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Stereotypes, stereotype threat and ageing: implications for the understanding and treatment of people with Alzheimer's disease

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ABSTRACT
Over the past 15 years, a growing body of research has shown that people with Alzheimer's disease (AD) are affected not only by brain neuropathology but also by their reactions to its effects, by the environments in which they live, and by how they are treated by others. Nevertheless, three relatively neglected social influences on people with AD remain to be examined: negative stereotyping, negative self-stereotyping and stereotype threat. Numerous studies reviewed in this paper indicate that: (1) negative self-stereotypes at conscious and unconscious levels can have adverse effects on the performance of healthy elderly people on tasks demanding explicit memory (recall in particular), and (2) the mere threat of being stereotyped negatively can have adverse effects on the performance of healthy elderly people on tasks including those involving memory. In this paper, we discuss the relevance of these phenomena for our understanding and treatment of people with AD who are exposed to negative stereotypes about old age and about AD before and after they are diagnosed. There is evidence to suggest that these influences may have significant effects on people with AD. The paper concludes with recommendations for best practice in the treatment of people with AD in the light of the most apparent effects of negative self-stereotyping and stereotype threat. These include advocacy for an approach that involves aspects of counselling.

KEY WORDS – dementia, stigma, positioning theory.

Introduction

Although from a biomedical point of view, the dysfunction in cognitive abilities observed in persons diagnosed with dementia, particularly Alzheimer's disease (AD), is ascribed to neuropathology in the brain, in recent years it has increasingly been noted that psychosocial factors also play an important role (Kitwood 1987, 1997; Snyder 1999; Sabat 2001; Harris 2002; Keady and Nolan 2003). The psychosocial factors include

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the person's reaction to the effects of neuropathology, the ways in which others behave toward the person diagnosed, and how persons diagnosed react to how they are treated (Sabat 2001). More specifically, the treatment accorded to the person with AD can have a profound effect on his or her: (a) subjective experience, (b) ability to display cognitive abilities that remain intact, (c) ability to meet the demands of everyday life, and (d) quality of life and ability to live meaningfully.

When healthy others behave in ways classifiable as 'malignant social psychology' (Kitwood 1997) and 'malignant positioning' (Sabat 2003; 2006), people with AD can become depersonalised, depressed and angry, and can lose their senses of self-worth and agency. Their problems with aspects of memory, linguistic communication and other cognitive abilities can be exacerbated, thereby creating what Brody *et al.* (1971) called, 'excess disability'. Conversely, reducing or eliminating the depersonalisation of people with AD and the ramifications thereof require, as Kitwood noted, that carers evince qualities such as 'recognition', which is 'an open and unprejudiced attitude, free from tendencies to stereotype or pathologise'; and 'validation', which occurs when the carer 'goes beyond his or her own frame of reference, with its many concerns and preoccupations, in order to have an empathic understanding of the other' (Kitwood 1997: 119–20).

The adverse effects of negative self-stereotyping and stereotype threat with regard to ageing in physically healthy people have been well documented, but there has been lamentable little attention to, and research concerning, the effects of these processes on people with AD. Such research is required because: (a) the number of people with AD will grow as the life expectancy of the general population increases, (b) people with AD may be particularly vulnerable to both these phenomena, and (c) our understanding of the effects of AD and our efforts to treat those who are thus diagnosed may thereby be informed in important ways. Though the mechanisms by which these processes operate are not completely understood, current findings suggest that they may pose a particularly difficult challenge to people with dementia.

Reducing and eliminating the tendencies to stereotype and self-stereotype in negative ways, and the threat of being negatively stereotyped, require that we understand: (1) how they come about, (2) how they can operate both in obvious and subtle or implicit ways, and (3) their effects on people with AD. If we raise our understanding of these processes, we will be in a far better position to interpret more accurately the results of cognitive assessments of such people (because an extremely important question remains unanswered: do decrements in performance on standard neuropsychological tests reflect only the neuropathology of AD or also the effects of psychosocial factors?), and to enhance the efforts

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of family members and formal carers in supporting and caring for those with the condition. That is, by understanding the effects of stereotyping, negative self-stereotyping, and stereotype threat, and then reducing their incidence, we may be able to improve the treatment of people with AD and enhance their those of day-to-day lives and their carers. This paper explores these issues in detail by reviewing the current literature on stereotyping and stereotype-threat with reference to ageing, and by applying the results to the predicament of people with AD. By deepening our understanding of the social and personal predicament of people with dementia, we can move towards what Kitwood (1997) called 'an empathic understanding of the other'.

How do stereotypes work?

Numerous theories have been proposed about the genesis and effects of stereotypes. For example, both ego justification and group justification, or the notion that people consciously form positive stereotypes about themselves or their groups, have been claimed to explain the formation of stereotypes (Allport 1958; Freud 1966; Jost and Banaji 1994; Tajfel 1981). Levy (1996), in contrast, proposed that positive or negative self-stereotypes are often acquired unconsciously. Banaji, Hardin and Rothman (1993) were the first to recognise formally the existence of implicit stereotyping, which they described as the unconscious activation of stereotypes in the laboratory. This is achieved by presenting words associated with stereotypes on a computer-screen quickly enough to prevent their conscious awareness in the mind of the viewer. It has also been shown that many people express these implicit stereotypes only when they are activated unconsciously (Banaji, Hardin, and Rothman 1993; Devine 1989; Eberhardt 1993).

What are self-stereotypes of ageing and how are they acquired?

With the rising number and percentage of people aged 65 or more years, stereotypes of ageing and old age and their effects on older adults are currently of great interest and importance. Levy (1996) neatly summarised the findings of many studies about the formation of self-stereotypes. Children adopt stereotypes about older people, which are then reinforced throughout adulthood, often without the person's knowledge. The stereotypes then become self-stereotypes when a person reaches old age. Stereotypes of ageing and old age seem to form in childhood (DePallo *et al.*

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1995; Isaacs and Bearison 1986) and to stem from environmental influences including the family, other care-givers, television and other media (Allport 1954). Zhang *et al.* (2006) examined the portrayal of older adults in advertising in the United States, Great Britain, Germany, India and China and found that: (a) in the US, older people were under-represented in advertising relative to their representation in the population and, more specifically, older women were exceptionally under-represented in magazine advertisements, (b) older people were portrayed less positively than other age groups, (c) commercials geared for people over 45 years of age depicted people over 65-years-of-age as helpless, impaired, weak, lazy and less well informed than younger people. Even positive portrayals of older people often focus on illness (Raman *et al.* 2006).

These stereotypes may result from information that people encounter briefly and appear to dismiss quickly (Langer 1989). In the United States, people tend to have more negative stereotypes of old age although there are also some positive stereotypes (Brewer, Dull and Lui 1981; Kite and Johnson 1988; Levy and Langer 1994). Levy (1996) asked subjects to locate positive and negative ageing primes (or prompts) on a screen by using keyboard arrows, and showed that both old and young participants took longer to identify the positive primes, which suggests that both age groups were more familiar with the negative stereotypes. The negative stereotypes of ageing persist even if an individual has positive interactions with older people, for those encountered are viewed as 'exceptions to the rule' (Levy and Banaji 2002). Negative stereotypes are often reinforced in North America and Europe by many manifestations in the social environment, including notions that older people are dysfunctional, unreliable and in many ways unable to care for themselves (Dijksterhuis and van Knippenberg 1998; Levy *et al.* 2000; Murphy, Monahan, and Zajonc 1995; Palmore 1999).

It is not surprising, then, that many researchers have found that American children perceive old age in a negative way (Seefeldt *et al.* 1977), and that many are unaware of their own stereotyping (Perdue and Gurtman 1990). Implicit age stereotypes are easily activated by common cues, such as the voice of an older person, and prompt unthinking reactions, such as younger people's over-accommodating talk with older people (Giles *et al.* 1992). Making ageing salient contributes to the self-stereotyping process of what the authors call 'instant ageing', which leads an older person to look, move, sound and talk older than they would in a context in which age is irrelevant (Giles and Condor 1988).

Not only are many people unaware of age stereotypes in the culture, many are unaware of the stereotypes that they themselves hold (Devine 1989; Fazio *et al.* 1995; Nosek, Banaji and Greenwald 2002*a*). A person's

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implicit stereotypes are often disconnected from what they explicitly believe (Devine 1989; Nosek, Banaji and Greenwald 2002*b*; Rudman and Glick 2001). A person may never explicitly express negative stereotypes but, when subliminally exposed to stereotypical words, reveal their implicit stereotypes (Devine 1989). Though there are both positive and negative stereotypes of ageing (Brewer, Dull and Lui 1981; Kite and Johnson 1988; Levy and Langer 1994), the negative stereotypes are more likely to be implicit (Nosek, Banaji and Greenwald 2002*b*). Moreover, according to Zajonc's (2001) 'mere exposure' effect, repeated exposure to implicit stimuli may have a stronger effect than repeated exposure to explicit stimuli. Implicit negative stereotypes of ageing are also difficult to counteract because people will not try to change something of which they are unaware (Levy 1996).

