

A bidirectional approach to lay definitions vs. theories of successful aging: The Manitoba Follow-up Study

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Abstract

Background: In light of evidence from previous work, we identified the overlaps and gaps between six prominent theoretical frameworks of successful aging and lay conceptualizations of the same. It has formerly been suggested that considering complex phenomena from the bottom up and from the top down allows one to get to the root of an issue that warrants inquiry; namely the discrepancy between researcher-generated theories and lay conceptualizations of successful aging.

Methods: In the present study we approached this issue from the bottom up and top down, using the saturated Manitoba Follow-up Study coding system (the ‘MFUS-SA-CM v.1’) as a template.

Results: The overlaps we found depicted aspects of successful aging that were well represented by theories in the field. The gaps highlighted aspects of successful aging that were underrepresented by the theories. The gaps were particularly important, since they flagged theoretical areas that could be expanded upon via lay conceptualizations.

Conclusions: By broadening the existing theoretical ‘take’ on successful aging to include aspects of lay definitions that have thus far been downplayed, we aim to provide the research community with a much-needed tool with which to consistently inform their successful aging research.

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Introduction

A theory can be thought of as a set of interrelated ideas that are intended to explain certain outcomes, but operationally defined, there is much more to it than that. A review of the literature on social and behavioral science theories from 2000 to 2005 revealed that researchers utilized theories in four different ways: they tested, built, and applied theories, and used theories to inform their research [1]. The results of the review showed that whereas only 4, 9, and 18% of the studies reviewed had tested, built, and

applied theories, over two-thirds were informed by theory. This begs the question of how it is that so many researchers are confident enough to use theory to inform their work, when so few of them have contributed to theory construction and application. The possibility exists that theories may not be particularly good representations of reality, and yet many researchers still rely heavily on theory to inform their research.

The notion that some theories may not be particularly good representations of reality has become readily

apparent in the area of successful aging, where major theoretical frameworks have been found to fall short of adequately depicting lay conceptualizations [2,3]. It has previously been suggested that, if they are to be relevant, theoretical frameworks of successful aging need to be expanded upon to include lay conceptualizations [4]. In other words, there are gaps in the existing theories of successful aging that could be addressed using lay conceptualizations. The purpose of the present study was to identify and address the overlaps and gaps in six prominent theoretical frameworks of successful aging, using older men's lay definitions of the concept.

Prominent theoretical frameworks of successful aging

The social and behavioral science literature includes a number of prominent theoretical frameworks pertaining to successful aging. Since the 1990s these frameworks have included but are not limited to Baltes and Baltes' (1990) model of Selective Optimization with Compensation (SOC) [5]; the United Nations' (UN; 1991) Principles for Older Persons [6]; Rowe and Kahn's (1997) successful aging definition [7]; the World Health Organization's (WHO; 2002) Policy Framework for Active Aging [8]; Young, Frick, and Phelan's (2009) multidimensional concept of successful aging [9]; and Bowling's (2007) systematic literature review [4]. Across all six frameworks there are a total of 21 theoretical components, examples of which include Rowe and Kahn's 'low probability of disease and disease-related disability', 'high cognitive and physical functional capacity', and 'active engagement with life'. Each of the six theoretical frameworks can be both praised and questioned in terms of what has been done well and what is lacking in terms of describing theoretical paradigms with which to represent successful aging. To date, no consistent successful aging definition has been found [10].

Baltes & Baltes (1990)

In their theoretical outlook on successful aging, Baltes and Baltes [5] viewed the concept from a psychosocial perspective, speculating that it involved the principle of Selective Optimization with Compensation (SOC). The SOC theory was designed to reflect the dynamic

interplay between age-related gains and losses. The three interacting components that made up the model (selection, optimization, and compensation) can best be explained using the authors' example of the pianist Rubinstein [11]. In order to conquer age-related decline in his piano playing, Rubenstein unknowingly applied the SOC model. First, he decreased his repertoire and chose a smaller number of songs to master (selection). Second, he practiced his repertoire of songs more often, so as to master them (optimization). Third, he played the notes that occurred prior to fast movements slower, to give the impression of increased speed when playing the faster movements (compensation). Although many studies of successful aging have incorporated the widely known SOC model, it has been criticized for its focus on reactions to age-related losses, while ignoring gains or enhancements in other aspects of life [3].

