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Vitality of older adults through internal and external connectedness

Anneke G. Julien [a,*], Wendy P.J. den Elzen [b], Prof Ria Reis [c], Dorothea P. Touwen [d], Prof Jacobijn Gussekloo [a,c], Yvonne M. Drewes [a,c]

[a] Department of Internal Medicine, Section Gerontology and Geriatrics, Leiden University Medical Center, Leiden, the Netherlands
[b] Laboratory Specialized Diagnostics & Research, Department of Laboratory Medicine, Amsterdam UMC, University of Amsterdam, Amsterdam, the Netherlands
[c] Department of Public Health and Primary Care, Leiden University Medical Center, Leiden, the Netherlands
[d] Department of Medical Ethics and Health Law, Leiden University Medical Center, Leiden, the Netherlands

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ABSTRACT

Background: Vitality is a relatively unresearched concept and defined in existing literature either on the premise of one's functioning, or in terms of feeling alive. There is, however, little known about the significance of a sense of connectedness to life for vitality, especially from the perspective of older adults. This research aims to explore the association between the concept of connectedness and the perspective of vitality as a sense of aliveness, in order to formulate a theoretical understanding grounded in the subjective perceptions that older adults themselves hold of vitality.

Methods: Following a constructivist grounded theory approach and theoretical sampling, constant comparative analysis was performed on the transcripts of 15 semi-structured interviews, conducted in the Netherlands with older adults (mean age 73 years, eight females and seven males), regarding their vitality. Concurrently, empirical and theoretical findings were translated into a theoretical conceptualisation.

Results: According to the older participants, connecting to life itself enhanced their sense of vitality. This connection was achieved through internal connectedness (connecting to one's own life, intrinsic stimuli and intrinsic goals in an independent manner) and external connectedness (social connectedness, environmental connectedness, engagement with the external world). Furthermore, our findings revealed distinct interactions between internal and external connectedness and facilitating tools, such as freedom from physical constraints, financial freedom and adaptation.

Conclusions: Our findings provide a holistic concept of vitality and connectedness and consolidate existing perspectives on vitality into an overarching framework, which can contribute to the development of effective care policy, healthcare interventions and welfare services.

1. Introduction

The significant increase in life expectancy and the corresponding growing percentage of older people throughout the world have led to a heightened interest in successful ageing from researchers, clinicians and policy-makers [1–6]. The dominant approach in research programmes on successful ageing is biomedical. This perspective derives from an etic (scientist orientated) and normative perception of what successful ageing entails, focusing strongly on objective measures of the physiological process of ageing, and on defying this process. Von Faber et al. [3] however demonstrate that the concept of successful ageing alters significantly when research derives from the emic and narrative perspective of older adults themselves. They argue that successful ageing can be achieved irrespective of the physical decline that accompanies the process of ageing, through psychosocial well-being and a continuous process of adaptation to age related change. Within the emic approach, vitality has been identified as an important characteristic and source of health by numerous researchers [4,7–9]. Yet vitality is a relatively unresearched concept and an ambiguously defined phenomenon [4].

Studies exploring the meaning of vitality display the same contrast as demonstrated between etic and emic perspectives on successful ageing. The normative perspective defines vitality in terms of functioning and proposes objectively measurable attributes, which facilitate adults to function to their fullest potential [7,9,10]. Roy et al. [9] for instance, define vitality in terms of perceived overall health, emotional health and

* Corresponding author.
E-mail address: a.g.julien@lumc.nl (A.G. Julien).

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positive functioning. They describe attributes such as positive and negative affect, optimism and emotional intelligence. The narrative perspective of vitality on the other hand, proposes a less tangible and more holistic concept, describing vitality as a subjective sense of life-energy, aliveness and inner strength [4,9], revealing a way of connecting to life itself. Recent studies have provided detailed insight into the perspectives of older adults who experience a strong disconnection from life itself, which ultimately results in the belief that their lives are completed and not worth living anymore [11,12]. The association between an unwillingness to live and disconnectedness raises questions regarding the role connectedness to life plays in older adults' perceived vitality. Further insight into the concept of vitality can guide health policy, clinical interventions and welfare services in tailoring services to successful ageing by stimulating connectedness to life. This study thus aimed to explore the possible association between the concept of connectedness and the perspective of vitality as a sense of aliveness, and concurrently formulate a theoretical understanding grounded in the subjective perceptions that older adults themselves hold of vitality,