Sherif (1953) demonstrated that the classification of a person by a group or in society is 'artificial' because the person does not necessarily accept the classification. Perhaps the stereotype does not become a self-stereotype until the person actually classifies him or herself in that way (whether this happens explicitly or implicitly). For people diagnosed with probable AD, it may be difficult to avoid considering themselves as part of the group stereotyped as dysfunctional. It is also challenging for healthy others to avoid making negative attributions regarding older people, especially when most of their encounters are with those who attend clinics and the like.

The importance of context

In a recent and welcome in-depth analysis of a German sample, Kruse and Schmitt (2006) presented a multidimensional scale by which the salience of age can be measured in social interactions, thereby shedding light on age-related stereotypes or 'sets of beliefs'. The authors noted that our beliefs about the attributes of people in particular social groups 'influence [our] perceptions, judgements, and behaviour in ways that depend upon the social context, because the context modifies the relevance of those beliefs' (2006: 395). Accordingly, in our view, hospital and memory clinics are fertile ground for the activation, among those who assess 'patients', of negative stereotypes of older people as being ill and dysfunctional. Kruse and Schmitt noted the extent to which people at different ages subscribed to statements that were age-salient, and found that the oldest in their study, aged 65–75 years, agreed more strongly than did those aged 45–64 years that 'older people are a burden on society'. This suggests that the oldest people were the most likely to concur with negative stereotypes, possibly because the contexts of hospital and memory clinics or other medical facilities raise the salience of age-related stereotypes and pessimistic

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beliefs. Those in the German national sample were not identified as having health-related problems such as dementia, and the authors clearly did not employ questions that tapped the attitudes and beliefs of their sample about AD or other dementias. We propose nonetheless that the findings pertain to people who are beginning to manifest some signs of memory difficulties and those diagnosed with mild cognitive impairment (MCI) or AD.

The following case study reported by Corner and Bond (2006) is illustrative. Rose, a 65-year-old woman who experienced memory lapses, was told by one physician that she was experiencing 'normal ageing', and by another a few months later that she had mild cognitive impairment. Though she did not feel any different, she was sent to memory groups and clinics 'with other folk who you know were just like vegetables. … I mean it's saying "that's going to be you in a few years"' (Corner and Bond 2006: 8). Though Rose did not initially count herself among the group of people she described as 'vegetables', she was clearly threatened by her future. Perhaps such self-classification could have been avoided if: (a) her physician had not told her that she had mild cognitive impairment, and/or (b) she did not then attend memory groups and clinics with people who were far more impaired. Clearly, physicians are heavily involved in deciding these matters, and the ethical issues entailed in diagnosing people with mild cognitive impairment are hardly settled (Whitehouse and Moody 2006). In order to make the best decision, it is important to consider the potential harm of self-stereotyping and stereotype threat on memory performance.

How stereotypes are harmful: self-stereotyping and memory performance decrements

Many older adults believe that their memory declines in old age (Hertzog, Dixon and Hultsch 1990), and feel helpless in preventing its decline or improving its performance (Lachman 1991). They tend to attribute memory deficits or difficulties to dispositional rather than situational factors like poor effort (Blank 1982; Lachman and McArthur 1986; Weaver and Lachman 1990). The poor perception of one's own memory can lead to many other problems, such as dependency, the avoidance of situations requiring good memory function, unnecessary medical attention, medication, depression, anxiety, and decreased effort and motivation to use memory (Bandura 1989). Low confidence and perceived helplessness to prevent further memory decline contribute to poor performance on recall tasks (Berry, West and Dennehey 1989; Hertzog, Dixon and Hultsch 1990; Lachman, Steinberg and Trotter 1987), and on tests such as the Mini

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Mental State Examination, which has many items that require recall (Folstein, Folstein and McHugh 1975).

How do beliefs about poor memory in old age contribute to poor performance on memory tests? Levy and Langer (1994) found that scores on recall tasks (*i.e.* recalling the pattern of seven dots on a grid and recalling the sentences previously paired with photographs) were different for three culturally different samples (mainland Chinese, Americans with hearing difficulties, and Americans with unimpaired hearing) of old and young people when unaware that they were taking memory tests. Among the old participants, the mainland Chinese performed best on the memory tests, followed by the Americans with hearing difficulties – interestingly, the Chinese had the most positive views of ageing. Furthermore, there were no significant differences in the performances of the old and the young Chinese participants even though recall is often impaired in old age (Schacter, Kaszniak and Kihlstrom 1991). Therefore, the Americans' negative stereotypes of ageing were said to have had a detrimental effect. Given that people with probable AD have recall problems too, it may be that negative stereotypes of ageing exacerbate their recall difficulties. If negative self-stereotypes add to the recall problems of people with probable AD, it may be prudent to find ways that would: (1) allow such people to change their negative self-stereotypes, or (2) not create circumstances that would activate such self-stereotypes.

Changing self-stereotypes

Positive alterations in self-stereotypes have been attempted through explicit as well as implicit interventions. Lachman *et al.* (1992) compared the performance of older adults on memory tasks of four kinds: (1) subjects who were taught through cognitive restructuring that they have some control over the decline of their memories, (2) those taught skills to improve memory, (3) both (1) and (2), and (4) those given practice on memory tasks. There was also a control group with no intervention. Each kind of training explicitly attempted to alter the subjects' negative self-stereotypes about their memory, and each group improved their memory performance to the same extent. Those in Group 3, however, had the greatest increase in perceived control over their ability to improve their memory, suggesting that they developed a more internal locus of such control, which may protect against stereotype threat.

Levy (1996) attempted to alter negative self-stereotypes of old age using two explicit and one implicit intervention with older adults. The explicit interventions were false positive feedback with either *internal attribution* for

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memory (*i.e.* telling subjects that better results on tests occurred because their memories were better than they thought), or *external attribution* for memory (*i.e.* telling subjects that they were exposed to memory enhancing light). Neither improved the subjects' memory performance. On the other hand, the implicit intervention, subliminally flashing positive stereotypes of ageing on a computer screen for 10 minutes, improved memory performance 20 minutes later.

Levy (1996) also claimed that memory performance was affected after implicitly altering stereotypes of ageing only if the person could relate to the stereotype, that is, if it was a self-stereotype. In support of her claim, she showed that the performance of the older participants improved in four out of five memory tasks following positive ageing-related primes, and that it decreased in four out of five memory tasks following negative ageing-related primes. The performance of young participants, however, actually improved on two of five memory tests (learned recall and photo recall tasks) following negative primes because, according to the author, the young participants saw themselves in a more positive light than older people when presented with a negative old-age prime. The young participants predicted that they would perform better on memory tests following negative old-age primes and worse on memory tests following positive old-age primes (*i.e.* wisdom), because in the latter case they felt inferior. Contrary to the claim that priming affects memory performance only if the person can relate to the stereotype activated, in Levy's study the primes that activated old-age stereotypes did alter the performance of young participants. This suggests that activation of a stereotype about a group other than one's own can affect performance. Of course, 'relating to' a stereotype can also mean feeling better, because one is not part of the negatively stereotyped group. Rose, discussed previously, could thus be negatively affected by implicit stereotypes of people with mild cognitive impairment (MCI), dementia, and/or memory dysfunction even if she managed to escape the forced self-classification as a member of those groups.

The effects described by Levy (1996) have not found unequivocal support. Although Stein, Blanchard-Fields and Hertzog (2002) also found that using a negative age stereotype as a prime undermined performance on a photo-recall task, the same effect was not found on a task that required recall of the location of dots on a grid. Furthermore, contrary to Levy's findings, Stein and colleagues showed that using a positive age stereotype prime did not increase older adults' memory performance. They suggested, however, that the positive age stereotypes that they and Levy used as primes were not specific to good memory (the primes were 'accomplished', 'wise', 'creative', 'guidance' and 'insightful'), and that there may have been practise effects.

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For the present purpose, it is worth noting that Levy (1996) employed the following words as negative stereotype primes: 'Alzheimer's', 'senile', 'forgetful' and 'dying', while Stein, Blanchard-Fields and Hertzog (2002) employed 'Alzheimer's', 'decline', 'dependent', 'senile', 'misplaces', 'dementia', 'confused', 'decrepit', 'incompetent', 'dying' and 'diseased'. The researchers thereby give unequivocal credence to the idea that negative stereotypes are indeed associated with the very attributes under discussion. If these words are laden with 'negativity', the question arises as to whether or not adults who have been exposed to decades of negative connotations associated with AD, dementia and old age, and who now are probably diagnosed with AD, are susceptible to the effects of negative self-stereotyping and to stereotype threat. Sterin (2002), in a discussion of her own lived experience of AD, indicated compellingly the derogatory, depersonalising, dehumanising effects of terms such as 'demented'. Likewise, Dr M, a 75-year-old woman in the moderate to severe stage of 'probable AD', described the depersonalising way she was treated by a support group leader when she or he first discovered that Dr M was 'a group person' rather than 'a person' (*viz.* a healthy spouse carer) (Sabat 2001). The second author interviewed Dr M weekly over two years, during which time she described in detail her experience of having AD, wondering if it was 'more embarrassing than having a sexual disease'. There are many other examples in the literature of people in the mild as well as moderate to severe stages of AD who are adversely affected by negative stereotypes (Kitwood 1997; Snyder 1999; Husband 2000; Sabat 2001, Sabat *et al.* 2004). Words such as 'forgetful', 'dependent', 'confused' 'senile' and 'Alzheimer's' all call attention to attributes that are anathema to such people, even though these same people, have many positive, valued attributes in which they take pride.

