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Lay perspectives of successful ageing: A systematic review and meta-ethnography

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Running head: Lay perspectives of successful ageing

Article Focus

- Currently there is no consensus definition of successful ageing
- The current study provides a comprehensive snapshot of exploratory qualitative studies of layperson perspectives of successful ageing

Key Messages

- Successful ageing is much more complex than simply physical health
- Psychosocial, e.g. attitude, and external, e.g. finances, factors were the most frequently mentioned components of successful ageing
- Layperson perspectives advocate the inclusion of components of successful ageing that go beyond physical health

Strengths

- Article conducts a systematic review of qualitative studies

Limitations

- Meta-ethnography involves the subjective interpretation of secondary data that is, itself, a subjective interpretation
- Languages that did not have “successful ageing” in their vernacular used approximations of the term

The review and search protocol was planned by TDC, BS and CB. TDC conducted the primary article review and data extraction; JP conducted a second, independent, screen of the articles. TDC wrote the manuscript, which was edited and reviewed by JP, BS and CB.

There is no additional data available.

ABSTRACT

Objectives: The aim of the current study was to conduct a systematic review of lay perspectives of SA, synthesize these data using a meta-ethnographic framework and to provide a snapshot of extant lay perspectives of SA.

Design: A systematic review of layperson perspectives of SA was conducted across MedLine, PsycInfo, CINAHL, EMBASE and ISI Web of Knowledge.

Participants: Peer-reviewed studies conducting qualitative exploratory investigations of lay perspectives of SA were included. Included studies were coded and analysed using NVivo 9 to examine underlying themes of SA.

Results: The search strategy identified 10,580 articles; 21 articles met inclusion criteria. Results revealed psychosocial components, notably engagement and personal resources, as integral components of SA in more studies than “physiological” components, such as longevity or physical functioning. These results also highlight the profound underrepresentation of non-Western countries and the cultural homogeneity of research participants.

Conclusions: The current study reveals the importance laypersons place on the incorporating psychosocial components into multidimensional models of SA as well as highlights the need for increased research with underrepresented populations.

Keywords: successful ageing, healthy ageing, lay perspectives, systematic review

INTRODUCTION

Despite an increasing focus on the improvement of quality of life throughout the life-course, there is no generally accepted definition of what it means to age well. What successful ageing (SA) is, or is not, is a contentious issue. Since the inception of the term, subjective interpretations of SA have generated an increase in disparate perspectives and conceptualisations. Depending on the context, objectives and sample characteristics of a study, the definition of SA has varied significantly [1]. In the absence of a consensus definition, the generalisability of SA studies has been severely impeded, inhibiting cross-study comparisons.

The most popular model of SA, Rowe & Kahn's [2 3] conceptualisation of SA is primarily biomedical. This tri-partite model suggests that high cognitive/physical functioning, low risk of illness, and active engagement comprise SA. This widely used model provides the theoretical underpinnings for many operational definitions of SA [1]. Although these researcher-driven conceptualizations of SA are popular, they have, however, been subject to criticism due to their biomedical focus, without explicit input of layperson perspectives [4].

The aim of the study is to provide a comprehensive review of studies examining lay perspectives of SA, in order to augment the largely quantitatively dominated SA literature with insights from qualitative research. Through the acknowledgement of qualitative data, quantitative studies may be better informed, with increased practical relevance and impact. This review expands upon a previous review of lay perspectives by Hung, et al. [5] through a broadened search strategy, an augmented temporal search span and the

inclusion of non-English articles. Further, whilst Hung, et al. [5] focused on the concept of "healthy ageing", the current review shifts its focus to SA.

METHODS

Search Strategy

A systematic review of the literature in PubMed, PsycInfo, ISI Web of Knowledge, EmBase and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) databases was conducted between May 31 and June 7, 2011; all literature published before June 1, 2011 was eligible for inclusion. The specific search strategy includes "successful ageing" along with seven successful ageing synonyms: robust ageing, optimal ageing, positive ageing, healthy ageing, productive ageing, effective ageing and ageing well. These phrases were used with both "aging" and "ageing" spelling conventions, put in quotations, and linked via the Boolean operator "OR". Where possible, the wildcat operator "*" was inserted to capture all permutations of the phrase. Furthermore, where possible, in a given database, non-human studies were excluded. For example the search input for the phrase "successful ageing" in PubMed was "successful* ageing" OR "successful* ageing", which was searched as "successful* ageing"[All Fields] OR "successful* ageing"[All Fields] AND "humans"[MeSH Terms].

This process was repeated across the six databases using the seven SA related phrases. Relevant articles referenced in the captured studies were also included.

Study Inclusion

Peer-reviewed research articles conducting exploratory qualitative research with laypersons on the components of SA were included. Studies

discussing synonyms of SA without specific reference to SA, or components of SA, were excluded. Non-peer reviewed articles such as dissertations, opinion pieces, and letters to the editor, as well as review articles, were excluded.

As the intent was to provide a comprehensive review of operational definitions of SA, studies were neither excluded nor weighted based on study characteristics or methodological rigor, as there is no established methodology for quality assessment of construct reviews [6].

Data Extraction

Abstract review was conducted (TDC & JP), to identify relevant articles for full-text extraction. Disagreements regarding inclusion were resolved by discussion. No language restrictions were made; non-English articles were translated by multilingual staff at the Cambridge Institute of Public Health, Cambridge University. Information regarding the definitions and components of SA, the ranked importance of SA components and the percentage of individuals listing each SA component were extracted.

Synthesis

Themes created by study authors and direct quotes from study participants were identified, coded and analyzed in NVIVO 9. The different components of SA were analyzed using a meta-ethnographic framework; synthesizing and integrating inter-study themes [7]. A hierarchy of SA components was identified through the identification of overarching themes and the components constituting these broad themes with progressively more specific items.

RESULTS

Included Studies

The search strategy identified 10,580 articles, 5,244 of which were duplicates, leaving 5,336 for screening. Abstract screening eliminated 4,895 articles and full-text screening eliminated 420 articles, 21 studies met inclusion criteria (Figure 1).

<INSERT FIGURE ABOUT HERE>

Study characteristics

Exploratory studies were primarily conducted in the US (n=12) and Canada (n=3) using purposive sampling with community dwelling populations of Caucasian older adults. The sample size ranged from 14 to 1771, with a mean of 208 (SD=423) (Table 1).

<INSERT TABLE ABOUT HERE>

Components of SA

All studies (n=21) included psychosocial items, 81% (17) included biomedical items and 62% (13) included external items.

The biomedical items were grouped into cognitive & mental, health, health maintenance behaviors, longevity, and physical health & functioning items (Figure 2).

<INSERT FIGURE ABOUT HERE>

External items were grouped into environmental factors and finances (Figure 3).

<INSERT FIGURE ABOUT HERE>

Psychosocial factors were grouped into acceptance, adjustment, maintenance, spirituality, community, social roles, quality of life, independence, prevention & remediation, self-awareness, perspective, and engagement (Figure 4).

<INSERT FIGURE ABOUT HERE>

A comparison of the percentage of respondents reporting each of the constituent components of SA revealed physical functioning/disability was the most often mentioned, followed by life-satisfaction/wellbeing, engagement, personal resources and health status. Longevity was most infrequently mentioned (Figure 5). North American studies (n=15) most often mentioned engagement (93%, 14), perspective (87%, 13) and self-awareness (80%, 12).. Australian studies (n=2) mentioned engagement (100%, 2), perspective (100%, 2), independence (100%, 2) and quality of life (100%, 2) most often. All Asian studies (n=2), mentioned engagement (100%, 2), independence (100%, 2), and quality of life (100%, 2), finances (100%, 2), environment (100%, 2) and physical health (100%, 2). The South American study (n=1) mentioned engagement, perspective, self-awareness, independence, acceptance, finances, environment and health. The British study mentioned

engagement, perspective, self-awareness, acceptance, quality of life, adjustment, finances, environment, cognitive & mental and health maintenance behaviors.

<INSERT FIGURE ABOUT HERE>

DISCUSSION

The components of SA identified by the exploratory studies captured in the current review reflect a divergence from traditional biomedical conceptualizations of SA, highlighting the multidimensionality and psychosocial emphasis of SA. In contrast to popular models of SA, components of personal resources and engagement were the most frequently mentioned components of SA. Furthermore, external factors, such as finances and environment, which are absent in the majority of SA conceptualizations, were also frequently mentioned. The current review highlights the importance of psychosocial and external factors in SA definitions as well as emphasizes the multidimensional nature of SA. These results suggest that the incorporation of psychosocial and extrinsic components identified by laypersons into a multidimensional model of SA is necessary as biomedical components are inadequate on their own to capture what it means to age successfully. .

Limitations in the current study include the subjective nature of meta-ethnography and issues with the translation of SA. Meta-ethnography involves the interpretation and integration of researchers' interpretations of primary data [7] that may result in bias. Where possible, direct quotes from respondents

were coded; however, researchers' interpretive themes were coded, primarily. A further limitation was the translation of the phrase "successful ageing". Non-English studies used phrases the authors felt were equivalent to SA. For example, Hsu [8] notes that there is no word that directly translates to SA in Taiwanese. The authors then used (what translates into English as) "ideal or satisfactory life in old age"; a phrase they identified as being roughly equivalent to SA in a pilot study.

Psychosocial components of SA were the most frequently mentioned aspects of SA, highlighting the necessity to expand conceptualizations of SA beyond physiologically-based models. Traditional models of SA often suggest that an individual's physiological health is the sole indicator of one's SA, which is, as the current study suggests, a parochial perspective of a multifaceted construct. Components of personal resources were suggested by laypersons in all of the included studies, providing strong evidence for the importance of psychosocial components of SA. Furthermore, the breadth of the psychosocial components mentioned by laypersons highlights the multidimensionality of SA.

Using a meta-ethnographic framework, 12 psychosocial subthemes were identified: social roles, self-awareness, acceptance, perspective, engagement, spirituality, maintenance, quality of life, community, prevention & remediation, independence, adjustment. It is important to note the heterogeneity of these components even within this psychosocial umbrella, with components ranging from internal (e.g. spirituality) to inter-personal (e.g. social roles). This breadth of psychosocial components in SA has not been

illuminated to this degree in previous studies, providing invaluable insight into the complexity of layperson perspectives of SA.

With such a variety of psychosocial components mentioned in the current review, including every aspect of layperson perspectives into models of SA becomes increasingly difficult. It would be unrealistic to expect a study to touch on every nuance of SA that has been captured in the current review; however, there are a number of emergent themes that would be possible to capture. Most significantly is the prominence of psychosocial factors, notably engagement, perspective and self-awareness. These themes are then broken down into separate subthemes, highlighting the profound multidimensionality and complexity of SA components. This theoretical complexity manifests itself in attempts to quantify these psychosocial components of SA. There are a myriad of metrics that may be used to capture these phenomena, ranging from, for example, frequency of social interaction to self-confidence, highlighting another area where further research is needed. Identifying appropriate metrics for capturing psychosocial SA phenomena presents a unique challenge for researchers: translating a nebulous concept into a quantifiable and practically relevant construct.

A component of SA identified in approximately two-thirds of the studies, but rarely examined in quantitative studies of SA, was extrinsic factors, i.e. environment and finances. Financial security was found to be important across all age bands in Charbonneau-Lyons' study [9], in all permutations of gender, education and income, aside from females in no/low education/income group in Nagalaginam's study [10], and by all the respondents in the study by Lin [11]. Environment and finances are typically excluded from

current models [3 12] and the identification of these factors in such a large number of studies is therefore a unique finding. Further research is needed to explore these factors cross-culturally and along biomedical components of SA.

The SA component that was least frequently identified as being important was longevity. This contrasts with biomedical approaches in SA research that typically focus on the extension of life. There have been previous suggestions that extreme longevity, in the form of centenarians, is a representative model of SA [13 14]; however, these models have been met with opposition [15]. Surviving to 100 is not necessarily indicative of holistic wellbeing and is often accompanied by great losses and/or physical deficits [15]. The results from the current study support these assertions; elderly laypersons do not value simply living a long time as an integral component of SA. This departure from biomedical models supporting mere longevity aligns closely with the "adding life to years, not just years to life" ethos.

Of importance to note in this study is that numerous factors were identified by laypersons as being important for SA (e.g. engagement, self-awareness, perspective, etc.) for which, specific interventions for modifiable behaviors could be implemented. For example, aiding individuals in, decreasing depressive symptomology, social engagement, invoking coping and resilience training, could augment and compliment physical remediation strategies in the pursuit of SA. In contrast, proponents of strictly biomedical models suggest that psychosocial components should not be included in models of SA, excluding possibility for remediation or improvement of these factors closely linked to what it means to be SA in the real world. It is

necessary to look beyond the scope of biomedical models to areas of the lived life that have not been covered by traditional models of SA.

There are important research and policy implications associated with the identification and acknowledgement lay perspectives of SA. These data have the potential to provide invaluable information to researchers planning to conduct studies of SA through the incorporation of psychosocial variables into otherwise biomedical models. For example, if a researcher plans to use SA as an outcome variable, they have the opportunity to include psychosocial components in addition to physiological components. SA ageing is clearly not simply a physiological construct, so it seems intuitive that psychosocial components should be included into otherwise biomedical models of SA.

The distribution of the various SA components across regions reasserts the prevalence of psychosocial and external factors as components of successful ageing. The only components that were represented in all five regions (North America, South America, Asia, Australia, United Kingdom) were engagement and self-awareness. Given the profound overrepresentation of North American studies and studies conducted in Caucasian populations, however, it is hard to discern whether any cultural variations exist. These results highlight the need for further research to be conducted to augment and incorporate the influence of psychosocial components and cross-cultural perspectives of SA. The number of studies investigation of layperson perspectives of SA is comparatively small in terms of the volume of research on SA. Furthermore, the number of studies that are conducted outside Anglophone countries is very small when compared to the volume of research conducted in the UK, US and Canada. Similarly, within the

sample groups captured in the included studies, there were an inordinate proportion of Caucasian participants. Consequently, despite illuminating lay perspectives, these perspectives are largely the views of white Westerners. Further research is required to articulate the cultural similarities and disparities in SA conceptualizations.

The current review reinforces the multidimensional nature of SA and emphasizes the importance of psychosocial aspects of SA. Components of engagement and personal resources were identified by laypersons in more studies than biomedical components, representing a divergence from traditional (biomedical) models of SA and highlighting the need for the inclusion of psychosocial components. Of particular note was the poor representation of longevity amongst lay perspectives of SA. Although the current study provides insights into the concept of SA, it must be acknowledged that the included studies represent a strong Anglophone bias. Through the collection and synthesis of layperson perspectives, the current study provides a comprehensive examination of layperson conceptualizations of SA.

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All authors declare no conflicts of interest.

All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that TDC, JP, BCMS, and BC have no relationships with any company that might have an interest in the submitted work in the previous 3 years nor non-financial interests that may be relevant to the submitted work; furthermore, their spouses, partners, or children have no financial relationships that may be relevant to the submitted work. All authors declare no conflicts of interest.

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GRAPHICS

Table 1: Included study characteristics

			Age					Ethnicity	Marital Status			
Author	n	Population	Mean	Min		Max	Country	Caucasian	Married	Single	Divorced/ Separated	Widowed
Duay, et al. (2006) [16]	18	Community dwelling	72.6	≥59	60	86	USA	94.4%				
Ferri, et al. (2009) [17]	53	Community dwelling	78	≥60	61	90	USA	96.2%	32.1%	3.8%	11.3%	52.8%
Fisher & Specht (1999) [18]	36	Community dwelling artists	73.75	≥60	60	93	USA	97.2%	66.7%	5.6%	5.6%	22.2%
Fisher (1995)[19]	40	Community dwelling, foster grandparents	72.65		61	92	USA	97.5%	2.5%		10.0%	97.5%
Fisher, (1992)[20]	19	Seniors activity center	75		62	85	USA	100.0%	47.4%	5.3%		47.4%
Hilton, et al. (2009)[21]	65	Caregivers of elderly individuals	51.8		29	72	USA	81.5%	59.4%			
Lewis (2010)[22]	15	Alaska natives	56		26	84	USA					
Lewis (2011)[23]	26	Alaska natives			61	93	USA		53.8%			46.2%
Reichstadt et al. (2007)[24]	72	Retirement communities			60	99	USA					
Reichstadt et al. (2010)[25]	22	Retirement communities/seniors housing/seniors learning center	80	≥60	64	96	USA	86.0%				
Rossen, et al. (2008)[26]	31	Community dwelling women	78		61	90	USA		20.0%	12.0%		65.0%
Stevens-Ratchford & Cebulak (2004)[27]	14	Community dwelling with osteo- or rheumatoid arthritis	67		61	87	USA	100.0%				
Bowling (2006)[28]	854	Community dwelling	64	≥50	50	94	UK		72.0%	5.0%	9.0%	14.0%
Hsu (2007)[8]	584	Community dwelling		≥65			Taiwan					
Lee (2009)[29]	109	Living-alone, low SES		≥60			China		5.5%	17.4%	8.3%	68.8%
Collings (2001)[30]	38	Inuit			23	86	Canada					
Guse & Masesar (1999)[31]	32	Long-term care		≥55			Canada		34.0%	3.0%	16.0%	47.0%
Tate, et al. (2003)[32]	1771	Community dwelling World War II veterans	78				Canada					

Cupertino, et al. (2007)[33]	501	Community dwelling	72.65		60	93	Brasil
Knight & Ricciardelli (2003)[34]	60	Community/ retirement village dwelling	80.05	≥70	70	101	Australia
McCann et al. (2008)[35]	14	Spiritually affiliated women			60	89	Australia