2. Methods

2.1. Constructivist grounded theory approach

As scientific knowledge of vitality is limited and theoretically underdeveloped [4], a prerequisite for this study was to depart from older adults' experiences and perceptions of vitality. Therefore, a qualitative study was conducted, following an explorative and inductive design with a constructivist grounded theory approach. This approach explicitly aims to create a deeper understanding of the unexplored perceptions of participants by theorizing and constructing a theoretical understanding of a phenomenon [13–16], and consequently provides an opportunity to thoroughly contribute to the existing knowledge of vitality.

The constructivist approach acknowledges the interpretive role of researchers and participants within the practice of theorizing. In line with this acknowledgement of subjectivity within the constructivist grounded theory methodology, and in stark contrast to classic grounded theory [14,15,17–19], Charmaz explicitly welcomes the integration of existing literature throughout the practice of theorizing [15]. According to several researchers, this orients the research question, heightens theoretical sensitivity and allows for the emerging conceptualisation to be grounded in a longstanding theoretical tradition as well as in empirical data [14,15,19,20].

2.2. Participants

The participants of this study consisted of community-dwelling adults aged 65 years and older, who were willing to contribute to research and education in the Master's programme Vitality and Ageing of Leiden University in the Netherlands by participating in an interview with students. No other inclusion or exclusion criteria were employed. Persons were recruited in September 2019 via the network of the Advisory Board of Older People South Holland North and flyers in and outside the Leiden University Medical Centre (LUMC). The recruited persons received an invitation letter to participate in the study, followed by an information letter and a written informed consent form.

2.3. Data collection

Thirty-five interviews were conducted by 35 Master Vitality and Ageing students, who received training from experts in the field of qualitative research. They formed groups of three to four students on the basis of a specific theme associated with vitality, which they translated into a group topic list. The interviews took place at the homes of the participants or in the LUMC in November 2019 and lasted 24 - 90 min (mean = 55). One interview was postponed to May 2020 and conducted by telephone, due to the Covid-19 pandemic.

All semi-structured interviews included questions regarding demographic characteristics and four guided, open ended interview questions regarding the emic perceptions older adults themselves hold of vitality. These questions were "*How do you define/describe vitality?*"; "*What are important aspects regarding your vitality in daily life?*"; "*What things do you do to preserve your vitality?*"; "*What are influencing factors regarding vitality?*", and were followed up by probing questions. During the remaining interview the group topic list was followed. This covered a theme in relation to vitality, such as physical well-being, living situation, daily activities, mental well-being and social life. Though in The Netherlands the term 'vitality' is commonly used in everyday language, the interviewers did not receive education on the scientific conceptualisation of vitality beforehand, resulting in open expressions and formulations from both interviewers and participants. The interviews were audiotaped and transcribed ad verbatim. Two interviews were excluded afterwards, because of missing recordings due to logistic problems. The remaining 33 interviews of 33 participants served as the pool upon which this study applied sampling.

2.4. Theoretical sampling

From the pool of 33 interviews with 33 participants, the data for the current analysis was purposively sampled for those interviews that, as indicated by the interviewers, followed group topic lists covering the themes of mental well-being and social life ($N = 7$). Accordingly, a broad overview of older adults emic perceptions regarding vitality and connectedness was captured. Next, following the theoretical sampling approach, additional interviews from the existing dataset (secondary analysis) [21] were selected. On the basis of emerging hypotheses from ongoing data analysis, a selection of interviews with group topic lists covering themes such as daily activity, social interaction and digitalization, were included and analysed in iterative cycles [14,17,18]. This resulted in an additional sample of eight interviews. Theoretical sampling stopped once theoretical saturation was achieved ($N = 15$) regarding the concepts of vitality and connectedness, and new data consistently affirmed the evolved theoretical understanding of these concepts without adding new information and insights [15,17,18,20].