Coping with negative stereotypes: the contribution of control theory

Coping with the adverse effects of negative stereotypes is not a simple matter for people with AD. Examining the problem in light of the notions of primary and secondary control (Heckhausen and Schulz 1995) is instructive. Primary control refers to a person's attempt to 'change the world', so as to conform to his or her own needs, whereas secondary control refers to internal processes the goal of which is to 'minimize losses in, maintain, and expand existing levels of primary control' (1995: 284). People with AD clearly experience losses in primary control through the effects of brain injury and social constraints fuelled by negative stereotypes and malignant positioning that are imposed by healthy others (Sabat

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2001). So to what degree can such people employ secondary control? It is through secondary control that a person buffers the effects of losses in primary control by: (a) adjusting one's goals to take into account the losses they experience in primary control, or (b) using downward social comparison whereby they feel better about their circumstances by comparing themselves to imagined others who are worse off (Wills 1981). Within the framework of the theory of control, it might be argued that: (a) the effects of negative stereotypes offer possibilities for secondary control, and (b) a perspective of enhanced competence regarding old age might serve to impair self-esteem among those who suffer from AD or other severe deficits.

The use of downward social comparison by people who have a degenerative illness such as AD can be complicated because, although others are worse off than an individual, that person is keenly aware that his or her condition will inexorably deteriorate with time. Thus, the effect of downward comparison, even if positive, will be transitory. In addition, there is the problem that people with AD can compare their present and reduced abilities to their former abilities when healthier (Sabat 2000, 2001). This comparison may offer little solace because the person with Alzheimer's disease is aware of and frustrated about his or her own personal predicament, irrespective of others' predicaments. On the other hand, the use of another form of secondary control, adjusting one's goals to account for losses in primary control, is a distinct possibility, but often requires facilitation from carers.

Steele and Aronson (1995) suggested that reducing the frustration experienced (a type of secondary control) while performing stereotyped tasks may reduce stereotype threat. Several strategies can be employed by people with dementia to reduce their frustration with memory retrieval. Because there is often more than one way to perform a task or communicate an idea, Sabat (2001) suggested that people with dementia who have word-finding problems be encouraged to use extra-linguistic forms of communication. An example can be seen in the following exchanges with Dr M, who throughout her life had been exceptionally literate. She found her present word-finding problems anathema, and they led her to be less and less willing to speak. She was, therefore, encouraged to use mime and gestures, as when trying to describe an aspect of her son's life. She said, 'he's very, uh', and then made large 'busy' movements with her arms. The interviewer suggested, 'active', to which Dr M replied, 'Exactly … who need words?' and laughed heartily (Sabat 2001: 86). Dr M was encouraged to adjust her methods of interpersonal communication and thereby was able to exercise secondary control.

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One can also encourage circumlocution, describing a word without using the word itself. The second author said to Dr M, 'You may have trouble finding the word, "physician", and so you'll say, "the person who takes care of me when I'm having any problem physically"' (Sabat 2001: 74). Although some view circumlocution as pathological, it can be of great value in maintaining communication. Another form of secondary control entails the use of diaphragmatic breathing – inhalation from the diaphragm rather than the thoracic area of the chest – to decrease arousal when one is unable to perform a desired task (Rosenbaum 1989). Teaching people with AD forms of secondary control to reduce their frustration may also reduce the effect of negative self-stereotyping and thereby enhance performance.

Another method of avoiding the negative effects of stereotype threat may be to reduce factors such as anxiety and an external locus of control, both of which increase one's vulnerability to stereotype threat. Anxiety and frustration operate together, so the strategies used to reduce frustration may also reduce anxiety. Many means of increasing the internality of one's locus of control have been examined. Though the cognitive restructuring and memory improvement skills that Lachman *et al.* (1992) taught to older people did not reduce self-stereotyping, it is likely that such skills would reduce stereotype threat through their ability to increase a person's perceived control over his or her life. Amrhein, Bond and Hamilton (1999) and Rodin (1980) found that they were able to increase internal locus of control by giving people more responsibility and control over personal decisions.

In a similar manner, Sabat (2001: 153) explained to Dr M how she could share her thoughts with a support group despite her word-finding difficulties: 'It's taking a certain amount of control. *Taking* the control for yourself. If someone else has not given you the opportunity or doesn't seem to understand that you need time to develop, to find, the words that you want to use, then *you* have to say, "Wait a minute, bear with me, please don't interrupt, I'll get to it, you have to be patient"'. Dr M readily took this advice and *was* able, with some supportive encouragement, to take primary control (Heckhausen and Schulz 1995) over the situation in the support group and thereby express her thoughts. Many people with AD may not be as capable as Dr M. in *taking* control over (or exercising primary control in) their lives, and so care-givers, family, friends and health-care professionals should wherever possible consider *giving* people with AD more responsibility over their own lives. This increased responsibility may, as Amrhein, Bond and Hamilton (1999) and Rodin (1980) have suggested, help develop a more internal locus of control that may reduce the negative effects of stereotype threat.

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Stereotype-threat theory

Steele and Aronson (1995) proposed a theory of stereotype threat, which suggests that mere awareness of the existence of a stereotype pertaining to a group with which one identifies can have a negative effect on subsequent performance. Specifically, one's performance may become worse than that of non-stereotyped groups on a task in the stereotyped domain through a fear of either being stereotyped or of perpetuating an existing stereotype. The authors have demonstrated that African-Americans performed worse on tests of intellectual performance than White-Americans when the test was said to measure intellectual performance as opposed to psychological factors in test performance. The authors claimed that because the stereotype threat tested performance explicitly in the stereotyped domain (intellectual performance), regardless of whether or not the African-Americans believed the stereotype, they were subject to stereotype threat because they were aware of the negative stereotypes of the performance of African-Americans on tests of intellectual performance. If performance decrements associated with stereotype threat result from a person's reaction to a particular social context, changing either that person's reaction or the context may reduce stereotype threat.

Similarly, case studies of people with AD have shown that performance appears to be linked to the social context in which it occurs (Kitwood 1990; Sabat 1991*a*, 1991*b*; Sabat and Harré 1992). Brody *et al.* (1971) coined the term 'excess disability' to describe the additional functional incapacity, not directly resulting from physical impairment, that people experience. Because the effects of AD do not stem solely from neuro-pathology (Tomlinson, Blessed and Roth 1970; Homer *et al.* 1988; Kitwood 1987, 1990, 1997), Sabat (1994) suggested that disability is exacerbated by dysfunctional social interactions, which Kitwood (1990) termed malignant social psychology. By activating negative stereotypes of their memory capacities, stereotype threat may contribute to the disability experienced by people with AD in this way. The awareness of and a reaction to stereotype threat may be seen in the following extract from a conversation between the second author and Dr M, who described her initial experience of a support group for people with AD:

> When I came into the programme there, the person (one of the group leaders) thought I was a … a person, not a group person. … And then when she found out that I had *that*, … I was feeling very bad about it, and … because she said, 'I'll, I'll talk to your hu … husband.' And I got out and said, 'I, I don't want to be in it at first. I have to think about it and do this. What's in it for me?' That's awful.

That is, the co-leader of the group initially thought that Dr M was 'a person' and not someone who was a 'group person'. The moment it

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became clear that Dr M had 'that' (AD), the co-leader abruptly ceased speaking with Dr M and announced that she would speak with Mr M (who was 'a person'). The conjunction of the two events produced great distress in Dr M, for the response to her was quite different once the fact of her diagnosis became clear to the co-leader of the group.

Steele and Aronson (1995) examined the role of frustration in stereotype threat. They claimed that it arose when it was thought that the stereotype was true and therefore a threat to the individual, and the outcome was that performance was compromised in several ways. In support, they cited evidence that attention shifts from the task (*e.g.* Sarason 1972; Wine 1971), that lowered expectations lead to reduced effort on tasks (*e.g.* Bandura 1977, 1986), that stereotyping reduces the cues available to participants (*e.g.* Easterbrook 1959), of being overcautious (Geen 1985), and of interference with self-consciousness (*e.g.* Baumeister 1984). These processes may occur together or in succession (Steele and Aronson 1995).