Figure 1: Inclusion Flowchart

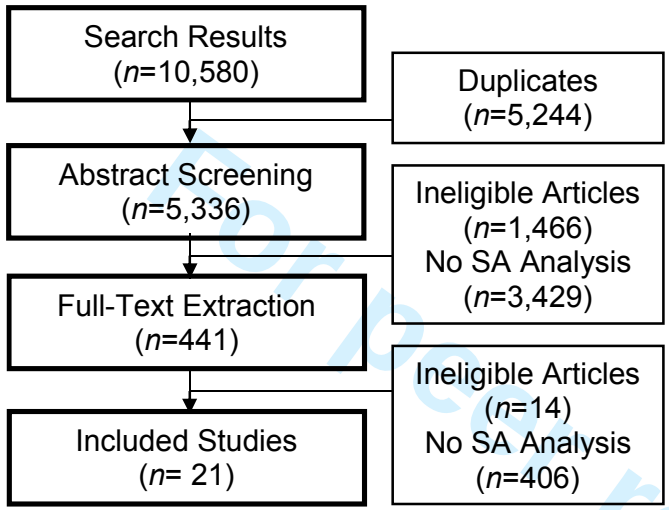


Figure 1: Inclusion flowchart

Figure 2: Biomedical themes and sub-themes

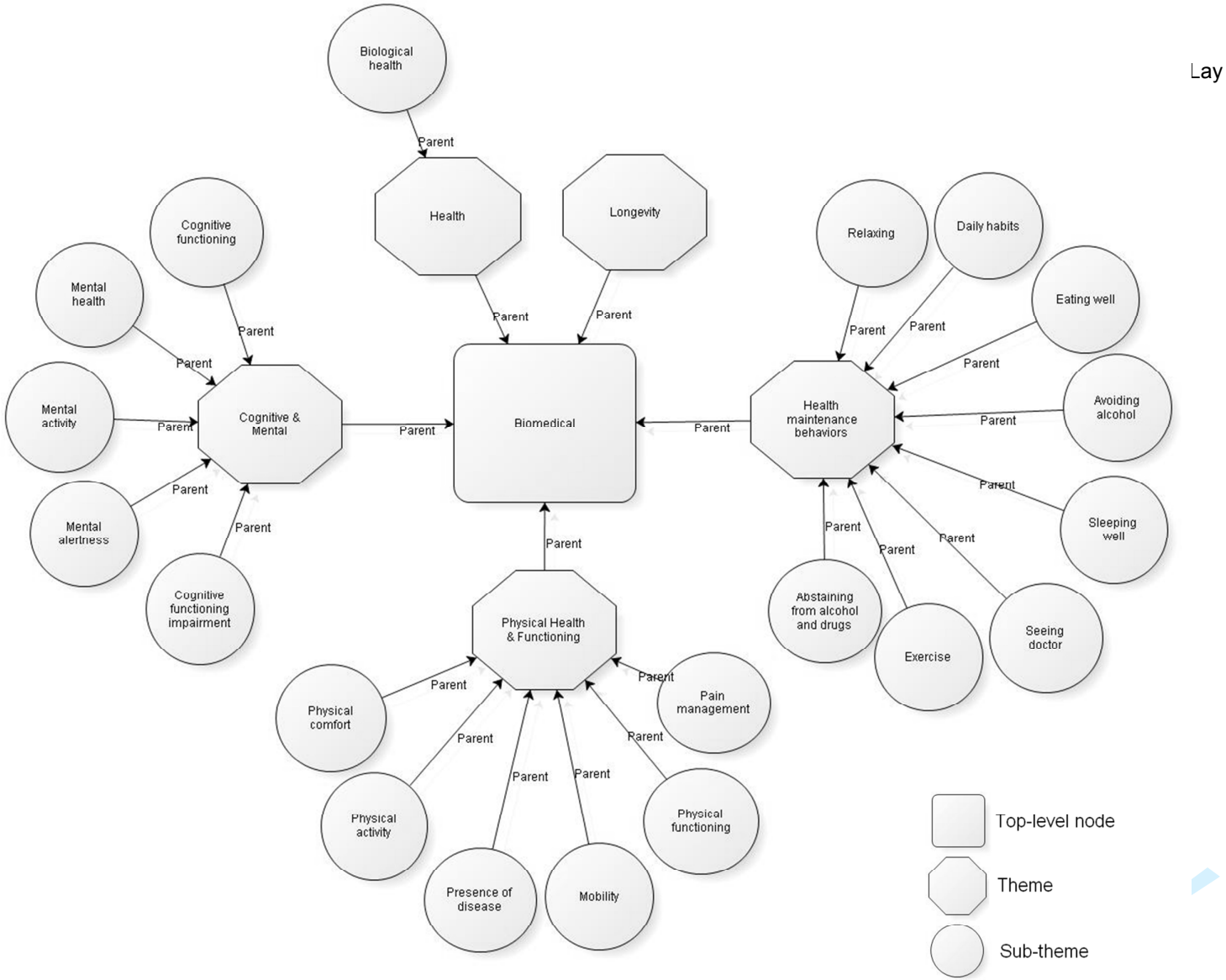


Figure 3: External factor themes and sub-themes

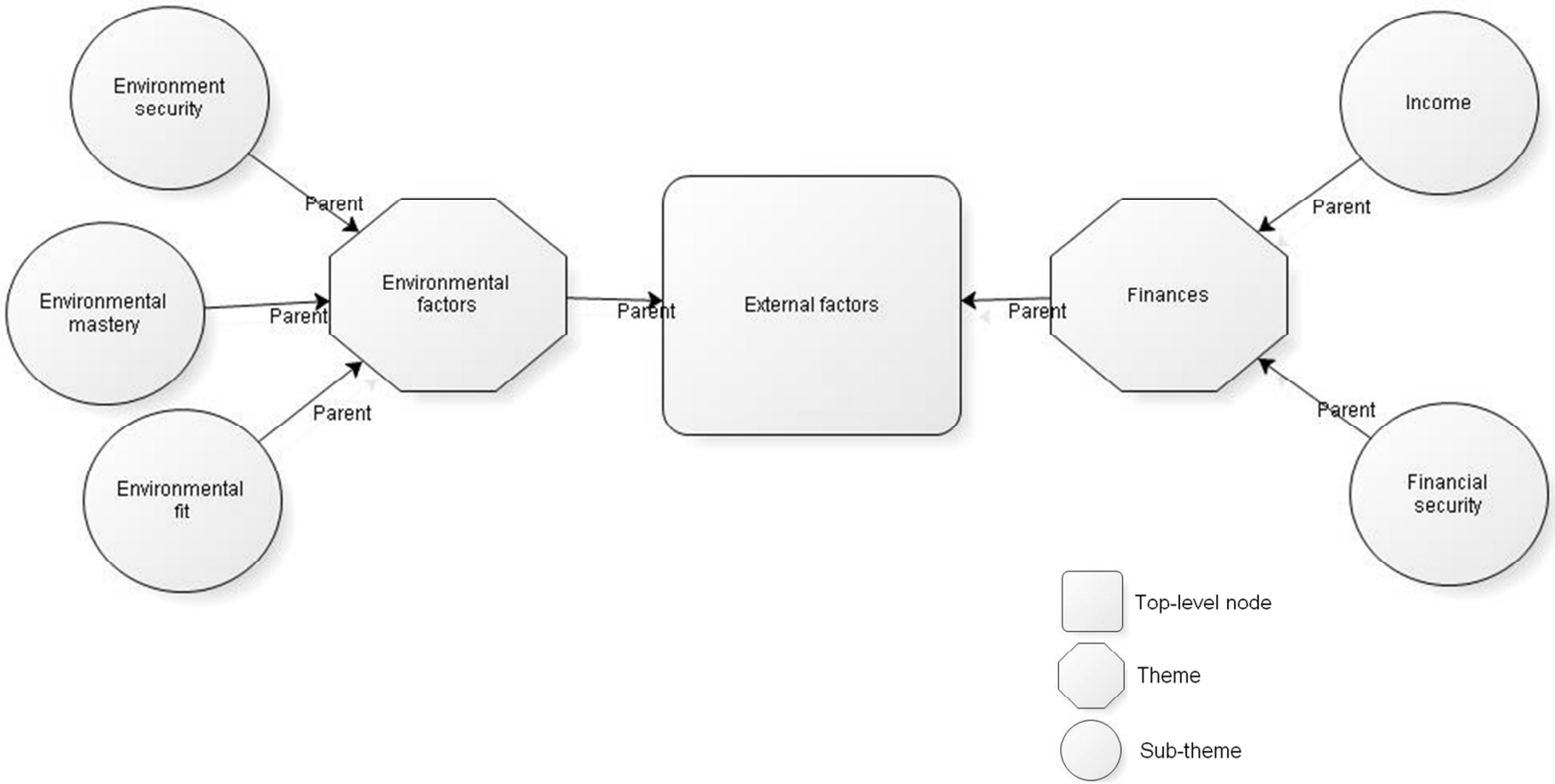


Figure 4: Psychosocial themes and subthemes

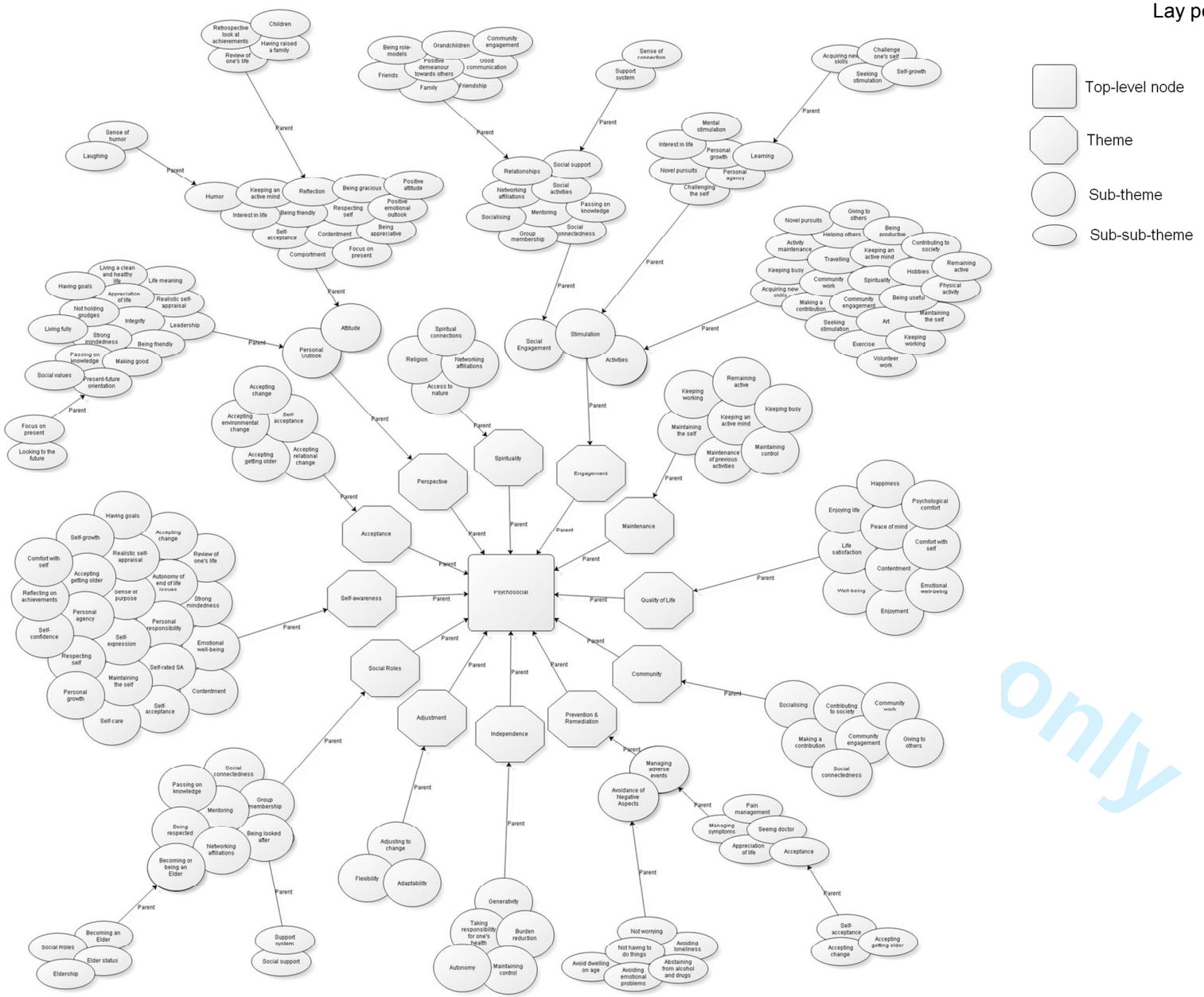
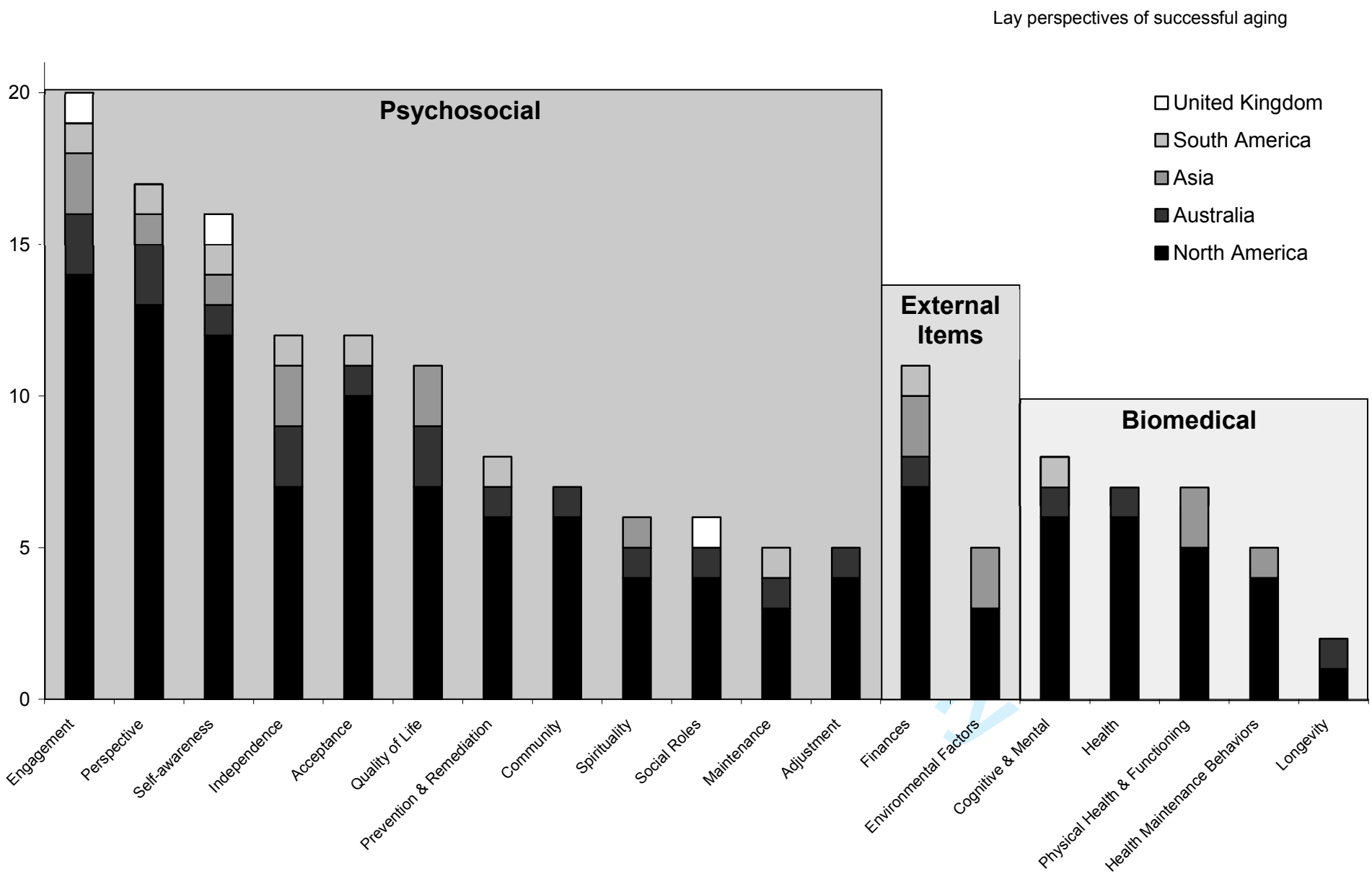


Figure 5: Percentage of studies reporting each of the SA components, by region



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3-4
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5-6
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5-6
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	n/a
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6-7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6-7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	6
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6-7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6-7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	n/a
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	n/a
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	6-7

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	n/a
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	n/a
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	26
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	23
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	n/a
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	n/a
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	n/a
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	n/a
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	n/a
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	10--15
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	10-11
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	14-15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	n/a

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Lay perspectives of successful ageing: A systematic review and meta-ethnography

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Lay perspectives of successful ageing: A systematic review and meta-ethnography

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Running head: Lay perspectives of successful ageing

Article Focus

- Currently there is no consensus definition of successful ageing
- The current study provides a comprehensive snapshot of qualitative studies of layperson perspectives of successful ageing

Key Messages

- Successful ageing is much more complex than simply physical health
- Psychosocial (e.g. attitude), and external (e.g. finances), factors were the most frequently mentioned components of successful ageing
- Layperson perspectives advocate the inclusion of components of successful ageing that go beyond physical health

Strengths

- Article conducts a systematic review of qualitative studies

Limitations

- Meta-ethnography involves the subjective interpretation of secondary data that is, itself, a subjective interpretation
- Languages that did not have “successful ageing” in their vernacular used approximations of the term

The review and search protocol was planned by TDC, BS and CB. TDC conducted the primary article review and data extraction; AMP and JP conducted second, independent, screens of the articles. TDC wrote the manuscript, which was edited and reviewed by AMP, JP, BS and CB.

There is no additional data available.

ABSTRACT

Objectives: The aim of the current study was to conduct a systematic review of lay perspectives of SA, synthesise these data using a meta-ethnographic framework and to provide a snapshot of extant lay perspectives of SA.

Design: A systematic review of layperson perspectives of SA was conducted across MedLine, PsycInfo, CINAHL, EMBASE and ISI Web of Knowledge.

Participants: Peer-reviewed studies conducting qualitative investigations of lay perspectives of SA were included. Included studies were coded and analysed using NVivo 9 to examine underlying themes of SA.

Results: The search strategy identified 7,285 articles; 26 articles met inclusion criteria. Laypersons identified psychosocial components, notably engagement (e.g. social engagement), and personal resources (e.g. attitude), as integral components of SA more often than “physiological” components, such as longevity or physical functioning. These results also highlight the profound underrepresentation of non-Western countries and the cultural homogeneity of research participants.

Conclusions: The current study reveals the importance laypersons place on incorporating psychosocial components into multidimensional models of SA as well as highlights the need for increased research with underrepresented populations.

Keywords: successful ageing, healthy ageing, lay perspectives, systematic review

INTRODUCTION

Despite an increasing focus on the improvement of quality of life throughout the life-course, there is no generally accepted definition of what it means to age well. What "successful ageing (SA)" is, or is not, is a contentious issue. Since the inception of the term, subjective interpretations of SA have generated an increase in disparate perspectives and conceptualisations. Depending on the context, objectives and sample characteristics of a study, the definition of SA has varied significantly [1]. In the absence of a consensus definition, the generalisability of SA studies has been severely impeded, inhibiting cross-study comparisons.

The most popular model of SA, Rowe & Kahn's [2 3] conceptualisation of SA, is primarily biomedical. This and other biomedical models of SA focus on physiological or cognitive aspects of health, as captured by metrics such as the Mini Mental State Exam[4] or the Activities of Daily Living scale [5] . Rowe & Kahn's [2 3] model suggests that high cognitive/physical functioning, low risk of illness, and active engagement comprise SA. This widely used model provides the theoretical underpinnings for many operational definitions of SA [1]. Although these researcher-driven conceptualizations of SA are popular, they have, however, been subject to criticism due to their biomedical focus, without explicit input of layperson perspectives [6].

The aim of the study is to provide a comprehensive review of studies examining lay perspectives of SA, in order to augment the largely quantitatively dominated SA literature with insights from qualitative research. The most recent reviews of quantitative definitions of SA [7] and qualitative perspectives of SA [8], reveal that there are more than twice as many studies

examining operational definitions of SA as there are studies examining lay perspectives of SA. However, a study examining several different SA models, i.e. biomedical, psychosocial and lay models, found the multidimensional lay model to be the strongest[9]. Through qualitative studies laypersons are given a platform to voice their opinions and perspectives on research topics[10]. Therefore, the incorporation of layperson perspectives expands and complements existing quantitative research, with the potential to improve both the quality and impact of research[11], increasing the validity and practical relevance of SA models [12] . This review expands upon a previous review of lay perspectives by Hung, et al. [8] through a broadened search strategy, an augmented temporal search span and the inclusion of non-English articles. Further, whilst Hung, et al. [8] focused on the umbrella concept of "healthy ageing", which they describe as capturing, "active ageing", "positive ageing", "robust ageing", "ageing well" as well as SA, the current review focusses specifically on SA.

METHODS

Search Strategy

A systematic review of the literature in PubMed, PsycInfo, ISI Web of Knowledge, EmBase and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) databases was initially conducted between May 31 and June 7, 2011 and then updated on March 23, 2013; all literature published before March 23, 2013 was eligible for inclusion. The specific search strategy includes "successful ageing" along with seven SA synonyms: robust ageing, optimal ageing, positive ageing, healthy ageing, productive ageing, effective ageing and ageing well. These phrases were used with both "aging" and

"ageing" spelling conventions, put in quotations, and linked via the Boolean operator "OR". Where possible, the wildcat operator "*" was inserted to capture all permutations of the phrase. Furthermore, where possible, in a given database, non-human studies were excluded. For example the search input for the phrase "successful ageing" in PubMed was "successful* ageing" OR "successful* ageing", which was searched as "successful* ageing"[All Fields] OR "successful* ageing"[All Fields] AND "humans"[MeSH Terms].

This process was repeated across the six databases using the seven SA related phrases. Relevant articles referenced in the captured studies were also included.

Study Inclusion

Peer-reviewed research articles conducting qualitative research with laypersons on the components of SA were included. Studies were considered to be qualitative if participants were asked open-ended or semi-open ended question(s). Studies discussing synonyms of SA without specific reference to SA, or components of SA, were excluded. Non-peer reviewed articles such as dissertations, opinion pieces, and letters to the editor, as well as review articles, were excluded.

As the intent was to provide a comprehensive review of lay perspectives of SA, studies were neither excluded nor weighted based on study characteristics or methodological rigor, as there is no established methodology for quality assessment of construct reviews [13].

Data Extraction

Title and abstract review was conducted (TDC, AMP & JP), to identify relevant articles for full-text extraction. Disagreements regarding inclusion

were resolved by discussion. No language restrictions were made; non-English articles were translated by multilingual staff at the Cambridge Institute of Public Health, Cambridge University. Information regarding the definitions and components of SA were extracted from authors' descriptions and syntheses of participants' responses as well as direct quotes from study participants. Where possible, the percentage of respondents referencing each SA component in a given study was noted. In studies where participants ranked the relative importance of each SA component, these data were recorded.

Synthesis

Themes created by study authors and direct quotes from study participants were identified, coded and analyzed in NVIVO 9. The different components of SA were analyzed using a meta-ethnographic framework. Meta-ethnography is a method with which to synthesize qualitative studies through an inductive analysis and integration of inter-study themes[14]. A hierarchy of SA components was identified through the identification of overarching themes and the components constituting these broad themes with progressively more specific foci.

RESULTS

Included Studies

The search strategy identified 7,285 articles. Title and abstract screening eliminated 6,834 articles and full-text screening eliminated 425 articles, 26 studies met inclusion criteria (Figure 1).

<INSERT FIGURE ABOUT HERE>

Study characteristics

Qualitative studies were primarily conducted in the US (n=13) and Canada (n=4) using purposive sampling with community dwelling populations of Caucasian older adults. The sample size ranged from 14 to 1771, with a mean of 180 (median= 46; SD=383) (Table 1).

<INSERT TABLE ABOUT HERE>

Components of SA

All studies (n=26) included psychosocial components, 76% (n=20 studies) included biomedical components, and 58% (n=15 studies) included external components. Psychosocial components were those that focused on internal and/or social phenomena, e.g. resilience. Biomedical components were those that focused on physiological phenomena, e.g. mobility. External components were those that focused on phenomena external to the individual, e.g. housing conditions.

The biomedical components were grouped into cognitive & mental, health, health maintenance behaviors, longevity, and physical health & functioning. Cognitive & mental components focused on the functioning of mental and cognitive faculties, e.g. “the only way not to become an old dog is to learn new tricks.” [15]. Health components focused on non-specific notions of physiological health, e.g. “health is everything” [16]. Health maintenance behavior components focused on behaviors fostering physical and/or

cognitive health, e.g. “eating right” [17]. Longevity components were those that focused on length of life. Physical health and functioning components were those that focused on references to physical health, e.g. “able to move anywhere” [18]. (Figure 2).

<INSERT FIGURE ABOUT HERE>

External components were grouped into environmental factors, e.g. “having a satisfactory living environment” and finances, e.g. “[being] financially self-supported” [19] (Figure 3).

<INSERT FIGURE ABOUT HERE>

Psychosocial factors were grouped into acceptance, adjustment, maintenance, spirituality, community, social roles, quality of life, independence, prevention & remediation, self-awareness, perspective, and engagement. Acceptance components focused on coming to terms with change in one’s life, e.g. “we need to accept our older age” [20]. Adjustment components focused on the ability to adapt to change in one’s life, e.g. “keeping up with the changing things around you” [21]. Maintenance components focused on continuing previous behaviors, e.g. “there is one person I know who is quite old and they’re still hunting and everything” [22]. Spirituality components focused on the presence of a higher being or connection to a force greater than oneself, e.g. “it is important to live with faith and appreciate that we are protected each day” [23]. Community components

focused on connectedness or contributing to a social sphere, e.g. “I’m active in the community. Very helpful to my neighbors in any way that I can” [15] . Social role components focused on one’s position or function within a social sphere, e.g. “being able to talk to young people, people younger than I who have a long life ahead of them” [24]. Quality of life components focused on life satisfaction, e.g. “leading a simple but happy life” [19]. Independence components focused on autonomy, e.g. “having the freedom to express myself freely and naturally” [25] . Prevention & remediation components focused on the management or avoidance of negative influences, e.g. abstaining from drugs and alcohol [26]. Self-awareness components focused on personal resources, e.g. “being able to look back on my life and see personal development” [25] . Perspective components focused on personal outlook and attitude, e.g. “Having a positive outlook on life” [27]. Engagement components focused on social involvement, stimulation and/or participation in various activities, e.g. “I like to be out around my friends talking, you know, what’s going on in this place and finding out things, being involved” [28] (Figure 4).