2.5. Data analysis

The coding was conducted by the first author (AJ, with a background in culture studies and Vitality and Ageing), in close collaboration and dialogue with two other members of the research team (WdE and YD, with backgrounds in biomedical science and medicine, and experience in qualitative research), through weekly briefing sessions in which evolving insights and interpretations were critically discussed. rigour was further supported by keeping a continuous reflective research journal and theoretical memoing, thus ensuring ongoing reflexivity and theoretical sensitivity [14,15,17,21].

A first step in the analysis was to get a notion of the initial sample of 7 transcripts that covered the themes of mental well-being and social life in relation to vitality, by thoroughly listening to the audio recordings, reading the transcripts and making notes in the margin. Emerging concepts were documented in the research journal. Thereafter, data coding was performed in Atlas.ti 8 and guided by two coding phases, initial coding and focused coding, as proposed by Charmaz [14,15,18]. During initial coding, words, lines and segments illuminated first impressions regarding the meaning of vitality and connectedness according to participants. In vivo codes emerged directly from the data, while other codes were named by the researchers, such as self-development, gardening, adaptation. Initial analysis was also guided by literature, which was reflected upon during the weekly briefing sessions within the research group in order to remain open and stay close to the empirical data. Thereafter, focused coding was guided by the constant comparative analysis of initial codes and transcripts. Initial codes were grouped, integrated or disintegrated, while lifting the analyses to a higher level of

abstraction. During this coding phase, emerging codes, evolving concepts and literature were tested against additional transcripts. This iterative process of inductive-abductive logic elucidated several theoretical codes (such as connecting to intrinsic stimuli, to goals and to one's environment, oppression and promotion of connectedness, connectedness tools) and helped judge the coding framework on both internal homogeneity (consistency of data within a category) and external heterogeneity (distinctive differences between categories) [11, 12]. Certain concepts from modern well-being frameworks, in particular eudaimonic well-being, inspired a deeper level of analysis. Finally, additional theoretical codes (such as internal and external connectedness, the intersection between both forms of connectedness, connectedness to life itself) analytically integrated the evolved coding framework and concepts into a theoretical conceptualisation of vitality and connectedness. Constant comparative analysis was repeated until no new or contradicting insights emerged from the data.

2.6. Ethical considerations

The Institutional Review Board of the LUMC approved the study (file number W2019.044, October 22, 2019). The recruited persons received an information letter and informed consent form one week prior to the interviews. The information letter outlined the aim of the research, provided the participants with the choice to contribute only to the educational programme, or also to the research project, and informed them about their right to withdraw participation at any time. The informed consent form was obtained before the start of the interview. Anonymity of the participants and confidentiality of interview data were assured throughout the research project.

3. Results

Our constant comparative analysis included a final sample of 15 participants, which comprised eight women and seven men, with a mean age of 73 years, ranging from 66 to 79 years. Four participants reported having two or more chronic conditions and four participants lived alone. The participants were relatively highly educated. The demographic characteristics of the participants are as outlined in Table 1.

Following a constructivist grounded theory approach, we developed a theoretical conceptualisation of the relation between the concepts of vitality and connectedness. The association between the two concepts can be characterised by the overarching notion of 'feeling connected to life itself. According to the participants, connectedness to life gave rise to life-energy, a sense of aliveness, or zest for life. The overarching notion of connectedness to life subsequently translated into two forms of connectedness (Fig 1). We defined the first form as internal connectedness, which comprises: connecting to one's own life, intrinsic stimuli and intrinsic goals in an independent manner. We defined the second form as external connectedness, which comprises: social connectedness, environmental connectedness and engagement with the external world. Next, we identified tools which influenced internal connectedness and external connectedness: freedom from physical constraints, financial freedom and adaptation. Lastly, we characterised a variety of possible interactions between the two forms of connectedness, including