Further elucidation of the impact of stereotype threat on memory performance is provided by Hess *et al.* (2003), who found that the presence of negative stereotypes was a necessary but not sufficient condition for reduced memory performance among older adults. More specifically, they found that performance was also affected by the value that the subjects placed on their memory ability; the strongest negative effect was among those who had significant personal investment in their memory abilities. Furthermore, it was found that stereotype threat affected performance even when there were no explicit connections to stereotypes about old age. The effects observed may be linked to the declining use of clustering, an important strategy by which successful recall of category items is accomplished, and this was especially true in the cases of subjects for whom memory ability was highly valued. The authors proposed that stereotype threat might disrupt memory performance by increasing the subjects' anxiety or disruptive thoughts that, in turn, adversely affected the selection and use of appropriate strategies. They further noted that:

> The normal laboratory testing situation might induce stereotype threat [and] ads used to recruit research participants for research on aging and the instructions given in studies of memory may activate negative stereotypes resulting in older adults feeling threatened in such testing situations … findings emphasize both the important impact that factors associated with the assessment context can have on performance and the necessity for researchers to consider the role that such factors play in their own studies of aging and memory (Hess *et al.* 2003: 9–10).

Congruent with these observations, Kruse and Schmitt (2006) identified the contexts that stimulate age salience. People with AD who have highly-valued particular cognitive abilities, as for example memory, may be affected adversely by stereotype threat in the clinical testing situation even if

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negative stereotypes are not explicitly presented. Further research is warranted in this domain, for the results of neuro-psychological assessments (of people with AD, for example) may be affected negatively by: (a) situational factors including the testing environment and how it generates stereotype-threat effects, and (b) stereotyping by physicians and neuropsychologists, rather than solely by the effects of brain injury.

As hippocampus damage has adverse effects on explicit memory (recall and recognition), people with AD may be susceptible to stereotype threat because they experience frustration with recalling information beyond that of otherwise healthy people of the same age. Dr B, a 68-year-old man with moderate to severe probable AD, was interviewed by the second author weekly over nine months. While describing the frustration of living with AD, he said;

Dr B Well, some people will go ahead and, and just, uh, kill themselves. … Everything that dominates me now is Alzheimer's … I think about the delumision (diminution), you know, of what I've been able to do and what I may, may never do.
SS Is that very frustrating?
Dr B Ya, and not to be able to do anything about it, anything. (Sabat 2001: 30–1, 33).

The negative stereotyping of Dr B was apparent in an internist's comment, 'treating an Alzheimer's patient is like doing veterinary medicine'. How that belief affected the internist's interactions with Dr B, how Dr B may have reacted, nor the prevalence of such stereotypes among physicians and other practitioners was not explored.

Factors that increase vulnerability to stereotype threat

Anxiety

Stereotype-threat theory assumes that performance decrements arise from the pressure created by negative stereotypes of a group to which one belongs (Steele 1997; Steele and Aronson 1995). Several researchers have shown that stereotype threat creates performance deficits and raised self-reported anxiety (Aronson *et al.* 1999; Spencer, Steele and Quinn 1999; Stone *et al.* 1999). There is also evidence, however, that levels of self-reported anxiety do not differ in stereotype threat and control conditions (Gonzales, Blanton and Williams 2002; Schmader 2002; Schmader and Johns 2003; Steele and Aronson 1995). Blascovich *et al.* (2001) showed that many physiological changes associated with anxiety, such as increases in blood pressure, occur under stereotype-threat conditions. Additionally,

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reducing anxiety by using cues that misattribute physiological arousal (Stone *et al.* 1999) appears to reduce the negative effects of stereotype threat on performance (Schmader and Johns 2003).

A wealth of research suggests that 25 to 60 per cent of non-hospitalised people with AD experience symptoms of anxiety, including irritability, agitation, sleep disturbances and excess motor stimulation, and that both hospitalised and non-hospitalised people with AD experience more anxiety than older people without the condition (Mega *et al.* 1996; Orrell and Bebbington 1996; Reisberg *et al.* 1987; Wands *et al.* 1990; Teri *et al.* 1992). The increased level of anxiety experienced by people with AD may exacerbate their vulnerabilities to stereotype threat, compromising their performance on standard neuro-psychological tests.

Locus of control

To understand how stereotype threat affects older people, it is important to look at personality factors associated with old age such as locus of control (Lachman 1986; Molinari and Neiderehe 1984; Nehrke, Hulicka and Morganti 1980; Shewchuk, Foelker and Niederehe 1990; Siegler and Gatz 1985). Internal locus of control is the belief that one controls the outcomes of actions more than the external environment (external locus of control is the opposite) (Riggs, Lachman and Wingfield 1997). Many associate old age with an external locus of control (LOC) (Cornelius and Caspi 1986; Lachman 1991), because faltering physical and, for some, mental health requires increasing reliance on the support of others and, even if it does not, older people are often stereotyped as 'helpless' (Amrhein, Bond and Hamilton 1999). Diminished internal LOC has been linked with decreases in physical and mental health and higher mortality (Adamson and Shamale 1965; Kahana and Col 1969; Lieberman and Tobin 1983; Schulz 1976). In contrast, good health has been linked to the maintenance of internal LOC and of effective coping skills (Kuypers 1971), and with higher levels of general life satisfaction among older public-housing residents (Mancini 1980).

Locus of control has been linked also to differences in memory in young people (*e.g.* Brooks and McKelvie 1986; Wolk and DuCette 1974). Because some aspects of memory tend to worsen with age (*e.g.* Craik and McDowd 1987; see Kausler 1994 for a review), researchers have explored the possibility that an external LOC contributes to decrements in memory performance (Grover and Hertzog 1991; Lachman *et al.* 1982; Riggs, Lachman and Wingfield 1997; Welch and West 1995). Lachman *et al.* (1982) found, and Grover and Hertzog (1991) later confirmed, that the more internal the LOC, the better the performance on various memory

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tasks (*e.g.* digit span), and the more external the LOC, the worse the performance. In accordance with the 'extended neural noise hypothesis', that older people experience excess neural activity that contributes to poor performance on cognitive tests (*e.g.* Birren 1965; Cremer and Zeef 1987; Salthouse and Lichty 1985; Welford 1958; see also Kausler 1994 for a review), Kausler and Kleim (1978) and Rabbitt (1980) have shown that older people are more vulnerable to distraction than are younger people (*e.g.* Greenhut-Wertz and Manning 1995).

Amrhein, Bond and Hamilton (1999) compared the recall abilities of older and younger people and analysed the effects with regard to LOC, as measured by the 28-item Internal Control Index (Duttweiler 1984). All participants were asked to recall in any order the words in 24 word-pairs that they were told to read three times. Older people made more recall errors, it was suggested because of the effects of internal 'noise'. In addition, older participants with a more internal LOC recalled more words, suggesting that they had more ability to filter out distracting thoughts and environmental stimuli (Amrhein, Bond and Hamilton 1999). Ellis and Franklin (1983) suggested that the effects of LOC on the ability to encode common nouns was affected only when the context was distracting. If LOC effects on performance are common to distracting contexts, it is likely that the internality or externality of a person's LOC is related to their vulnerability to stereotype threat.

According to stereotype-threat theory, performance decrements are attributed to external factors. If many older people have an external LOC, they may be vulnerable to stereotype threat because not only is the problem outside the person, but also the person's sense of control is external. Therefore, the person has a decreasing ability to cope with the problem without increasing his or her internal LOC. Cadinu *et al.* (2003) studied the relationship between LOC and stereotype threat among 95 undergraduate females who were assigned to one of three conditions: positive information, negative information, and neutral information about the performance of women relative to men on mathematics tests. The maths test and the 12-item Rotter's 'Locus of Control Scale' were administered (Rotter 1966). Those with an internal LOC had lower expectations of their own performance under the stereotype threat condition than those with an external LOC. In contrast, Cadinu *et al.* (2003) failed to find a correlation between LOC and performance.[1] The evidence is therefore equivocal on whether a more internal LOC creates a greater vulnerability to stereotype threat. As reviewed above, however, there is more convincing evidence that increasing the internality of LOC not only promotes good health, but also protects against stereotype threat because the person has the ability to counter the external threat.

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People with Alzheimer's disease are more likely than healthy older people to develop an external LOC and to have more reasons for accepting negative stereotypes, because they experience more explicit memory dysfunction as well as greater decrements in other cognitive functions. Dr B was aware of the worsening effects of AD. He said:

> Well, I get wisps of people, of thoughts, that show me that Alzheimer's is right on top of me. And … that there's nothing I can do about it. … Well, I'm … and I'm, something has knocked me down, something's knocked me down and I can't do anything about it (Sabat 2001: 32).

This awareness can contribute to increased vulnerability to stereotype threat and is consistent with Kruse and Schmitt's (2006: 408) 'forward projection hypothesis', in which one's perception of ageing is a reflection of one's 'living conditions, and the way these conditions are perceived, interpreted and expected to change'. Although the authors referred to employment, unemployment, area of residence and its level of employment as factors that influenced people's perception of ageing and old age, we propose that the category, 'living conditions and expectations regarding how they may change' should be expanded to include health status and its implications, *e.g.* whether there is a diagnosis of a degenerative and irreversible illness, the degree of independence in daily life, and the degree of agency experienced and expressed.

