ORIGINAL INVESTIGATION

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How to understand and improve older people's self-management of wellbeing

Abstract This paper addresses the question of how older people can be supported to actively self-manage their own process of ageing such that overall wellbeing is achieved and maintained for as long as possible. Starting from a resource-based approach, a new theory of self-management of wellbeing (SMW theory) is proposed, and it is shown how it can be used as a basis for the design of self-management interventions for ageing successfully. The main aspects of the theory, i.e. six key self-management abilities and the core dimensions of wellbeing, are presented as well as the theory-based 'blueprint' for the design of interventions. Empirical results of two intervention studies are briefly presented and show that the SMW theory may be a useful tool for the design and evaluation of interventions for successful ageing.

Keywords Resources · Social production function theory · Self-management of wellbeing theory · Interventions · Successful ageing

Introduction

More and more it is acknowledged that ageing successfully is not only a matter of having the right genes, but also of the way in which individuals actively manage their own ageing process. Two trends underline the importance of active self-management and empowerment in ageing. Firstly, the growing of the older population and the threat of an overloaded health care and

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welfare system make it increasingly important that older adults are able to take care of themselves for as long as possible. Secondly, an increasing number of healthy years urge older people to find 'their way' all by themselves, because these added years have relatively little sustaining social structure and few meaningful roles (Riley and Riley 1994). In that sense, 'successful ageing' can be seen as the ability to take care of oneself and to find one's own way, as one grows old. Not everyone can do it equally well and if we could identify what it takes to improve this ability, we would have made a contribution to solving problems of both trends. There may thus be a need for guidelines or interventions aimed at the self-management of wellbeing in ageing, not only to support older persons who have suffered specific losses, but also to aid in the prevention and delay of ageing-related problems and to contribute to the (pro)active creation and maintenance of one's own wellbeing. What may be especially needed are self-management interventions that provide people with a general repertoire of cognitive and behavioural abilities for dealing with different and interacting ageing-related challenges, and at the same time, reinforce their strengths for achieving their wellbeing. The present paper tries to pinpoint those aspects that may be most important to consider in general self-management interventions.

Why would older people, more than others, need to be aided in maintaining and building up such a general repertoire of cognitive and behavioural abilities? Ageing often implies that reserves and resources in more than one domain decline and often these losses reinforce each other. For example, loss of social roles may negatively affect people's mood which, in turn, may undermine the energy to take care of one's physical health and condition. The latter may subsequently lead to further loss of social activities and resources, and so on. Thus, a small loss in one domain may lead to downward spirals of resource-loss in multiple domains. Due to declining reserve-capacities to compensate fully for certain resource-losses, older people may be especially at risk of becoming vulnerable or frail, and thus become relatively more

at risk of declines in wellbeing than younger people. Therefore, for older people it may be especially important that they have a divers repertoire of self-management abilities to disrupt possible downward spirals in various important domains of wellbeing. At the same time, this repertoire should include abilities to reinforce one's strengths, and as such create and consolidate important resources for maintaining wellbeing. Thus, older people may benefit from self-management interventions that do not just focus on one specific (health) problem, but that cover all basic aspects of wellbeing, including those that help them proactively to maintain wellbeing.

Yet, what should self-management interventions for wellbeing in ageing be based on? What would people need in order to self-manage their own process of ageing successfully, and can this be taught? In the physical realm, important insights about self-management behaviours and healthy lifestyles have been developed and translated effectively into interventions (e.g. Clark et al. 1992; Lorig et al. 1999). However, successful ageing not only implies maintaining physical health, but also maintaining social and psychological wellbeing (Baltes and Baltes 1990; Rowe and Kahn 1987, 1997). Therefore, it is also important to identify self-management behaviours in the social and psychological realm, and to investigate how they can be learned or improved.

So far, ageing-related self-management interventions—addressing not only health, but also social and psychological wellbeing—seem relatively scarce (cf. Pinquart and Sörensen 2001). Existing interventions commonly focus on how to cope with specific problems such as depression (e.g. Bohlmeijer et al. 2003) or loneliness (e.g. Stevens 2001). Relatively few interventions are designed to explicitly focus on the achievement and maintenance of overall wellbeing in later life, by teaching preventive and (pro)active self-management abilities for ageing successfully (for an exception see Bode et al. 2005). Therefore, in this paper we aim to contribute to the development of such self-management interventions. We do so by proposing a theory of self-management of wellbeing that can be used as a basis for the design of interventions. In the following section, we will first present the main aspects of the theory. Next, the theory-based 'blueprint' for the design of interventions will be presented. Empirical results of two intervention studies that have been conducted on the basis of this theory will be briefly presented.

