perspective. Depression and anxiety, 17(3), 107-110.

Hogstel, M. O. (1993). Understanding hoarding behaviors in the elderly. AJN The American Journal of Nursing, 93(7), 42.

Hwang, J. P., Tsai, S. J., Yang, C. H., Liu, K. M., & Ling, J. F. (1998). Hoarding behavior in dementia: a preliminary report. American Journal of Geriatric Psych, 6(4), 285-289.

Jorm, A. F. (2000). Does old age reduce the risk of anxiety and depression? A review of epidemiological studies across the adult life span. Psychological medicine, 30(01), 11-22.

Kim, H. J., Steketee, G., & Frost, R. O. (2001). Hoarding by elderly people. Health & Social Work, 26(3), 176-184.

Kim, S. K., McKay, D., Taylor, S., Tolin, D. F., Olatunji, B., Timpano, K. (2016). The structure of obsessive compulsive symptoms and beliefs: A correspondence and biplot analysis. Journal of Anxiety Disorders, 38, 79-87.

Koenig, T. L., Chapin, R., & Spano, R. (2010). Using multidisciplinary teams to address ethical dilemmas with older adults who hoard. Journal of Gerontological Social Work, 53(2), 137-147.

Koenig, T. L., Leiste, M. R., Spano, R., & Chapin, R. K. (2013). Multidisciplinary Team Perspectives on Older Adult Hoarding and Mental Illness. Journal of Elder Abuse & Neglect, 25(1), 56-75.

Krasucki, C., Howard, R., & Mann, A. (1998). The relationship between anxiety disorders and age. International journal of geriatric psychiatry, 13(2), 79-99.

Landau, D., Iervolino, A. C., Pertusa, A., Santo, S., Singh, S., & Mataix-Cols, D. (2011). Stressful life events and material deprivation in hoarding disorder. Journal of Anxiety Disorders, 25(2), 192-202.

Lee, S. M. (2010). Hoarding in older people: The role of the Aged Care Assessment Service. Australasian journal on ageing, 29(3), 134-134.

Lee, S. M., & LoGiudice, D. (2012). Phenomenology of squalor, hoarding and self-neglect: an Australian aged care perspective. Internal Medicine Journal, 42(1), 98-101.

Luchian, S. A., McNally, R. J., & Hooley, J. M. (2007). Cognitive aspects of nonclinical obsessive-compulsive hoarding. Behaviour Research and Therapy, 45(7), 1657-1662.

Luyten, P., Sabbe, B., Blatt, S. J., Meganck, S., Jansen, B., De Grave, C. (2007). Dependency and self-criticism: Relationship with major depressive disorder, severity of depression, and clinical presentation. Depression and Anxiety, 24(8), 586-596.

Mackin, R. S., Areán, P. A., Delucchi, K. L., & Mathews, C. A. (2011). Cognitive functioning in individuals with severe compulsive hoarding behaviors and late life depression. International journal of geriatric psychiatry, 26(3), 314-321.

Maier, T. (2004). On phenomenology and classification of hoarding: a review. Acta Psychiatrica Scandinavica, 110(5), 323-337.

Manela, M., Katona, C., & Livingston, G. (1996). How common are the anxiety disorders in old age? International journal of geriatric psychiatry, 11(1), 65-70.

Marx, M. S., & Cohen-Mansfield, J. (2003). Hoarding behavior in the elderly: a comparison between community-dwelling persons and nursing home residents. International psychogeriatrics, 15(03), 289-306.

Mataix-Cols, D., Frost, R. O., Pertusa, A., Clark, L. A., Saxena, S., Leckman, J. F. (2010). Hoarding disorder: a new diagnosis for DSM-V? Depression and anxiety, 27(6), 556-572.

Mataix-Cols, D., & Pertusa, A. (2012). Annual Research Review: Hoarding disorder: potential benefits and pitfalls of a new mental disorder. Journal of Child Psychology and Psychiatry, 53(5), 608-618.