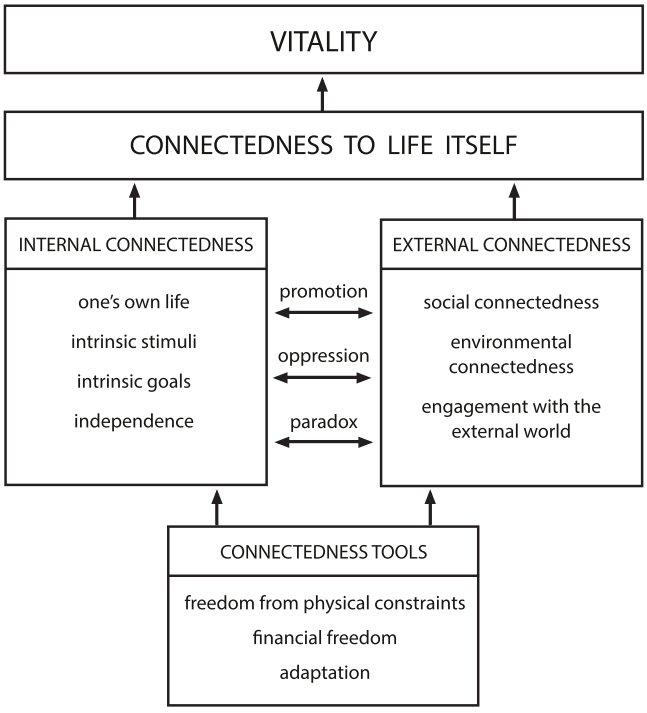

Fig 1. Vitality through internal connectedness and external connectedness. Theoretical, holistic conceptualisation of vitality achieved by feeling connected to life itself, through internal connectedness (constituents: connecting to one's own life, intrinsic stimuli and intrinsic goals in an independent manner) and external connectedness (constituents: social connectedness, environmental connectedness and engagement with the external world). The connectedness tools can facilitate internal and external connectedness, whilst the absence of these tools can function as a barrier. At the intersection of internal connectedness and external connectedness distinctive interactions emerged.

Table 1
Characteristics of selected participants ($n = 15$). .

Participant no.	Age[a]	Gender	Education level[b]	Living situation	No. medications	No. chronic conditions
P1	68	M	HBO / University	With partner	0 - 4	0 - 1
P2	66	F	HBO / University	With partner	0 - 4	0 - 1
P3	69	F	HBO / University	Alone	0 - 4	0 - 1
P4	75	F	MBO	Alone	0 - 4	0 - 1
P5	69	F	HBO / University	With partner	0 - 4	0 - 1
P6	76	M	HBO / University	With partner	0 - 4	0 - 1
P7	70	M	HBO / University	With partner	0 - 4	0 - 1
P8	79	F	HBO / University	Alone	4 or more	2 or more
P9	71	F	Primary school	With partner	0 - 4	0 - 1
P10	77	F	MBO	With partner	0 - 4	2 or more
P11	72	M	HBO / University	Alone	0 - 4	0 - 1
P12	75	M	HBO / University	With partner	0 - 4	2 or more
P13	73	M	HBO / University	With partner	0 - 4	0 - 1
P14	78	F	HBO / University	With partner	0 - 4	0 - 1
P15	76	M	HBO / University	With partner	4 or more	2 or more
	Average 73	*47% M 53% F*				

[a] Age at the time of interview (November 2019).
[b] MBO (Intermediate Vocational Education) - HBO (Higher Vocational Education).

promotion and oppression, and an external connectedness paradox.

3.1. Internal connectedness

Internal connectedness refers to a sense of connection and unity with 'the self'. Participants achieved internal connectedness by consciously connecting to (a) one's own life, (b) intrinsic stimuli, (c) intrinsic goals, and (d) by doing so in an independent manner.

"Yes vitality, there is of course something dynamic about it. Dynamic, inspiration. For me dynamic also means developing yourself and (…) the dynamics in your brain, what can you still learn, looking to the future." (P12)

(a) *Connecting to one's own life.* In order to stay connected to one's own life, participants demonstrated attempts to integrate preferences, skills and moral values from their past life into their present life. The future life was also taken into account, by articulating and embedding future aspirations in the present life. Participants thus did not experience a breaking point between their former, present and future self. Creating a continuum in 'the self' was therefore an act of connecting with and uniting the self.