It might be argued, however, that if there were positive perspectives on old age including expectations of greater competence, people with AD would be even more vulnerable regarding their beliefs about control and their feelings of self-worth. Yet, when we examine people with AD, we discover that reducing their exposure to the depersonalising effects of malignant social psychology enhances their abilities in various ways (Kitwood 1990, 1997; Sabat 1994, 2001; Sabat, Napolitano and Fath 2004). One can view negative stereotypes of ageing and the resulting malignant positioning as being springboards for malignant social psychology, so it can be argued logically that less prevalent negative stereotypes of ageing would reduce malignant social psychology, thereby helping to reduce excess disability in people with AD (Brody *et al.* 1971).

Strategies to increase the internality of locus of control

Amrhein, Bond and Hamilton (1999) suggested that because giving older people more responsibility has positive social effects (Rodin 1980), the memory performance of older adults may also improve if increased responsibility increased the internality of a person's LOC. Rodin (1980)

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showed that when older people were given more responsibility and control over personal decisions, they negatively stereotyped themselves less, were more active, and claimed they felt happier. Lachman (1991) showed that a memory strategy (method of loci) in combination with persuasive information that older people do have some control over memory loss worked to increase participants' beliefs that they had some control over the preservation of their memory abilities and performance.

Working memory and attention

Working memory requires the temporary storage of information and the ability to focus one's attention on a particular task while ignoring irrelevant thoughts (Engle *et al.* 1999; Engle 2001). People with larger working memory capacities are more able to block out intruding thoughts (Rosen and Engle 1998), as shown by their lower levels of vulnerability to the 'cocktail party effect' – when a person hears their name mentioned in a conversation to which they are not paying direct attention because they are attending to another (Conway, Cowan and Bunting 2001). They also perform better on various cognitive tests (*e.g.* La Pointe and Engle 1990; Turner and Engle 1989). Schmader and Johns (2003) found that stereotype threat diverts one's cognitive resources, thereby reducing the resources available to working memory. Perhaps the anxiety associated with stereotype threat depletes one's cognitive resources; indeed, there is evidence that high anxiety is correlated with lower working memory capacity (*e.g.* Derakshan and Eysenck 1998; Klein and Boals 2001).

If working memory capacity, which relies on attention, is one of the factors by which stereotype threat operates, then people whose ability to give attention is already compromised (and possibly affected also by anxiety) would be more vulnerable to stereotype threat. Freed *et al.* (1989) showed that some people with AD have selective attention deficits that render them unable to handle multiple sources of information at one time by focusing on one and ignoring the others. A conversation with Dr B exemplified such deficits. Dr B's first thoughts were clearly expressed: 'I think my daughter is very, very sophisticated herself', but on seeing a folder with information about AD, he became confused and said, 'she doesn't, well, she uh, she doesn't, relist. Um, and it'd be in the system. I think, I think it could be system. What I'm doing, I don't know. I think I'm going batty on this thing' (Sabat 2001: 52). Perhaps difficulties with attention experienced by people with AD, and their reactions to those difficulties, are among the factors that make them more susceptible to stereotype threat than otherwise healthy people.

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Combining the theories of self-stereotyping and stereotype threat

Stereotype-threat theory differs from the theory of self-stereotyping in many ways (Levy 1996). In contrast to theories of self-stereotyping, stereotype-threat theory ignores the process by which stereotypes are internalised, thereby externalising the problem and suggesting that alterations in settings can remove the negative effects of stereotypes (Steele 1997). The two theories also differ in that stereotype-threat theory focuses on negative stereotypes that operate within conscious awareness (Steele and Aronson 1995), and fails to consider implicit and positive stereotypes (Levy 1996). Though stereotype-threat theory is allegedly applicable to all stereotypes, including those of old age (Aronson *et al.* 1999), the strategy of removing oneself from the domain in which the stereotype threat occurs (secondary control in Heckhausen's and Schulz's terms) is difficult for older people when the domain is physical or cognitive health (Levy 1996). Still, in the confines of an adult day centre, Dr B differentiated himself from the group of participants and preferred to work with the second author rather than engage in any of the group activities (Sabat 2001: 134).

As Dr B stated, 'I can work in here for 30 times and all that but in *this* group [the day-centre participants], I'm nothing'. Asked if he was saying that he felt he had no status with the rest of the participants, he replied, 'Absolutely, oh, absolutely. There, there should be some hier, hierarty [hierarchy]'. When asked, 'So you feel that you're not treated with as much deference as you think you deserve?', he replied, 'Honestly, yes'. Rather than allowing himself to be assimilated into a group in which he felt he would *lose* status, he preferred to avoid taking part in any group activities. Although his behaviour might have been interpreted as 'uncooperative' or 'reclusive', Dr B was actively avoiding social situations that, in his view, would lead to his being treated as a stereotypic day-centre participant with AD. Despite these differences between the two theories, both may be useful in understanding the many factors that condition the negative effects of stereotype threat on people with AD. The effects of self-stereotyping may help explain the internal mechanisms that operate alongside the externalised process of stereotype threat described by Steele and Aronson (1995).

Conclusion

If person A stereotypes person B in a negative way, much of what person B does, even if appropriate, will be interpreted as being dysfunctional by

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person A. Thus, 'being stereotyped' happens to person B as a result of person A's beliefs. If person B accepts the negative stereotype and views himself or herself in that light, person B has engaged in 'negative self-stereotyping'. If person B is aware of the fact that he or she is the target of negative stereotypes, and if person B is in a situation wherein it is clear that his or her behaviour can be stereotyped negatively, then person B will be threatened by the possibility of conforming to the stereotype and will accordingly experience increased anxiety. This dynamic often results in a self-fulfilling prophecy. Kruse and Schmitt (2006: 404) reported that the oldest group of people in their healthy German sample, aged 65–75 years, 'more strongly agreed that older people were a burden on society than the middle-age group', and thereby engaged in negative self-stereotyping and made themselves more vulnerable to stereotype threat.

On the basis of an extensive literature that establishes the negative effects of stereotype threat in otherwise healthy people of diverse ages, we propose that people with diagnoses of probable AD, mild or moderate cognitive impairment, and dementia in general, are extremely vulnerable to the debilitating effects of negative self-stereotyping and stereotype threat. This is the case because people with AD even in the moderate to severe stages: (1) are keenly aware of their losses; (2) react to those losses with appropriate feelings of great sadness, frustration and anger; (3) seek to avoid situations in which they feel they will be embarrassed or humiliated as a result of their losses; and (4) experience heightened anxiety when placed in situations wherein their compromised abilities (as they experience them) may be displayed (Sabat *et al.* 1999; Sabat 2001). Being threatened by the possibility of conforming to a negative stereotype and experiencing heightened anxiety can contribute to a further decline in performance. Situations such as formal neuropsychological testing are likely to inspire such reactions and anxiety will grow as a function of the degree to which persons' losses are in domains that are deeply important to them. It is vitally important to recognise the existence of stereotype threat among people with AD and also to direct research so as to establish with precision the degree to which it affects their cognitive and social skills. In principle, the fruits of such research could help to reduce the excess disability that results from stereotype threat and thereby improve the quality of life of all concerned.

'Excess' disability is dysfunction beyond the level directly resulting from neuropathology and may occur in various cognitive and social skills, including the ability to recall recent events, to maintain focused attention, to participate in conversations with others, to assert one's will clearly, and to be of help to others. The performance of each of these skills can be

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compromised by heightened anxiety. Thus, stereotype threat and negative self-stereotyping can motivate persons with probable AD to withdraw from various social situations, increasing both their isolation and their dependence upon family and formal carers. These losses can exacerbate the stress felt by both care-givers and people with AD. In order to enhance their efforts, practitioners must be aware of stereotype threat and its effects. Because the degree of stereotype threat (and the associated level of anxiety) felt by a person will be directly related to the importance that the person places on the ability in question, it is vital that practitioners have in-depth knowledge of their clients so as to understand which of their attributes are, and always have been, valued greatly.

For example, suppose a person with AD who attends a support group or day centre or who resides in a care home declines to take part in small group discussions, even when directly encouraged to contribute by a practitioner. How the practitioner interprets the refusal will depend on the practitioner's knowledge of the client and of the phenomenon of stereotype threat. With little knowledge of either, the practitioner may easily describe the person with AD as 'unco-operative', 'withdrawn', or 'unsociable', and may reduce their interaction with the person, or conversely more directly 'encourage' (demand) that the person speak. On the other hand, if the practitioner is aware that this particular person with AD: (1) has always valued using language in a most graceful way, seeking the *mot juste*, (2) has word-finding problems that are anathema to him or her, causing great embarrassment, and (3) is, therefore, very likely to be vulnerable to stereotype threat in this situation, thereby causing the person anxiety that further compromises his or her ability to speak gracefully. Now the practitioner can be far more sensitive to the person's needs and reactions and by talking privately can help the person regain confidence in his or her ability to communicate effectively despite having word-finding problems. This is precisely what happened in the case of Dr M. In addition, the practitioner will not interpret the person's behaviour as 'unco-operative', 'withdrawn' or 'unsociable', but rather as an appropriate reaction to a threatening situation that, in order to be understood and acted on by the person with AD, required the functioning of complex, healthy, brain systems.