A resource-based approach: two kinds of resources

In order to analyse the possible processes of self-management of wellbeing in ageing, we start from a resource-based approach, because we believe this offers a useful heuristic to investigate and understand what physical, social and psychological assets are needed for the achievement of overall wellbeing over the life span and thus for successful ageing (for a review of resource

models, see Hobfoll 2002). It also offers insight in how people *manage* (or fail to manage) their resources in such a way that overall wellbeing is achieved and maintained over the life span. This may lead to the identification of key resources and self-management abilities that possibly can be manipulated by interventions. Key resources that are identified in the literature are, for example, self-efficacy, optimism and social support (e.g. Hobfoll 2002). However, we propose to explicitly distinguish between *two kinds* of key resources. These we will refer to as *external* and *internal* key resources (cf. Greenglass 2002). External key resources are those that contribute to wellbeing from the 'outside', such as food, shelter and social support. Internal key resources are skills and abilities (including self-management abilities) that contribute to wellbeing from the 'inside'; they yield wellbeing in themselves, but, more importantly, they are means by which people are able to *manage* their external key resources. Having external key resources is thus essential, but not sufficient for the maintenance of wellbeing: people also need to be able to manage their external key resources such that they indeed yield wellbeing *and* are made 'sustainable' (for the maintenance of wellbeing). For example, having social relationships that provide social support (as an external key resource for wellbeing) requires the management ability to indeed achieve and maintain social support. Important skills in this respect would be, for example, the abilities to take initiatives and to invest in social relationships.

Being able to manage one's external key resources adequately (by self-management abilities) will be important during the whole life span, because managing one's external key resources is a lifelong process. Yet, as argued earlier, in the later phases of life it may become relatively more important to have adequate self-management abilities, because of the changing balance between gain and loss of external key resources in later life (Baltes 1987). Ironically, in part as a consequence of losing external resources, the self-management abilities may also decrease with ageing, exactly when people need their self-management abilities most. Thus, in the process of ageing, self-management abilities become relatively more important. This can be illustrated by the ability to *invest* in the build-up and maintenance of external key resources. This ability refers to large investments for the longer term, such as moving to another house in which it will be easier to cope with possible disabilities that occur with ageing, and also to small investments in the relatively short term, such as going to bed early in order to feel better the next day. However, people can lose this ability, as they grow older. When people are confronted with losses that cannot be compensated, and with a decline in opportunities and prospects, the ability to invest tends to decline as well. In these circumstances, people will become relatively more present-oriented, which may even be exacerbated by a factual shrinking of the time-horizon with age (Carstensen et al. 1999). However, when people become too present-oriented, they will behave less proactively and,

as a consequence, will also lose external resources (cf. Hobfoll 1998). Thus, external resources and self-management abilities are so closely intertwined that the loss of external resources may, in fact, lead to a self-reinforcing downward spiral of further loss of both external resources and self-management abilities.

In sum, we suggest that a resource-based approach and the identification of two kinds of key resources can help us pinpoint where cumulative problems in maintaining wellbeing can arise. The question then is, to identify those self-management abilities that are both important and in principle modifiable by interventions.

Six key self-management abilities

A first consideration to make is that the key self-management abilities we are looking for must be those needed to adequately manage *gain*, *maintenance*, and *loss* of external key resources. For these three purposes, self-management abilities must serve both *present* and *future* outcomes. The future is important because the maintenance or 'sustainability' of resources necessitates investments, even in older age, and thus an orientation towards the future. The present is important because most people value 'instant utility' of their resources (Kahneman 1999), and because future-oriented behaviour will be easier to execute when, at the same time, it yields positive feelings in the present. For instance, eating healthy food for the maintenance of good health in the future will be easier if the healthy food is tasty.

Another consideration is that the key self-management abilities must include *cognitions* that further the ability to take action. Such cognitive processes are relevant not only for loss-based coping, but also for the (pro)active management of external resources. For example, if people do not believe they are efficacious, they may not engage in action (Bandura 1997). But adequate cognitions are not enough. Even if people do feel efficacious, they need to take specific actions to achieve desired results. For this reason, *active-motivational* processes are also important in resource management. Finally, *resource-combining* and *resource-multiplying* processes are important in resource management because they create synergetic effects and buffers against loss (cf. Hobfoll 1998; Nieboer and Lindenberg 2002). On the basis of these considerations and the relevant literature (see next sections), we propose six key self-management abilities, that are jointly relevant for the successful management of resources in the process of ageing, and that are modifiable by interventions. While most of these abilities have been suggested earlier in the literature, there has, to our knowledge, not yet been such a systematic and comprehensive combination of abilities presented to date.