<INSERT FIGURE ABOUT HERE>

A comparison of the percentage of respondents reporting each of the constituent components of SA revealed engagement was mentioned most frequently, followed by perspective and self-awareness. Longevity was mentioned in two studies; in one of these studies mentioning longevity, 2 of 60 respondents mentioned longevity[16] (Figure 5). North American studies (n=20) most often mentioned engagement (95%, n=19), perspective (90%, n=18) and

self-awareness (80%, n=16). Australian studies (n=2) mentioned engagement (100%, n=2), perspective (100%, n=2), independence (100%, 2) and quality of life (100%, n=2) most often. All Asian studies (n=2), mentioned engagement, independence, and quality of life, finances, environment and physical health. The South American study (n=1) mentioned engagement, perspective, self-awareness, independence, acceptance, finances, environment and health. The British study mentioned engagement, perspective, self-awareness, acceptance, quality of life, adjustment, finances, environment, cognitive & mental and health maintenance behaviors.

<INSERT FIGURE ABOUT HERE>

DISCUSSION

The components of SA identified by the qualitative studies captured in this review reflect a divergence from traditional biomedical conceptualizations of SA, highlighting the multidimensionality and psychosocial emphasis of SA. In contrast to operational definitions captured in the most recent review SA which posit primarily biomedical models [7], attitudinal and engagement components were found to be the most frequently mentioned. Furthermore, external factors, such as finances and environment, which are absent in the majority of SA conceptualizations [7], were also frequently mentioned. This review highlights the importance of psychosocial and external factors in SA definitions as well as emphasizes the multidimensional nature of SA. These results suggest that the incorporation of psychosocial and extrinsic

components identified by laypersons into a multidimensional model of SA is a prudent means with which to augment biomedical conceptualisations of SA.

Limitations in the current study include the subjective nature of meta-ethnography and issues with the translation of SA. Meta-ethnography involves the interpretation and integration of researchers' interpretations of primary data [14] that may result in bias. Where possible, direct quotes from respondents were coded; however, researchers' interpretive themes were coded, primarily. A further limitation was the translation of the phrase "successful ageing". Non-English studies used phrases the authors felt were equivalent to SA. For example, Hsu [18] notes that there is no word that directly translates to SA in Taiwanese. The authors then used (what translates into English as) "ideal or satisfactory life in old age"; a phrase they identified as being roughly equivalent to SA in a pilot study.

Psychosocial components of SA were the most frequently mentioned aspects of SA, highlighting the advantages of expanding conceptualizations of SA beyond physiologically-based models. Traditional models of SA often suggest that an individual's physiological health is the sole indicator of one's SA, which is, as the current study suggests, a parochial perspective of a multifaceted construct. Psychosocial components were suggested by laypersons in all of the included studies, providing strong evidence for the inclusion in prospective models of SA. Furthermore, the breadth of the psychosocial components mentioned by laypersons highlights the multidimensionality of SA.

Using a meta-ethnographic framework, 12 psychosocial subthemes were identified: social roles, self-awareness, acceptance, perspective,

engagement, spirituality, maintenance, quality of life, community, prevention & remediation, independence, and adjustment. It is important to note the heterogeneity of these components even within this psychosocial umbrella, with components ranging from internal (e.g. spirituality) to inter-personal (e.g. social roles). This breadth of psychosocial components in SA has not been illuminated to this degree in previous studies, providing invaluable insight into the complexity of layperson perspectives of SA.

With such a variety of psychosocial components mentioned in the current review, including every aspect of layperson perspectives into models of SA becomes increasingly difficult. It would be unrealistic to expect a study to touch on every nuance of SA that has been captured in the current review; however, there are a number of emergent themes that would be possible to capture. Most significantly is the prominence of psychosocial factors, notably engagement, perspective and self-awareness. These themes are then broken down into separate subthemes. This theoretical complexity manifests itself in attempts to quantify these psychosocial components of SA. There are a myriad of metrics that may be used to capture these phenomena, ranging from, for example, frequency of social interaction to self-confidence, highlighting another area where further research is needed. Identifying appropriate metrics for capturing psychosocial SA phenomena presents a unique challenge for researchers: translating a nebulous concept into a quantifiable and practically relevant construct.

A component of SA identified in approximately two-thirds of the studies, but rarely examined in quantitative studies of SA, was extrinsic factors, i.e. environment and finances. Financial security was found to be important

across all age bands in Charbonneau-Lyons' study [29], in all permutations of gender, education and income, aside from females in no/low education/income group in Nagalaginam's study [30], and by all the respondents in the study by Lin [31]. Environment and finances are typically excluded from current models [3 32] and the identification of these factors in such a large number of studies is therefore a unique finding. Further research is needed to explore these factors cross-culturally and along biomedical components of SA.

The SA component that was least frequently identified as being important was longevity. This contrasts with biomedical approaches in SA research that typically focus on the extension of life. There have been previous suggestions that extreme longevity, in the form of centenarians, is a representative model of SA [33 34]; however, these models have been met with opposition [35]. Surviving to 100 is not necessarily indicative of holistic wellbeing and is often accompanied by great losses and/or physical deficits [35]. The results from the current study support these assertions; elderly laypersons do not value simply living a long time as an integral component of SA. This departure from biomedical models supporting mere longevity aligns closely with the "adding life to years, not just years to life" ethos.

Many of the components identified by layperson as being important (e.g. engagement, self-awareness, perspective, etc.) present the opportunity for the implementation of specific interventions for modifiable behaviors. For example, aiding individuals in, decreasing depressive symptomology, social engagement, invoking coping and resilience training, could augment and compliment physical remediation strategies in the pursuit of SA. In contrast, proponents of strictly biomedical models suggest that psychosocial

components should not be included in models of SA, excluding possibility for remediation or improvement of these factors closely linked to what it means to be SA in the real world. It is necessary to look beyond the scope of biomedical models to areas of the lived life that have not been covered by traditional models of SA.

There are important research and policy implications associated with the identification and acknowledgement of lay perspectives of SA. These data have the potential to provide invaluable information to researchers planning to conduct studies of SA through the incorporation of psychosocial variables into otherwise biomedical models. For example, if a researcher plans to use SA as an outcome variable, they have the opportunity to include psychosocial components in addition to physiological components. SA ageing is clearly not simply a physiological construct, so it seems intuitive that psychosocial components should be included into otherwise biomedical models of SA.

The distribution of the various SA components across regions reasserts the prevalence of psychosocial and external factors as components of successful ageing. The only components that were represented in all five regions (North America, South America, Asia, Australia, United Kingdom) were engagement and self-awareness. Given the profound overrepresentation of North American studies and studies conducted in Caucasian populations, it is hard to discern whether any cultural variations exist. These results highlight the need for further research to be conducted to augment and incorporate the influence of psychosocial components and cross-cultural perspectives of SA.

The current review reinforces the multidimensional nature of SA and emphasizes the importance of psychosocial aspects of SA. Components of engagement and personal resources were identified by laypersons in more studies than biomedical components, representing a divergence from traditional (biomedical) models of SA and highlighting the need for the inclusion of psychosocial components. Of particular note was the poor representation of longevity amongst lay perspectives of SA. Although the current study provides insights into the concept of SA, it must be acknowledged that the included studies represent a strong Anglophone bias. Through the collection and synthesis of layperson perspectives, the current study provides a comprehensive examination of layperson conceptualisations of SA.

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All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that TDC, AMP, JP, BCMS, and CB have no relationships with any company that might have an interest in the submitted work in the previous 3 years nor non-financial interests that may be relevant to the submitted work; furthermore, their spouses, partners, or children have no financial relationships that may be relevant to the submitted work. All authors declare no conflicts of interest.

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GRAPHICS

Table 1: Included study characteristics

			Age					Ethnicity	Marital Status			
Author	n	Population	Mean	SD	Min	Max	Country	Caucasian	Married	Single	Divorced/ Separated	Widowed
Bowling (2006)[36].	854	Community dwelling	64		50	94	UK		72.0%	5.0%	9.0%	14.0%
Collings (2001)[24]	38	Inuit			23	86	Canada					
Cupertino, et al. (2007)[37]	501	Community dwelling	72.65	8.08	60	93	Brasil					
Duay, et al. (2006)[15]	18	Community dwelling	72.6		60	86	USA	94.4%				
Dionigi, et al. (2011)[38]	21	Community dwelling women	83.3		75	92	Canada	100.0%	14.3%	4.8%	0.0%	81.0%
Ferri, et al. (2009)[39]	53	Community dwelling	78	8.2	61	90	USA	96.2%	32.1%	3.8%	11.3%	52.8%
Fisher (1995)[27]	40	Community dwelling, foster grandparents	72.65		61	92	USA	97.5%	2.5%		10.0%	97.5%
Fisher & Specht (1999)[25]	36	Community dwelling artists	73.75		60	93	USA	97.2%	66.7%	5.6%	5.6%	22.2%
Fisher, (1992)[21]	19	Seniors activity center	75		62	85	USA	100.0%	47.4%	5.3%		47.4%
Guse & Masesar(1999)[40]	32	Long-term care					Canada		34.0%	3.0%	16.0%	47.0%
Hilton, et al. (2009)[41]	65	Caregivers of elderly individuals	51.8		29	72	USA	81.5%	59.4%			
Hilton, et al. (2012)[42]	60	Community dwelling Latinos	61		50	84	USA	0.0%	48.3%	16.7%	20.0%	16.7%
Hsu (2007)[18]	584	Community dwelling					Taiwan					
Iwasama & Iwasaki (2011)[23]	77	Community dwelling Japanese-Americans	78.3	8.5	55	96	USA		37.7%	3.9%	11.7%	46.8%
Knight & Ricciardelli (2003)[16]	60	Community/retirement village dwelling	80.05		70	101	Australia					
Lee (2009)[19]	109	Living-alone, low SES					China		5.5%	17.4%	8.3%	68.8%

Lay perspectives of successful aging

Lewis (2010)[20]	15	Alaska natives	56		26	84	USA					
Lewis (2011)[43]	26	Alaska natives			61	93	USA		53.8%			46.2%
McCann et al. (2008)[44]	14	Spiritually affiliated women			60	89	Australia					
Reichstadt et al. (2007)[45]	72	Retirement communities			60	99	USA					
Reichstadt et al. (2010)[28]	22	Retirement communities/seniors housing/seniors learning center	80	9.1	64	96	USA	86.0%				
Rossen, et al. (2008)[46]	31	Community dwelling women	78		61	90	USA		20.0%	12.0%		65.0%
Stevens-Ratchford & Cebulak (2004)[47]	14	Community dwelling with osteo- or rheumatoid arthritis	67		61	87	USA	100.0%				
Tate, et al. (2003)[48]	1771	Community dwelling World War II veterans	78				Canada					
Troutman, et al. (2011) [49]	100	Community dwelling African-Americans	74.4	6	61	89	USA	0.0%				
Troutman, et al. (2013)[50]	52	Community dwelling self-identified "successful agers"	77.1	7.02	60	89	USA	44.0%	25.0%	15.4%	3.8%	53.8%

