

Ageing Well – What Works?

Measuring success

One significant problem within ageing research is defining and measuring success. The World Health Organization (1995) defines health as being “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”, suggesting that morbidity and mortality statistics are not in themselves a sufficient measure of ageing well. Moreover, some measures of health inequality focus on death before the age of 75 (Public Health England, 2016). Such statistics therefore do not consider health inequalities later in life.

With regard to broader measures of wellbeing, the EQ-5D and ASCOT have been recognized as standardized quality of life measures for use within health and social care, and could be used to allow comparability between research studies (Department of Health, 2011; Windle et al., 2011). However, in practice there remains substantial variation in how quality of life is conceptualized and measured, and many studies do not incorporate standardized measures (Bowling, 2014; Cameron et al., 2014; Milligan et al., 2016). There is also a potential danger that using too broad a measure could in fact mask the specific benefits of interventions (Netten, 2011).

Ageing interventions are often community-based, and address multiple factors and variables simultaneously. Large-scale randomized control trials, recognized within medicine as being the ‘gold standard’ of evidence, are not always feasible in this context. Reviews of ageing interventions in a number of domains often report that studies are small, with varying designs and outcomes, and often do not include a comparison group (Dickens et al., 2011; Netten, 2011; Windle et al., 2011; Cameron et al., 2014; Milligan et al., 2016). As a result, it can be difficult to synthesise findings to establish which types of intervention are most effective

Further problems are that pilot interventions may include particularly intensive commitments of time, motivation and additional support such as transport, which may not be sustained when the intervention is rolled out more broadly (Windle et al., 2011; Franz et al., 2015). Organisational change and uncertainty about long-term finance of pilots may affect staff morale and turnover, and impede effectiveness (Cameron et al., 2014; Cottam and Dillon, 2014; Cunningham, 2017). Many interventions are also based around multi-agency working, which often raises problems with regard to

differing organizational culture and poor understanding of roles and responsibilities (Cameron et al., 2014; Cottam and Dillon, 2014). Rapid changes in policy, service and resourcing can also make it difficult to evaluate the impact of an intervention.

Cost-effectiveness is typically an important consideration for evaluating interventions, but costing data is often not included in interventions (Windle et al., 2011; Cameron et al., 2014). In addition, initiatives often involve community-level preventative actions that are intended to accrue savings for more acute services. In practice, such savings can be difficult to conclusively demonstrate, and acute services may be reluctant to reallocate money to prevention (Orton et al., 2011; Cottam and Dillon, 2014). A further challenge is that staff and service-users are often sceptical about initiatives perceived to be primarily motivated by cost-cutting (Needham, 2014; Cunningham, 2017).

A consistent theme within evaluations of ageing interventions is poor definition of evaluation measures at start, and a lack of comparability between different interventions. It is therefore important that evaluation is considered carefully from the outset.

Promoting healthy behaviour

It is well established that smoking, physical activity, diet and alcohol consumption significantly affect later life health and mortality (Ferrucci et al., 1999; Peel et al., 2005; Stewart et al., 2009; Public Health England, 2016).

Combinations of risk factors (e.g. interactions between smoking and heavy drinking) are also important (Shaw and Agahi, 2012). While the data on risk factors is well established, there are challenges in designing interventions that lead to significant long-term behaviour change (Ammerman et al., 2002; Cutler, 2004; Jepson et al., 2010; Dombrowski et al., 2014; Franz et al., 2015).

Jepson et al. (2010) additionally note that health behavior interventions often do not consider social inequalities such as deprivation, and so may not target those most at risk. Interventions also usually focus upon participants who intend to change their behaviour and are willing to participate in an intervention. There is relatively little data on achieving behavioural change in populations who do not intend to change their behaviour or are not motivated to participate in an intervention (Jepson et al., 2010; Hardcastle et al., 2015). In some instances mass media campaigns or changes in policy and legislative frameworks (e.g. additional taxation on tobacco and alcohol) appear to be associated with population-level behaviour change (Cutler, 2004; Jepson et al., 2010). However, the nature of these large-scale programmes means that it is often difficult to conclusively establish cause and effect.

Many attempts to promote behavioural change do not

specifically consider older populations. However, age may be significant in a number of ways. Different age cohorts may have different social norms with regard to issues such as diet and alcohol consumption. Older populations may have distinct physiological characteristics that affect the effectiveness and appropriateness of certain interventions. It may be harder to change habits that have been established for many decades. Life changes such as bereavement, retirement or declining health may also affect motivation to change behaviour. Health campaigns for older people may need to make use of different media strategies. On the other hand, older people may also see more immediate benefits from lifestyle change, providing more of an incentive, and making interventions more cost-effective in the short term.