The UN (1991)

Criticisms of theoretical frameworks of successful aging have also been evident in the policy-making arena. In 1991 the United Nations (UN) put forth five 'Principles for Older Persons' that were designed to ensure priority attention in strategic planning for improving the lives of older individuals [6]. The five components in the framework were independence, participation, care, self-fulfillment, and dignity. This approach has received criticism for framing older people in a passive context, rather than acknowledging their right to equal opportunity and egalitarian treatment in every aspect of later life [8]. Another potential criticism of the UN's framework is that the five principles may be too broad to represent certain key aspects of successful aging that older adults themselves may consider to be important.

Rowe and Kahn (1997)

Unlike Baltes and Baltes (1990) and the UN (1991), Rowe and Kahn (1997) defined successful aging in primarily biomedical terms [7]. Rowe and Kahn considered how well an individual could "manage, function, and actively engage in [the] physical world" [12] (p. 742). In particular, Rowe and Kahn defined successful aging as being made up of three components: 1) having a low probability of disease

and disease-related disability; 2) having high mental and physical functioning; and 3) being actively engaged with life. Although Rowe and Kahn's model is well known and has generated much discussion in the successful aging literature, it has been taken to task for not paying enough attention to the psychological aspects of successful aging, among other things [13].

WHO (2002)

The World Health Organization's (WHO; 2002) 'Policy Framework for Active Aging' [8] was guided by the UN's (1991) five 'Principles for Older Persons' [6] and was intended to assist policymakers in the formulation of action plans designed to promote healthy and active aging. The Policy Framework called for action in three broad components that were conceptualized as the pillars of Health, Participation, and Security. Similar to the UN's (1991) five principles, a potential criticism of the WHO pillars is that they may not be detailed enough to encompass key aspects of successful aging that older adults themselves may consider important.

Bowling (2007)

With the intent of informing theory, methodology, and practice, Bowling (2007) performed a systematic literature review on successful aging [4]. The 170 relevant articles reviewed by the author fell into four researcher-generated component themes: 1) social functioning; 2) life satisfaction; 3) psychological resources; and 4) biomedical approaches. In addition, Bowling considered lay views of successful aging. She surmised that successful aging was made up of clusters of factors, many of which did not overlap – in part due to differences in the academic disciplines of the researchers who had generated them. Bowling noted, however, that lay views did overlap with existing models, since lay views were considerably more multidimensional than were researcher-imposed definitions. Bowling concluded that a multidimensional model of successful aging was needed: one that incorporated lay perspectives; one that viewed successful aging as being on a continuum rather than being dichotomous; and one that clearly differentiated the predictors of successful aging from

the concept as an outcome. Bowling noted that, "None of the published literature include[d] such broad perspectives of successful aging as the lay definitions [that were] documented" [4] (p. 273), highlighting that there were gaps in successful aging theory that could potentially be addressed using lay perspectives.

Young, Frick, & Phelan (2009)

In 2009, Young, Frick, and Phelan considered the definition of successful aging in the context of serious illness [9]. They surmised that successful aging in the face of serious illness was likely possible, on the condition that the affected individuals were in possession of the compensatory psychosocial resources needed to deal with the illness. This resulted in the authors putting forth a multidimensional model of successful aging that included three components: the physiological; the psychological; and the sociological domains. Potentially limiting was the model's focus on the context of serious illness.

Linking theories of successful aging to lay perspectives

Past attempts have been made to link successful aging theory to lay perspectives. In 2004, Phelan, Anderson, LaCroix, and Larson performed a cohort study on older individuals' views of successful aging [14]. Study participants were asked to rate the importance of 20 specific attributes that were abstracted from the successful aging literature on a three-point Likert-type scale of 'Important', 'Neutral', and "Not important". Sample items included 'remaining in good health until close to death', 'having friends and family who [were] there for me', and 'being able to cope with the challenges of later years'. This approach was problematic in that the richness of asking a lay-person to provide the details of his or her own personal definition of successful aging is lost on using pre-defined attributes and Likert-type scales. Essentially, what the researcher ends up with are lay-peoples' scoring of academics' views on successful aging. The same limitations apply to a subsequent study that used Phelan et al.'s (2004) 20 attributes of successful aging with a four-point Likert type scale in a cross-cultural comparison of successful aging [15].

We are of the opinion that the best way to determine older peoples' views on successful aging is to ask them. In previous work, Bowling and Dieppe suggested that researcher-generated definitions of successful aging needed to include "things that matter[ed] to elderly people" [16] (p. 1548). The Manitoba Follow-up Study has used an open-ended question to ask its study members to define successful aging on a total of 13 occasions since 1996, and annually since 2004 [17]. The main objective of the present study was to examine the fit between six prominent researcher-defined theoretical frameworks of successful aging and themes from the Manitoba Follow-up Study cohort's lay definitions.