"Well, I'm on a client board. And I really have to… there is so much involved. Everything I've learnt in my life I can put to use in this work." (P14)

(b) *Connecting to intrinsic stimuli.* Participants purposefully tuned into interests that had intrinsic value for them. They showed a strong commitment to a specific mission, which provided an intrinsic reward, and a sense of usefulness and significance independent from the use or sense it provided to other persons. Participants put great effort in self-development, ability development, keeping up mentally, expressing themselves creatively and, subsequently, achieving a sense of accomplishment. They consumed arts and culture, advocated curiosity, and sought new impulses. travelling and hobbies were mentioned to fulfil these needs. Connectedness to intrinsic stimuli thus offered participants a sense of meaningfulness.

"Yes, I mentioned the physical side. But what I actually think is a very important part of my vitality is the way I stay up to date mentally and put this into practice. I think that is just as important. Actually, more important." (P14)

(c) *Connecting to intrinsic goals.* Participants consciously strived to fulfil individualistic goals. "Doing what one likes doing" and "keeping busy" were proposed as vital goals. Similarly, participants pursued physical and mental maintenance by keeping active. Creating goals was regarded as an important goal in itself, and a decisive element of vitality. One participant explicitly defined vitality in terms of purpose in life, as it gives a person "a reason to get up every morning and, ultimately, be alive".

"What do you do all day? Have a look in your agenda: is there anything there, is it completely full or is it completely empty? So, I think that's a very important aspect, that you don't let it just happen, that you also arrange things yourself and fill your agenda." (P1)

(d) *Connecting in an independent manner.* Participants strongly associated the ability to achieve and maintain internal connectedness with a sense of freedom in fulfilling interests, goals, missions and self-continuity. Besides this sense of freedom, participants experienced autonomy by "taking their own responsibility" and emphasized taking initiative. They strongly believed in their own ability to influence their lives and shape them according to their own will. In response to the question *"What else should the government do for you in your situation to help you stay vital?"* a respondent answered adamantly: *"No you have to do it yourself."* (P10). Participants also experienced responsibility in safeguarding their own limits. This was demonstrated in persevering and pushing oneself to the limit, while not exceeding this limit, resulting in a continuous process of balancing out abilities and limitations. Accordingly, autonomy was considered a subjective construct adaptive to persons' circumstances. Poor self-rated health, therefore, did not withhold participants from pursuing and effectuating internal connectedness.

"And that is what I think, especially people who get older (…), should realize: that they should invest in vitality, (…) get yourself a bit upright and do something, give yourself a kick (laughs). I think you should do that very consciously." (P2)

3.2. External connectedness

External connectedness refers to a sense of connection between 'the self' and the external world, which comprises (a) social connectedness (such as people), (b) environmental connectedness (such as the physical world) and (c) engagement with the external world. In some cases, the pursuit of external connectedness itself defined vitality, and the lack of it related to an unwillingness to live.

(a) *Social connectedness.* Though participants proposed social connectedness to be an important aspect of vitality, the number of relations, depth of these relations and extent to which they were valued varied. Some participants preferred a limited number of deep relationships, while others managed to maintain an extensive number of deep relationships. In other cases, participants actively pursued an extensive social network without connecting to them deeply or feeling the desire to do so, nor valuing these relationships significantly. When asked "*Do friends play an important role in your life?*", a participant with an extensive social life and network replied "*No, not a very important role*" (P13). In a similar fashion, familial relations could be experienced as lacking depth, characterised as "family members living a life of their own", while these relations were valued for creating a sense of belongingness.

"I think vitality is being active, feeling active. Not only physical, but also in relationships." (P2)

(b) *Environmental connectedness.* Participants pursued environmental connectedness by consciously connecting with the physical world. Being outside and immersing in nature made participants experience and preserve vitality.

(c) *Engagement with the external world.* Participants demonstrated external connectedness through engagement with the external world, which could present itself as an interest in societal or worldly issues and developments, or by keeping up to date through television programmes, media and books.

"I'm also very interested in all sorts of different things. I read widely and I watch television selectively. (…) social themes definitely keep me busy. I'm not one of those burnt-out people who in the morning after breakfast thinks, well, I'll just wait till it's time for bed." (P7)

3.3. Connectedness tools

The empirical findings elucidated three tools (influencers), which participants deemed facilitators of or barriers to internal and external connectedness. These can be identified as: freedom from physical constraints, financial freedom and adaptation. Physical ability and disability could facilitate or restrict participants from connecting to crucial constructs of internal and external connectedness, such as one's own life, intrinsic stimuli and the physical world. Similarly, several

participants noted how their financial means gave or reduced access to such constructs. Moreover, participants emphasized adaptation, as this tool was also applicable in the case of diminishing physical state or financial means.