Mueller, A., Mitchell, J. E., Crosby, R. D., Glaesmer, H., & De Zwaan, M. (2009). The prevalence of compulsive hoarding and its association with compulsive buying in a German population-based sample. Behaviour Research and Therapy, 47(8), 705-709.

Nordsletten, A. E., Reichenberg, A., Hatch, S. L., de la Cruz, L. F., Pertusa, A., Hotopf, M. (2013). Epidemiology of hoarding disorder. The British Journal of Psychiatry, 203, 445-452.

O'Sullivan, S. S., Djamshidian, A., Evans, A. H., Loane, C. M., Lees, A. J., & Lawrence, A. D. (2010). Excessive hoarding in Parkinson's disease. Movement Disorders, 25(8), 1026-1033.

Pertusa, A., Fullana, M., Singh, S., Alonso, P., Menchón, J., & Mataix-Cols, D. (2008). Compulsive hoarding: OCD symptom, distinct clinical syndrome, or both? American Journal of Psychiatry, 165(10), 1289-1298.

Poythress, E. L., Burnett, J., Naik, A. D., Pickens, S., & Dyer, C. B. (2007). Severe self-neglect: An epidemiological and historical perspective. Journal of Elder Abuse & Neglect, 18(4), 5-12.

Reid, J. M., Arnold, E., Rosen, S., Mason, G., Larson, M. J., Murphy, T. K. (2011). Hoarding Behaviors among Nonclinical Elderly Adults: Correlations with Hoarding Cognitions, Obsessive-Compulsive Symptoms, and Measures of General Psychopathology. Journal of Anxiety Disorders.

Reinisch, A. I. (2009). Characteristics of six recent animal hoarding cases in Manitoba. The Canadian Veterinary Journal, 50(10), 1069.

Rimes, K. A., & Watkins, E. (2005). The effects of self-focused rumination on global negative self-judgements in depression. Behaviour Research and Therapy, 43(12), 1673-1681.

Samuels, J., Bienvenu, O. J., Grados, M. A., Cullen, B., Riddle, M. A., Liang, K. (2008). Prevalence and correlates of hoarding behavior in a community-based sample. Behaviour Research and Therapy, 46(7), 836-844.

Schroepfer, T., & Ingersoll-Dayton, B. (2001). Caregiver mastery of hoarding behavior in a patient with dementia. Clinical gerontologist, 22(3-4), 109-135.

Stein, D. J., Laszlo, B., Marais, E., Seedat, S., & Potocnik, F. (1997). Hoarding symptoms in patients on a geriatric psychiatry inpatient unit.

Steketee, G., & Frost, R. O. (2003). Compulsive hoarding: Current status of the research. Clinical psychology review, 23(7), 905-927. doi: http://dx.doi.org/10.1016/j.cpr.2003.08.002

Steketee, G., Frost, R. O., & Kyrios, M. (2003). Cognitive aspects of compulsive hoarding. Cognitive Therapy and Research, 27(4), 463-479.

Steketee, G., Schmalisch, C. S., Dierberger, A., DeNobel, D., & Frost, R. O. (2012). Symptoms and history of hoarding in older adults. Journal of Obsessive-Compulsive and Related Disorders, 1(1), 1-7.

Thomas, N. D. (1998). Hoarding: Eccentricity or pathology: When to intervene? Journal of Gerontological Social Work, 29(1), 45-55.

Tolin, D. F., Frost, R. O., & Steketee, G. (2007). An open trial of cognitive-behavioral therapy for compulsive hoarding. Behaviour Research and Therapy, 45(7), 1461-1470.

Tolin, D. F., Frost, R. O., Steketee, G., Gray, K. D., & Fitch, K. E. (2008). The economic and social burden of compulsive hoarding. Psychiatry research, 160(2), 200-211.

Tolin, D. F., Meunier, S. A., Frost, R. O., & Steketee, G. (2010). Course of compulsive hoarding and its relationship to life events. Depression and anxiety, 27(9), 829-838.