Methods

Bottom-up ('insider') and top-down ('outsider') approaches to inquiry

Anthropologists and other social scientists have previously suggested that considering complex phenomena from the bottom-up and from the top-down allows one to get to the root of issues that warrants inquiry [18,19]. An issue that qualifies for such investigation is the discrepancy between researcher-generated theories and lay conceptualizations of successful aging. Viewing an issue from the bottom-up has been construed as taking an 'insider' approach, since it involves starting off at the level of the study participant and allowing informative themes, concepts, and patterns to emerge [18]. Viewing an issue from the top-down has been coined as taking an 'outsider' approach, since it involves starting off outside the issue at hand and using theories, perspectives, and/or concepts to guide examination of the issue [18]. In recent work, we used a bottom-up (insider) approach to map themes from older men's lay definitions of successful aging onto theoretical constructs of perceived control, so as to gain an understanding of the prospective control beliefs of older men [20]. In the present study, with the intent of gaining insight into the overlaps and gaps between researcher and lay conceptualizations of successful aging, we used both a bottom-up (insider) and a top-down (outsider) approach to consider the fit between themes from older men's lay definitions of successful aging and six prominent theoretical frameworks in the field.

In each approach we considered the magnitude of overlap between the six theoretical frameworks examined and themes from older men's lay definitions of successful aging. We then conceptually explored the nature of the overlaps and the corresponding gaps found. Based on Bowling's [4] surmise that lay views were considerably more multidimensional than researcher-defined views, we expected that the fit between the theoretical frameworks of successful aging and the themes from the lay definitions would not be optimal. The themes we used came from the narrative definitions of successful aging of the Manitoba Follow-up Study cohort, a group of men who took part in one of the longest-running studies of health and aging in the world.

The Manitoba Follow-up Study

The Manitoba Follow-up Study (MFUS) began with a cohort of 3,983 healthy young male aircrew recruits from the Royal Canadian Air Force on July 1, 1948. MFUS was designed to study the prognostic significance of abnormalities on routine electrocardiograms for subsequent cardiovascular disease [21]. Since 1948, the majority of the surviving MFUS members have completed periodic contact questionnaires and requests for routine medical examinations. In the spring of 1996, when the mean age of the 2,043 surviving MFUS members was 78 years, MFUS researchers recognized the importance of studying successful aging, and expanded its research focus towards that end [22].

The Successful Aging Questionnaire (SAQ) was developed to examine the characteristics of successful aging among the cohort, details of which are described elsewhere [22]. The core SAQ, a nine-page mail-in questionnaire, included measures of living arrangements; physical, mental, and social functioning; activities of daily living; the Short Form 36 (SF-36) Health Survey [23]; retirement; and successful aging. The survey concluded with the open-ended question, "What is your definition of successful aging?" from which we obtained the lay definitions of successful aging and their corresponding themes for the purposes of the present study. The SAQ was mailed in April of 1996 and after two reminders, was returned by 89% of the MFUS men. Of the 89%, 1,745 community-dwelling

individuals provided narrative responses to the open-ended successful aging question. Subsequent SAQs were mailed to the MFUS cohort in the spring of 2000, again in 2002, and have been mailed annually since 2004. When the first wave of SAQs were returned in 1996, a content analysis was performed on the responses to the open-ended successful aging question [22], and consistency in the MFUS lay definitions of successful aging was established [24]. Successive surveys have led to the development of the MFUS coding system, which includes the 86 narrative themes and 21 theme groups that were used in the present study. Throughout this paper we refer to the coding system as the ‘MFUS Successful Aging Coding Manual - Version 1’ (MFUS-SA-CM v.1) [17].

The bottom-up (insider) approach

Our insider approach involved the authors separately considering each of the 86 MFUS themes in the MFUS-SA-CM v.1. We looked at whether and how each of the 86 narrative themes could be mapped mutually exclusively onto the components of each of the six theoretical frameworks being considered. Take, for example, the procedure that was used to map the MFUS-SA-CM v.1 ‘Being Healthy’ theme onto Rowe and Kahn’s (1997) well-known successful aging definition [7]. According to the MFUS-SA-CM v.1, a lay definition of successful aging that included any of the descriptors ‘being healthy’, ‘good health’, ‘still in good health’, ‘reasonably healthy’, ‘no health problems’, ‘all systems working OK’, or ‘depends on health of individual’ would receive the thematic code ‘Being Healthy’. To decide whether and how Being Healthy mapped onto Rowe and Kahn’s (1997) well-known three-part theoretical framework, we considered whether Being Healthy should be categorized as Rowe and Kahn’s ‘low probability of disease and disease-related disability’, ‘high cognitive and physical functional capacity’, or ‘active engagement with life’ [7]. Since the Being Healthy theme was conceptually closest to Rowe and Kahn’s (1997) ‘low probability of disease and disease-related disability’, Being Healthy was considered to map onto that component of Rowe and Kahn’s (1997) theoretical successful aging definition. The bottom-up mapping procedures for all 86 MFUS themes,

previously presented as a conference poster by Swift, Tate, and Bayomi in 2010 [25] were completed in similar fashion and are available upon request from the corresponding author.