"Because if your body still does what you want it to do then you can still go to the museum and the theatre, to your song group, your billiards club, to the native garden." (P12)

3.4. Intersection internal connectedness and external connectedness

Following our findings, participants were seen to present internal and external connectedness, though they exhibited an individual distribution of the two forms of connectedness. The composition of their connectedness makeup reflects their personal preferences and context. While we did not see the two forms of connectedness interrelate by definition, a variety of interactions did sporadically emerge at their intersection, which we characterised as: (a) internal and external connectedness promoting one another, (b) internal and external connectedness oppressing one another and (c) the external connectedness paradox.

(a) *Internal and external connectedness promoting one another.* Internal connectedness was seen to facilitate external connectedness by fostering psychological well-being, which helped participants interact and socially connect. In some cases, the promoting effect on external connectedness was defined by 'sharing', and social relationships characterised and valued on the basis of sharing intrinsic stimuli. Social connectedness, on the other hand, was valued by participants for providing an opportunity to initiate contact and effectuate autonomy, thus facilitating internal connectedness.

(b) *Internal and external connectedness oppressing one another.* By contrast, internal connectedness was seen to function as barrier for achieving external connectedness. Participants mentioned how through the process of self-development they lost a sense of belongingness to their social network. This could ultimately result in deliberate efforts to hide one's true being and oppress the unity with the self.

"(…) And I also find that difficult, because that's a shadow side of having a higher education and coming from a very ordinary family: you're in between the two groups. I'll never belong to the side of a dentist father and an accountant mother. And I don't belong to the group of people where I come from any more. (…) for me that's a really difficult struggle." (P7)

Similarly, external connectedness could oppress internal connectedness. An increased dependency on other people due to physical decline, or on public transport after losing a driver's license, was related to a loss of self-dependency and, correspondingly, the loss of internal connectedness and vitality. Moreover, social relatedness was directly associated with limiting individuality and freedom, and some participants cherished the fact they could be alone by choice. Participants further mentioned how contact with younger persons could be influenced by a stereotypic social perception of old age, which meant they could not fully express themselves.

(c) *External connectedness paradox.* The external connectedness paradox refers to participants' paradoxical pursuit of external connectedness to enhance internal connectedness. Environmental connectedness and social connectedness were frequently pursued solely to connect to the own life, intrinsic stimuli and goals. External connectedness thus functioned as a medium.

The physical world was purposely connected with in order to reconnect with the self. Immersing in nature helped "find peace" and was considered a purpose in life in itself. In the same way, the primary goal for many participants to engage in boards and councils was to achieve self-development, ability-development, self-continuity, a sense of being useful, and to create purpose in life.

"The quality of social contacts is for me also the quality of your own vitality. If you can still communicate well and work together and do things together for clubs and committees, that also determines your self-esteem and your personal usefulness. The fact that you exist is still useful." (P12)

Likewise, achieving a sense of accomplishment and intrinsic fulfilment were direct reasons, and frequently sole reasons, to participate as volunteer. When probed if the fulfilling aspect of volunteer work was having social relations, a participant replied in the negative and stated: *"it's a certain sort of fulfillment of what's inside me. (…) that's the same as doing things that are meaningful. You see, taking a certain task upon me."* (P14). Participants were seen to connect with younger persons, as it inspired them and therefore promoted internal connectedness. One participant refused to move to a senior apartment for this reason. "*I just want the energy of young people around me*" (P7). Similarly, participants mentioned they engaged in group activities because the activity intrinsically stimulated them or fulfilled a specific individual purpose. For instance, a participant's fulfilment from playing golf was not dependant on the group of friends, which he played with for many years. If these friends were to quit, he would "*simply acquaint other people*" (P13).