Alcohol

Alcohol use in older populations may be associated with particular risks, such as drug interactions (O'Connell et al., 2003). Healthcare workers may be less likely to recognize problems such as falls or depression as potential indicators of alcohol abuse in older populations, and may be reluctant to raise the subject with older clients (O'Connell et al., 2003; Johannessen et al., 2015).

Primary care initiatives have been found to be effective in reducing drinking in older populations, although some studies reported that the difference was not sustained at 12 months (Moy et al., 2011; Bhatia et al., 2015; Coulton et al., 2017). Older groups respond to intervention at least as well as

younger groups. However, different intervention designs were used, and there were multiple definitions of problematic alcohol use, making it hard to reach clear conclusions as to the most effective interventions.

There is little literature on interventions for illegal drugs in older populations (Moy et al., 2011; Bhatia et al., 2015).

Tobacco

Smoking cessation interventions have been found to be effective in older populations (Moy et al., 2011; Bhatia et al., 2015). When different interventions were compared, a 12 week intervention followed by extended CBT was reported to be most effective (Bhatia et al., 2015). However, where pharmacological interventions have been used, studies do not report clearly how this has been modified for older patients, meaning there is some uncertainty regarding safe and effective prescribing (Moy et al., 2011). For example, some nicotine replacement medications may be less effective in older patients (Scholz et al., 2016).



Promoting healthy behaviour (continued)

Diet

Body composition and height change with age, but there are no specific BMI guidelines for older populations (Villareal et al., 2005; Mathus-Vliegen et al., 2012). There is little good quality evidence on weight loss interventions in obese older populations (Batsis et al., 2017). There are also dangers that weight loss interventions in older people may result in loss of muscle mass or bone density, and raise the risk of fractures (Villareal et al., 2005; Mathus-Vliegen et al., 2012). What evidence there is suggests weight loss intervention should only be considered for those with a BMI over 30 or with other risk factors, and that dietary changes should be combined with nutritional supplements and resistance training to minimise loss of bone mass or muscle tone (Mathus-Vliegen et al., 2012; Batsis et al., 2017). Clinical studies on surgical and pharmacological interventions for weight loss typically exclude older participants, meaning there is limited evidence as to whether such interventions are appropriate. (Mathus-Vliegen et al., 2012).

Reviews have shown the Mediterranean diet to be beneficial for older people across a number of domains, including reduced mortality and improved cognitive function in older age (Knoops et al., 2004; Loughrey et al., 2017). However, factors such as time pressures and lack of willpower can act as barriers to adopting the Mediterranean diet (Lara et al., 2014). In addition, different definitions of the Mediterranean diet have been used in research and

in guidelines, meaning that there is still some uncertainty about which aspects of the Mediterranean diet are beneficial (Martínez-González and Sánchez-Villegas, 2004; Davis et al., 2015).

Physical Activity

There is clear evidence supporting the benefit of physical activity for falls prevention, maintaining and improving function, and reducing morbidity and mortality in older populations (Bauman et al., 2016). Programmes should incorporate resistance and balance training, with the intention of progressing to walking exercise once safe (Bauman et al., 2016). Sedentary behaviour has been independently associated with poor health, distinct from the impact of physical activity, although some sedentary activities (e.g. reading or computer activities) are associated with reduced dementia risk (Rezende et al., 2014).

A substantial proportion of older people do not meet physical activity guidelines, and this proportion increases with age (Franco et al., 2015; Bauman et al., 2016). Strength and balance targets are less frequently met than aerobic activity targets (Bauman et al., 2016). A review of the literature has identified a range of barriers and facilitators to exercise participation among older people (Franco et al., 2015). Franco et al. (2015) suggests that improving take-up may require the provision of more specific information about the benefits of exercise for older people, and improved access to exercise participation



With regard to interventions, there has been a move away from programmes delivered in community centres, towards home-based interventions (Chase, 2015; Bauman et al., 2016). Chase (2015) conducted a systematic review of the literature, and found physical activity interventions were effective in older populations, with an overall average 73 minute weekly difference in levels of activity between intervention and control groups. Chase reports associations between effectiveness of intervention and the following factors:

- use of theory
- combined cognitive and behavioural aspects
- promoting independent behaviour change rather than oversight of exercise by someone else
- addressing barriers
- incorporating problem-solving
- using audio-visual material (e.g. exercise videos, music, recorded instructions)
- using mailed materials (e.g. newsletters with pictorial instructions, calendars to record activity)

However, Chase (2015) also concludes that further research is needed to establish the most effective form of intervention. She highlights a lack of diversity in study populations, meaning that findings may not be applicable to all groups.