Once the insider mapping procedure was complete, it was then possible to assess the magnitude of the overlap between the 86 MFUS lay themes and the six theoretical frameworks of successful aging that we chose to examine. This was accomplished in three steps. Step 1 involved counting the number of successful aging themes from the MFUS-SA-CM v.1 out of 86 [17] that applied to each component of all six prominent theoretical frameworks. Step 2 was to divide each count by 86, the total number of MFUS successful aging themes. (This yielded the percentage of overlap between the MFUS men’s narrative themes and each theoretical component of successful aging that was being considered). Step 3 was to sum the overlap percentages of all theoretical components within a given theoretical framework. Doing so yielded the total percentage of overlap between the 86 MFUS themes and each of the six theoretical frameworks under consideration.

The top-down (outsider) approach

The outsider approach that was taken to examine the overlaps and corresponding gaps between researcher and lay conceptualizations of successful aging involved three MFUS coders. The coders independently assigned thematic codes from the MFUS-SA-CM v.1 to paraphrased versions of the components of each of the six theoretical frameworks of successful aging being examined. The descriptions of each of the theoretical components were paraphrased for ease of understanding. To illustrate, let us return to Rowe and Kahn [7] who explicitly defined their ‘low probability of disease and disease-related disability’ component as referring “not only to absence or presence of disease itself, but also to absence, presence, or severity of risk factors for disease” (p. 433). We paraphrased this theoretical component and its definition as, ‘Absence of disease/disability’, ‘Absence of risk factors for disease/disability’, and ‘Less severe disease or disability, or less risk factors for disease/disability’, to resemble an MFUS study member’s definition of successful aging. The paraphrased statements were

then assigned thematic codes by the coders using the MFUS-SA-CM v.1 [17]. The same procedure was used to assign codes to paraphrased versions of the remaining theoretical components that were considered in the present study.

A blinded coding procedure was adopted, to ensure that the paraphrased theoretical components would not be coded any differently than an older man's lay definition of successful aging. Agreement between two or more coders resulted in a given code being assigned to a theoretical component. Once all paraphrased theoretical components had been assigned thematic codes, the results were collated into an Excel worksheet to facilitate easier visual examination of the overlaps and gaps between the six theoretical frameworks of successful aging and the themes from the MFUS men's lay definitions. The paraphrased versions of the theoretical components in their entirety are available upon request from the corresponding author.

Results

Findings from the bottom-up ('insider') approach

The insider approach revealed that the 86 themes from the MFUS men's lay definitions of successful aging completely mapped onto the components of each of the six theoretical frameworks considered. Table 1 breaks down the six theoretical frameworks into their respective 21 components, and shows the number of MFUS-SA-CM v.1 themes (out of 86) that mapped onto each component. Of note, the components of each theoretical framework that were overlapped by more than 50% of the 86 MFUS themes were the WHO's (2002) 'Health' component (71%); Baltes and Baltes' (1990) 'Optimization' (69%); and Rowe and Kahn's (1997) 'Active Engagement with Life' (56%). The theoretical components from each framework that evidenced the least percentage of overlap ($\leq 5\%$) were the UN's (1991) 'Dignity' principle (1%) and the WHO's (2002) 'Security' pillar (5%).

Top-down ('outsider') approach findings

The MFUS-SA-CM v.1 outlines how its 86 successful aging themes can be condensed into 21 theme groups [17]. In light of space constraints, we opted to present some of our top-down (outsider) findings using the 21 MFUS theme groups.

Table 2 shows the numbers of unique MFUS themes and theme groups that were identified as being part of the prominent theoretical frameworks of successful aging that were considered. To the extent that the theoretical components being assigned MFUS thematic codes represents overlap between lay conceptualizations of successful aging and theoretical frameworks in the field, the UN's (1991) and Bowling's (2007) theoretical frameworks were found to overlap with themes from the MFUS men's lay definitions the most, each incorporating 15 of the 21 possible MFUS theme groups (71%). Looking across all six theoretical frameworks, 'Health – Physical' and 'Being Productive and Contributing' were consistently identified in each framework examined, and MFUS theme groups 'Happiness', 'Independence', 'Health – General', 'Health – Cognitive', 'Relationships – Society', '[Physical] Adaptation', and 'Quality of Life' each appeared in five out of the six frameworks examined.