There is a difference between knowing 'that' and knowing 'why'. Anxiety is often viewed as a symptom of AD just as fever is viewed as a symptom of malaria. If, however, we understand that a person with AD may be anxious for reasons that are intrinsic to the social context, different forms of treatment may be far more effective. For practitioners, understanding this can have a great impact on their work as it can lead them to

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engage people with AD in ways that might be thought of as being akin to the dynamic of counselling so as:

1. To help reduce the degree to which negative self-stereotyping occurs by calling attention to the person's valued intact attributes.
2. To show the person with AD how he or she can use those attributes to achieve valued goals in spite of losses in other valued attributes.
3. To interact with the person with AD in ways that avoid creating stereotype threat, and thereby
4. To reduce the anxiety experienced by the person diagnosed.

Success in these outcomes can, in principle, reduce excess disability and enhance the quality of life of the person with AD, while also helping to restore his or her feelings of self-worth, which is important in day-to-day human life. It is of critical importance for people with Alzheimer's disease, and freeing such people from negative self-stereotyping and stereotype threat can be an important first step in that process.

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NOTES

1 Cadinu and colleagues' categorisations of the participants' LOC may have been inaccurate for two reasons: (1) they used only 11 items on Rotter's Scale while Amrhein, Bond and Hamilton (1999) used the more extensive 28-item Internal Control Index, and (2) they used only a mean split of the scores on the LOC scale to distinguish between people with external and internal LOCs. People with a score above 0.45 were classified as having an internal LOC while people with scores below 0.45 were classified as having an external LOC, which seems to place people with very similar scores on the LOC scale in dichotomised categories. A more precise measure of LOC may have yielded different results.

References

Adamson, J. and Shamale, A. 1965. Object loss, giving up and the onset of psychiatric disease. *Psychosomatic Medicine*, **27**, 6, 557–76.

Allport, G. W. 1954. *The Nature of Prejudice*. Addison-Wesley, Reading, Massachusetts.

Allport, G. 1958. *The Nature of Prejudice*. Doubleday Anchor, Garden City, New York.

Amrhein, P. C., Bond, J. K. and Hamilton, D. H. 1999. Locus of control and the age difference in free recall from episodic memory. *Journal of General Psychology*, **126**, 2, 149–64.

https://doi.org/10.1017/S0144686X07006241 Published online by Cambridge University Press

Aronson, J., Lustina, M. J., Good, C., Keough, K., Steele, C. M. and Brown, J. 1999. When white men can't do math: necessary and sufficient factors in stereotype threat. *Journal of Experimental Social Psychology*, **35**, 2, 29–46.

Banaji, M., Hardin, C. and Rothman, A. 1993. Implicit stereotyping in person judgments. *Journal of Personality and Social Psychology*, **65**, 2, 272–81.

Bandura, A. 1977. Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, **84**, 2, 191–215.

Bandura, A. 1986. Fearful expectations and avoidance actions as coeffects of perceived self-inefficiency. *American Psychologist*, **41**, 12, 1389–91.

Bandura, A. 1989. Regulation of cognitive processes through perceived self-efficacy. *Developmental Psychology*, **25**, 5, 729–35.

Baumeister, R. F. 1984. Choking under pressure: self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, **46**, 3, 610–20.

Berry, J. M., West, R. L. and Dennehey, D. M. 1989. Reliability and validity of the memory self-efficacy questionnaire. *Developmental Psychology*, **25**, 5, 701–13.

Birren, J. E. 1965. Age changes in speed of behavior: its central nature and physiological correlates. In Welford, A. T. and Birren, J. E. (eds), *Behavior, Aging and the Nervous System*. Charles C Thomas, Springfield, Illinois, 191–216.

Blank, T. O. 1982. *A Social Psychology of Developing Adults*. Wiley, New York.

Blascovich, J., Spencer, S. J., Quinn, D. and Steele, C. 2001. African Americans and high blood pressure: the role of stereotype threat. *Psychological Science*, **12**, 3, 225–9.

Brewer, M., Dull, V. and Lui, L. 1981. Perceptions of the elderly: stereotypes as prototypes. *Journal of Personality and Social Psychology*, **41**, 4, 656–70.

Brody, E., Kleban, M. H., Lawton, M. P. and Silverman, H. A. 1971. Excess disabilities of mentally impaired aged: impact of individualized treatment. *The Gerontologist*, **11**, 2, 124–33.

Brooks, R. E. and McKelvie, S. J. 1986. Effects of locus of control, cueing and relevance on memory of passages. *Canadian Journal of Behavioral Science*, **18**, 3, 278–86.

Cadinu, M., Maass, A., Frigerio, S., Impagliazzo, L. and Latinotti, S. 2003. Stereotype threat: the effect of expectancy on performance. *European Journal of Social Psychology*, **33**, 2, 267–85.

Conway, A. R. A., Cowan, N. and Bunting, M. F. 2001. The cocktail party phenomenon revisited: the importance of working memory capacity. *Psychonomic Bulletin and Review*, **8**, 2, 331–5.

Cornelius, S. W. and Caspi, A. 1986. Self-perceptions of intellectual control and aging. *Educational Gerontology*, **12**, 4, 345–57.

Corner, L. and Bond, J. 2006. The impact of the label of mild cognitive impairment on the individual's sense of self. *Philosophy, Psychiatry and Psychology*, **13**, 1, 3–12.

Craik, F. I. and McDowd, J. M. 1987. Age differences in recall and recognition. *Journal of Experimental Psychology: Learning, Memory and Cognition*, **13**, 3, 474–9.

Cremer, R. and Zeef, E. J. 1987. What kind of noise increases with age? *Journal of Gerontology*, **42**, 5, 515–8.

DePallo, M., Thomas, R., Thompson, J., Fox, R. J., Goyer, A. and Abrams, T. 1995. *Images of Aging in America*. American Association of Retired People, Washington DC.

Derakshan, N. and Eysenck, M. W. 1998. Working memory capacity in high trait: anxious and repressor groups. *Cognition and Emotion*, **12**, 5, 697–713.

Devine, P. 1989. Stereotypes and prejudice: their automatic and controlled components. *Journal of Personality and Social Psychology*, **56**, 1, 5–18.

Dijksterhuis, A. and van Knippenberg, A. 1998. The relation between perception and behavior, or how to win a game of Trivial Pursuit. *Journal of Personality and Social Psychology*, **74**, 4, 865–77.

https://doi.org/10.1017/S0144686X07006241 Published online by Cambridge University Press

Duttweiler, P. C. 1984. The Internal Control Index: a newly developed measure of locus of control. *Educational and Psychological Measurement*, **44**, 2, 209–21.

Easterbrook, J. A. 1959. The effect of emotion on cue utilization and the organization of behavior. *Psychological Review*, **66**, 3, 183–201.

Eberhardt, J. 1993. Where the Invisible Meets the Obvious: The Effects of Stereotyping Biases on the Fundamental Attribution Error. Unpublished doctoral dissertation, Harvard University, Cambridge, Massachusetts.

Ellis, H. C. and Franklin, J. B. 1983. Memory and personality: external versus internal locus of control and superficial organization in free recall. *Journal of Verbal Learning and Verbal Behavior*, **22**, 1, 61–74.

Engle, R. W. 2001. What is working memory capacity? In Roediger III, H. L. and Nairne, J. S. (eds), *The Nature of Remembering: Essays in Honor of Robert G. Crowder*. American Psychological Association, Washington DC, 297–314.

Engle, R. W., Tuholski, S. W., Laughlin, J. E. and Conway, A. R. A. 1999. Working memory, short-term memory and general fluid intelligence: a latent variable approach. *Journal of Experimental Psychology: General*, **128**, 3, 309–31.

Fazio, R. H., Jackson, J. R., Dunton, B. C. and Williams, C. J. 1995. Variability in automatic activation as an unobtrusive measure of racial attitudes: a *bona fida* pipeline? *Journal of Personality and Social Psychology*, **69**, 6, 1013–27.

Folstein, M. F., Folstein, S. E. and McHugh, P. R. 1975. The mini-mental state. *Journal of Psychiatric Research*, **12**, 3, 189–98.

Freed, D. M., Corkin, S., Growdon, J. H. and Nissen, M. J. 1989. Selective attention in Alzheimer's disease: characterizing subgroups of patients. *Neuropsychologica*, **27**, 3, 325–39.

Freud, A. 1966. *The Ego and the Mechanism of Defense*. International Universities Press, New York.

Geen, R. G. 1985. Evaluation apprehension and response withholding in solution of anagrams. *Personality and Individual Differences*, **6**, 2, 293–8.