The two cognitive abilities are *self-efficacy beliefs* and *a positive frame of mind*. The two active-motivational abilities are *taking the initiative* (or being agentic) and *investment behaviour*. The two resource-combining abilities are: taking care of *multifunctionality of resources* (same resources yield various outcomes at the same time) and *variety in resources* (such that one has buffers in case resources are lost). In the following, these six abilities are described in more detail. Each ability will be analysed in terms of its role in the successful management of resources, as well as in terms of whether it is, indeed, an ability that can be assumed to decline during the process of ageing and is therefore an important target for interventions.

Self-efficacy beliefs

The self-management ability 'being self-efficacious' refers to the ability to gain and maintain a belief in personal competence, control or self-efficacy in achieving various aspects of wellbeing. Although a wide range of different definitions of (perceived) control exist (for a review see Skinner 1996), we refer to self-efficacy here as belief in being effective in one's interactions with the environment and in the pursuit of goals. Self-efficacy beliefs—so defined—are hypothesised to be important for achieving and maintaining (resources for) wellbeing, because the higher a person's self-efficacy beliefs are, with regard to gaining and maintaining such resources, the more likely it is that the person will, indeed, undertake the activities and efforts needed to do so.

With ageing, self-efficacy beliefs may become undermined by the loss of physical abilities, decreasing opportunities and increasing experiences of loss and failure. Bandura (1997, p 211) even argues that disuse and undermining cultural practices, rather than biological ageing, may cause a declining sense of efficacy, which may result in a negative spiral of self-debilitating appraisals, and subsequently in a progressive loss of motivation, interest, and skill. Age-related declines in domain-specific self-efficacy or control beliefs have, indeed, been reported (Lang and Heckhausen 2001), as well as age-related declines in general self-efficacy (Steverink and Kempen 1998). Indirect evidence for the relationship between loss of resources and self-efficacy is provided by studies that have found a positive relationship between physical, social, and emotional resources and strong self-efficacy beliefs (Lang et al. 1997; Zautra et al. 1997). Self-efficacy beliefs have been found to predict a wide range of positive outcomes at all ages (for a review, see Bandura 1997). In older people, positive effects have been found for perceived functional ability (Seeman et al. 1999), as well as for indicators of subjective wellbeing (Lang and Heckhausen 2001; Zautra et al. 1997).

A positive frame of mind

The self-management ability 'a positive frame of mind' refers to the ability to adopt and maintain a positive frame of mind or positive expectations even when things

do not seem to turn out well. It is hypothesised to contribute to the overall wellbeing because it extends the time-horizon and boosts confidence which, in turn, encourages people to begin activities and not to give up easily (Aspinwall and Taylor 1997; Taylor et al. 2003). Thus, people with a positive frame of mind are expected to manage their resources more actively and adequately than people with a negative frame who are prone to become insecure, make less effort and are easily discouraged (Hobfoll 1998), leading them to make sub-optimal choices with respect to the maintenance of their resources.

Empirical evidence supporting these claims shows that with ageing, in general, there is a decline in positive expectations and an increase in expectations of loss and decline, the more so the more resources are lost (Connidis 1989; Steverink et al. 2001). Yet, positive expectations have also been found in older people (Connidis 1989; Timmer et al. 2002) and such a positive frame of mind was found to be related to subjective wellbeing (Steverink et al. 2001) and longevity (Levy et al. 2002). By contrast, a negative frame of mind was found to be related to admission to a nursing home (Haken et al. 2002; Steverink 2001), to problems in adapting to widowhood (Nieboer et al. 1999) and to attaching low importance to seeking help for age-associated conditions, such as depression, memory impairment and urinary incontinence (Sarkisian et al. 2002).

Taking the initiative

The self-management ability 'taking the initiative' refers to the ability to take initiatives or to be agentic. This ability, although closely related to self-efficacy, is considered here to be a separate ability, because the belief in one's competence is not automatically linked to the motivation to use one's competence (cf. Deci and Ryan 1995). Thus it is hypothesised that taking the initiative with regard to important resources, as opposed to being or feeling passive, dependent or fatalistic, is necessary for the achievement and maintenance of wellbeing.