Figure 1: Inclusion Flowchart

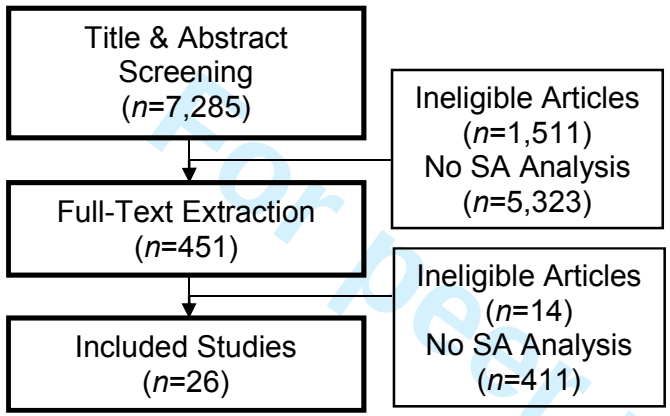


Figure 1: Inclusion flowchart

Figure 2: Biomedical themes and sub-themes

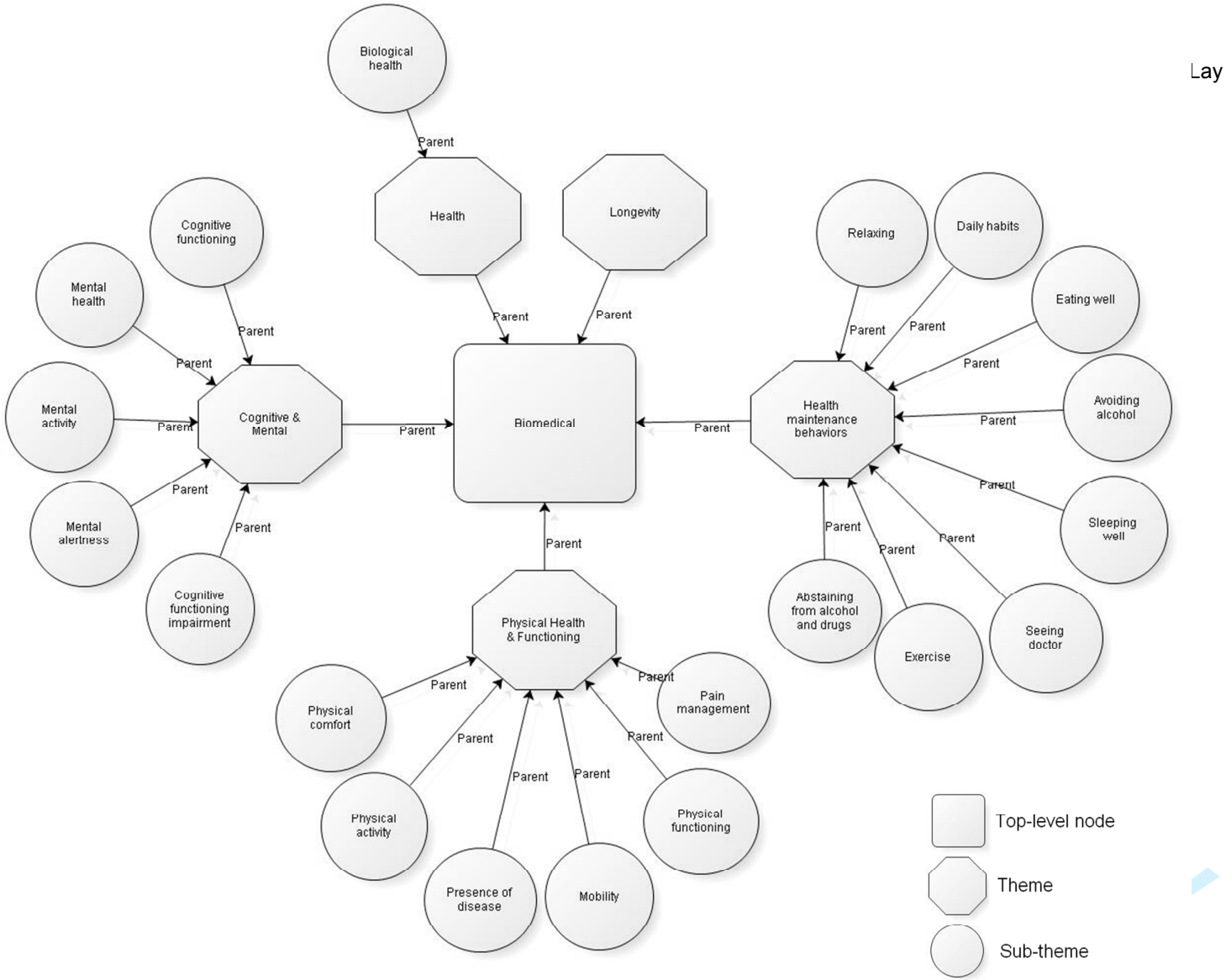


Figure 3: External factor themes and sub-themes

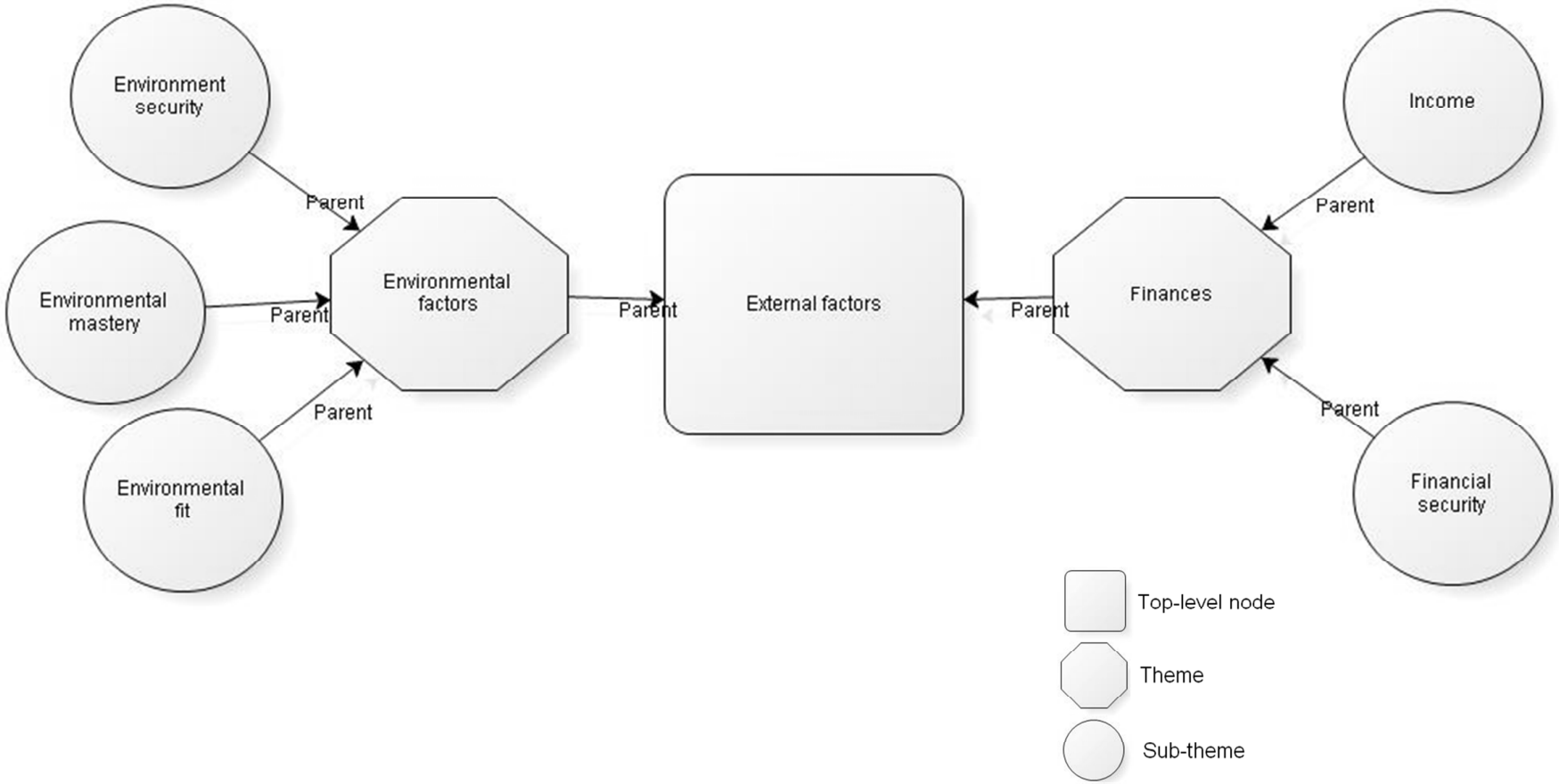


Figure 4: Psychosocial themes and subthemes

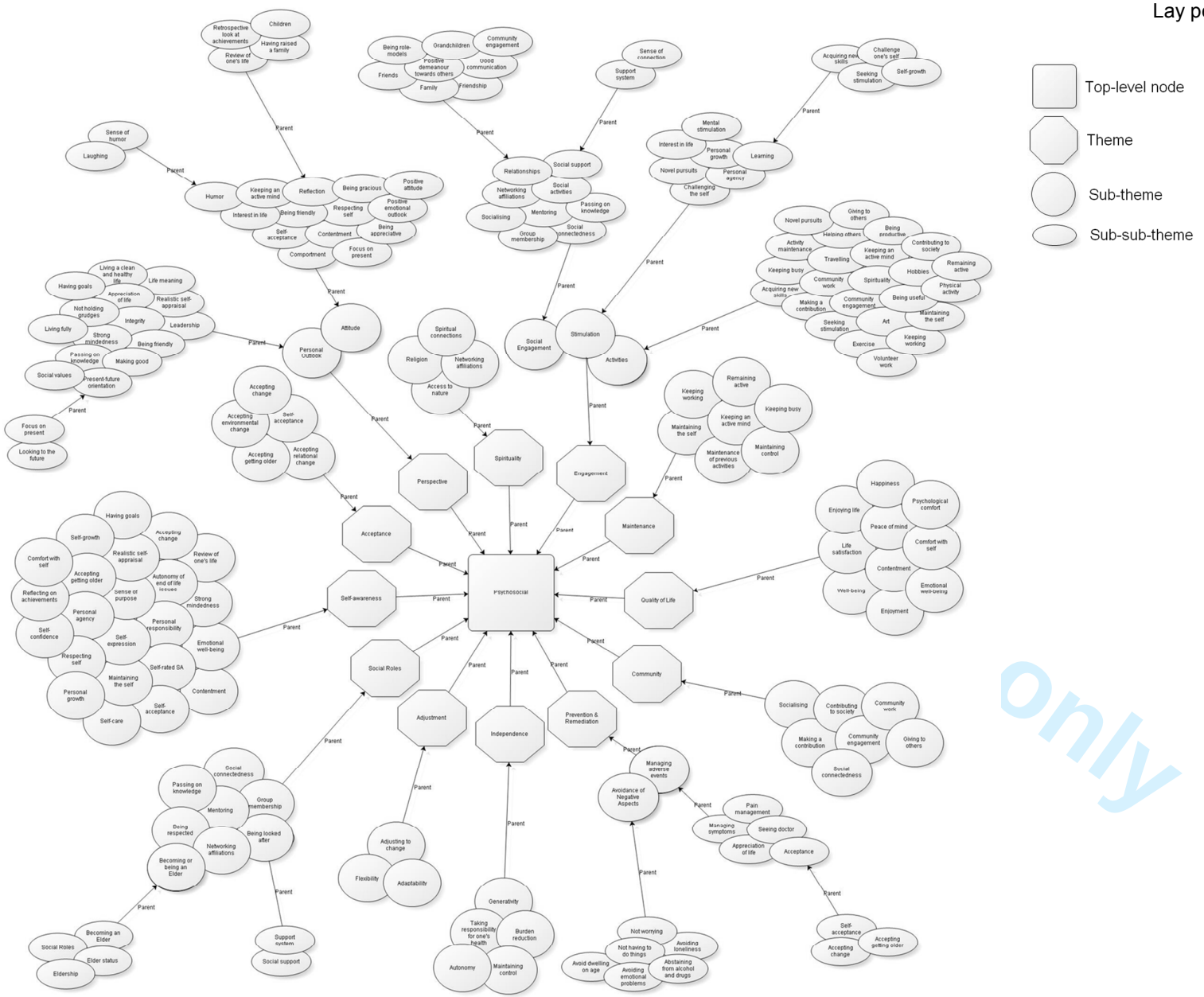
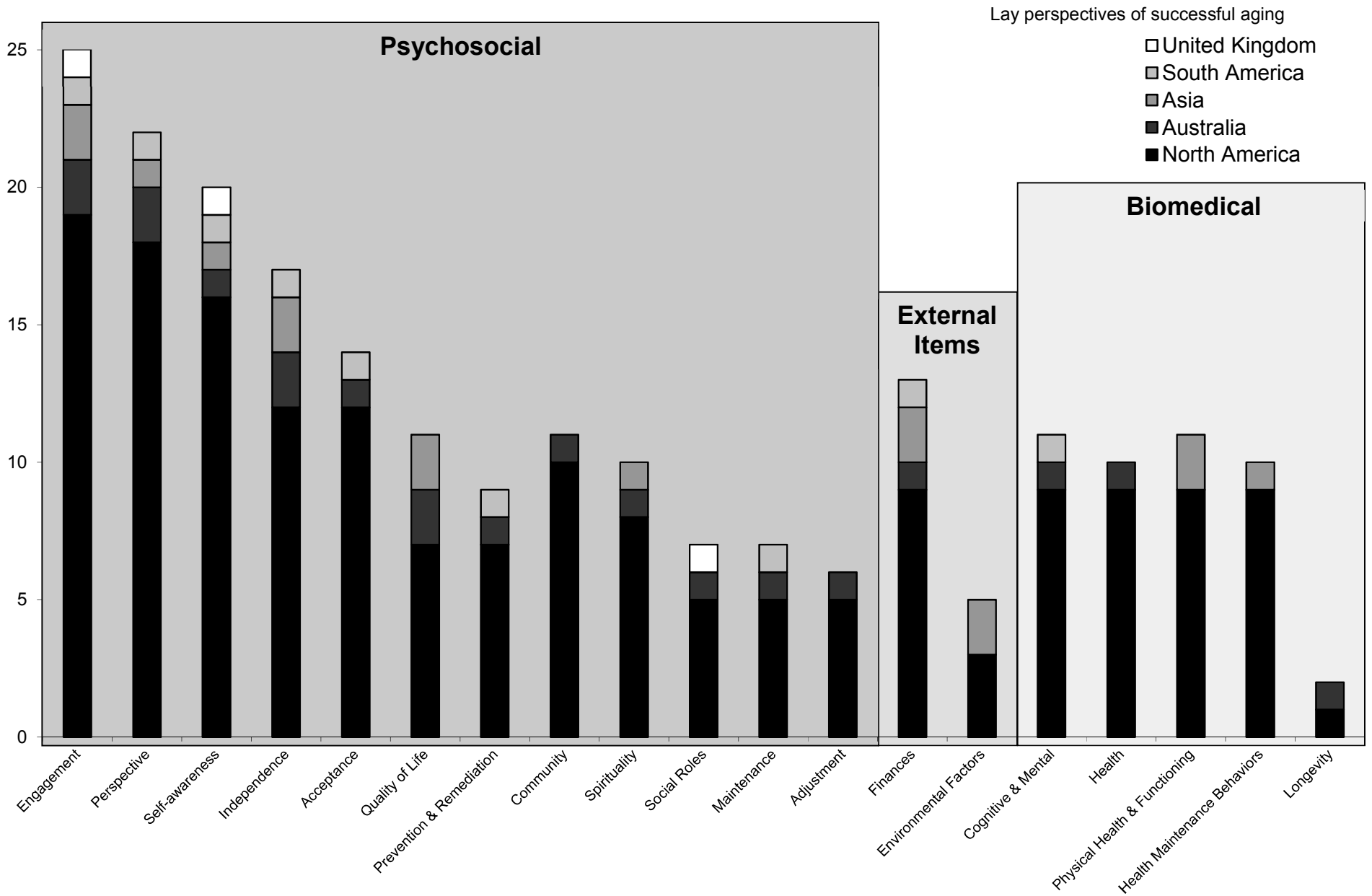


Figure 5: Frequency of studies reporting each of the SA components, by region



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3-4
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5-6
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5-6
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	n/a
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6-7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6-7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	6
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6-7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6-7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	n/a
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	n/a
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	6-7

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	n/a
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	n/a
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	26
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	23
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	n/a
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	n/a
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	n/a
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	n/a
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	n/a
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	10--15
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	10-11
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	14-15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	n/a

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

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Lay perspectives of successful ageing: A systematic review and meta-ethnography

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Running head: Lay perspectives of successful ageing

Article Focus

- Currently there is no consensus definition of successful ageing
- The current study provides a comprehensive snapshot of qualitative studies of layperson perspectives of successful ageing

Key Messages

- Successful ageing is much more complex than simply physical health
- Psychosocial (e.g. attitude), and external (e.g. finances), factors were the most frequently mentioned components of successful ageing
- Layperson perspectives advocate the inclusion of components of successful ageing that go beyond physical health

Strengths

- Article conducts a systematic review of qualitative studies

Limitations

- Meta-ethnography involves the subjective interpretation of secondary data that is, itself, a subjective interpretation
- Languages that did not have “successful ageing” in their vernacular used approximations of the term

The review and search protocol was planned by TDC, BS and CB. TDC conducted the primary article review and data extraction; AMP and JP conducted second, independent, screens of the articles. TDC wrote the manuscript, which was edited and reviewed by AMP, JP, BS and CB.

There is no additional data available.

ABSTRACT

Objectives: The aim of the current study was to conduct a systematic review of lay perspectives of SA, synthesise these data using a meta-ethnographic framework and to provide a snapshot of extant lay perspectives of SA.

Design: A systematic review of layperson perspectives of SA was conducted across MedLine, PsycInfo, CINAHL, EMBASE and ISI Web of Knowledge.

Participants: Peer-reviewed studies conducting qualitative investigations of lay perspectives of SA were included. Included studies were coded and analysed using NVivo 9 to examine underlying themes of SA.

Results: The search strategy identified 7,285 articles; 26 articles met inclusion criteria. Laypersons identified psychosocial components, notably engagement (e.g. social engagement), and personal resources (e.g. attitude), as integral components of SA more often than biomedical components, such as longevity or physical functioning. These results also highlight the profound underrepresentation of non-Western countries and the cultural homogeneity of research participants.

Conclusions: The current study reveals the importance laypersons place on incorporating psychosocial components into multidimensional models of SA as well as highlights the need for increased research with underrepresented populations.

Keywords: successful ageing, healthy ageing, lay perspectives, systematic review

INTRODUCTION

Despite an increasing focus on the improvement of quality of life throughout the life-course, there is no generally accepted definition of what it means to age well. What "successful ageing (SA)" is, or is not, is a contentious issue. Since the inception of the term, subjective interpretations of SA have generated an increase in disparate perspectives and conceptualisations. Depending on the context, objectives and sample characteristics of a study, the definition of SA has varied significantly [1]. In the absence of a consensus definition, the generalisability of SA studies has been severely impeded, inhibiting cross-study comparisons.

The most popular model of SA, Rowe & Kahn's [2 3] conceptualisation of SA, is primarily biomedical. This and other biomedical models of SA focus on physiological or cognitive aspects of health, as captured by metrics such as the Mini Mental State Exam[4] or the Activities of Daily Living scale [5] . Rowe & Kahn's [2 3] model suggests that high cognitive/physical functioning, low risk of illness, and active engagement comprise SA. This widely used model provides the theoretical underpinnings for many operational definitions of SA [1]. Although these researcher-driven conceptualizations of SA are popular, they have, however, been subject to criticism due to their biomedical focus, without explicit input of layperson perspectives [6].

The aim of the study is to provide a comprehensive review of studies examining lay perspectives of SA, in order to augment the largely quantitatively dominated SA literature with insights from qualitative research. The most recent reviews of quantitative definitions of SA [7] and qualitative perspectives of SA [8], reveal that there are more than twice as many studies

examining operational definitions of SA as there are studies examining lay perspectives of SA. However, a study examining several different SA models, i.e. biomedical, psychosocial and lay models, found the multidimensional lay model to be the strongest[9]. Through qualitative studies laypersons are given a platform to voice their opinions and perspectives on research topics[10]. Therefore, the incorporation of layperson perspectives expands and complements existing quantitative research, with the potential to improve both the quality and impact of research[11], increasing the validity and practical relevance of SA models [12] .This review expands upon a previous review of lay perspectives by Hung, et al. [8] through a broadened search strategy, an augmented temporal search span and the inclusion of non-English articles. Further, whilst Hung, et al. [8] focused on the umbrella concept of "healthy ageing", which they describe as capturing, "active ageing", "positive ageing", "robust ageing", "ageing well" as well as SA, the current review focusses specifically on SA.

METHODS

Search Strategy

A systematic review of the literature in PubMed, PsycInfo, ISI Web of Knowledge, EmBase and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) databases was initially conducted between May 31 and June 7, 2011 and then updated on March 23, 2013; all literature published before March 23, 2013 was eligible for inclusion. The specific search strategy includes "successful ageing" along with seven SA synonyms: robust ageing, optimal ageing, positive ageing, healthy ageing, productive ageing, effective ageing and ageing well. These phrases were used with both "aging" and

"ageing" spelling conventions, put in quotations, and linked via the Boolean operator "OR". Where possible, the wildcat operator "*" was inserted to capture all permutations of the phrase. Furthermore, where possible, in a given database, non-human studies were excluded. For example the search input for the phrase "successful ageing" in PubMed was "successful* ageing" OR "successful* ageing", which was searched as "successful* ageing"[All Fields] OR "successful* ageing"[All Fields] AND "humans"[MeSH Terms]. This process was repeated across the six databases using the seven SA related phrases. Relevant articles referenced in the captured studies were also included.

Study Inclusion

Peer-reviewed research articles conducting qualitative research with laypersons on the components of SA were included. Studies were considered to be qualitative if participants were asked open-ended or semi-open ended question(s). Studies discussing synonyms of SA without specific reference to SA, or components of SA, were excluded. Non-peer reviewed articles such as dissertations, opinion pieces, and letters to the editor, as well as review articles, were excluded.

As the intent was to provide a comprehensive review of lay perspectives of SA, studies were neither excluded nor weighted based on study characteristics or methodological rigor, as there is no established methodology for quality assessment of construct reviews [13].

Data Extraction

Title and abstract review was conducted (TDC, AMP & JP), to identify relevant articles for full-text extraction. Disagreements regarding inclusion

were resolved by discussion. No language restrictions were made; non-English articles were translated by multilingual staff at the Cambridge Institute of Public Health, Cambridge University. Information regarding the definitions and components of SA were extracted from authors' descriptions and syntheses of participants' responses as well as direct quotes from study participants. Where possible, the percentage of respondents referencing each SA component in a given study was noted. In studies where participants ranked the relative importance of each SA component, these data were recorded.

Synthesis

Themes created by study authors and direct quotes from study participants were identified, coded and analyzed in NVIVO 9. The different components of SA were analyzed using a meta-ethnographic framework. Meta-ethnography is a method with which to synthesize qualitative studies through an inductive analysis and integration of inter-study themes[14]. A hierarchy of SA components was identified through the identification of overarching themes and the components constituting these broad themes with progressively more specific foci.

RESULTS

Included Studies

The search strategy identified 7,285 articles. Title and abstract screening eliminated 6,834 articles and full-text screening eliminated 425 articles, 26 studies met inclusion criteria (Figure 1).

<INSERT FIGURE ABOUT HERE>

Study characteristics

Qualitative studies were primarily conducted in the US (n=13) and Canada (n=4) using purposive sampling with community dwelling populations of Caucasian older adults. The sample size ranged from 14 to 1771, with a mean of 180 (median= 46; SD=383) (Table 1).

<INSERT TABLE ABOUT HERE>

Components of SA

All studies (n=26) included psychosocial components, 76% (n=20 studies) included biomedical components, and 58% (n=15 studies) included external components. Psychosocial components were those that focused on internal and/or social phenomena, e.g. resilience. Biomedical components were those that focused on physiological phenomena, e.g. mobility. External components were those that focused on phenomena external to the individual, e.g. housing conditions.

The biomedical components were grouped into cognitive & mental, health, health maintenance behaviors, longevity, and physical health & functioning. Cognitive & mental components focused on the functioning of mental and cognitive faculties, e.g. “the only way not to become an old dog is to learn new tricks.” [15]. Health components focused on non-specific notions of physiological health, e.g. “health is everything” [16]. Health maintenance behavior components focused on behaviors fostering physical and/or

cognitive health, e.g. “eating right” [17]. Longevity components were those that focused on length of life. Physical health and functioning components were those that focused on references to physical health, e.g. “able to move anywhere” [18]. (Figure 2).

<INSERT FIGURE ABOUT HERE>

External components were grouped into environmental factors, e.g. “having a satisfactory living environment” and finances, e.g. “[being] financially self-supported” [19] (Figure 3).

<INSERT FIGURE ABOUT HERE>

Psychosocial factors were grouped into acceptance, adjustment, maintenance, spirituality, community, social roles, quality of life, independence, prevention & remediation, self-awareness, perspective, and engagement. Acceptance components focused on coming to terms with change in one’s life, e.g. “we need to accept our older age” [20]. Adjustment components focused on the ability to adapt to change in one’s life, e.g. “keeping up with the changing things around you” [21]. Maintenance components focused on continuing previous behaviors, e.g. “there is one person I know who is quite old and they’re still hunting and everything” [22]. Spirituality components focused on the presence of a higher being or connection to a force greater than oneself, e.g. “it is important to live with faith and appreciate that we are protected each day” [23]. Community components

focused on connectedness or contributing to a social sphere, e.g. “I’m active in the community. Very helpful to my neighbors in any way that I can” [15] . Social role components focused on one’s position or function within a social sphere, e.g. “being able to talk to young people, people younger than I who have a long life ahead of them” [24]. Quality of life components focused on life satisfaction, e.g. “leading a simple but happy life” [19]. Independence components focused on autonomy, e.g. “having the freedom to express myself freely and naturally” [25] . Prevention & remediation components focused on the management or avoidance of negative influences, e.g. abstaining from drugs and alcohol [26]. Self-awareness components focused on personal resources, e.g. “being able to look back on my life and see personal development” [25] . Perspective components focused on personal outlook and attitude, e.g. “Having a positive outlook on life” [27]. Engagement components focused on social involvement, stimulation and/or participation in various activities, e.g. “I like to be out around my friends talking, you know, what’s going on in this place and finding out things, being involved” [28] (Figure 4).

<INSERT FIGURE ABOUT HERE>

A comparison of the percentage of respondents reporting each of the constituent components of SA revealed engagement was mentioned most frequently, followed by perspective and self-awareness. Longevity was mentioned in two studies; in one of these studies mentioning longevity, 2 of 60 respondents mentioned longevity[16] (Figure 5). North American studies (n=20) most often mentioned engagement (95%, n=19), perspective (90%, n=18) and

self-awareness (80%, n=16). Australian studies (n=2) mentioned engagement (100%, n=2), perspective (100%, n=2), independence (100%, 2) and quality of life (100%, n=2) most often. All Asian studies (n=2), mentioned engagement, independence, and quality of life, finances, environment and physical health. The South American study (n=1) mentioned engagement, perspective, self-awareness, independence, acceptance, finances, environment and health. The British study mentioned engagement, perspective, self-awareness, acceptance, quality of life, adjustment, finances, environment, cognitive & mental and health maintenance behaviors.

<INSERT FIGURE ABOUT HERE>

DISCUSSION

The components of SA identified by the qualitative studies captured in this review reflect a divergence from traditional biomedical conceptualizations of SA, highlighting the multidimensionality and psychosocial emphasis of SA. In contrast to operational definitions captured in the most recent review SA which posit primarily biomedical models [7], attitudinal and engagement components were found to be the most frequently mentioned. Furthermore, external factors, such as finances and environment, which are absent in the majority of SA conceptualizations [7], were also frequently mentioned. This review highlights the importance of psychosocial and external factors in SA definitions as well as emphasizes the multidimensional nature of SA. These results suggest that the incorporation of psychosocial and extrinsic

components identified by laypersons into a multidimensional model of SA is a prudent means with which to augment biomedical conceptualisations of SA.

Limitations in the current study include the subjective nature of meta-ethnography and issues with the translation of SA. Meta-ethnography involves the interpretation and integration of researchers' interpretations of primary data [14] that may result in bias. Where possible, direct quotes from respondents were coded; however, researchers' interpretive themes were coded, primarily. A further limitation was the translation of the phrase "successful ageing". Non-English studies used phrases the authors felt were equivalent to SA. For example, Hsu [18] notes that there is no word that directly translates to SA in Taiwanese. The authors then used (what translates into English as) "ideal or satisfactory life in old age"; a phrase they identified as being roughly equivalent to SA in a pilot study.

Psychosocial components of SA were the most frequently mentioned aspects of SA, highlighting the advantages of expanding conceptualizations of SA beyond physiologically-based models. Traditional models of SA often suggest that an individual's physiological health is the sole indicator of one's SA, which is, as the current study suggests, a parochial perspective of a multifaceted construct. Psychosocial components were suggested by laypersons in all of the included studies, providing strong evidence for the inclusion in prospective models of SA. Furthermore, the breadth of the psychosocial components mentioned by laypersons highlights the multidimensionality of SA.

Using a meta-ethnographic framework, 12 psychosocial subthemes were identified: social roles, self-awareness, acceptance, perspective,

engagement, spirituality, maintenance, quality of life, community, prevention & remediation, independence, and adjustment. It is important to note the heterogeneity of these components even within this psychosocial umbrella, with components ranging from internal (e.g. spirituality) to inter-personal (e.g. social roles). This breadth of psychosocial components in SA has not been illuminated to this degree in previous studies, providing invaluable insight into the complexity of layperson perspectives of SA.

With such a variety of psychosocial components mentioned in the current review, including every aspect of layperson perspectives into models of SA becomes increasingly difficult. It would be unrealistic to expect a study to touch on every nuance of SA that has been captured in the current review; however, there are a number of emergent themes that would be possible to capture. Most significantly is the prominence of psychosocial factors, notably engagement, perspective and self-awareness. These themes are then broken down into separate subthemes. This theoretical complexity manifests itself in attempts to quantify these psychosocial components of SA. There are a myriad of metrics that may be used to capture these phenomena, ranging from, for example, frequency of social interaction to self-confidence, highlighting another area where further research is needed. Identifying appropriate metrics for capturing psychosocial SA phenomena presents a unique challenge for researchers: translating a nebulous concept into a quantifiable and practically relevant construct.

A component of SA identified in approximately two-thirds of the studies, but rarely examined in quantitative studies of SA, was extrinsic factors, i.e. environment and finances. Financial security was found to be important

across all age bands in Charbonneau-Lyons' study [29], in all permutations of gender, education and income, aside from females in no/low education/income group in Nagalaginam's study [30], and by all the respondents in the study by Lin [31]. Environment and finances are typically excluded from current models [3 32] and the identification of these factors in such a large number of studies is therefore a unique finding. Further research is needed to explore these factors cross-culturally and along biomedical components of SA.

The SA component that was least frequently identified as being important was longevity. This contrasts with biomedical approaches in SA research that typically focus on the extension of life. There have been previous suggestions that extreme longevity, in the form of centenarians, is a representative model of SA [33 34]; however, these models have been met with opposition [35]. Surviving to 100 is not necessarily indicative of holistic wellbeing and is often accompanied by great losses and/or physical deficits [35]. The results from the current study support these assertions; elderly laypersons do not value simply living a long time as an integral component of SA. This departure from biomedical models supporting mere longevity aligns closely with the "adding life to years, not just years to life" ethos.

Many of the components identified by layperson as being important (e.g. engagement, self-awareness, perspective, etc.) present the opportunity for the implementation of specific interventions for modifiable behaviors. For example, aiding individuals in, decreasing depressive symptomology, social engagement, invoking coping and resilience training, could augment and compliment physical remediation strategies in the pursuit of SA. In contrast, proponents of strictly biomedical models suggest that psychosocial

components should not be included in models of SA, excluding possibility for remediation or improvement of these factors closely linked to what it means to be SA in the real world. It is necessary to look beyond the scope of biomedical models to areas of the lived life that have not been covered by traditional models of SA.