Giles, H. and Condor, S. 1988. Aging, technology and society: an introduction and future priorities. *Social Behaviour: International Journal of Applied Science*, **3**, 1, 59–70.

Giles, H., Coupland, N., Williams, A. and Nussbaum, J. 1992. Intergenerational talk and communication with older people. *International Journal of Aging and Human Development*, **34**, 4, 271–98.

Gonzales, P. M., Blanton, H. and Williams, K. J. 2002. The effects of stereotype threat and double-minority status on the test performance of Latino women. *Personality and Social Psychology Bulletin*, **28**, 5, 659–70.

Greenhut-Wertz, J. and Manning, S. K. 1995. Suffix effects and intrusion errors in young and elderly participants. *Experimental Aging Research*, **21**, 2, 173–90.

Grover, D. R. and Hertzog, C. 1991. Relationship between intellectual control beliefs and psychometric intelligence in adulthood. *Journal of Gerontology: Psychological Sciences*, **46**, 3, P109–15.

Harris, P. B. (ed.) 2002. *The Person with Alzheimer's Disease: Pathways to Understanding the Experience*. Johns Hopkins University Press, Baltimore, Maryland.

Heckhausen, J. and Schulz, R. 1995. A life-span theory of control. *Psychological Review*, **102**, 2, 284–304.

Hertzog, C., Dixon, R. A. and Hultsch, D. F. 1990. Relationships between metamemory, memory predictions and memory task performance in adults. *Psychology and Aging*, **5**, 2, 215–27.

Hess, T. M., Aumann, C., Colcombe, S. J. and Rahhal, T. A. 2003. The impact of stereotype threat on age differences in memory performance. *Journal of Gerontology: Psychological Sciences*, **58B**, 1, P3–11.

Homer, A. C., Honavar, M., Lantos, P. L., Hastie, I. R., Kellett, J. M. and Millarde, P. H. 1988. Diagnosing dementia: do we get it right? *British Medical Journal*, **297**, 6653, 894–6.

https://doi.org/10.1017/S0144686X07006241 Published online by Cambridge University Press

Husband, H. J. 2000. Diagnostic disclosure in dementia: an opportunity for intervention. *International Journal of Geriatric Psychiatry*, **15**, 6, 544–7.

Isaacs, L. W. and Bearison, D. J. 1986. The development of children's prejudice against the aged. *International Journal of Aging and Human Development*, **23**, 3, 175–95.

Jost, J. and Banaji, M. 1994. The role of stereotyping in system-justification and the production of false consciousness. *British Journal of Social Psychology*, **33**, 1, 1–27.

Kahana, E. and Col, R. 1969. Self and staff conceptions of institutionalized aged. *The Gerontologist*, **11**, 1, 39–45.

Kausler, D. H. 1994. *Learning and Memory in Normal Aging*. Academic, San Diego, California.

Kausler, D. H. and Kleim, D. M. 1978. Age differences in processing relevant versus irrelevant stimuli in multiple item recognition learning. *Journal of Gerontology*, **33**, 1, 87–93.

Keady, J. and Nolan, M. 2003. The dynamics of dementia: working together, working separately, or working alone? In Nolan, M., Lundh, U., Grant, G. and Keady, J. (eds), *Partnerships in Family Care*. Open University Press, Buckingham, 15–32.

Kite, M. and Johnson, B. 1988. Attitudes toward older and younger adults: a meta-analysis. *Psychology and Aging*, **3**, 3, 233–44.

Kitwood, T. 1987. Explaining senile dementia: the limits of neuropathological research. *Free Associations*, **10**, 1, 117–40.

Kitwood, T. 1990. The dialectics of dementia: with particular reference to Alzheimer's disease. *Ageing & Society*, **10**, 2, 177–96.

Kitwood, T. 1997. *Dementia Reconsidered: The Person Comes First*. Open University Press, Buckingham, UK.

Klein, K. and Boals, A. 2001. The relationship of life event stress and working memory capacity. *Applied Cognitive Psychology*, **15**, 5, 565–79.

Kruse, A. and Schmitt, E. 2006. A multidimensional scale for the measurement of agreement with age stereotypes and the salience of age in social interaction. *Ageing & Society*, **26**, 3, 393–411.

Kuypers, J. A. 1971. Internal-external locus of control and ego functioning correlates in the elderly. *The Gerontologist*, **11**, 1, 47–52.

Lachman, M. E. 1986. Locus of control in aging research: a case for multidimensional and domain specific assessment. *Psychology and Aging*, **1**, 1, 34–40.

Lachman, M. E. 1991. Personal control over memory aging: developmental and intervention perspectives. *Journal of Social Issues*, **47**, 4, 159–75.

Lachman, M. E., Baltes, P., Nesselroade, J. R. and Willis, S. L. 1982. Examination of personality-ability relationships in the elderly: the role of the contextual (interface) assessment mode. *Journal of Research in Personality*, **16**, 4, 485–501.

Lachman, M. E. and McArthur, L. Z. 1986. Adulthood age differences in causal attributions for cognitive, physical and social performance. *Psychology and Aging*, **1**, 2, 127–32.

Lachman, M. E., Steinberg, E. S. and Trotter, S. D. 1987. The effects of control beliefs and attributions on memory self-assessments and performance. *Psychology and Aging*, **2**, 3, 266–71.

Lachman, M., Weaver, S., Bandura, M., Elliot, E. and Lewkowicz, C. 1992. Improving memory and control beliefs through cognitive restructuring and self-generated strategies. *Journal of Gerontology*, **47**, 5, 293–300.

Langer, E. 1989. *Mindfulness*. Addison-Wesley, Reading, Massachusetts.

La Pointe, L. B. and Engle, R. W. 1990. Simple and complex word spans as measures of working memory capacity. *Journal of Experimental Psychology: Learning, Memory and Cognition*, **16**, 6, 1118–33.

Levy, B. 1996. Improving memory in old age through implicit self-stereotyping. *Journal of Personality and Social Psychology*, **71**, 6, 1092–107.

Levy, B. and Langer, E. 1994. Aging free from negative stereotypes: successful memory in China and among American Deaf. *Journal of Personality and Social Psychology*, **66**, 5, 989–98.

https://doi.org/10.1017/S0144686X07006241 Published online by Cambridge University Press

Levy, B. R. and Banaji, M. R. 2002. Implicit ageism. In Nelson, T. (ed.), *Ageism: Stereotypes and Prejudice Against Older Persons*. MIT Press, Cambridge, Massachusetts, 49–75.

Levy, B. R., Hausdorff, J., Heneke, R. and Wei, J. Y. 2000. Reducing cardiovascular stress with positive self-stereotypes of aging. *Journal of Gerontology: Psychological Sciences*, **55B**, 4, 205–13.

Lieberman, M. A. and Tobin, S. S. 1983. *The Experience of Old Age: Stress, Coping, and Survival*. Basic, New York.

Mancini, J. A. 1980. Effects of health and income on control orientation and life satisfaction among aged public housing residents. *International Journal of Aging and Human Development*, **12**, 3, 215–20.

Mega, M. S., Cummings, J. L., Fiorello, T. and Gornbein, J. 1996. The spectrum of behavioral changes in Alzheimer's disease. *Neurology*, **46**, 1, 130–5.

Molinari, V. and Neiderehe, G. 1984. Locus of control, depression and anxiety in young and old adults: a comparison study. *International Journal of Aging and Human Development*, **20**, 1, 41–52.

Murphy, S. T., Monahan, J. L. and Zajonc, R. B. 1995. Additivity of nonconscious affect: combined effects of priming and exposure. *Journal of Personality and Social Psychology*, **69**, 4, 589–602.

Nehrke, M. F., Hulicka, I. H. and Morganti, J. 1980. Age differences in life satisfaction, locus of control and self-concept. *International Journal of Aging and Human Development*, **11**, 1, 25–33.

Nosek, B. A., Banaji, M. R. and Greenwald, A. G. 2002*a*. Math = male, me = female, therefore math ≠ me. *Journal of Personality and Social Psychology*, **83**, 1, 44–59.

Nosek, B. A., Banaji, M. R. and Greenwald, A. G. 2002*b*. Harvesting intergroup attitudes and beliefs from a demonstration website. *Group Dynamics*, **6**, 1, 101–15.

Orrell, M. and Bebbington, P. 1996. Psychosocial stress and anxiety in senile dementia. *Journal of Affective Disorders*, **39**, 3, 165–73.

Palmore, E. B. 1999. *Ageism: Negative and Positive*. Springer Publishing Company, New York.

Perdue, C. and Gurtman, M. 1990. Evidence for the automaticity of ageism. *Journal of Experimental Social Psychology*, **26**, 3, 199–216.

Rabbitt, P. M. A. 1980. A fresh look at changes in reaction time in old age. In Stein, D. G. (ed.), *The Psychobiology of Aging: Problems and Perspectives*. Elsevier, New York, 425–45.