With ageing, as a consequence of losses in resources, together with decreasing opportunities and challenges, there may be a decline in the rate and range of self-initiated behaviour and an increase in dependency (Baltes 1996). The general construct that has been the focus of most research on this aspect of adaptive behaviour is autonomy (vs dependency). The autonomy construct, as developed by Deci and Ryan (1995), is motivational rather than cognitive, and thus fits well with our concept of 'taking the initiative'. For example, it has been found that nursing home residents who experienced greater autonomy reported less depression and higher self-esteem, life satisfaction, meaning in life, general health and psychological adjustment (e.g. Vallerand and O'Connor 1989). Similarly, in nursing home residents Kasser and Ryan (1999) found that greater autonomy in daily activities predicted decreased mortality over a 1-year period.

Investment behaviour

The self-management ability 'investment behaviour,' as explained earlier, is important for achieving stability in resources and thus for the maintenance of wellbeing in the longer term. Therefore, it is hypothesised that a certain amount of investment behaviour is important for the realisation and maintenance of wellbeing, even with increasing age and a declining time-horizon. Without investment behaviour there will be a (stronger) decline in resources and wellbeing.

With ageing, this ability may decline as a consequence of a decreasing time-horizon and the loss of external resources and opportunities. It has, indeed, been found that older individuals become ever more present-oriented, and have a less extended future perspective than younger people in general (Carstensen et al. 1999). Yet, when older individuals are able to maintain a certain amount of investment behaviour, this clearly will have a positive effect on their overall wellbeing. For example, as Kahana et al. (2002) have shown, proactive prevention activities in older people have positive consequences for longevity, as well as for indicators of subjective wellbeing. Although there are only a few studies that have investigated investment *behaviour* in ageing individuals, other studies have closely examined related aspects of future orientation and planning in older people. It has been found that older people who maintain a future orientation, and also plan for the future, report higher levels of life satisfaction (Prenda and Lachman 2001). Moreover, a positive future orientation was found to predict affective adaptation (Isaacowitz and Seligman 2002).

Multifunctionality of resources

Multifunctional resources are those resources or activities that serve multiple aspects of wellbeing (e.g. social and physical wellbeing) simultaneously and in a mutually reinforcing way. Because of this mutual reinforcement, multifunctional resources are of special importance for the realisation of wellbeing (see Lindenberg 2001; Nieboer and Lindenberg 2002). Therefore, the ability to maintain or regain multifunctional resources is important for wellbeing in ageing. A spouse, for instance, is often a multifunctional 'resource'. Interacting with a spouse fulfils the need for affection, and at the same time fulfils the need for, for example, activation. Another example of multifunctionality is having dinner (fulfilling the need for food) with friends (fulfilling the need for affection).

With ageing, there may be a decline in multifunctional resources and activities, due to the loss of a partner or close friends, and also because of a decrease

in opportunities to participate in occupational and other formal settings (Riley and Riley 1994). Such settings often offer opportunities for multifunctionality, for example, through interaction with colleagues and by performing tasks that yield reinforcing physical and social rewards. Because multifunctional resources or activities are hypothesised to yield more overall wellbeing than unifunctional activities or resources, the loss of these opportunities is therefore expected to have a particularly negative impact on wellbeing. Moreover, it is often hard to substitute or compensate the loss of a multifunctional resource. For instance, the loss of a spouse and subsequent widowhood, which is a common experience in later life especially for women, often has a broad impact on different aspects of wellbeing (Nieboer et al. 1999), moreover because the loss of the spouse often involves the loss of other relationships as well (Allan and Adams 1989). Other empirical evidence for the importance of multifunctional resources or activities for overall wellbeing is found in studies that show both higher levels of wellbeing (Harlow and Cantor 1996) and increased longevity (Glass et al. 1999) in older people who remain socially active and productive.

Variety in resources

The sixth self-management ability is the ability to gain and maintain a variety in resources. Variety here means having more than one resource or activity to achieve a specific aspect of wellbeing. For instance, having not only a spouse for obtaining affection, but also a close friend, means having more than one resource from which to obtain affection. Variety reduces satiation effects, and therefore leads to a higher overall level of wellbeing. However, its primary importance lies in its buffer function, and thus its function in the maintenance of wellbeing, because a variety in resources implies that there are possibilities to compensate loss (see also Nieboer and Lindenberg 2002).

With ageing, individuals are exposed to an increasing risk of losing variety in resources, as a consequence of declining physical energy and decreasing participation in different roles (Adelman 1994a; Morgan 1988; Rosow 1976), activities (Van Eijk 1997) and social interaction (Carstensen 1992; Lang and Carstensen 1994). This is likely to lead to a lower level of overall wellbeing. For instance, Lam and Power (1991) have shown that people who are over-involved in one domain, or have a lack of goals in several domains (i.e. a lack of variety), are more likely to be depressed. Other research has shown that multiple roles have a positive impact on the psychological wellbeing (Adelman 1994a; Thoits 1983) and health (Adelman 1994b) of older people.