Genetics

There is evidence for a moderate genetic component to life expectancy and to health in later life, based upon twin and family studies (Reed and Dick, 2003; Murabito et al., 2012; Brooks-Wilson, 2013). The relationship between genetics and longevity becomes stronger with age: there appears to be a strong genetic component as to whether or not people live to be centenarians (Iachine et al., 2006; Brooks-

Wilson, 2013). However, Erikson et al. (2016) distinguish between longevity genes, and healthy ageing genes (with the latter being genes that offer protection against common diseases), and suggest that while they may often co-exist, they are distinct phenomena.

There is currently considerable interest and research into the use of genomics within healthcare, for example to identify individuals at risk of disease, and to more

precisely target medical interventions (Collins and Varmus, 2015; Auffray et al., 2016). However, the use of genomics in health is still in its early stages (Collins and Varmus, 2015; Auffray et al., 2016). As yet, few genes that have a strong influence on ageing have been identified, and it is likely that the interaction between genetics and healthy ageing is complex and multi-factoral (Murabito et al., 2012; Brooks-Wilson, 2013; Erikson et al., 2016). The evidence base on using genomics in practical, day-to-day healthcare is limited, and health professionals often lack knowledge (Kirk et al., 2011; Van Der Wouden et al., 2017).

Health Interventions

There have been substantial medical advances in a number of fields, with increased survival rates for cancer and myocardial infarctions ('heart attacks') (De Angelis et al., 2014; Bhatnagar et al., 2015). There is also greater prescribing of preventative medication, such as statins and anti-coagulants (O'Keeffe et al., 2016; Loo et al., 2017).

Guidance on prescribing and other medical interventions is issued by NICE, drawing on research evidence. However, there are critiques with regard to prescribing and older populations. Older people and people with co-morbid health conditions are often excluded from health research studies that form the evidence base for prescribing recommendations (Van Spall et al., 2007; Cherubini et al., 2011; Gurwitz and Goldberg, 2011; Singh and Bajorek, 2015; Sarfati et al., 2016). Guidance on

prescribing is not always followed in practice (Mohammed et al., 2012; Hassan et al., 2016). Some studies report an age bias in prescribing, with older patients being less likely to be prescribed medicines that are clinically indicated (DeWilde et al., 2003; Singh and Bajorek, 2015; Albright et al., 2017).

Research studies suggest that around 20-28% of older people are receiving potentially inappropriate prescriptions, such as drugs that may interact or are at an inappropriate dose (Bradley et al., 2014; Tommelein et al., 2015). This is more common where older people are taking multiple medications (Bradley et al., 2014). Taking multiple medications ('polypharmacy') is also associated with an increased risk of illness or hospitalization deriving from an adverse drug reaction (Davies and O'Mahony, 2015). Many older

patients are not fully adhering to their prescription regime, especially where they are prescribed multiple medication (Pasina et al., 2014; Cross et al., 2016). A review of the literature identified a wide range of factors, including those relating to the patient (e.g. poor memory or personal beliefs), those related to the doctor (e.g. poor communication), those related to the medication (e.g. side effects or cost) and system factors (e.g. a lack of follow up) (Yap et al., 2016).

Medical interventions clearly can improve health, and there are well-established standards for assessing the effectiveness of interventions. However, general practice care for older populations is often more complex than interventions within clinical trials. There is some doubt as to whether existing clinical guidelines fully reflect the needs of older populations with multiple health conditions. It is important that older people's health needs are considered holistically, rather than in a fragmentary way.

Housing

There is strong evidence for a link between the home environment and disability related outcomes (Wahl et al., 2009). However, studies are extremely diverse, making it hard to compare results. Randomised control trials of home adaptations suggest that they can be successful in addressing disability related outcomes (Wahl et al., 2009). For falls, established best practice is for home adaptations to be considered within a multicomponent assessment and intervention (Chang et al., 2004; Wahl et al., 2009; Chase et al., 2012; NICE, 2013).

The effectiveness of assistive technology is mediated by personal

factors affecting take-up (Procter et al., 2014; Greenhalgh et al., 2015). A number of factors can act as barriers to adopting assistive technology, including privacy, trust, functionality, ease of use and stigma (Yusif et al., 2016). The effectiveness of assistive technology is therefore likely to be contextual to the individual and the situation.