There are important research and policy implications associated with the identification and acknowledgement of lay perspectives of SA. These data have the potential to provide invaluable information to researchers planning to conduct studies of SA through the incorporation of psychosocial variables into otherwise biomedical models. For example, if a researcher plans to use SA as an outcome variable, they have the opportunity to include psychosocial components in addition to physiological components. SA ageing is clearly not simply a physiological construct, so it seems intuitive that psychosocial components should be included into otherwise biomedical models of SA.

The distribution of the various SA components across regions reasserts the prevalence of psychosocial and external factors as components of successful ageing. The only components that were represented in all five regions (North America, South America, Asia, Australia, United Kingdom) were engagement and self-awareness. Given the profound overrepresentation of North American studies and studies conducted in Caucasian populations, it is hard to discern whether any cultural variations exist. These results highlight the need for further research to be conducted to augment and incorporate the influence of psychosocial components and cross-cultural perspectives of SA.

The current review reinforces the multidimensional nature of SA and emphasizes the importance of psychosocial aspects of SA. Components of engagement and personal resources were identified by laypersons in more studies than biomedical components, representing a divergence from traditional (biomedical) models of SA and highlighting the need for the inclusion of psychosocial components. Of particular note was the poor representation of longevity amongst lay perspectives of SA. Although the current study provides insights into the concept of SA, it must be acknowledged that the included studies represent a strong Anglophone bias. Through the collection and synthesis of layperson perspectives, the current study provides a comprehensive examination of layperson conceptualisations of SA.

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GRAPHICS

Table 1: Included study characteristics

			Age					Ethnicity	Marital Status			
Author	n	Population	Mean	SD	Min	Max	Country	Caucasian	Married	Single	Divorced/ Separated	Widowed
Bowling (2006)[36].	854	Community dwelling	64		50	94	UK		72.0%	5.0%	9.0%	14.0%
Collings (2001)[24]	38	Inuit			23	86	Canada					
Cupertino, et al. (2007)[37]	501	Community dwelling	72.65	8.08	60	93	Brasil					
Duay, et al. (2006)[15]	18	Community dwelling	72.6		60	86	USA	94.4%				
Dionigi, et al. (2011)[38]	21	Community dwelling women	83.3		75	92	Canada	100.0%	14.3%	4.8%	0.0%	81.0%
Ferri, et al. (2009)[39]	53	Community dwelling	78	8.2	61	90	USA	96.2%	32.1%	3.8%	11.3%	52.8%
Fisher (1995)[27]	40	Community dwelling, foster grandparents	72.65		61	92	USA	97.5%	2.5%		10.0%	97.5%
Fisher & Specht (1999)[25]	36	Community dwelling artists	73.75		60	93	USA	97.2%	66.7%	5.6%	5.6%	22.2%
Fisher, (1992)[21]	19	Seniors activity center	75		62	85	USA	100.0%	47.4%	5.3%		47.4%
Guse & Masesar(1999)[40]	32	Long-term care					Canada		34.0%	3.0%	16.0%	47.0%
Hilton, et al. (2009)[41]	65	Caregivers of elderly individuals	51.8		29	72	USA	81.5%	59.4%			
Hilton, et al. (2012)[42]	60	Community dwelling Latinos	61		50	84	USA	0.0%	48.3%	16.7%	20.0%	16.7%
Hsu (2007)[18]	584	Community dwelling					Taiwan					
Iwasama & Iwasaki (2011)[23]	77	Community dwelling Japanese-Americans	78.3	8.5	55	96	USA		37.7%	3.9%	11.7%	46.8%
Knight & Ricciardelli (2003)[16]	60	Community/retirement village dwelling	80.05		70	101	Australia					
Lee (2009)[19]	109	Living-alone, low SES					China		5.5%	17.4%	8.3%	68.8%

Lay perspectives of successful ageing

Lewis (2010)[20]	15	Alaska natives	56		26	84	USA					
Lewis (2011)[43]	26	Alaska natives			61	93	USA		53.8%			46.2%
McCann et al. (2008)[44]	14	Spiritually affiliated women			60	89	Australia					
Reichstadt et al. (2007)[45]	72	Retirement communities			60	99	USA					
Reichstadt et al. (2010)[28]	22	Retirement communities/seniors housing/seniors learning center	80	9.1	64	96	USA	86.0%				
Rossen, et al. (2008)[46]	31	Community dwelling women	78		61	90	USA		20.0%	12.0%		65.0%
Stevens-Ratchford & Cebulak (2004)[47]	14	Community dwelling with osteo- or rheumatoid arthritis	67		61	87	USA	100.0%				
Tate, et al. (2003)[48]	1771	Community dwelling World War II veterans	78				Canada					
Troutman, et al. (2011) [49]	100	Community dwelling African-Americans	74.4	6	61	89	USA	0.0%				
Troutman, et al. (2013)[50]	52	Community dwelling self-identified "successful agers"	77.1	7.02	60	89	USA	44.0%	25.0%	15.4%	3.8%	53.8%

Figure 1: Inclusion Flowchart

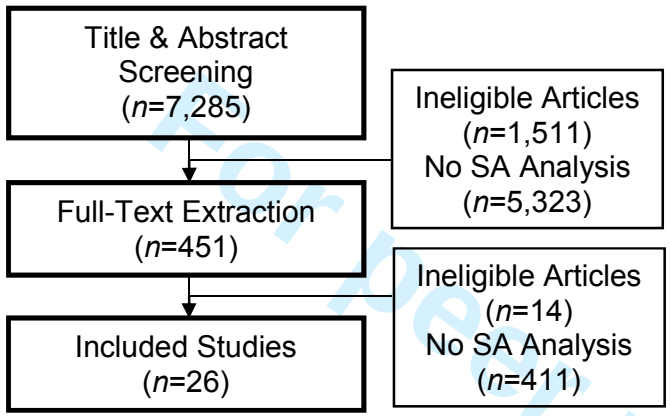


Figure 1: Inclusion flowchart

Figure 2: Biomedical themes and sub-themes

ay perspectives of successful ageing

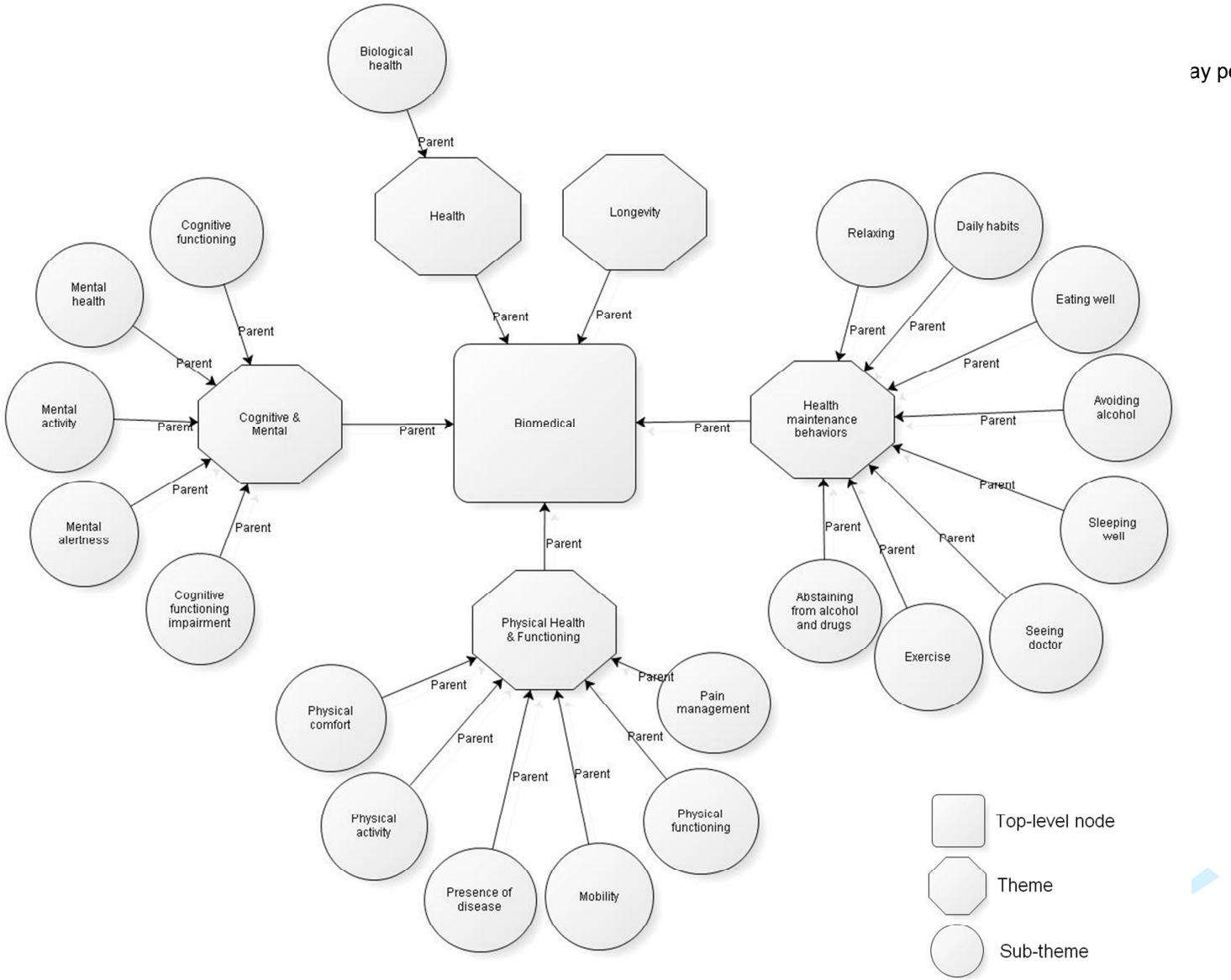


Figure 3: External factor themes and sub-themes

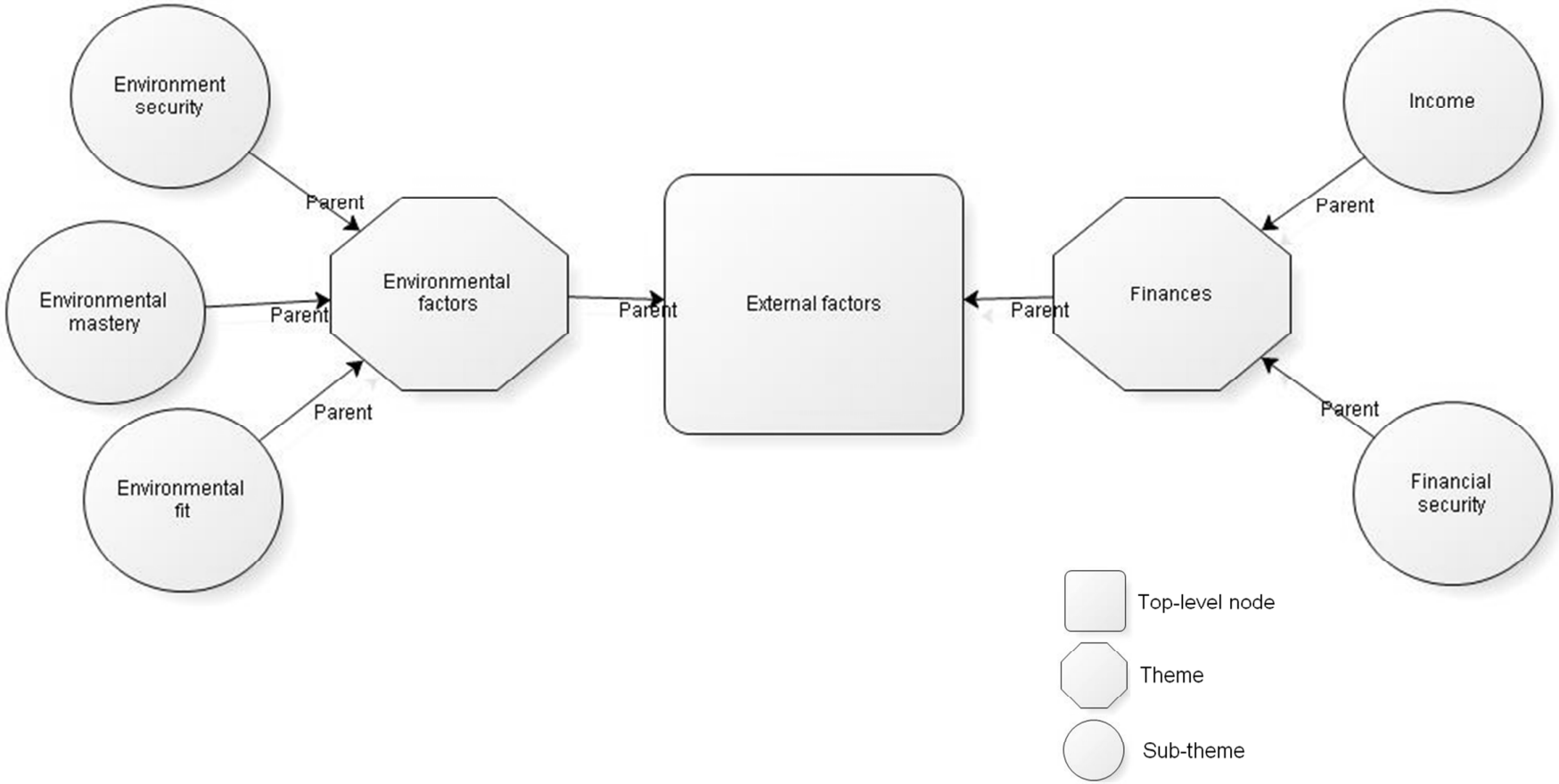


Figure 4: Psychosocial themes and subthemes

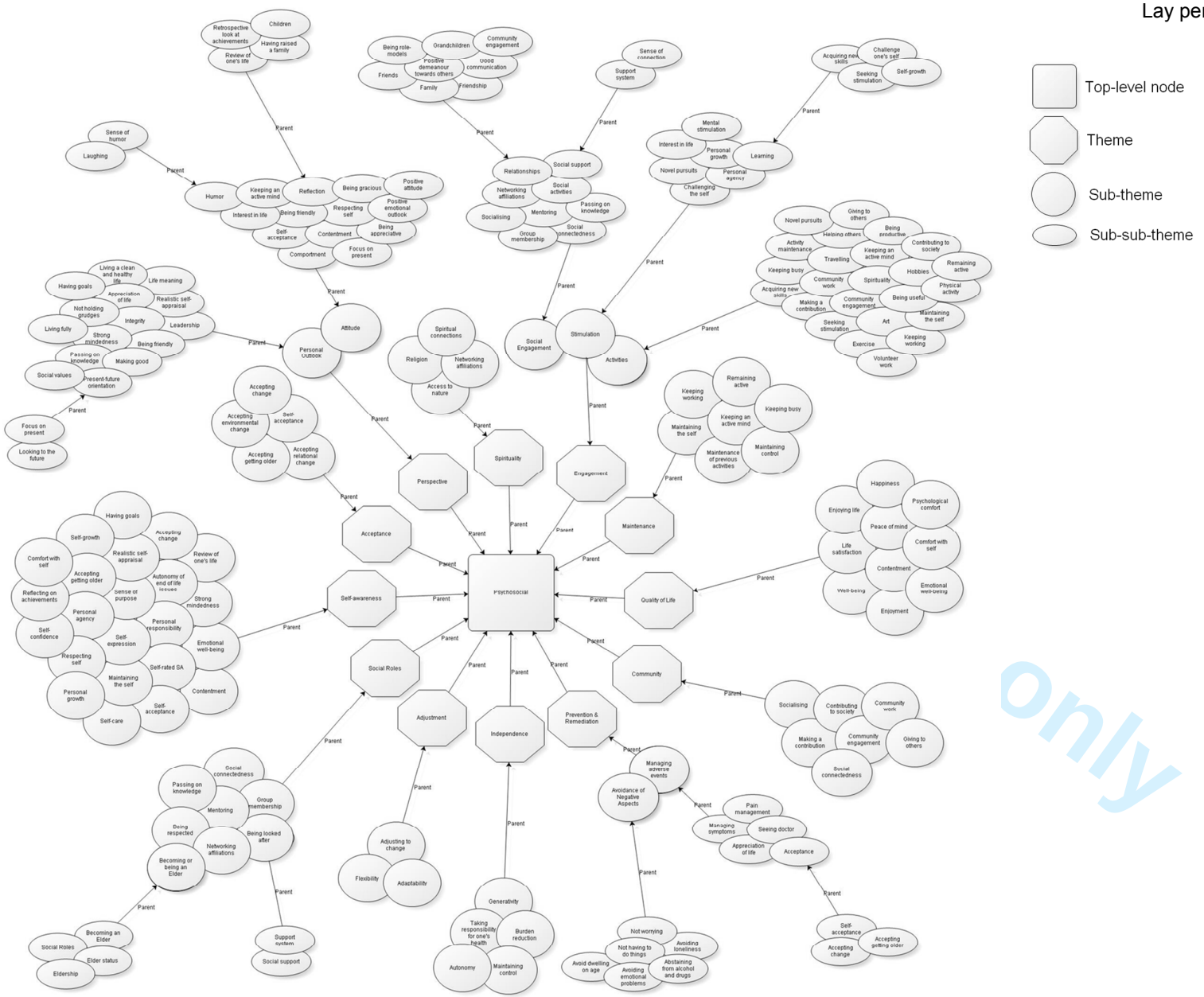
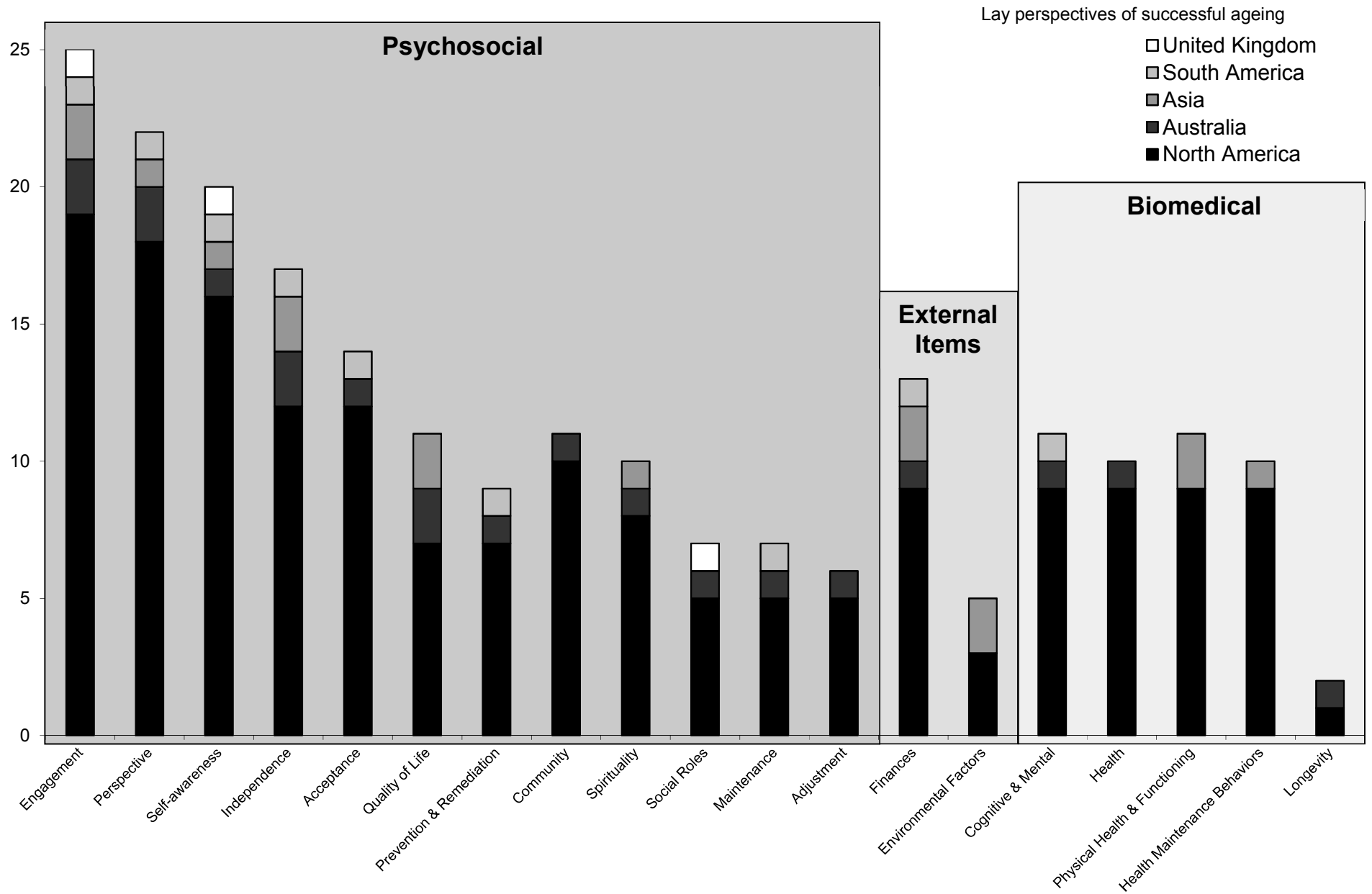


Figure 5: Frequency of studies reporting each of the SA components, by region



Lay perspectives of successful ageing

Lay perspectives of successful ageing: A systematic review and meta-ethnography

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Lay perspectives of successful ageing: A systematic review and meta-ethnography

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Running head: Lay perspectives of successful ageing

Article Summary

Article Focus

- Currently there is no consensus definition of successful ageing
- The current study provides a comprehensive snapshot of qualitative studies of layperson perspectives of successful ageing

Key Messages

- Successful ageing is much more complex than simply physical health
- Psychosocial (e.g. attitude) factors were the most frequently mentioned components of successful ageing
- Layperson perspectives advocate the inclusion of components of successful ageing that go beyond physical health

Strengths

- Article conducts a systematic review of qualitative studies

Limitations

- Meta-ethnography involves the subjective interpretation of secondary data that is, itself, a subjective interpretation
- Languages that did not have “successful ageing” in their vernacular used approximations of the term

ABSTRACT

Objectives: The aim of the current study was to conduct a systematic review of lay perspectives of successful ageing (SA), synthesise these data using a meta-ethnographic framework and to provide a snapshot of extant lay perspectives of SA.