We consider the six self-management abilities identified here to be the key abilities for managing resources in such a way that wellbeing is achieved and maintained. However, although these six abilities can be specified theoretically as distinct abilities, in reality they will relate to each other and mutually reinforce each other. For instance, self-efficacy reinforces the taking of initiatives, and a positive frame of mind reinforces investment behaviour, and vice versa. Moreover, the theoretical derivation of these six abilities does not imply that other abilities may not also be important for ageing successfully. But from the resource-based approach presented here, these six abilities emerge as interacting key abilities. In the literature, most of these abilities have commonly been analysed and investigated separately. Here, we integrate them into a larger framework of self-management of wellbeing because much speaks for their *joint* importance for sustainable wellbeing.

Criteria for success: overall wellbeing and its dimensions

So far, an important aspect of a framework for self-management of wellbeing—and the design of interventions—is still undefined: what are the internal key resources exactly needed for? So far we stated that they are needed for the maintenance of overall wellbeing. But what does 'overall wellbeing' mean and, more importantly, how should it be addressed in interventions? In the following we will elaborate on this point and show that, in order to design interventions for self-management of wellbeing in ageing, an explicit connection of self-management abilities *and* the main dimensions of wellbeing is imperative.

Despite the ongoing debate about the criteria of 'success' in successful ageing (e.g. Baltes and Carstensen 1996; Schulz and Heckhausen 1996; Kahn 2002), the need for clear criteria for 'success' becomes especially salient when 'success' is defined in terms of wellbeing and one tries to design interventions for self-management of wellbeing. Effective intervening implies that the objectives of the intervention, and also the criteria according to which the effectiveness of the interventions can be determined, are clear. For instance, a medical intervention may have the objective to cure a certain disease, and thus the objective to thereby improve the physical health of a patient. The same holds for a psychosocial intervention, which may have the objective to teach a person social skills for improving his or her psychosocial wellbeing. With respect to assessing the effectiveness of both types of interventions, it is clear that the criteria for effectiveness are directly derived from the objectives of the interventions: the medical intervention will be effective when, indeed, the disease is cured and the physical wellbeing of the patient has improved. The psychosocial intervention will be effective when, indeed, the social skills are learned and the psychosocial wellbeing has improved. Thus, especially when the aim is to design interventions for the self-management of wellbeing in ageing, it is essential to define the 'success' criteria precisely.

In our opinion (see Steverink et al. 1998), the criteria for 'success' in ageing can best be based on a (resources-based) theory of human wellbeing, which explicates

what dimensions wellbeing consists of and how it is achieved by resources or undermined by lack of resources. A theory that fits this concept is the social production functions (SPF) theory (Lindenberg 1996, 2001), which has been widely applied in various contexts, also for understanding the processes of development and ageing (for more details, see Lindenberg 2001; Ormel 2002; Ormel et al. 1999; Steverink et al. 1998). Empirical evidence for (parts of) the SPF theory can be found in a number of studies (e.g. Nieboer and Lindenberg 2002; Nieboer et al. 2005, 1999; Steverink 2001; Steverink and Lindenberg 2006; Van Bruggen 2001; Van Eijk 1997). A comparison of SPF theory with other theories of wellbeing can be found in Van Bruggen (2001).

SPF theory basically combines a theory of human wellbeing with a behavioural theory about how individuals use their resources in order to achieve wellbeing. Here, we will focus on the theory of wellbeing of SPF theory, as this part of the theory seems very helpful in defining 'success' and in integrating the key self-management abilities (as elaborated in the former section) with concrete dimensions of wellbeing.

The basis for the theory of wellbeing in SPF theory is a hierarchy of universal needs, instrumental goals and resources. 'Needs' in this theory refer to a restricted set of basic, physical and social needs, which must be at least minimally fulfilled for a person to experience overall wellbeing. The better the needs are fulfilled, the higher the individual's overall wellbeing. Needs in this approach are by definition inherent, universal and relevant to people of all ages, and in SPF theory they are conceptually distinguished from instrumental goals and resources. These goals and resources have a lower place in the hierarchy: the needs are on the top three layers; and goals and resources—lower in the hierarchy—are the instruments by which these needs can be fulfilled. 'Social production functions' specify the relations between the various levels. For example, a close tie is a means (lower in the hierarchy) to fulfil the need for affection (higher in the hierarchy). A close tie is thus a resource, but, when it has not yet been realised, it can also be an instrumental goal that people pursue. Goals and resources are thus considered as two sides of the same coin.