Extreme cold or extreme heat are associated with increased mortality within older populations, and this is likely to be compounded where older people live in poor-quality housing stock, have other health problems and/or have fewer financial resources (Rudge and Gilchrist, 2005; Beatty et al., 2014; Hajat, 2017). Initiatives to improve health through improved heating and energy efficiency (e.g. the UK 'Warm Front' scheme) are difficult to evaluate with regard to a direct

impact upon physical health (Green and Gilbertson, 2008; Thomson et al., 2009; Liddell and Morris, 2010; Gibson et al., 2011; Willand et al., 2015). This is especially the case where schemes have been targeted relatively broadly, and dispersed across a large geographic area. However, energy efficiency schemes do appear to have a positive impact upon mental health, which may in the long term also result in improved physical health (Green and Gilbertson, 2008; Liddell and Morris, 2010). Individual factors also potentially play a part—for example, interventions to tackle damp and mould may be dependent on residents changing their behaviour in order to ventilate their properties (Willand et al., 2015).

The built environment

There has been limited research with regard to interventions to prevent falls outside the home (Li et al., 2006). Compared to indoor falls, outdoor falls are more likely to affect relatively young, healthy people, possibly reflecting the extent to which fear of falling may result in avoidance of risk (Bruce et al., 2002; Deshpande et al., 2008; Sixsmith and Sixsmith, 2008; Kelsey et al., 2010). Curl et al. (2016) developed an audit checklist to help occupational therapists and urban designers identify potential fall risks in the built environment, but note a need for further join-up between different professions. Features of the built environment are also associated with physical activity in older populations

(Cunningham and Michael, 2004; Berke et al., 2007; Haselwandter et al., 2015). The 'Age-Friendly Cities' Initiative by the World Health Organization (2007) presents a checklist of features that make the outdoor environment appealing and accessible for older populations

Air pollution is associated with increased hospital admissions and mortality for cardiovascular disease and respiratory problems, with older people highlighted as being a particularly vulnerable group (Rückerl et al., 2011; Macintyre et al., 2016; Samoli et al., 2016). Road traffic noise is also

associated with admission to hospital for cardiovascular disease (Halonen et al., 2015). Air, noise and light pollution also have quality of life implications. The Chief Medical Officer's 2017 report highlighted that the research base on pollution and health is limited, but that tackling pollution should be recognized as a public health priority, with implications for many common later-life health conditions (Davies, 2018).



Social Isolation and Loneliness

Social isolation and loneliness are distinct concepts. Loneliness refers to subjective feelings of loss, while social isolation refers to disconnect from social networks (Windle et al., 2011; Gardiner et al., 2018). However, interventions often do not clearly distinguish between the two, and do not always use standardized measures that could more clearly establish which interventions most effectively improve quality of life (Windle et al., 2011; Gardiner et al., 2018).

Perhaps due to these measurement difficulties, reviews of the literature have produced mixed, and sometimes contradictory findings as to which interventions are most effective. Cattan et al. (2005) reported that effective interventions were primarily group activities with an educational or support component, and that the effectiveness of befriending initiatives or home visiting was unclear. However, Gardiner et al. (2018) reported that one-to-one interventions were as effective as group programmes. Windle et al. (2011) concluded that there was good evidence that befriending and community navigator schemes reduce loneliness, and that group schemes also often had positive outcomes. Hagan et al. (2014) reported that only one out of nine community interventions significantly reduced loneliness, but that three technological interventions (based around a robotic dog, videoconferencing and games consoles) were effective. Masi et al. (2011), looking at loneliness across all age groups, concluded that intervention could be effective but that neither the use of technology nor the distinction between group or individual formats were significant factors.

They instead highlighted the importance of addressing cognitive factors contributing to loneliness. Gardiner et al. (2018) reported that most interventions had some degree of effect, but that interventions were most effective when based around productive activities and developed in consultation with local communities. However, they also note that many of the studies reviewed were small, qualitative studies, and results may not be generalizable. Windle et al. (2011) highlighted that many loneliness interventions rely upon partnerships between statutory and voluntary sector organisations. They suggested that the quality of these partnerships could be one factor affecting the effectiveness of interventions

Diversity and loneliness

A further factor that has not been well addressed in the literature is the diversity of the older population (Windle et al., 2011). Studies into loneliness and social isolation often focus simply on an age group (Hagan et al., 2014). However, experiences over the lifecourse have an impact on loneliness, and different older populations may have different needs. For example, Masi et al. (2011) report that loneliness interventions tended to be more successful for men than for women, possibly associated with the fact that older women are more likely to be widowed. Other research has suggested that older men (especially widowed or divorced men) tend to have smaller social networks than women, and that older age services may be less well suited for men (Davidson, 2004; McLaughlin et al., 2010; Milligan and Morbey, 2013). Specific schemes such as 'Men's

Sheds' have been proposed to more directly appeal to lonely older men but there is not yet robust evidence of their effects on health and wellbeing (Wilson and Cordier, 2013; Milligan et al., 2016).