Looking across Table 2, a chronology appears as to how various aspects of successful aging (as identified by the MFUS cohort) changed over time. Baltes and Baltes' (1990) SOC model mainly encompassed MFUS theme groups that focused on the psychological aspects of successful aging, such as 'Attitude' and 'Coping/Adjustment/Acceptance'. Absent from the SOC model but evident a year later in the UN's (1991) five 'Principles for Older Persons' were theme groups that generally represented physical and social aspects of successful aging, such as 'Physical Activity' and 'Relationships – Family'. In their 1997 theoretical framework, Rowe and Kahn left out a number of key aspects of successful aging from the earlier Baltes and Baltes (1990) and UN (1991) frameworks, which included 'Happiness', 'Independence', and 'Quality of Life'. Notably, the Rowe and Kahn (1997) successful aging framework contained the fewest MFUS theme groups of all six theoretical frameworks examined (7 out of 21, or 33%).

Table 1. Findings from the bottom-up (insider) approach. Themes from lay definitions of successful aging, mapped onto the components of six prominent theoretical frameworks in the field

Theoretical frameworks (n=6)	Theoretical components (n=21)	Count of the MFUS SA themes	% Overlap ^a (Count/86)
Baltes and Baltes (1990)	Optimization	59	69
	Compensation	14	16
	Selection	13	15
	Total	86	100
UN (1991)	Care	35	41
	Self-fulfillment	26	30
	Independence	14	16
	Participation	10	12
	Dignity	1	1
	Total	86	100
Rowe and Kahn (1997)	Active engagement with life	48	56
	Avoid disease and disability	22	26
	High cognitive and physical function	16	19
	Total	86	101 ^b
WHO (2002)	Health	61	71
	Participation	21	24
	Security	4	5
	Total	86	100
Bowling (2007)	Biomedical factors	40	47
	Psychological resources	20	23
	Social functioning	18	21
	Life satisfaction	8	9
	Total	86	100
Young, Frick, and Phelan (2009)	Physiological	33	38
	Psychological	33	38
	Sociological	20	23
	Total	86	99 ^b

Note. These results were adapted from Swift, Tate and Bayomi (2010). MFUS = Manitoba Follow-up Study. SA = successful aging. UN = United Nations. WHO = World Health Organization

^a The percentage of overlap between each theoretical component and the 86 MFUS themes from lay definitions of successful aging (count/86 MFUS themes)

^b Rounding error occurred

The WHO (2002) framework reinstated some of the key ideas from the earlier frameworks including ‘Happiness’, ‘Independence’, and ‘Quality of Life’. In 2009, although Young and colleagues retained many aspects of successful aging from the previous frameworks, the theme groups ‘Physical Activity’ and ‘Relationships – Family’, among other MFUS successful aging theme groups, were not readily apparent. In addition, none of the six theoretical

frameworks examined captured the ‘Lifestyle’ or ‘Relationships – Intimate’ theme groups as being part of successful aging.

The 86 MFUS themes provide some necessary detail in terms of outlining specific aspects of lay conceptualizations of successful aging that were not evident in any of the six theoretical frameworks examined (Box 1). The 23 MFUS themes (27%) that were completely absent from the successful aging

frameworks included key aspects of successful aging such as ‘Healthy lifestyle choices’, ‘Activities/Instrumental Activities of Daily Living (IADL/ADL)’, and various types of psychological adaptation including ‘Coping, adjustment, and acceptance’.

Table 2. Findings from the top-down (outsider) approach. Numbers of MFUS themes and theme groups identified as being part of six prominent theoretical frameworks of successful aging (SA)

21 MFUS theme groups	# of MFUS themes per theme group	Prominent theoretical frameworks of SA					
		Baltes and Baltes (1990)	UN (1991)	Rowe and Kahn (1997)	WHO (2002)	Bowling (2007)	Young et al. (2009)
Health – physical	4	1	1	1	1	4	3
Being productive and contributing	6	1	1	2	1	2	2
Happiness	6	1	1		1	5	2
Independence	8	1	4		1	2	1
Health – general	5		1	2	2	2	1
Health - cognitive	4	1	1	1		2	2
Relationships - society	2		2	1	1	2	1
Adaptation	5	2	1	1	1		1
Quality of life	2	1	2		1	1	1
Attitude	8	1	3			3	1
Coping, adjustment, acceptance	6	2				3	1
Living and dying	5	1			1	3	
Leisure activity & interests	4	1	1			1	1
Relationships - companionship	3			1		1	1
Health – system	3		1		2		
Life experience	3		2		1		
Physical activity	4		1			1	
Relationships - family	2		1		1		
Spirituality/faith	1				1		1
Lifestyle	4						
Relationships - intimate	1						
Summary	# MFUS theme groups/21	11 (52%)	15 (71%)	7 (33%)	13 (62%)	15 (71%)	13 (62%)
	# MFUS themes/86	13 (15%)	22 (26%)	9 (10%)	15 (17%)	34 (40%)	18 (21%)