At the top of the hierarchy there is the ultimate need of overall subjective or psychological wellbeing, and immediately underneath this top level are the two universal needs of physical wellbeing and social wellbeing. The basic idea is thus that people realise overall subjective or psychological wellbeing by realising physical and social wellbeing. There is a general consensus that these three—psychological, physical and social wellbeing—are universal dimensions of wellbeing (WHO 1985). However, SPF theory goes one step further and specifies another layer in the hierarchy with basic (universal) needs. For physical wellbeing two basic needs are specified: *comfort* and *stimulation*. Comfort refers to physical comfort, i.e. the satisfaction of basic physical needs, such as food, drink, rest, warmth, the absence of pain, fatigue and other health complaints, and the absence of fear. Stimulation refers to the 'pleasant' range of activation (physically and mentally), i.e. the absence of boredom, and the right amount of exposure to novelty, challenges and interesting events. Social wellbeing, according to the SPF theory, is achieved through the fulfilment of three basic social needs: *affection*, *behavioural confirmation*, and *status*. Affection is loving, the feeling of being loved by certain others and of loving oneself; the feeling that others (and oneself) care. Behavioural confirmation is the feeling of doing, or having done, 'the right thing' in one's own eyes and in the eyes of relevant others. Status is an aspect of social wellbeing that is achieved by the feeling of being 'better than' many others in one's own eyes and in the eyes of relevant others. Status can be achieved by having or controlling socially valued resources, such as privileges, money, talent, power, knowledge, etc.

The assumption that these five needs are basic has received considerable support from empirical studies, and there is confirmative evidence from evolutionary perspectives that humans, in general, are not only biologically hardwired to aspire and appreciate comfort, stimulation, and affection, but also to have their membership confirmed and to strive for status within the group (e.g. Baumeister and Leary 1995; Buss and Kenrick 1998; Reis et al. 2000; Taylor et al. 2002). Van Bruggen (2001) explored the social needs of people, as proposed by the SPF theory, in an extensive qualitative study, and found strong evidence for the three social needs. Nieboer et al. (2005), in their study of a large representative sample of the Dutch population, also found corroboration for the five basic needs in a confirmatory factor analysis.

The physical and social needs of SPF theory overlap with, for example, the hierarchy needs of Maslow (1970), but there are also important differences (for a detailed discussion see Lindenberg 1996). The main difference concerns the possibility of substitution and compensation in the fulfilment of different needs. In SPF theory, contrary to Maslow's hierarchy of needs, individuals require only a certain level of satisfaction of both physical and social needs. Beyond this, substitution is possible, and likely whenever the satisfaction of one need becomes more difficult than that of another need. Thus, it is possible that people are willing to sacrifice physical need satisfaction for an improvement in social need satisfaction, and vice-versa. For example, youths are often willing to undergo physically painful initiation rites in order to be accepted by the group.

Below the level of the five basic needs there are other levels of (instrumental) goals and resources in the hierarchy, which will become ever more idiosyncratic as we move down in the hierarchy. For instance, affection may be achieved by the lower-order resource of intimate interaction with a spouse, but also may be achieved through interaction with a close friend, or grandchild. This characteristic of the hierarchy—ever more idio-

syncratic resources the lower we are in the hierarchy—is useful for the design of interventions, because lower in the hierarchy the 'client' has the freedom to choose by which specific resource(s) a certain need (higher in the hierarchy) can best be fulfilled. For example, affection can be achieved by interaction with a spouse, but also a friend, or a grandchild, of even a pet. Thus, in the 'blueprint' of the intervention only the basic needs (of wellbeing) will be pointed to; it is up to the 'client' to go after the lower-level resources that best fit his or her condition.