Older lesbian, gay, bisexual and trans people are known to be more likely to live alone in later life and to have less contact with biological family (McNeil et al., 2012; Williams et al., 2013; Guasp, undated). Retaining contact with an LGBT community can be important for LGBT people in later life, but may be difficult for those living in rural areas (Heaphy et al., 2004)

Research with black and minority ethnic (BME) communities has highlighted a lack of cultural awareness within older people's services, and poor access to translated information (Manthorpe et al., 2008). The prevalence of loneliness has also been reported to be higher within some older BME populations (Victor et al., 2012). There is substantial diversity within and between different BME communities, further affected by factors such as cohort, community, language and lifecourse (Phillipson, 2015). There is little systematic research on interventions to address loneliness within older BME populations, especially for rural areas (Windle et al., 2011; Manthorpe et al., 2012).

Disability and poor health can further mediate the interaction between loneliness and age. For example, older people with physical disabilities may experience more barriers to social participation, while loneliness appears to be common among people with intellectual disabilities (Russell, 2009; Petroutsou et al., 2018). Again, there is limited evidence on the effectiveness of intervention for people with disabilities (Beer et al., 2015; Petroutsou et al., 2018)

Integrating health and social care

Fragmentation of health and social care services has repeatedly been highlighted as a problem within services for older people, contributing to issues such as a lack of holistic consideration and delayed discharge from acute services (Challis et al., 2014; National Audit Office, 2016; 2017). However, while there is an established consensus that integrated care is desirable, the concept is inconsistently defined, and lacks a clear empirical evidence base (Armitage et al., 2009; Shaw et al., 2011; George et al., 2017; National Audit Office, 2017).

The government's Better Care Fund aims to develop integrated care

through requiring pooled budgets between health and local government, but with substantial diversity in the models adopted in different regions (Department of Health, 2017). The National Audit Office (2017) concluded that the Better Care Fund had achieved some success in encouraging health and social care teams to work more closely together, reducing admissions to care homes and assisting people to remain at home following hospital discharge. However, overall the programme was not meeting its objectives, and projected cost-savings were over-ambitious. In addition there was poor governance oversight of a very wide-ranging programme, and a

lack of comparable data for evaluation

The National Audit Office (2017) highlighted three long-standing barriers that have not yet been systematically addressed: financial structures that deter integrated working; difficulties in recruiting and retaining staff throughout many parts of the health and social care sector; and barriers to information sharing. Cameron et al. (2014) additionally highlight the challenges of local organisational and cultural factors: for example, poor understanding of the roles and requirements of different partner organisations, and the ongoing context of financial uncertainty and service reorganisation.

Strength-based approaches

Strength based (or asset-based) approaches within gerontological social work focus upon working with the individual to recognise individual and community strengths that can be maintained and developed (Greene and Cohen, 2005; Janssen et al., 2011; Social Care Institute for Excellence, 2015). There are close links to the concept of resilience (Greene and Cohen, 2005). Strength-based approaches are suggested to be less patronising or pathologising than other models, and place the emphasis upon facilitating older people to take control of their own lives.

The Social Care Institute for Excellence (2015) encourages providers to conduct strength-based assessments through asking open-ended questions, mapping

relational and community resources and avoiding a 'tick box' approach. However, taking this approach potentially requires additional commitment of time and effort. SCIE also highlight the possibility of misinterpretation between professional and service-user. Collection of open-ended, non-standardised data also inevitably results in such data being harder to compare and evaluate

Gray (2011) highlights a number of critiques of the strength-based approach. Embedding such an approach may be unrealistic in the context of current social work structures. The strength-based approach implicitly places responsibility for wellbeing upon the individual and their community. This risks overlooking structural

issues such as deprivation and marginalisation. Some communities have fewer assets available, and some individuals may face substantial additional barriers in accessing community resources. There is also a danger that poorly-executed attempts to recognise and develop community assets could result in professionals imposing their own views rather than recognising what is important to communities.

Although there are case studies of successful strength-based schemes, overall empirical assessment of the strengths-based approach is limited, and it is difficult to disentangle the factors that lead to success (Staudt et al., 2001; Gray, 2011). Staudt et al. (2001) suggests that the strengths-based model should be understood as a philosophical stance rather than as a distinct model of practice.

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