Box 1. The 23 out of 86 MFUS themes from older men’s lay definitions of successful aging that were not evident in any of the six theoretical frameworks examined

1. Healthy lifestyle choices (minimizing health problems, taking care of one’s health, living a clean life, having good living habits, not doing things that would harm health, getting lots of sleep/rest).
2. Independence – Independent Activities of Daily Living (IADL; doing one’s own housework/chores, maintaining one’s property, yard work, snow shoveling, running errands by oneself, cooking).
3. Independence – Activities of Daily Living (ADL; grooming oneself, being able to climb stairs, getting out of bed).
4. Independence – driving/flying (driving one’s own vehicle, maintaining commercial pilot’s license, keeping up my driving ability).
5. Coping with family/friend’s declining health/death (ability to cope with loss of a spouse, “my wife has been in hospital twice and that has taken a fair amount of my time and energy”, wife being healthy, healthy family, “my wife is terminally ill”, “my wife is suffering from cancer”).
6. Adjusting to wife’s/friend’s declining health/death (“When a partner dies the remaining spouse has two choices: to die from depression, or to keep living. I choose the second.” Adjusting to loss of family and friends, ability to adjust your life when spouse dies or is confined to a care facility for the rest of their life, able to carry on after the loss of a partner).
7. Accepting wife’s/friend’s declining health/death (accept loss of family and friends, not worrying about things you can’t do anything about such as death of family).
8. Having few health problems (not having many health problems, no major health problems, being able to discover your illness in early stage).
9. Gradual deterioration (growing old without too much work).
10. Ability to communicate (conversing intelligently, speech is normal, understand others).
11. Taking medication (taking medications to compensate for problems, controlling pain, laxatives).
12. Not thinking about aging (don’t know – haven’t aged yet, not noticing “it”, paying little attention to self).
13. Thinking young (not thinking you are too old to do anything).
14. Being thankful (counting blessings/giving thanks).
15. Comparative (comparing self to others) (living longer than someone of the same sex, live longer than someone same age in same part of country, comparison).
16. Dying quickly.
17. Participating in sports (bowling, hunting, fishing, curling, skiing, skating, play tennis, boating, swimming, bicycling).
18. Golfing.
19. Pursuing interests – nonspecific (having interests, maintaining interests/hobbies, finding new interests, activities in which to participate).
20. Donating to charity (supporting charities).
21. Loving spouse (lots of TLC from wife, having caring wife, good marriage, still enjoying life with spouse, getting married was the smartest move he ever made).
22. Animal companionship (having pets or animal companionship).
23. Having served in the war (POW – built up immunity to disease, surviving the war, having served one’s country).

Discussion

Our objective in the present study was to examine the fit between six researcher-defined theoretical frameworks of successful aging and lay conceptualizations of the same. We accomplished this by using themes from the MFUS cohort’s comprehensive lay framework of successful aging (the MFUS-SA-CM v.1) as a template. In the interest of being complete, we examined the issue from the bottom-up and from the top-down. The findings from our bottom-up approach showed that from a researcher’s perspective, lay definitions of successful aging could completely be mapped onto six prominent theoretical frameworks in the field, albeit with variation in the proportions of themes that mapped onto each theoretical component. Our outsider

approach told us something quite different, revealing not only overlaps, but gaps between successful aging theories and themes. These gaps represented areas of successful aging that we felt had not been adequately covered by existing theoretical frameworks in the field, but that could potentially be addressed using themes from lay definitions of successful aging.

The bottom-up (‘insider’) approach

The completeness of our bottom-up mapping procedure in Table 1 is consistent with Bowling’s (2007) surmise that lay views of successful aging are considerably more multidimensional than are theoretical views. That is, the multidimensionality of the MFUS themes from lay definitions made it easy to map the themes onto the six theoretical frameworks

that were considered. This multidimensionality may inform why social and behavioral scientists are generally quite comfortable using theory to inform their research. That is, the multidimensionality lends researchers the impression that theories are generally good representations of reality, which may not entirely be the case.