Design: A systematic review of layperson perspectives of SA was conducted across MedLine, PsycInfo, CINAHL, EMBASE and ISI Web of Knowledge.

Participants: Peer-reviewed studies conducting qualitative investigations of lay perspectives of SA were included. Included studies were coded and analysed using NVivo 9 to examine underlying themes of SA.

Results: The search strategy identified 7,285 articles; 26 articles met inclusion criteria. Laypersons identified psychosocial components, notably engagement (e.g. social engagement), and personal resources (e.g. attitude), as integral components of SA more often than "physiological" components, such as longevity or physical functioning. These results also highlight the profound underrepresentation of non-Western countries and the cultural homogeneity of research participants.

Conclusions: The current study reveals the importance laypersons place on incorporating psychosocial components into multidimensional models of SA as well as highlights the need for increased research with underrepresented populations.

Keywords: successful ageing, healthy ageing, lay perspectives, systematic review

INTRODUCTION

Despite an increasing focus on the improvement of quality of life throughout the life-course, there is no generally accepted definition of what it means to age well. What "successful ageing (SA)" is, or is not, is a contentious issue. Since the inception of the term, subjective interpretations of SA have generated an increase in disparate perspectives and conceptualisations. Depending on the context, objectives and sample characteristics of a study, the definition of SA has varied significantly [1]. In the absence of a consensus definition, the generalisability of SA studies has been severely impeded, inhibiting cross-study comparisons.

The most popular model of SA, Rowe & Kahn's [2 3] conceptualisation of SA, is primarily biomedical. This and other biomedical models of SA focus on physiological or cognitive aspects of health, as captured by metrics such as the Mini Mental State Exam[4] or the Activities of Daily Living scale [5] . Rowe & Kahn's [2 3] model suggests that high cognitive/physical functioning, low risk of illness, and active engagement comprise SA. This widely used model provides the theoretical underpinnings for many operational definitions of SA [1]. Although these researcher-driven conceptualisations of SA are popular, they have, however, been subject to criticism due to their biomedical focus, without explicit input of layperson perspectives [6].

The aim of the study is to provide a comprehensive review of studies examining lay perspectives of SA, in order to augment the many researcher-driven conceptualisations of SA with insights from qualitative research. The most recent reviews of operational definitions of SA[1] and qualitative perspectives of SA[7], reveal that there are more than twice as many studies

positing operational definitions of SA as there are studies examining lay perspectives of SA. However, a study examining several different SA models, i.e. biomedical, psychosocial and lay models, found the multidimensional lay model to be the strongest[8]. Through qualitative studies laypersons are given a platform to voice their opinions and perspectives on research topics[9]. Therefore, the incorporation of layperson perspectives expands and complements researcher-driven conceptualisations of SA, with the potential to improve both the quality and impact of research[10], increasing the validity and practical relevance of SA models [11] . This review expands upon a previous review of lay perspectives by Hung, et al. [7] through a broadened search strategy, an augmented temporal search span and the inclusion of non-English articles. Further, whilst Hung, et al. [7] focused on the umbrella concept of "healthy ageing", which they describe as capturing, "active ageing", "positive ageing", "robust ageing", "ageing well" as well as SA, the current review focusses specifically on SA.

METHODS

Search Strategy

A systematic review of the literature in PubMed, PsycInfo, ISI Web of Knowledge, EmBase and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) databases was initially conducted between May 31 and June 7, 2011 and then updated on March 23, 2013; all literature published before March 23, 2013 was eligible for inclusion. The specific search strategy includes "successful ageing" along with seven SA synonyms: robust ageing, optimal ageing, positive ageing, healthy ageing, productive ageing, effective ageing and ageing well. These phrases were used with both "aging" and

"ageing" spelling conventions, put in quotations, and linked via the Boolean operator "OR". Where possible, the wildcat operator "*" was inserted to capture all permutations of the phrase. Furthermore, where possible, in a given database, non-human studies were excluded. For example the search input for the phrase "successful ageing" in PubMed was "successful* ageing" OR "successful* ageing", which was searched as "successful* ageing"[All Fields] OR "successful* ageing"[All Fields] AND "humans"[MeSH Terms].

This process was repeated across the six databases using the seven SA related phrases. The SA related terms were included to capture studies that, for example, listed "ageing well" in their keywords, but asked "What is your definition of successful ageing?" in interviews with participants. If only "successful ageing" had been used in the search strategy it would have been missed. Therefore, in an effort to capture every SA instance the seven SA related terms were used in the search strategy. Relevant articles referenced in the captured studies were also included.

Study Inclusion

Peer-reviewed research articles conducting qualitative research with laypersons on the components of SA were included. Studies were considered to be qualitative if participants were asked open-ended or semi-open ended question(s). Studies discussing synonyms of SA without specific reference to SA, or components of SA, were excluded. Non-peer reviewed articles such as dissertations, opinion pieces, and letters to the editor, as well as review articles, were excluded.

As the intent was to provide a comprehensive review of lay perspectives of SA, studies were neither excluded nor weighted based on

study characteristics or methodological rigor, as there is no established methodology for quality assessment of construct reviews [12].

Data Extraction

Title and abstract review was conducted (TDC, AMP & JP), to identify relevant articles for full-text extraction. Disagreements regarding inclusion were resolved by discussion. No language restrictions were made; non-English articles were translated by multilingual staff at the Cambridge Institute of Public Health, Cambridge University. Information regarding the definitions and components of SA were extracted from authors' descriptions and syntheses of participants' responses as well as direct quotes from study participants. Where possible, the percentage of respondents referencing each SA component in a given study was noted. In studies where participants ranked the relative importance of each SA component, these data were recorded.

Synthesis

Themes created by study authors and direct quotes from study participants were identified, coded and analysed in NVIVO 9. The different components of SA were analysed using a meta-ethnographic framework. Meta-ethnography is a method with which to synthesise qualitative studies through an inductive analysis and integration of inter-study themes[13]. A hierarchy of SA components was identified through the identification of overarching themes and the components constituting these broad themes with progressively more specific foci.

RESULTS

Included Studies

The search strategy identified 7,285 articles. Title and abstract screening eliminated 6,834 articles and full-text screening eliminated 425 articles, 26 studies met inclusion criteria (Figure 1).

<INSERT FIGURE ABOUT HERE>

Study characteristics

Qualitative studies were primarily conducted in the US (n=13) and Canada (n=4) using purposive sampling with community dwelling populations of Caucasian older adults. The sample size ranged from 14 to 1771, with a mean of 180 (median= 46; SD=383) (Table 1).

<INSERT TABLE ABOUT HERE>

Components of SA

All studies (n=26) included psychosocial components, 76% (n=20 studies) included biomedical components, and 58% (n=15 studies) included external components. Psychosocial components were those that focused on internal and/or social phenomena, e.g. resilience. Biomedical components were those that focused on physiological phenomena, e.g. mobility. External components were those that focused on phenomena external to the individual, e.g. housing conditions.

The biomedical components were grouped into cognitive & mental, health, health maintenance behaviors, longevity, and physical health &

functioning. Cognitive & mental components focused on the functioning of mental and cognitive faculties, e.g. “the only way not to become an old dog is to learn new tricks.” [14]. Health components focused on non-specific notions of physiological health, e.g. “health is everything” [15]. Health maintenance behavior components focused on behaviors fostering physical and/or cognitive health, e.g. “eating right” [16]. Longevity components were those that focused on length of life. Physical health and functioning components were those that focused on references to physical health, e.g. “able to move anywhere” [17]. (Figure 2).

<INSERT FIGURE ABOUT HERE>

External components were grouped into environmental factors, e.g. “having a satisfactory living environment” and finances, e.g. “[being] financially self-supported” [18] (Figure 3).

<INSERT FIGURE ABOUT HERE>

Psychosocial factors were grouped into acceptance, adjustment, maintenance, spirituality, community, social roles, quality of life, independence, prevention & remediation, self-awareness, perspective, and engagement. Acceptance components focused on coming to terms with change in one’s life, e.g. “we need to accept our older age” [19]. Adjustment components focused on the ability to adapt to change in one’s life, e.g. “keeping up with the changing things around you” [20]. Maintenance

components focused on continuing previous behaviors, e.g. “there is one person I know who is quite old and they’re still hunting and everything” [21]. Spirituality components focused on the presence of a higher being or connection to a force greater than oneself, e.g. “it is important to live with faith and appreciate that we are protected each day” [22]. Community components focused on connectedness or contributing to a social sphere, e.g. “I’m active in the community. Very helpful to my neighbors in any way that I can” [14] . Social role components focused on one’s position or function within a social sphere, e.g. “being able to talk to young people, people younger than I who have a long life ahead of them” [23]. Quality of life components focused on life satisfaction, e.g. “leading a simple but happy life” [18]. Independence components focused on autonomy, e.g. “having the freedom to express myself freely and naturally” [24] . Prevention & remediation components focused on the management or avoidance of negative influences, e.g. abstaining from drugs and alcohol [25]. Self-awareness components focused on personal resources, e.g. “being able to look back on my life and see personal development” [24] . Perspective components focused on personal outlook and attitude, e.g. “Having a positive outlook on life” [26]. Engagement components focused on social involvement, stimulation and/or participation in various activities, e.g. “I like to be out around my friends talking, you know, what’s going on in this place and finding out things, being involved” [27] (Figure 4).

<INSERT FIGURE ABOUT HERE>

A comparison of the percentage of respondents reporting each of the constituent components of SA revealed engagement was mentioned most frequently, followed by perspective and self-awareness. Longevity was mentioned in two studies; in one of these studies mentioning longevity, 2 of 60 respondents mentioned longevity[15] (Figure 5). North American studies (n=20) most often mentioned engagement (95%, n=19), perspective (90%, n=18) and self-awareness (80%, n=16). Australian studies (n=2) mentioned engagement (100%, n=2), perspective (100%, n=2), independence (100%, 2) and quality of life (100%, n=2) most often. All Asian studies (n=2), mentioned engagement, independence, and quality of life, finances, environment and physical health. The South American study (n=1) mentioned engagement, perspective, self-awareness, independence, acceptance, finances, environment and health. The British study mentioned engagement, perspective, self-awareness, acceptance, quality of life, adjustment, finances, environment, cognitive & mental and health maintenance behaviors.

<INSERT FIGURE ABOUT HERE>

DISCUSSION

The components of SA identified by the qualitative studies captured in this review reflect a divergence from traditional biomedical conceptualisations of SA, highlighting the multidimensionality and psychosocial emphasis of SA. In contrast to operational definitions captured in the most recent review of SA which posit primarily biomedical models[1], attitudinal and engagement components were found to be the most frequently mentioned. Furthermore,

external factors, such as finances and environment, which are absent in the majority of SA conceptualisations[1], were also frequently mentioned. This review highlights the importance of psychosocial and external factors in SA definitions as well as emphasises the multidimensional nature of SA. These results suggest that the incorporation of psychosocial and extrinsic components identified by laypersons into a multidimensional model of SA is a prudent means with which to augment biomedical conceptualisations of SA.

Limitations in the current study include the subjective nature of meta-ethnography and issues with the translation of SA. Meta-ethnography involves the interpretation and integration of researchers' interpretations of primary data [13] that may result in bias. Where possible, direct quotes from respondents were coded; however, researchers' interpretive themes were coded, primarily. A further limitation was the translation of the phrase "successful ageing". Non-English studies used phrases the authors felt were equivalent to SA. For example, Hsu [17] notes that there is no word that directly translates to SA in Taiwanese. The authors then used (what translates into English as) "ideal or satisfactory life in old age"; a phrase they identified as being roughly equivalent to SA in a pilot study.

Psychosocial components of SA were the most frequently mentioned aspects of SA, highlighting the advantages of expanding conceptualisations of SA beyond physiologically-based models. Traditional models of SA often suggest that an individual's physiological health is the sole indicator of one's SA, which is, as the current study suggests, a parochial perspective of a multifaceted construct. Psychosocial components were suggested by laypersons in all of the included studies, providing strong evidence for the

inclusion in prospective models of SA. Furthermore, the breadth of the psychosocial components mentioned by laypersons highlights the multidimensionality of SA.

Using a meta-ethnographic framework, 12 psychosocial subthemes were identified: social roles, self-awareness, acceptance, perspective, engagement, spirituality, maintenance, quality of life, community, prevention & remediation, independence, and adjustment. It is important to note the heterogeneity of these components even within this psychosocial umbrella, with components ranging from internal (e.g. spirituality) to inter-personal (e.g. social roles). This breadth of psychosocial components in SA has not been illuminated to this degree in previous studies, providing invaluable insight into the complexity of layperson perspectives of SA.

With such a variety of psychosocial components mentioned in the current review, including every aspect of layperson perspectives into models of SA becomes increasingly difficult. It would be unrealistic to expect a study to touch on every nuance of SA that has been captured in the current review; however, there are a number of emergent themes that would be possible to capture. Most significantly is the prominence of psychosocial factors, notably engagement, perspective and self-awareness. These themes are then broken down into separate subthemes. This theoretical complexity manifests itself in attempts to quantify these psychosocial components of SA. There are a myriad of metrics that may be used to capture these phenomena, ranging from, for example, frequency of social interaction to self-confidence, highlighting another area where further research is needed. Identifying appropriate metrics for capturing psychosocial SA phenomena presents a

unique challenge for researchers: translating a nebulous concept into a quantifiable and practically relevant construct.

A component of SA identified in approximately two-thirds of the studies, but rarely examined in quantitative studies of SA, was extrinsic factors, i.e. environment and finances. Financial security was found to be important across all age bands in Charbonneau-Lyons' study [28], in all permutations of gender, education and income, aside from females in no/low education/income group in Nagalaginam's study [29], and by all the respondents in the study by Lin [30]. Environment and finances are typically excluded from current models [3 31] and the identification of these factors in such a large number of studies is therefore a unique finding. Further research is needed to explore these factors cross-culturally and along biomedical components of SA.

The SA component that was least frequently identified as being important was longevity. This contrasts with biomedical approaches in SA research that typically focus on the extension of life. There have been previous suggestions that extreme longevity, in the form of centenarians, is a representative model of SA [32 33]; however, these models have been met with opposition [34]. Surviving to 100 is not necessarily indicative of holistic wellbeing and is often accompanied by great losses and/or physical deficits [34]. The results from the current study support these assertions; elderly laypersons do not value simply living a long time as an integral component of SA. This departure from biomedical models supporting mere longevity aligns closely with the "adding life to years, not just years to life" ethos.

Many of the components identified by layperson as being important (e.g. engagement, self-awareness, perspective, etc.) present the opportunity

for the implementation of specific interventions for modifiable behaviors. For example, aiding individuals in, decreasing depressive symptomology, social engagement, invoking coping and resilience training, could augment and compliment physical remediation strategies, as identified by biomedical models, in the pursuit of SA. Therefore, it is prudent to augment the scope of biomedical models to areas of the lived life that have not been covered by traditional models of SA.

There are important research and policy implications associated with the identification and acknowledgement of lay perspectives of SA. These data have the potential to provide invaluable information to researchers planning to conduct studies of SA through the incorporation of psychosocial variables into otherwise biomedical models. For example, if a researcher plans to use SA as an outcome variable, they have the opportunity to include psychosocial components in addition to physiological components. SA ageing is clearly not simply a physiological construct, so it seems intuitive that psychosocial components should be included into otherwise biomedical models of SA.

The distribution of the various SA components across regions reasserts the prevalence of psychosocial and external factors as components of successful ageing. The only components that were represented in all five regions (North America, South America, Asia, Australia, United Kingdom) were engagement and self-awareness. Given the profound overrepresentation of North American studies and studies conducted in Caucasian populations, it is hard to discern whether any cultural variations exist. These results highlight the need for further research to be conducted to

augment and incorporate the influence of psychosocial components and cross-cultural perspectives of SA.

The current review reinforces the multidimensional nature of SA and emphasises the importance of psychosocial aspects of SA. Components of engagement and personal resources were identified by laypersons in more studies than biomedical components, representing a divergence from traditional (biomedical) models of SA and highlighting the need for the inclusion of psychosocial components. Of particular note was the poor representation of longevity amongst lay perspectives of SA. Although the current study provides insights into the concept of SA, it must be acknowledged that the included studies represent a strong Anglophone bias. The current study updates and expands a previous review by Hung, et al. [7], collecting, synthesising, and proving a comprehensive examination of layperson conceptualisations of SA.

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All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that TDC, AMP, JP, BCMS, and CB have no relationships with any company that might have an interest in the submitted work in the previous 3 years nor non-financial interests that may be relevant to the submitted work; furthermore, their spouses, partners, or children have no financial relationships that may be relevant to the submitted work. All authors declare no conflicts of interest.

Contributorship: The review and search protocol was planned by TDC, BS and CB. TDC conducted the primary article review and data extraction; AMP and JP conducted second, independent, screens of the articles. TDC wrote the manuscript, which was edited and reviewed by AMP, JP, BS and CB.

Data sharing: no additional data available.

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GRAPHICS

Table 1: Included study characteristics

			Age					Ethnicity	Marital Status			
Author	n	Population	Mean	SD	Min	Max	Country	Caucasian	Married	Single	Divorced/ Separated	Widowed
Bowling (2006)[35].	854	Community dwelling	64		50	94	UK		72.0%	5.0%	9.0%	14.0%
Collings (2001)[23]	38	Inuit			23	86	Canada					
Cupertino, et al. (2007)[36]	501	Community dwelling	72.65	8.08	60	93	Brasil					
Duay, et al. (2006)[14]	18	Community dwelling	72.6		60	86	USA	94.4%				
Dionigi, et al. (2011)[37]	21	Community dwelling women	83.3		75	92	Canada	100.0%	14.3%	4.8%	0.0%	81.0%
Ferri, et al. (2009)[38]	53	Community dwelling	78	8.2	61	90	USA	96.2%	32.1%	3.8%	11.3%	52.8%
Fisher (1995)[26]	40	Community dwelling, foster grandparents	72.65		61	92	USA	97.5%	2.5%		10.0%	97.5%
Fisher & Specht (1999)[24]	36	Community dwelling artists	73.75		60	93	USA	97.2%	66.7%	5.6%	5.6%	22.2%
Fisher, (1992)[20]	19	Seniors activity center	75		62	85	USA	100.0%	47.4%	5.3%		47.4%
Guse & Masesar(1999)[39]	32	Long-term care					Canada		34.0%	3.0%	16.0%	47.0%
Hilton, et al. (2009)[40]	65	Caregivers of elderly individuals	51.8		29	72	USA	81.5%	59.4%			
Hilton, et al. (2012)[41]	60	Community dwelling Latinos	61		50	84	USA	0.0%	48.3%	16.7%	20.0%	16.7%
Hsu (2007)[17]	584	Community dwelling					Taiwan					
Iwasama & Iwasaki (2011)[22]	77	Community dwelling Japanese-Americans	78.3	8.5	55	96	USA		37.7%	3.9%	11.7%	46.8%
Knight & Ricciardelli (2003)[15]	60	Community/retirement village dwelling	80.05		70	101	Australia					
Lee (2009)[18]	109	Living-alone, low SES					China		5.5%	17.4%	8.3%	68.8%

Lay perspectives of successful aging

Lewis (2010)[19]	15	Alaska natives	56		26	84	USA					
Lewis (2011)[42]	26	Alaska natives			61	93	USA		53.8%			46.2%
McCann et al. (2008)[43]	14	Spiritually affiliated women			60	89	Australia					
Reichstadt et al. (2007)[44]	72	Retirement communities			60	99	USA					
Reichstadt et al. (2010)[27]	22	Retirement communities/seniors housing/seniors learning center	80	9.1	64	96	USA	86.0%				
Rossen, et al. (2008)[45]	31	Community dwelling women	78		61	90	USA		20.0%	12.0%		65.0%
Stevens-Ratchford & Cebulak (2004)[46]	14	Community dwelling with osteo- or rheumatoid arthritis	67		61	87	USA	100.0%				
Tate, et al. (2003)[47]	1771	Community dwelling World War II veterans	78				Canada					
Troutman, et al. (2011) [48]	100	Community dwelling African-Americans	74.4	6	61	89	USA	0.0%				
Troutman, et al. (2013)[49]	52	Community dwelling self-identified "successful agers"	77.1	7.02	60	89	USA	44.0%	25.0%	15.4%	3.8%	53.8%

Figure Legends

Figure 1: Inclusion flowchart

Figure 2: Biomedical themes and sub-themes

Figure 3: External factor themes and sub-themes

Figure 4: Psychosocial themes and subthemes

Figure 5: Frequency of studies reporting each of the SA components, by region

Lay perspectives of successful ageing: A systematic review and meta-ethnography

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Running head: Lay perspectives of successful ageing

Article Focus

- Currently there is no consensus definition of successful ageing
- The current study provides a comprehensive snapshot of qualitative studies of layperson perspectives of successful ageing

Key Messages

- Successful ageing is much more complex than simply physical health
- Psychosocial (e.g. attitude), and external (e.g. finances), factors were the most frequently mentioned components of successful ageing
- Layperson perspectives advocate the inclusion of components of successful ageing that go beyond physical health

Strengths

- Article conducts a systematic review of qualitative studies

Limitations

- Meta-ethnography involves the subjective interpretation of secondary data that is, itself, a subjective interpretation
- Languages that did not have “successful ageing” in their vernacular used approximations of the term

The review and search protocol was planned by TDC, BS and CB. TDC conducted the primary article review and data extraction; AMP and JP conducted second, independent, screens of the articles. TDC wrote the manuscript, which was edited and reviewed by AMP, JP, BS and CB.

There is no additional data available.