Raman, P., Harwood, J., Weis, D., Anderson, J. and Miller, G. 2006. Portrayals of age groups in U.S. and Indian magazine advertisements: a cross-cultural comparison. Unpublished manuscript, University of Arizona, Tucson.

Reisberg, B., Borenstein, J., Salob, S. P., Ferris, S. H., Franssen, E. and Georgotas, A. 1987. *Journal of Clinical Psychiatry*, **48**, Supplement 5, 9–15.

Riggs, K. M., Lachman, M. E. and Wingfield, A. 1997. Taking charge of remembering: locus of control and older adults' memory for speech. *Experimental Aging Research*, **23**, 3, 237–56.

Rodin, J. 1980. Aging labels: decline of control and fall of self-esteem. *Journal of Social Issues*, **36**, 1, 24–9.

Rosen, V. M. and Engle, R. W. 1998. Working memory capacity and suppression. *Journal of Memory and Language*, **39**, 3, 418–36.

Rosenbaum, L. 1989. *Biofeedback Frontiers*. AMS Press, New York.

Rotter, J. B. 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, **80**, 1–28.

Rudman, L. A. and Glick, P. 2001. Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues*, **57**, 4, 743–62.

Sabat, S. R. 1991*a*. Turn-taking, turn-giving and Alzheimer's disease: a case study of conversation. *Georgetown Journal of Languages and Linguistics*, **2**, 2, 161–75.

https://doi.org/10.1017/S0144686X07006241 Published online by Cambridge University Press

Sabat, S. R. 1991 *b*. Facilitating conversation via indirect repair: a case study of Alzheimer's disease. *Georgetown Journal of Languages and Linguistics*, **2**, 3, 284–96.

Sabat, S. R. 1994. Excess disability and malignant social psychology: a case study of Alzheimer's disease. *Journal of Community and Applied Social Psychology*, **4**, 2, 157–66.

Sabat, S. R. 2000. Time past, time present, time future: the Alzheimer's disease sufferer as Stern's 'Unitas Multiplex'. *Theory and Psychology*, **10**, 6, 787–800.

Sabat, S. R. 2001. *The Experience of Alzheimer's Disease: Life Through a Tangled Veil*. Blackwell, Oxford.

Sabat, S. R. 2003. Malignant positioning and the predicament of the person with Alzheimer's disease. In Moghaddam, F. M. and Harré, R. (eds), *The Self and Others: Positioning Individuals and Groups in Personal, Political and Cultural Contexts*. Greenwood, Westport, Connecticut, 85–98.

Sabat, S. R. 2006. Mind, meaning and personhood in dementia: the effects of positioning. In Hughes, J. C., Louw, S. and Sabat, S. R. (eds), *Dementia: Mind, Meaning and the Person*. Oxford University Press, Oxford, 287–302.

Sabat, S. R., Fath, H., Moghaddam, F. M. and Harré, R. 1999. The maintenance of self-esteem: lessons from the culture of Alzheimer's sufferers. *Culture and Psychology*, **5**, 1, 5–31.

Sabat, S. R. and Harré, R. 1992. The construction and deconstruction of self in Alzheimer's disease. *Ageing & Society*, **12**, 4, 443–61.

Sabat, S. R., Napolitano, L. and Fath, H. 2004. Barriers to the construction of a valued social identity: a case study of Alzheimer's disease. *American Journal of Alzheimer's Disease and Other Dementias*, **19**, 3, 177–85.

Salthouse, T. A. and Lichty, W. 1985. Tests of the neural noise hypothesis of age-related cognitive change. *Journal of Gerontology*, **40**, 4, 443–50.

Sarason, I. G. 1972. Experimental approaches to test anxiety: attention and the uses of information. In Spielberger, C. D. (ed.), *Anxiety: Current Trends in Theory and Research*. Volume 2, Academic, New York, 383–403.

Schacter, D., Kaszniak, A. and Kihlstrom, J. 1991. Models of memory and the understanding of memory disorders. In Yanagihara, T. and Petersen, R. (eds), *Memory Disorders: Research and Clinical Practice*. Marcel Dekker, New York, 111–33.

Schmader, T. 2002. Gender identification moderates stereotype threat effects on women's math performance. *Journal of Experimental Social Psychology*, **38**, 2, 194–201.

Schmader, T. and Johns, M. 2003. Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology*, **85**, 3, 440–52.

Schulz, R. 1976. Effects of control and predictability on the psychology of the institutionalized aged. *Journal of Personality and Social Psychology*, **33**, 5, 563–73.

Seefeldt, C., Jantz, R. K., Galper, A. and Serock, K. 1977. Using pictures to explore children's attitudes toward the elderly. *The Gerontologist*, **17**, 6, 506–12.

Sherif, M. 1953. The concept of reference groups in human relations. In Sherif, M. and Wilson, M. O. (eds), *The University of Oklahoma Lectures in Social Psychology: Group Relations at the Crossroads*. Harper, New York, 203–31.

Shewchuk, R. M., Foelker, G. A. and Niederehe, G. 1990. Measuring locus of control in elderly persons. *International Journal of Aging and Human Development*, **30**, 3, 213–24.

Siegler, I. C. and Gatz, M. 1985. Age patterns in locus of control. In Palmore, E., Bussee, E., Maddox, G., Nowlin, J. and Siegler, I. (eds), *Normal Aging III*. Duke University Press, Durham, North Carolina, 259–67.

Snyder, L. 1999. *Speaking Our Minds: Personal Reflections From Individuals with Alzheimer's Disease*. Freeman, New York.

Spencer, S. J., Steele, C. M. and Quinn, D. M. 1999. Stereotype threat and women's math performance. *Journal of Experimental and Social Psychology*, **35**, 1, 4–28.

Steele, C. M. 1997. A threat in the air: how stereotypes shape intellectual identity and performance. *American Psychologist*, **52**, 6, 613–29.

https://doi.org/10.1017/S0144686X07006241 Published online by Cambridge University Press

Steele, C. M. and Aronson, J. 1995. Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, **69**, 5, 797–811.

Stein, R., Blanchard-Fields, F. and Hertzog, C. 2002. The effects of age-stereotype priming on the memory performance of older adults. *Experimental Aging Research*, **28**, 1, 169–81.

Sterin, G. J. 2002. Essay on a word: a lived experience of Alzheimer's disease. *Dementia: International Journal of Social Research and Practice*, **1**, 1, 7–10.

Stone, J., Lynch, C. I., Sjomeling, M. and Darley, J. M. 1999. Stereotype threat effects on Black and White athletics performance. *Journal of Personality and Social Psychology*, **77**, 6, 1213–27.

Tajfel, H. 1981. *Human Groups and Social Categories*. Cambridge University Press, Cambridge.

Teri, L., Truax, P., Logsdon, R., Uomoto, J., Zarit, S. and Vitalianno, P. P. 1992. Assessment of behavioral problems in dementia: the revised Memory and Behavior Problems Checklist. *Psychology and Aging*, **7**, 4, 622–31.

Tomlinson, B. E., Blessed, G. and Roth, M. 1970. Observations on the brains of demented old people. *Journal of Neurological Science*, **11**, 3, 205–42.

Turner, M. L. and Engle, R. W. 1989. Is working memory capacity task dependent? *Journal of Memory and Language*, **28**, 2, 127–54.

Wands, K., Merskey, H., Hachinski, V. C., Fisman, M., Fox, H. and Boniferro, M. 1990. A questionnaire investigation of anxiety and depression in early dementia. *Journal of the American Geriatrics Society*, **38**, 5, 535–8.

Weaver, S. L. and Lachman, M. E. 1990. When Memory Fails: Adulthood Age Differences in Attributions for Memory. Paper presented at the American Psychological Association Meetings, Boston, Massachusetts, August 10–14.

Welch, D. C. and West, R. L. 1995. Self-efficacy and mastery: its application to issues of environmental control, cognition and aging. *Developmental Review*, **15**, 2, 150–71.

Welford, A. T. 1958. *Aging and Human Skill*. Oxford University Press, Oxford, Oxfordshire.

Whitehouse, P. J. and Moody, H. R. 2006. Mild cognitive impairment: a hardening of the categories? *Dementia: International Journal of Social Research and Practice*, **5**, 1, 11–25.

Wills, T. A. 1981. Downward comparison principles in social psychology. *Psychological Bulletin*, **90**, 2, 245–71.

Wine, J. 1971. Test anxiety and direction of attention. *Psychological Bulletin*, **76**, 2, 92–104.

Wolk, S. and DuCette, J. 1974. Intentional performance and incidental learning as a function of personality and task dimensions. *Journal of Personality and Social Psychology*, **29**, 1, 90–101.

Zajonc, R. B. 2001. Mere exposure: a gateway to the subliminal. *Current Directions in Psychological Science*, **10**, 6, 224–8.

Zhang, Y. B., Harwood, J., Williams, A., Ylanne-McEwen, V., Wadleigh, P. M. and Thimm, C. 2006. The portrayal of older adults in advertising: a cross-national review. *Journal of Language and Social Psychology*, **25**, 3, 264–82.

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