Social production functions theory assumes that individuals actively pursue courses of action which they believe will enhance their physical and social wellbeing. However, due to losses in resources and negative experiences, people may falsely believe that certain courses of action are no more possible or not worthwhile. Their time perspective may also have contracted as a result. These false beliefs and shortened time perspective may apply to any one of the six self-management abilities and to any one of the five needs. For example, a person may believe that without being able to walk, she has lost control over visiting people (a loss in self-efficacy). In addition, she may believe that the loss of mobility makes her unattractive to all but the most intimate family members, thus reducing telephone calls to these few close relations. As an unintended side effect, she has given up most possibilities to realise behavioural confirmation. Two important points follow from this line of argument. First, people are basically self-regulators, because they have a natural tendency to improve on their condition. Thus, they do not have to learn to self-regulate. However, they may need help in seeing possibilities to self-regulate optimally and in a wide diversity of situations. Once they understand and accept these possibilities, they will take advantage of them. Secondly, the possibilities to self-regulate pertain not just to various kinds of *general* self-management abilities (as specified by SMW theory), but also to the application of these abilities to the full range of physical and social needs that are assumed to be universal as specified by SPF theory. For this reason, it seems essential that self-management interventions also specify the most important targets for self-management, not just the abilities. And this is what distinguishes the approach taken here, i.e. the self-management of wellbeing theory and the interventions based on it, from interventions that focus on coping with a particular problem (such as a specific health problem).

With the help of the SPF theory of wellbeing—with the five basic needs as the five main dimensions of wellbeing—it thus becomes possible to link the six self-management abilities with concrete targets. What should one be self-efficacious about? Or towards what should one take initiative? In order to define the abilities as abilities that contribute to wellbeing (and thus to 'success'), each ability needs to be connected to each of the five dimensions of wellbeing, as shown in Fig. 1. The matrix in Fig. 1 should be read as such that each of the

six abilities is connected to each of the five dimensions of wellbeing. For instance, self-efficacy beliefs *with regard to* comfort, stimulation, affection, behavioural confirmation and status; a positive frame of mind *with regard to* comfort, stimulation, etc., and so on.

The matrix in Fig. 1 basically shows the elements of the theory of self-management of wellbeing, as explained. Moreover, it shows the 'blueprint' for the design of interventions and the concrete ingredients for the interventions. In order to be able to evaluate the effectiveness of these interventions, the 'blueprint' has also been used as the basis for the development of a measurement instrument to measure the level of self-management ability, the Self-Management Ability Scale (SMAS-30). Results of two scale development studies that we have conducted (Schuurmans et al. 2005) show that the scale has good psychometric properties. Moreover, structural equation modelling has shown that the matrix model of abilities and dimensions of wellbeing gives a very good fit to the data, compared to models of only the abilities or only the dimensions of wellbeing (see Schuurmans et al. 2005).

In the following section we will shortly describe the empirical results of two intervention studies that we have conducted on the basis of the SMW theory and the 'blueprint' as proposed. Because the focus of the paper at hand is on the presentation of the theory, the empirical intervention studies will only be described shortly. For more details of these studies we refer to the empirical publications (Frieswijk et al. 2005; Schuurmans 2004).

Two intervention studies

Based on framework as described, the authors have initiated a comprehensive research programme, which is called "GRoningen Intervention Programme" (GRIP).[1] The programme includes several intervention studies based on the theory of self-management of wellbeing as described in this paper. For all interventions the important target groups are older people who, to some degree, are vulnerable or frail, which makes them at risk for declines in wellbeing. With 'vulnerable or frail' we here mean that these people have a lack of reserves in important resources (e.g. health, social support, social roles, etc.) or have one or more (beginning) losses in such resources. However, because vulnerability exists in different degrees, we developed a frailty measure to select the target groups on the level of their vulnerability or frailty (Schuurmans et al. 2004). Moreover, the specific form of the interventions is adapted for the level of vulnerability or frailty: for severely frail people an *individual* home-based self-management training was developed and tested (Schuurmans 2004); for slightly to

Dimensions of wellbeing ▶ Self-Management Abilities ▼	Comfort	Stimulation	Affection	Behavioural confirmation	Status
Self-efficacy beliefs					
Positive frame of mind					
Taking the initiative					
Investment behaviour					
Multifunctionality of resources					
Variety in resources					

moderately frail older people we developed and tested a *self-help* self-management intervention (i.e. bibliotherapy; Frieswijk et al. 2005).

Two intervention studies have been completed so far, both using randomised control group designs with three measurement moments (pre-test, two post-tests), and using psycho-educational training techniques covering the six abilities combined with the five dimensions of wellbeing, as shown by the matrix in Fig. 1. Both studies (Frieswijk et al. 2005; Schuurmans 2004) showed improvement on overall self-management ability in the experimental groups as compared to the control groups, and these effects remained significant after 6 months for the bibliotherapy (Frieswijk et al. 2005) and after 4 months for the individual home-based training (Schuurmans 2004). Both interventions also showed significant improvements in four of six of the separate abilities: self-efficacy, taking initiative, investment and variety. For the abilities positive frame and multifunctionality the effects were not significant. Future research must reveal how these latter two abilities can be improved, because both have been shown to be important for wellbeing. A final important finding of both intervention studies was the expected positive effect of improved self-management ability on overall wellbeing (Frieswijk et al. 2005; Schuurmans 2004).