ABSTRACT

Objectives: The aim of the current study was to conduct a systematic review of lay perspectives of SA, synthesise these data using a meta-ethnographic framework and to provide a snapshot of extant lay perspectives of SA.

Design: A systematic review of layperson perspectives of SA was conducted across MedLine, PsycInfo, CINAHL, EMBASE and ISI Web of Knowledge.

Participants: Peer-reviewed studies conducting qualitative investigations of lay perspectives of SA were included. Included studies were coded and analysed using NVivo 9 to examine underlying themes of SA.

Results: The search strategy identified 7,285 articles; 26 articles met inclusion criteria. Laypersons identified psychosocial components, notably engagement (e.g. social engagement), and personal resources (e.g. attitude), as integral components of SA more often than "physiological" components, such as longevity or physical functioning. These results also highlight the profound underrepresentation of non-Western countries and the cultural homogeneity of research participants.

Conclusions: The current study reveals the importance laypersons place on incorporating psychosocial components into multidimensional models of SA as well as highlights the need for increased research with underrepresented populations.

Keywords: successful ageing, healthy ageing, lay perspectives, systematic review

INTRODUCTION

Despite an increasing focus on the improvement of quality of life throughout the life-course, there is no generally accepted definition of what it means to age well. What "successful ageing (SA)" is, or is not, is a contentious issue. Since the inception of the term, subjective interpretations of SA have generated an increase in disparate perspectives and conceptualisations. Depending on the context, objectives and sample characteristics of a study, the definition of SA has varied significantly [1]. In the absence of a consensus definition, the generalisability of SA studies has been severely impeded, inhibiting cross-study comparisons.

The most popular model of SA, Rowe & Kahn's [2 3] conceptualisation of SA, is primarily biomedical. This and other biomedical models of SA focus on physiological or cognitive aspects of health, as captured by metrics such as the Mini Mental State Exam[4] or the Activities of Daily Living scale [5] . Rowe & Kahn's [2 3] model suggests that high cognitive/physical functioning, low risk of illness, and active engagement comprise SA. This widely used model provides the theoretical underpinnings for many operational definitions of SA [1]. Although these researcher-driven conceptualisations of SA are popular, they have, however, been subject to criticism due to their biomedical focus, without explicit input of layperson perspectives [6].

The aim of the study is to provide a comprehensive review of studies examining lay perspectives of SA, in order to augment ~~the largely quantitatively dominated~~the many researcher-driven ~~SA~~ conceptualisations of SA~~literature~~ with insights from qualitative research. The most recent reviews of ~~quantitative~~ operational definitions of SA[1 7] and qualitative perspectives of

SA–[7], reveal that there are more than twice as many studies ~~examining~~ positing operational definitions of SA as there are studies examining lay perspectives of SA. However, a study examining several different SA models, i.e. biomedical, psychosocial and lay models, found the multidimensional lay model to be the strongest[8]. Through qualitative studies laypersons are given a platform to voice their opinions and perspectives on research topics[9]. Therefore, the incorporation of layperson perspectives expands and complements ~~existing quantitative~~researcher-driven conceptualisations of SA ~~research~~, with the potential to improve both the quality and impact of research[10], increasing the validity and practical relevance of SA models [11] . This review expands upon a previous review of lay perspectives by Hung, et al. [7] through a broadened search strategy, an augmented temporal search span and the inclusion of non-English articles. Further, whilst Hung, et al. [7] focused on the umbrella concept of "healthy ageing", which they describe as capturing, "active ageing", "positive ageing", "robust ageing", "ageing well" as well as SA, the current review focusses specifically on SA.

METHODS

Search Strategy

A systematic review of the literature in PubMed, PsycInfo, ISI Web of Knowledge, EmBase and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) databases was initially conducted between May 31 and June 7, 2011 and then updated on March 23, 2013; all literature published before March 23, 2013 was eligible for inclusion. The specific search strategy includes "successful ageing" along with seven SA synonyms: robust ageing, optimal ageing, positive ageing, healthy ageing, productive ageing, effective

ageing and ageing well. These phrases were used with both “aging” and “ageing” spelling conventions, put in quotations, and linked via the Boolean operator “OR”. Where possible, the wildcat operator “*” was inserted to capture all permutations of the phrase. Furthermore, where possible, in a given database, non-human studies were excluded. For example the search input for the phrase “successful ageing” in PubMed was "successful* ageing" OR "successful* ageing", which was searched as “successful* ageing”[All Fields] OR "successful* ageing"[All Fields] AND "humans"[MeSH Terms].

This process was repeated across the six databases using the seven SA related phrases. The SA related terms were included to capture studies that, for example, listed “ageing well” in their keywords, but asked “What is your definition of successful ageing?” in interviews with participants. If only “successful ageing” had been used in the search strategy it would have been missed. Therefore, in an effort to capture every SA instance the seven SA related terms were used in the search strategy. Relevant articles referenced in the captured studies were also included.

Study Inclusion

Peer-reviewed research articles conducting qualitative research with laypersons on the components of SA were included. Studies were considered to be qualitative if participants were asked open-ended or semi-open ended question(s). Studies discussing synonyms of SA without specific reference to SA, or components of SA, were excluded. Non-peer reviewed articles such as dissertations, opinion pieces, and letters to the editor, as well as review articles, were excluded.

As the intent was to provide a comprehensive review of lay perspectives of SA, studies were neither excluded nor weighted based on study characteristics or methodological rigor, as there is no established methodology for quality assessment of construct reviews [12].

Data Extraction

Title and abstract review was conducted (TDC, AMP & JP), to identify relevant articles for full-text extraction. Disagreements regarding inclusion were resolved by discussion. No language restrictions were made; non-English articles were translated by multilingual staff at the Cambridge Institute of Public Health, Cambridge University. Information regarding the definitions and components of SA were extracted from authors' descriptions and syntheses of participants' responses as well as direct quotes from study participants. Where possible, the percentage of respondents referencing each SA component in a given study was noted. In studies where participants ranked the relative importance of each SA component, these data were recorded.

Synthesis

Themes created by study authors and direct quotes from study participants were identified, coded and analysed in NVIVO 9. The different components of SA were analysed using a meta-ethnographic framework. Meta-ethnography is a method with which to synthesise qualitative studies through an inductive analysis and integration of inter-study themes[13]. A hierarchy of SA components was identified through the identification of

overarching themes and the components constituting these broad themes with progressively more specific foci.

RESULTS

Included Studies

The search strategy identified 7,285 articles. Title and abstract screening eliminated 6,834 articles and full-text screening eliminated 425 articles, 26 studies met inclusion criteria (Figure 1).

<INSERT FIGURE ABOUT HERE>

Study characteristics

Qualitative studies were primarily conducted in the US (n=13) and Canada (n=4) using purposive sampling with community dwelling populations of Caucasian older adults. The sample size ranged from 14 to 1771, with a mean of 180 (median= 46; SD=383) (Table 1).

<INSERT TABLE ABOUT HERE>

Components of SA

All studies (n=26) included psychosocial components, 76% (n=20 studies) included biomedical components, and 58% (n=15 studies) included external components. Psychosocial components were those that focused on internal and/or social phenomena, e.g. resilience. Biomedical components were those that focused on physiological phenomena, e.g. mobility. External

components were those that focused on phenomena external to the individual, e.g. housing conditions.

The biomedical components were grouped into cognitive & mental, health, health maintenance behaviors, longevity, and physical health & functioning. Cognitive & mental components focused on the functioning of mental and cognitive faculties, e.g. “the only way not to become an old dog is to learn new tricks.” [14]. Health components focused on non-specific notions of physiological health, e.g. “health is everything” [15]. Health maintenance behavior components focused on behaviors fostering physical and/or cognitive health, e.g. “eating right” [16]. Longevity components were those that focused on length of life. Physical health and functioning components were those that focused on references to physical health, e.g. “able to move anywhere” [17]. (Figure 2).

<INSERT FIGURE ABOUT HERE>

External components were grouped into environmental factors, e.g. “having a satisfactory living environment” and finances, e.g. “[being] financially self-supported” [18] (Figure 3).

<INSERT FIGURE ABOUT HERE>

Psychosocial factors were grouped into acceptance, adjustment, maintenance, spirituality, community, social roles, quality of life, independence, prevention & remediation, self-awareness, perspective, and

engagement. Acceptance components focused on coming to terms with change in one's life, e.g. "we need to accept our older age" [19]. Adjustment components focused on the ability to adapt to change in one's life, e.g. "keeping up with the changing things around you" [20]. Maintenance components focused on continuing previous behaviors, e.g. "there is one person I know who is quite old and they're still hunting and everything" [21]. Spirituality components focused on the presence of a higher being or connection to a force greater than oneself, e.g. "it is important to live with faith and appreciate that we are protected each day" [22]. Community components focused on connectedness or contributing to a social sphere, e.g. "I'm active in the community. Very helpful to my neighbors in any way that I can" [14] . Social role components focused on one's position or function within a social sphere, e.g. "being able to talk to young people, people younger than I who have a long life ahead of them" [23]. Quality of life components focused on life satisfaction, e.g. "leading a simple but happy life" [18]. Independence components focused on autonomy, e.g. "having the freedom to express myself freely and naturally" [24] . Prevention & remediation components focused on the management or avoidance of negative influences, e.g. abstaining from drugs and alcohol [25]. Self-awareness components focused on personal resources, e.g. "being able to look back on my life and see personal development" [24] . Perspective components focused on personal outlook and attitude, e.g. "Having a positive outlook on life" [26]. Engagement components focused on social involvement, stimulation and/or participation in various activities, e.g. "I like to be out around my friends talking, you know, what's going on in this place and finding out things, being involved" [27] (Figure 4).

<INSERT FIGURE ABOUT HERE>

A comparison of the percentage of respondents reporting each of the constituent components of SA revealed engagement was mentioned most frequently, followed by perspective and self-awareness. Longevity was mentioned in two studies; in one of these studies mentioning longevity, 2 of 60 respondents mentioned longevity[15] (Figure 5). North American studies (n=20) most often mentioned engagement (95%, n=19), perspective (90%, n=18) and self-awareness (80%, n=16). Australian studies (n=2) mentioned engagement (100%, n=2), perspective (100%, n=2), independence (100%, 2) and quality of life (100%, n=2) most often. All Asian studies (n=2), mentioned engagement, independence, and quality of life, finances, environment and physical health. The South American study (n=1) mentioned engagement, perspective, self-awareness, independence, acceptance, finances, environment and health. The British study mentioned engagement, perspective, self-awareness, acceptance, quality of life, adjustment, finances, environment, cognitive & mental and health maintenance behaviors.

<INSERT FIGURE ABOUT HERE>

DISCUSSION

The components of SA identified by the qualitative studies captured in this review reflect a divergence from traditional biomedical conceptualisations of SA, highlighting the multidimensionality and psychosocial emphasis of SA.

In contrast to operational definitions captured in the most recent review SA which posit primarily biomedical models [28], attitudinal and engagement components were found to be the most frequently mentioned. Furthermore, external factors, such as finances and environment, which are absent in the majority of SA conceptualisations [28], were also frequently mentioned. This review highlights the importance of psychosocial and external factors in SA definitions as well as emphasises the multidimensional nature of SA. These results suggest that the incorporation of psychosocial and extrinsic components identified by laypersons into a multidimensional model of SA is a prudent means with which to augment biomedical conceptualisations of SA.

Limitations in the current study include the subjective nature of meta-ethnography and issues with the translation of SA. Meta-ethnography involves the interpretation and integration of researchers' interpretations of primary data [13] that may result in bias. Where possible, direct quotes from respondents were coded; however, researchers' interpretive themes were coded, primarily. A further limitation was the translation of the phrase "successful ageing". Non-English studies used phrases the authors felt were equivalent to SA. For example, Hsu [17] notes that there is no word that directly translates to SA in Taiwanese. The authors then used (what translates into English as) "ideal or satisfactory life in old age"; a phrase they identified as being roughly equivalent to SA in a pilot study.

Psychosocial components of SA were the most frequently mentioned aspects of SA, highlighting the advantages of expanding conceptualisations of SA beyond physiologically-based models. Traditional models of SA often suggest that an individual's physiological health is the sole indicator of one's

SA, which is, as the current study suggests, a parochial perspective of a multifaceted construct. Psychosocial components were suggested by laypersons in all of the included studies, providing strong evidence for the inclusion in prospective models of SA. Furthermore, the breadth of the psychosocial components mentioned by laypersons highlights the multidimensionality of SA.

Using a meta-ethnographic framework, 12 psychosocial subthemes were identified: social roles, self-awareness, acceptance, perspective, engagement, spirituality, maintenance, quality of life, community, prevention & remediation, independence, and adjustment. It is important to note the heterogeneity of these components even within this psychosocial umbrella, with components ranging from internal (e.g. spirituality) to inter-personal (e.g. social roles). This breadth of psychosocial components in SA has not been illuminated to this degree in previous studies, providing invaluable insight into the complexity of layperson perspectives of SA.

With such a variety of psychosocial components mentioned in the current review, including every aspect of layperson perspectives into models of SA becomes increasingly difficult. It would be unrealistic to expect a study to touch on every nuance of SA that has been captured in the current review; however, there are a number of emergent themes that would be possible to capture. Most significantly is the prominence of psychosocial factors, notably engagement, perspective and self-awareness. These themes are then broken down into separate subthemes. This theoretical complexity manifests itself in attempts to quantify these psychosocial components of SA. There are a myriad of metrics that may be used to capture these phenomena, ranging

from, for example, frequency of social interaction to self-confidence, highlighting another area where further research is needed. Identifying appropriate metrics for capturing psychosocial SA phenomena presents a unique challenge for researchers: translating a nebulous concept into a quantifiable and practically relevant construct.

A component of SA identified in approximately two-thirds of the studies, but rarely examined in quantitative studies of SA, was extrinsic factors, i.e. environment and finances. Financial security was found to be important across all age bands in Charbonneau-Lyons' study [29], in all permutations of gender, education and income, aside from females in no/low education/income group in Nagalaginam's study [30], and by all the respondents in the study by Lin [31]. Environment and finances are typically excluded from current models [3 32] and the identification of these factors in such a large number of studies is therefore a unique finding. Further research is needed to explore these factors cross-culturally and along biomedical components of SA.

The SA component that was least frequently identified as being important was longevity. This contrasts with biomedical approaches in SA research that typically focus on the extension of life. There have been previous suggestions that extreme longevity, in the form of centenarians, is a representative model of SA [33 34]; however, these models have been met with opposition [35]. Surviving to 100 is not necessarily indicative of holistic wellbeing and is often accompanied by great losses and/or physical deficits [35]. The results from the current study support these assertions; elderly laypersons do not value simply living a long time as an integral component of SA. This

departure from biomedical models supporting mere longevity aligns closely with the "adding life to years, not just years to life" ethos.

Many of the components identified by layperson as being important (e.g. engagement, self-awareness, perspective, etc.) present the opportunity for the implementation of specific interventions for modifiable behaviors. For example, aiding individuals in, decreasing depressive symptomology, social engagement, invoking coping and resilience training, could augment and compliment physical remediation strategies, as identified by biomedical models, in the pursuit of SA. ~~In contrast, proponents of strictly biomedical models suggest that psychosocial components should not be included in models of SA, excluding possibility for remediation or improvement of these factors closely linked to what it means to be SA in the real world.~~ Therefore, i~~I~~t is ~~necessary~~ prudent to augment~~look beyond~~ the scope of biomedical models to areas of the lived life that have not been covered by traditional models of SA.

There are important research and policy implications associated with the identification and acknowledgement of lay perspectives of SA. These data have the potential to provide invaluable information to researchers planning to conduct studies of SA through the incorporation of psychosocial variables into otherwise biomedical models. For example, if a researcher plans to use SA as an outcome variable, they have the opportunity to include psychosocial components in addition to physiological components. SA ageing is clearly not simply a physiological construct, so it seems intuitive that psychosocial components should be included into otherwise biomedical models of SA.

The distribution of the various SA components across regions reasserts the prevalence of psychosocial and external factors as components of successful ageing. The only components that were represented in all five regions (North America, South America, Asia, Australia, United Kingdom) were engagement and self-awareness. Given the profound overrepresentation of North American studies and studies conducted in Caucasian populations, it is hard to discern whether any cultural variations exist. These results highlight the need for further research to be conducted to augment and incorporate the influence of psychosocial components and cross-cultural perspectives of SA.

The current review reinforces the multidimensional nature of SA and emphasises the importance of psychosocial aspects of SA. Components of engagement and personal resources were identified by laypersons in more studies than biomedical components, representing a divergence from traditional (biomedical) models of SA and highlighting the need for the inclusion of psychosocial components. Of particular note was the poor representation of longevity amongst lay perspectives of SA. Although the current study provides insights into the concept of SA, it must be acknowledged that the included studies represent a strong Anglophone bias. The current study updates and expands a previous review by Hung, et al.[7] collecting, synthesising, and proving a comprehensive ~~Through the collection and synthesis of layperson perspectives, the current study provides a comprehensive~~ examination of layperson conceptualisations of SA.

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All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that TDC, AMP, JP, BCMS, and CB have no relationships with any company that might have an interest in the submitted work in the previous 3 years nor non-financial interests that may be relevant to the submitted work; furthermore, their spouses, partners, or children have no financial relationships that may be relevant to the submitted work. All authors declare no conflicts of interest.

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GRAPHICS

Table 1: Included study characteristics

			Age					Ethnicity	Marital Status			
Author	n	Population	Mean	SD	Min	Max	Country	Caucasian	Married	Single	Divorced/ Separated	Widowed
Bowling (2006)[36].	854	Community dwelling	64		50	94	UK		72.0%	5.0%	9.0%	14.0%
Collings (2001)[23]	38	Inuit			23	86	Canada					
Cupertino, et al. (2007)[37]	501	Community dwelling	72.65	8.08	60	93	Brasil					
Duay, et al. (2006)[14]	18	Community dwelling	72.6		60	86	USA	94.4%				
Dionigi, et al. (2011)[38]	21	Community dwelling women	83.3		75	92	Canada	100.0%	14.3%	4.8%	0.0%	81.0%
Ferri, et al. (2009)[39]	53	Community dwelling	78	8.2	61	90	USA	96.2%	32.1%	3.8%	11.3%	52.8%
Fisher (1995)[26]	40	Community dwelling, foster grandparents	72.65		61	92	USA	97.5%	2.5%		10.0%	97.5%
Fisher & Specht (1999)[24]	36	Community dwelling artists	73.75		60	93	USA	97.2%	66.7%	5.6%	5.6%	22.2%
Fisher, (1992)[20]	19	Seniors activity center	75		62	85	USA	100.0%	47.4%	5.3%		47.4%
Guse & Masesar(1999)[40]	32	Long-term care					Canada		34.0%	3.0%	16.0%	47.0%
Hilton, et al. (2009)[41]	65	Caregivers of elderly individuals	51.8		29	72	USA	81.5%	59.4%			
Hilton, et al. (2012)[42]	60	Community dwelling Latinos	61		50	84	USA	0.0%	48.3%	16.7%	20.0%	16.7%
Hsu (2007)[17]	584	Community dwelling					Taiwan					
Iwasama & Iwasaki (2011)[22]	77	Community dwelling Japanese-Americans	78.3	8.5	55	96	USA		37.7%	3.9%	11.7%	46.8%
Knight & Ricciardelli (2003)[15]	60	Community/retirement village dwelling	80.05		70	101	Australia					
Lee (2009)[18]	109	Living-alone, low SES					China		5.5%	17.4%	8.3%	68.8%

												Lay perspectives of successful aging
Lewis (2010)[19]	15	Alaska natives	56		26	84	USA					
Lewis (2011)[43]	26	Alaska natives			61	93	USA		53.8%			46.2%
McCann et al. (2008)[44]	14	Spiritually affiliated women			60	89	Australia					
Reichstadt et al. (2007)[45]	72	Retirement communities			60	99	USA					
Reichstadt et al. (2010)[27]	22	Retirement communities/seniors housing/seniors learning center	80	9.1	64	96	USA	86.0%				
Rossen, et al. (2008)[46]	31	Community dwelling women	78		61	90	USA		20.0%	12.0%		65.0%
Stevens-Ratchford & Cebulak (2004)[47]	14	Community dwelling with osteo- or rheumatoid arthritis	67		61	87	USA	100.0%				
Tate, et al. (2003)[48]	1771	Community dwelling World War II veterans	78				Canada					
Troutman, et al. (2011) [49]	100	Community dwelling African-Americans	74.4	6	61	89	USA	0.0%				
Troutman, et al. (2013)[50]	52	Community dwelling self-identified "successful agers"	77.1	7.02	60	89	USA	44.0%	25.0%	15.4%	3.8%	53.8%