The variation in the proportions of themes that were assigned to each theoretical component in Table 1 was not surprising, in light of the different ways in which each theoretical component was originally defined. What did come as something of a surprise was the considerable overlap between the MFUS narrative themes and the WHO's (2002) 'Health' component (71%); Baltes and Baltes' (1990) 'Optimization' (69%); and Rowe and Kahn's (1997) 'Active Engagement with Life' (56%). This considerable overlap validated the theoretical components as being key tangible aspects of successful aging. Equally surprising was the lack of overlap between the MFUS themes, the UN's (1991) 'Dignity' principle (1%), and the WHO's (2002) 'Security' pillar (4%). These minimal amounts of overlap could highlight theoretical components that lack utility from a broad research perspective.

The top-down ('outsider') approach

Our top-down (outsider) approach in Table 2 revealed that even some very prominent theoretical frameworks of successful aging did not adequately represent the true breadth of the concept. Consistent with Bowling's surmise [4], our findings showed that "a model of successful aging need[ed] to be multidimensional [and incorporate] a lay perspective" in order to be complete (p. 263). In exploring the nature of the overlaps and associated gaps between the six theoretical frameworks examined and the MFUS lay framework, we uncovered aspects of successful aging that were well represented by the theoretical frameworks, and aspects that were lacking. We found that the MFUS theme groups 'Health – Physical' and 'Being Productive and Contributing' were well represented, and were evident across all six theoretical frameworks studied. In addition, the theme groups 'Happiness', 'Independence', 'Health – General', 'Health – Cognitive', 'Relationships – Society', '[Physical] Adaptation', and 'Quality of Life' were well

represented, since each theme group was apparent in five out of the six frameworks considered. In stark contrast, the MFUS 'Lifestyle' and 'Relationships – Intimate' theme groups were the least well represented, since they weren't captured by any of the six theoretical frameworks as being part of successful aging.

Consistent with Bowling's call to view successful aging on a continuum, and consistent with her observation that the existing theoretical frameworks in the field reflected the academic disciplines of their originators [4], our chronological account of six prominent frameworks revealed that a number of MFUS lay conceptualizations were not well represented at certain points in time by the theories we examined. Rather, a number of important aspects of successful aging waxed and waned over time as researchers and theoreticians from various backgrounds grappled with the meaning of 'successful aging'. For example, Baltes and Baltes' (1990) SOC model mainly encompassed MFUS theme groups that represented psychological aspects of successful aging, and for the most part omitted the physical and social aspects. This was not surprising, in light of Baltes and Baltes' backgrounds in psychology [26]. The works of the UN (1991) and the WHO (2002) both included the same proportions of physical, social, and psychological aspects of successful aging, albeit with some variation in the theme groups represented, presumably because the work of the WHO (2002) stemmed from the UN's earlier work. Similar to the reasons for Baltes and Baltes' (1990) focus on the psychology of successful aging, Rowe and Kahn's (1997) biomedical focus was likely attributable to Rowe's medical background [27] and to both authors' research connections to medical colleagues at the MacArthur Foundation [28]. In addition, the breadth of Bowling's (2007) and Young et al.'s (2009) theoretical frameworks was likely attributable to both their respective works being linked to the broader successful aging literature. These observations suggest that Bowling was likely correct in her (2007) surmise that the differences in existing researcher-generated theoretical frameworks of successful aging can be explained in terms of the diverse academic disciplines of the researchers involved. These theoretical discrepancies were and still are a problem, since up to now there has been no overarching template upon

which the research community could superimpose their theoretical frameworks, to see how they measured up. With the fragmented picture of successful aging that is currently at hand, it is no wonder that a substantial number of aspects of successful aging identified by lay individuals to be important, are not readily apparent in some of the most prominent theoretical frameworks in the field (Box 1).

The gaps between successful aging theory and reality (as lay individuals know it) potentially accounts for why relatively few studies in the social and behavioral sciences, including those in the area of successful aging, report applying, building, or testing theories [1]. In particular, the discrepancies we found between successful aging theories and narrative themes may be responsible for unsuccessful attempts by researchers to apply, build, or test successful aging theories, in that these attempts presumably resulted in unpublished manuscripts. Even so, the National Institutes of Health review found that a large proportion (over two-thirds) of researchers in the social and behavioral sciences still reported trusting theory to inform their research. This calls into question the applicability of some of the research in the field. Furthermore, it highlights the need to bridge the gap between researcher-defined theoretical frameworks of successful aging and lay conceptualizations.