Discussion

This paper addressed the question of what the key self-management abilities are for older people, that are important for managing their resources such that their overall wellbeing is maintained or even improved, and losses are avoided or adequately coped with. With the help of ideas about key resources—and the explicit distinction between external and internal key resources—six key self-management abilities (as internal key resources) could be specified. Moreover, with the help of a theory about human wellbeing—the Social Production Function (SPF) theory—explicit criteria for success (wellbeing and its dimensions) were specified. Both specifications led to the formulation of the theory of self-management of wellbeing (SMW theory), and both specifications are considered to be essential for the design and evaluation of interventions, because it is important to know *which* behavioural and cognitive self-management abilities are presumably essential for gaining and maintaining wellbeing (and are modifiable by interventions), and *what* wellbeing essentially refers to in terms of concrete dimensions that also can be addressed in interventions.

Although the model as presented here integrates a number of existing insights, we believe it is innovative in three respects. First, the distinction between two kinds of key resources—with a focus on the internal key resources (next to external resources)—is innovative because the internal resources contain the abilities that are needed to manage (external) resources in such a way that wellbeing is achieved, maintained or restored. So far, this distinction has seldom been made in resource-based approaches, but we believe it is an important distinction *when* the aim is to identify self-management abilities (as internal key resources) that can decline, but that can also be improved by self-management interventions for successful ageing.

Secondly, most of the identified self-management abilities are not new in themselves, but it is new that they are placed in a resource-based perspective *and* are integrated into one model of six key self-management abilities, that cover both present- and future-oriented abilities, and that cover cognitive as well as active-motivational and resource-combining abilities. Commonly, abilities such as self-efficacy or a positive frame of mind (positive thinking) are addressed separately. Moreover, often only cognitive strategies are considered. However, as we have argued, single abilities, such as self-efficacy, are not sufficient. Other abilities, especially active-motivational and resource-combining abilities, are also important for achieving, maintaining and restoring resources for wellbeing over the life span. These abilities reinforce each other and cumulate to higher levels of self-management. Thus, if the aim is to develop a model of self-management of wellbeing in ageing with concrete abilities that can be addressed in interventions—providing older people with a divers repertoire of abilities by which they are able to disrupt possible downward spirals *and* reinforce their strengths—all key self-management abilities should be identified and integrated.

A third and final new aspect of the model is the explicit connection of the six abilities to the important dimensions of wellbeing (as defined by the wellbeing hierarchy of SPF theory), and thus to criteria of 'success' for self-management. Often, abilities such as self-efficacy are addressed without an explicit 'objective' (e.g. general self-efficacy) or the objectives are defined by health

objectives (e.g. self-efficacious about weight control, exercising, or smoking cessation). The latter are of course important too, but if the aim is to develop self-management interventions for wellbeing in ageing, then all dimensions of wellbeing should be covered. Thus, the interventions need to explicitly connect the key self-management abilities to all of these dimensions (not just to, for example, health-related dimensions). So far, there have been hardly any attempts to translate existing theories about successful ageing into concrete interventions, although a number of social and psychological models concerning ageing-related life management or self-regulatory processes exist (e.g. Baltes and Baltes 1990; Brandtstädter and Rothermund 2002; Heckhausen and Schulz 1995). With this paper we aimed to go one step further by proposing a model that can be translated into concrete interventions. The empirical results of two interventions studies have shown that this model can indeed be used as a basis for the design of interventions. Moreover, the model is supported by the data, showing that it is possible to teach people self-management abilities, and by doing so, influence their overall wellbeing positively. In our studies the improvement of self-management ability could still be found after 4 and 6 months (Schuurmans 2004; Frieswijk et al. 2005, respectively). Further research must show to what extent the improved self-management abilities take root and are being used and repeated on the longer term.

It can be concluded that the here proposed theory of self-management of wellbeing has the potential to add to our understanding of behavioural and cognitive processes underlying successful ageing and how people can realise and maintain their own wellbeing over the life span. Moreover, on the basis of the empirical results of the two intervention studies, it has proven to be useful as a basis for the design of effective interventions for successful ageing. In sum, we hope to have added to an understanding of ageing as a process in which people—next to the necessity of coping with loss—have possibilities to (pro)actively contribute to the realisation of their own wellbeing and that these possibilities can be improved with the help of theory-driven interventions.

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