Turner, K., Steketee, G., & Nauth, L. (2010). Treating Elders With Compulsive Hoarding: A Pilot Program. Cognitive and Behavioral Practice, 17(4), 449-457.

Visser, H. A., van Oppen, P., van Megen, H. J., Eikelenboom, M., & van Balkom, A. J. (2014). Obsessive-compulsive disorder; chronic versus non-chronic symptoms. Journal of Affective Disorders, 152, 169-174.

Volpato Cordioli, A., Heldt, E., Braga Bochi, D., Margis, R., Basso de Sousa, M., Fonseca Tonello, J. (2003). Cognitive-behavioral group therapy in obsessive-compulsive disorder: a randomized clinical trial. Psychotherapy and Psychosomatics, 72(4), 211-216.

Ward, E., King, M., Lloyd, M., Bower, P., Sibbald, B., Farrelly, S. (2000). Randomised controlled trial of non-directive counselling, cognitive-behaviour therapy, and usual general practitioner care for patients with depression. I: Clinical effectiveness. BMJ, 321(7273), 1383-1388.

Whitfield, K. Y., Daniels, J. S., Flesaker, K., & Simmons, D. (2012). Older Adults with Hoarding Behaviour Aging in Place: Looking to a Collaborative Community-Based Planning Approach for Solutions. Journal of Aging Research.

Review Aims	Number of Articles
Prevalence	10
Risk Factors and Demographics	12
Age of Onset and Chronicity	8
Dementia, Memory and Cognitive Decline	12
Extent of Hoard and Severity of Symptoms over Time	7
Stressful Life Events	8
Help-seeking Behaviours	11

Table 1. The number of reviewed articles reporting or discussing information pertaining to each of the aims of the present review.

Review Question	Summary of findings
What is the prevalence of hoarding in older adults, and how does this fit with the idea of 'anxiety burnout'?	This question cannot be confidently answered at present due to the lack of consistency in both hoarding definitions and the control of age-related risk factors for anxiety problems. Wider use of the DSM-5 criteria may provide more consistency across studies.
What are the common demographic features of older adults with hoarding problems?	There is reasonable consistency in the literature around the following factors: female gender, widowed/divorced/never married, living alone, social isolation, health problems, and estrangement from family. While this increases confidence in our understanding around this, controlled studies with the ability to partial out age-related factors are needed.
Is hoarding in later life predominantly a chronic problem with an early age of onset, or is late-life onset common?	It can be stated that many older adults with hoarding difficulties have an early onset of symptoms. There is some support for the notion of late onset hoarding (approximately age 50). Clarity on the definition of onset is required, as are controlled studies with participants who have experienced onset of symptoms more recently.
Is there evidence to suggest that age-related cognitive decline is associated with an increase in hoarding symptoms?	While there is some, but mixed, evidence suggesting cognitive deficits in older adults with hoarding problems, no studies have effectively examined change in hoarding symptoms over time in clinical samples. Hoarding can occur in the context of neurodegenerative conditions. Longitudinal or cross sectional (by age) studies would help to address this question.
Are hoarding difficulties in later life more severe? Is this due to progressive accumulation of items over time, or are motivating beliefs and anxieties also stronger?	These questions cannot be answered with confidence at present due to a lack of studies. It is thought that hoards do generally increase over time, but insufficient research attention has been given to the beliefs and cognitions underpinning hoarding, and how these may develop over time.
Is there a link between stressful life events and later-life hoarding?	While stressful life events are commonly reported among the reviewed studies' participants, no clear mechanism linking these to hoarding difficulties is shown consistently. It may be that a stressful event is sufficient but not necessary to trigger hoarding, but work to explore whether the perceived link is an artefact is suggested.

What are the help seeking behaviours within this group?	We can be confident stating that direct help-seeking from older adults with hoarding problems is rare, and that most people come to the attention of services through other agencies. More tentatively, it seems that frequently hoarding is not seen as problematic by the person involved. It would be helpful for studies to examine further the prevalence of, triggers for, and barriers against, help-seeking.

Table 2. Summary of findings relating to each of the review questions.