Bridging the gap

The conclusion of Bowling's (2007) comprehensive literature review was that a multidimensional framework of successful aging was needed, one that incorporated lay perspectives, one that viewed successful aging on a continuum, and one that could differentiate between the predictors of successful aging vs. successful aging as an outcome. In answer to this call, we hereby propose the MFUS-SA-CM v.1 to be such a framework. In terms of multidimensionality and lay perspectives, the MFUS-SA-CM v.1 originated from a content analysis of older men's successful aging definitions that have been collected annually since 1996. The narrative database is now saturated, meaning that it has captured all possible dimensions of successful aging as reported by the MFUS cohort. In terms of viewing successful aging

on a continuum, we have illustrated in Table 2 how the MFUS-SA-CM v.1 can be used to look at successful aging over time. With regard to using the MFUS lay framework to differentiate between the predictors of successful aging versus successful aging as an outcome, we have not attempted this to date, but will do so in the foreseeable future, since the application of the MFUS-SA-CM v.1 lends itself towards that end.

Essentially, we envision that the research community will incorporate MFUS-SA-CM v.1 into their successful aging research by using it to expand their theoretical scope, so as to better represent successful aging. For example, the Rowe and Kahn (1997) successful aging definition could be revised as per our outsider approach in Table 2, as could Baltes and Baltes' (1990) SOC model. The end result would be more comprehensive theoretical frameworks than the ones we have now. Additionally, the creators of future successful aging theories could design their frameworks with the MFUS lay framework in mind, resulting in a more complete picture of successful aging.

A word of caution is in order here. We do not mean to suggest that the 86 themes from our MFUS men's lay definitions of successful aging necessarily constitute the much sought-after universal definition of successful aging. Rather, it is our hope that the comprehensive MFUS lay framework of successful aging set out herein will be used as a template by researchers and theorists in the field; a template upon which to map their own theories and lay conceptualizations of successful aging. Only through the use of a common template will researchers and theorists be aware of where the gaps and overlaps between successful aging theories and lay reality lie. Knowledge of these gaps and overlaps will allow the research community at large to navigate its way, one step at a time, towards a more consistent understanding of successful aging.

Strengths and limitations of the present study

The greatest strength of the present study is its use of the 86 saturated themes from the MFUS men's prospective lay definitions of successful aging. The 86 themes from the MFUS-SA-CM v.1 [17] have made it

possible for us to examine the overlaps and gaps between six prominent theoretical frameworks of successful aging and lay definitions of the same, qualifying our research as ‘science’ rather than ‘fishing’ [29].

Another strength of our research is that the lay definitions of successful aging we used came from community-dwelling older men, some of whom were healthy and some who were not; some of whom reported having aged successfully, and some who did not. Hence, the MFUS themes collectively represent a breadth of older men’s successful aging definitions that is unlike any other. Such breadth is necessary if we are to capture aspects of successful aging that current theoretical frameworks in the field have missed.

Our themes from lay definitions of successful aging are derived from a group of men, most of whom were born within a fairly narrow timeframe (1909–1928), who lived in Canada for most of their lives, who served in the Royal Canadian Air Force during World War II, and who survived until at least 1996. These similarities call into question whether the MFUS-SA-CM v.1 only applies to the MFUS cohort, or whether the coding system can also be used with other populations. As explained in greater detail elsewhere [17], there is a lack of evidence to suggest the existence of age, gender, or cultural differences in lay definitions of successful aging. That said, even if such differences emerged, the MFUS-SA-CM v.1 could be easily adapted to accommodate any novel successful aging themes as they might arise [17].

The eventual outcome of the research community using the MFUS lay framework as a template upon which to map their successful aging theories could conceivably be that all theoretical frameworks of successful aging could end up looking quite similar. This may not be such a bad thing, since the end result might be a newfound consistency in academic understanding of successful aging.

In the present study, we identified the overlaps and gaps between six prominent theoretical frameworks of successful aging and lay conceptualizations of the same. For the sake of completeness, we approached this issue from the bottom-up and from the top-down, using the saturated MFUS coding system (the MFUS-SA-CM v.1) as a template. The overlaps we found

between the theories and lay conceptualizations depicted aspects of successful aging that were well-represented by existing theories in the field. The gaps flagged important aspects of successful aging that were under-represented by existing theories. We considered the gaps to be particularly important, since they highlighted areas of existing theoretical frameworks of successful aging that could be expanded upon via lay conceptualizations. By broadening the existing theoretical ‘take’ on successful aging to include aspects of lay definitions that have thus far been downplayed, we aim to provide the research community with a much-needed tool with which to consistently inform their successful aging research.

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