Figure 1: Inclusion Flowchart

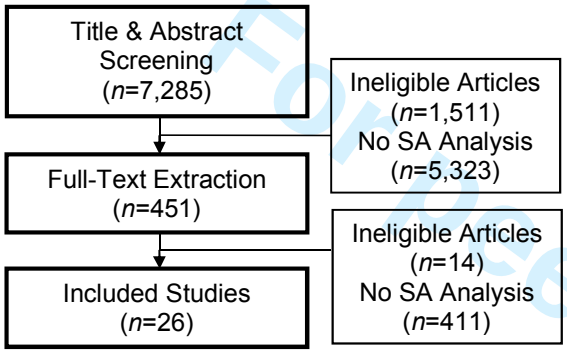


Figure 1: Inclusion flowchart

Figure 2: Biomedical themes and sub-themes

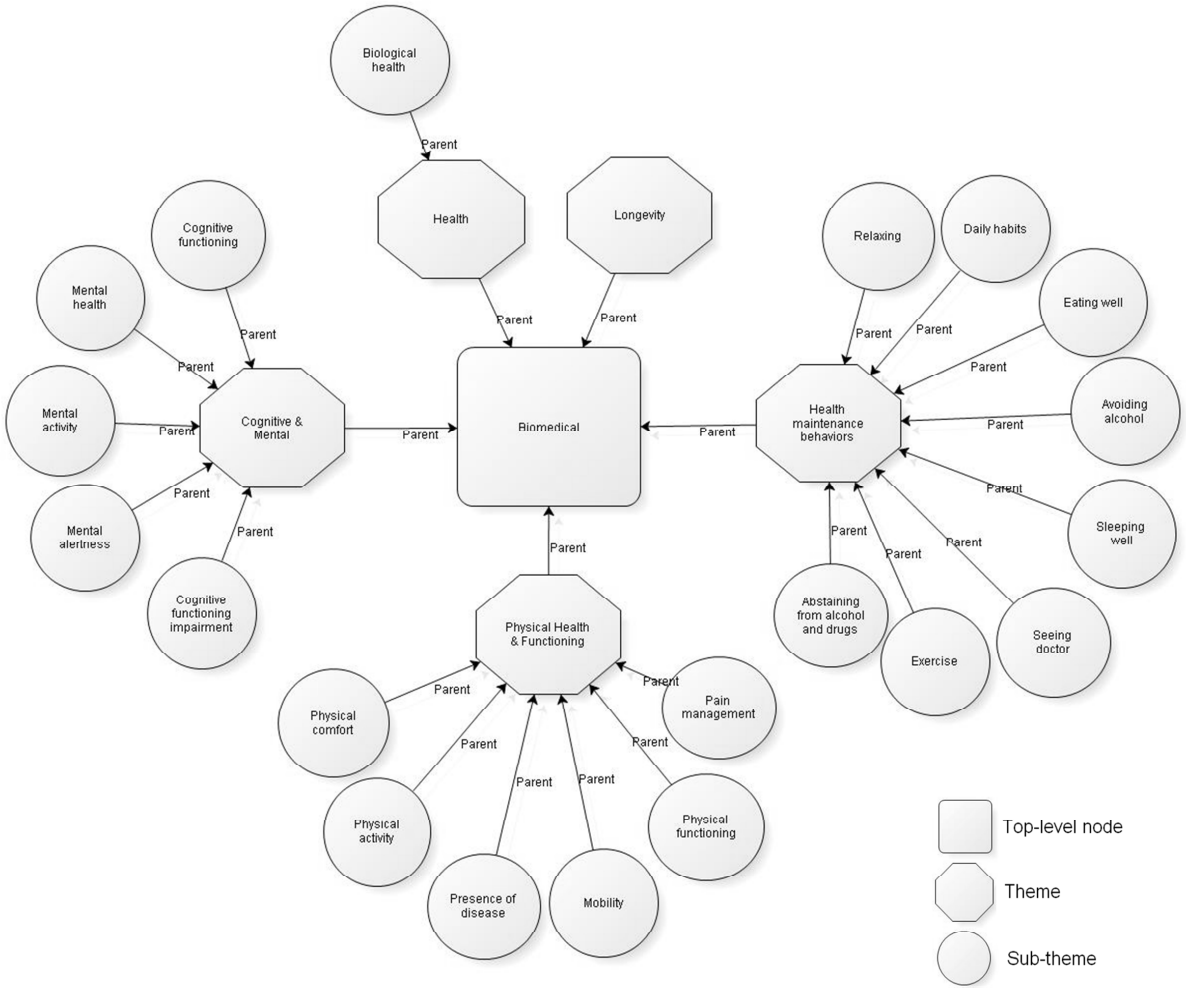
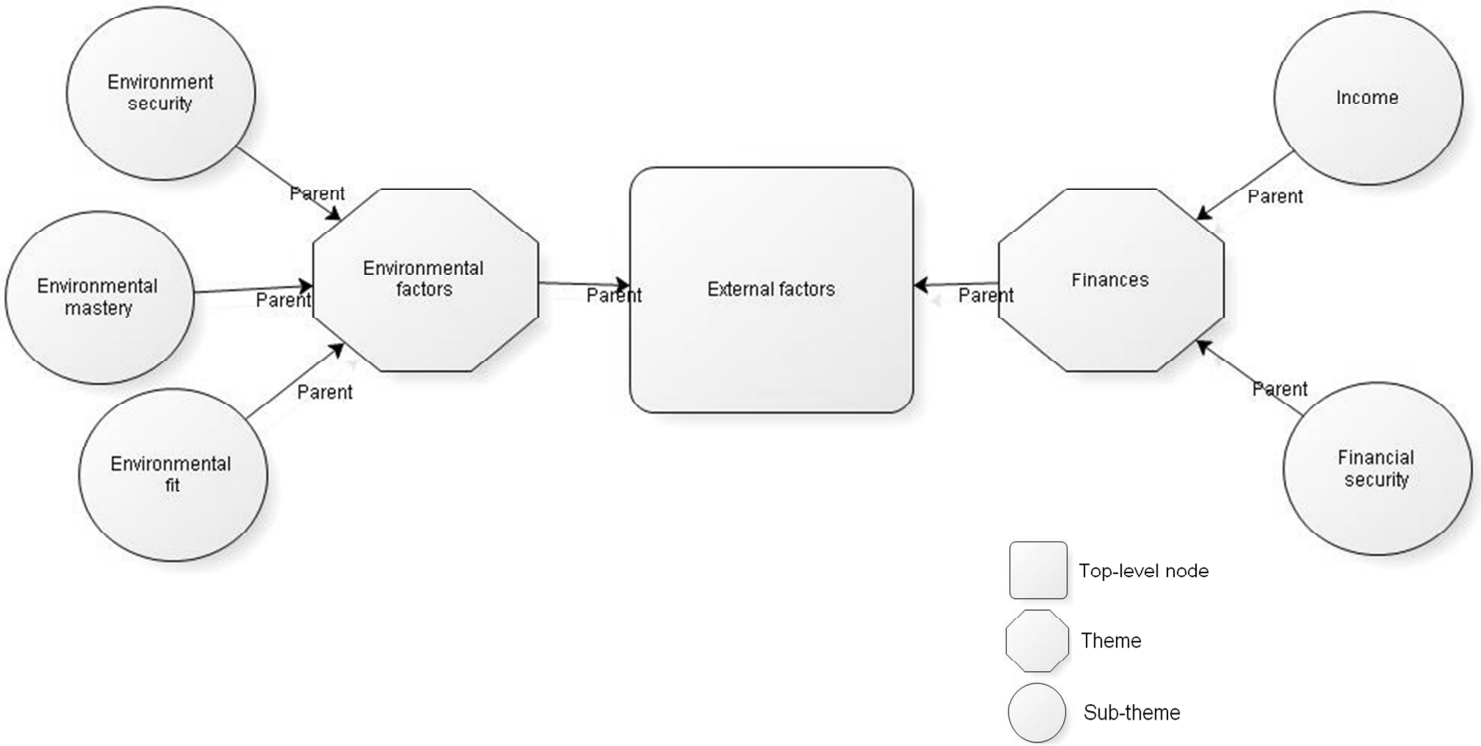


Figure 3: External factor themes and sub-themes



Lay perspectives of successful aging

Figure 4: Psychosocial themes and subthemes

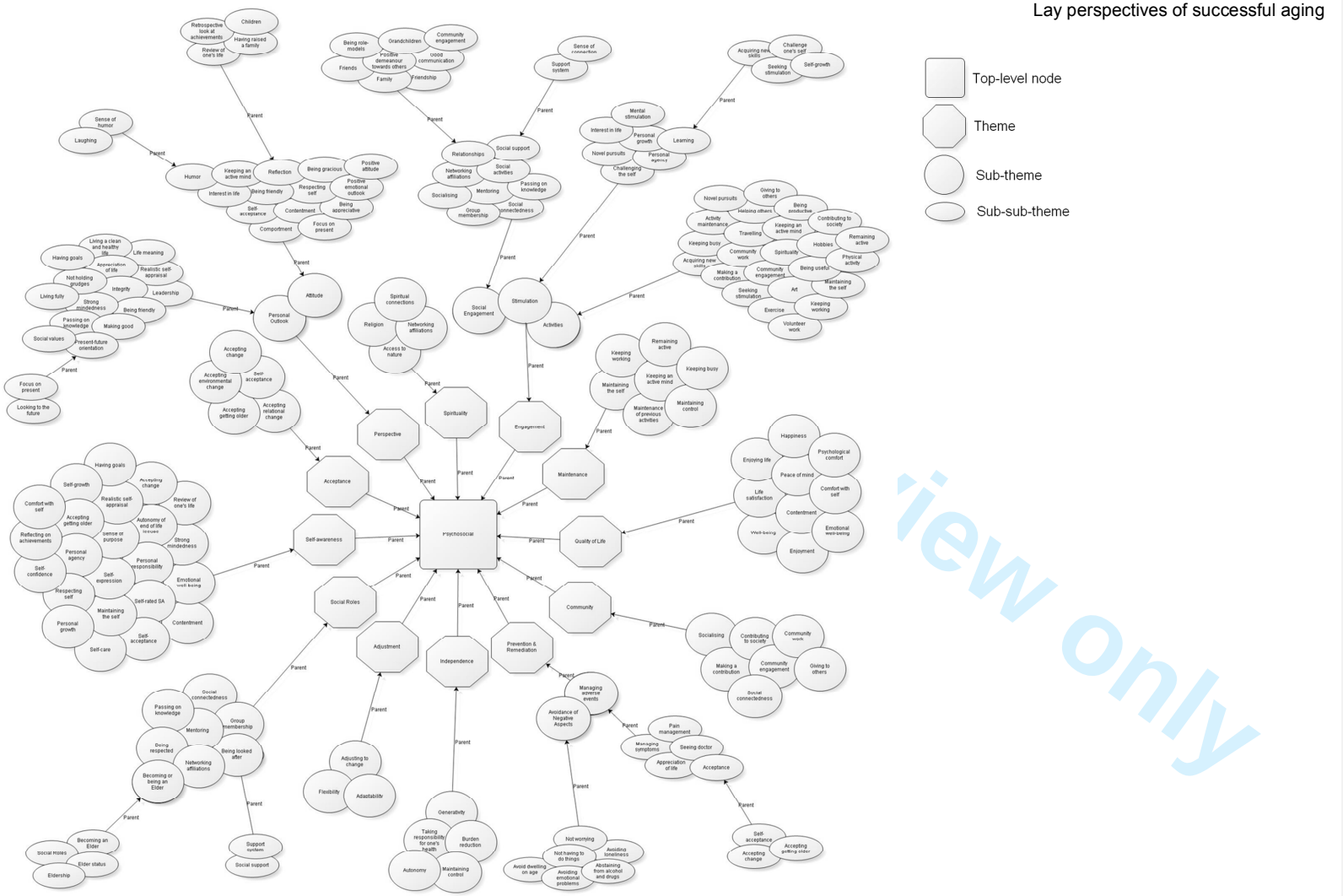
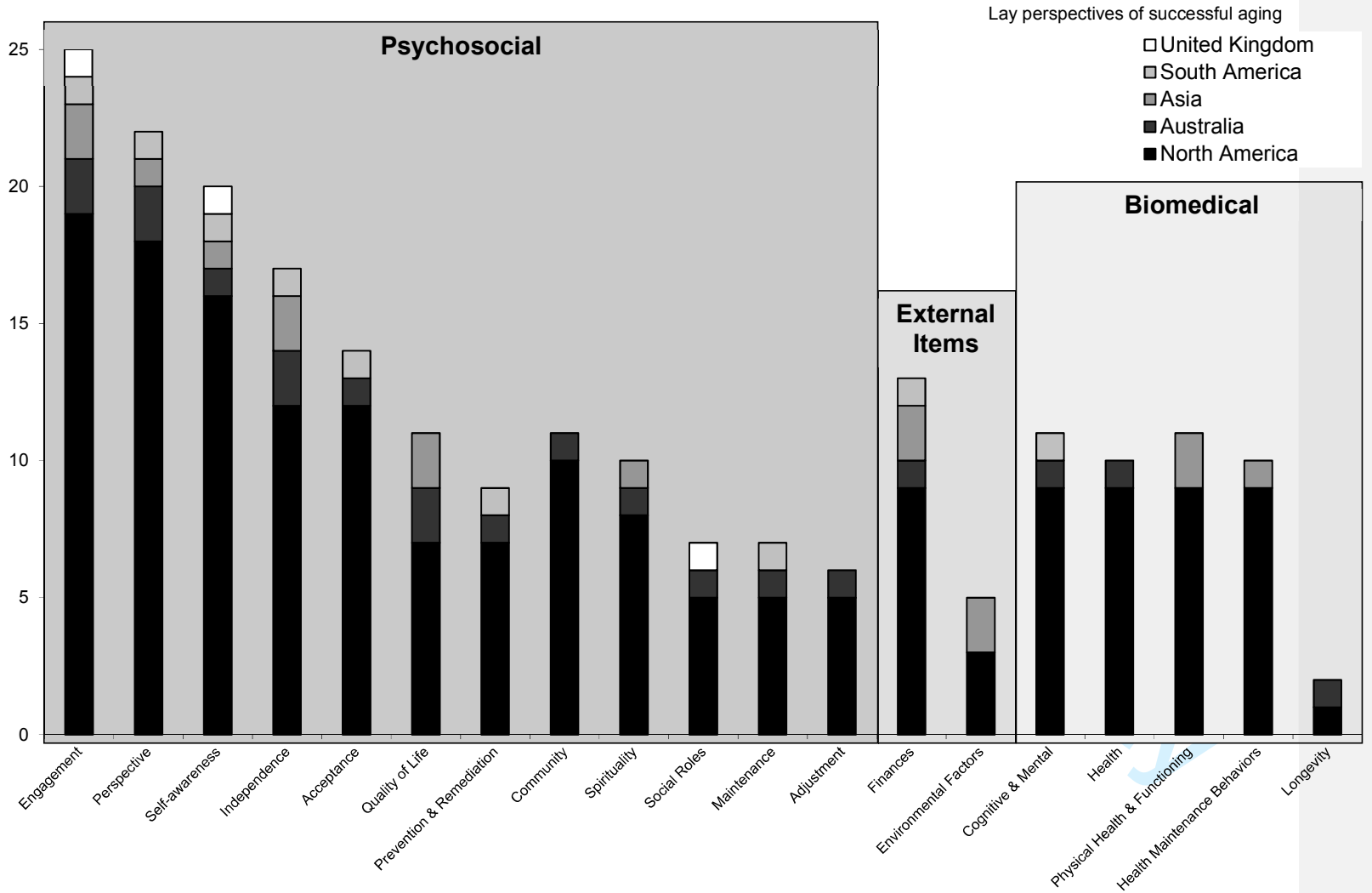


Figure 5: Frequency of studies reporting each of the SA components, by region



Lay perspectives of successful aging

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3-4
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5-6
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5-6
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	n/a
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6-7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6-7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	6
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6-7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6-7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	n/a
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	n/a
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	6-7

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	n/a
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	n/a
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	26
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	23
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	n/a
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	n/a
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	n/a
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	n/a
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	n/a
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	10--15
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	10-11
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	14-15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	n/a

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

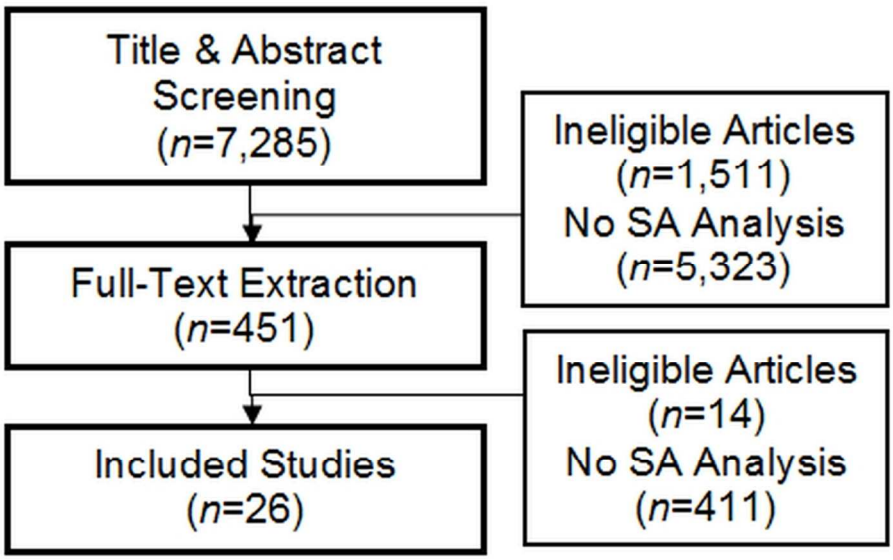


Figure 1: Inclusion flowchart

114x90mm (300 x 300 DPI)

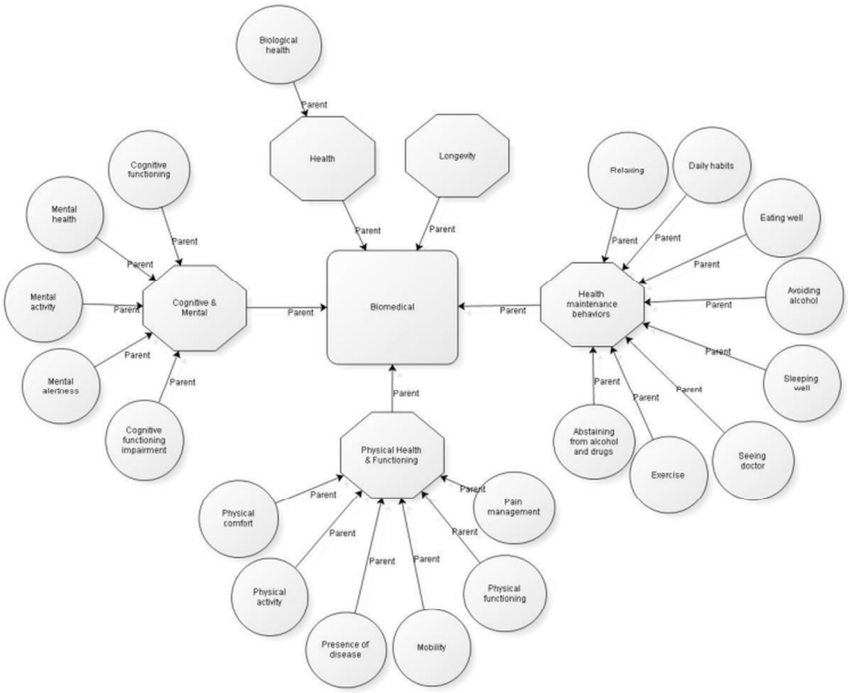


Figure 2: Biomedical themes and sub-themes

90x116mm (300 x 300 DPI)

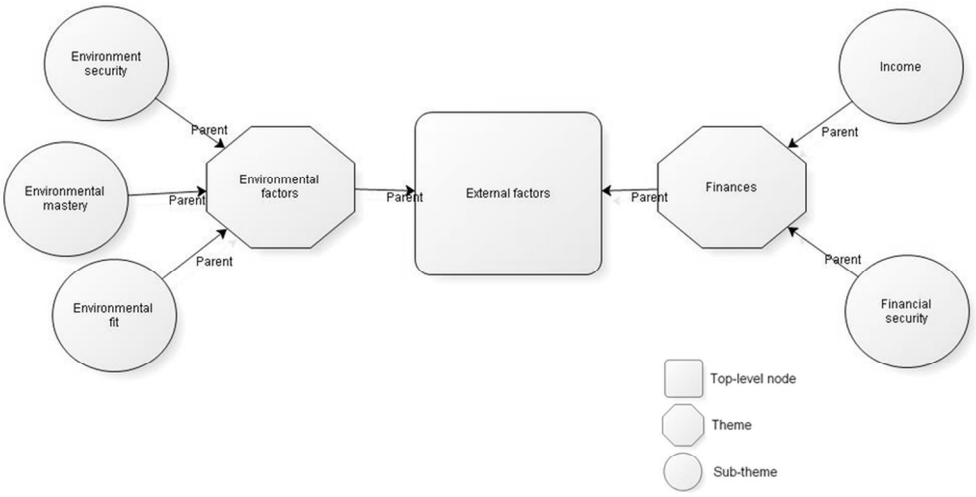
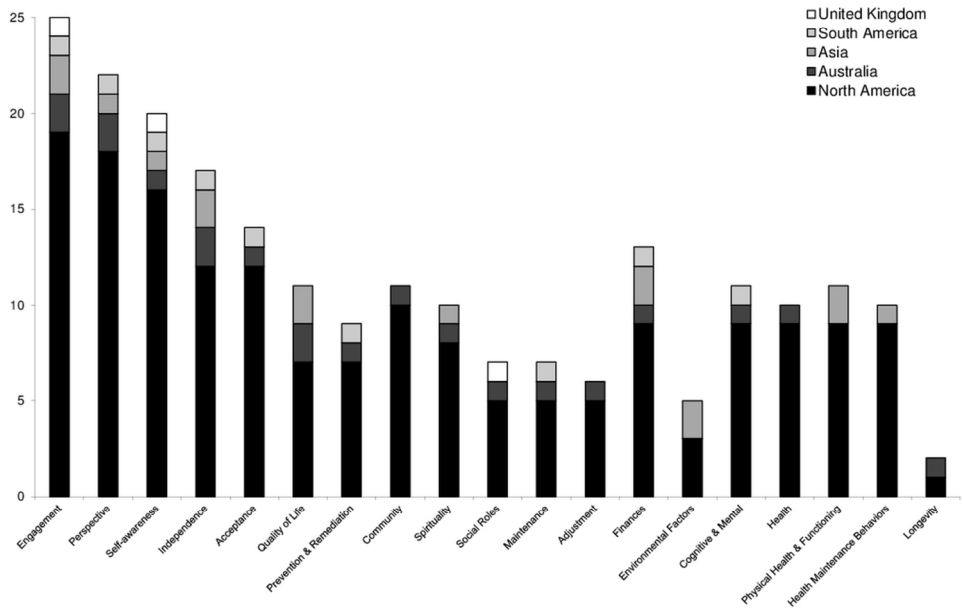


Figure 3: External factor themes and sub-themes

161x90mm (300 x 300 DPI)



116x90mm (300 x 300 DPI)