In some cases, participants deliberately pursued external connectedness to compensate for their achieved level of internal connectedness. External connectedness thus functioned as a compensation mechanism. Self-development, doing things one likes doing, experiencing new impulses, having a sense of accomplishment, for instance, were consciously compensated for by connecting with people who seemed less fortunate. Internal connectedness was highly valued and vigorously pursued by one participant, who had lost this connectedness during a long period of informal caregiving. The appreciation of reconnecting with the self, created an urge for compensation:

"I don't think that I can have everything for myself, so on a Monday afternoon I wash fruit for 26 people in (name care home). On Tuesday morning I go with people to the market and once in a while I have bar duty on a Friday afternoon in (name care home). So that offsets all the things that I do for myself." (P4)

4. Discussion

4.1. Main findings

Following a constructivist grounded theory approach, our study found an association between the concept of connectedness and perspective of vitality as a sense of aliveness, captured in the overarching notion feeling connected to life itself. Connectedness to life gave rise to a sense of aliveness, thus enhancing participants' perceived vitality. Connectedness to life translated into two forms of connectedness. The first form was defined as internal connectedness, which could be achieved by connecting to one's own life, to intrinsic stimuli, to intrinsic goals, and by doing so in an independent manner. The second form was defined as external connectedness, which could be achieved through social connectedness, environmental connectedness and engagement with the external world. Freedom from physical constraints, financial freedom and adaptation appeared to function as tools, which could facilitate or, if absent, impede connectedness. Though the two forms of connectedness did not interrelate by definition, several interactions manifested at their intersection, demonstrating promotion, oppression and an external connectedness paradox.

4.2. Comparison with existing literature

The conceptualisation of internal connectedness relates closely to the concept of eudaimonic well-being, which is rooted in Aristotelian ethical philosophy. Eudaimonic well-being can be achieved by living in consonance with one's 'daimon', or true self [8,9,22,23]. Integrating intrinsic values in one's activities and fully engaging in these activities is proposed to result in an intense feeling of aliveness and authenticity. Within the long theoretical tradition of eudaimonic well-being, vitality is considered an important characteristic [4,7–9,23]. Subsequently, our findings regarding several constituents of internal connectedness (connecting to one's own life, to intrinsic stimuli, to intrinsic goals, and doing so in an independent manner) relate strongly to key aspects of eudaimonic well-being. Connecting to one's own life, for example, resonates with the concepts self-continuity, temporal orientation and moral identity [8,11,12,22,24–27]. In the field of narrative gerontology, self-continuity is defined as a sense of coherence and connection between the past and present life narratives and proposed to result in persons experiencing their lives as meaningful. Connecting to intrinsic stimuli, on the other hand, underscores the extensively studied and fundamentally connected concepts of self-realization and meaningfulness in life [8,22,23]. Self-realization refers to the realization of the true self by "realizing one's own deepest aspirations and best capacities" [15, p. 17]. Similarly, meaningfulness in life can be defined as "(…) a highly individual perception, understanding or belief about one's own life and activities and the value and importance ascribed to them." [28, p. 974]. Ageing is explicitly associated with a strong urge for a deeper and satisfying meaning, connecting to unique aspects of the individual life [22]. Bauer and Park [29] underline this proposition, indicating personal growth as functioning as a vital source of meaning for this specific group, suggesting the importance of a life-long development process. Lastly, connecting to intrinsic goals and connecting in an independent manner strongly reflect the concepts of purpose in life and autonomy. Ambiguity exists regarding the similarity and difference between meaningfulness and purpose in life, though many scholars argue the latter emphasizes the presence of goals, objectives and a sense of directiveness in life [23,25,28,30]. Vötter and Schnell [25] further emphasize this activating aspect and state that putting purpose into action creates an experience of meaning. By contrast, the loss of purpose in life is associated with an unwillingness to live [30].

Our findings further support the association between disconnectedness and an unwillingness to live, as described by Van Wijngaarden, Leget and Goossensen [11,12], by demonstrating how connectedness gives rise to life-energy, a sense of aliveness and a zest for life. Similarly, our empirical findings regarding the oppressing feature of external connectedness underscore the concept of decline narratives, which several scholars argue dominate the social perception of ageing [6,22,24,29,31]. According to Laceulle and Baars [15, p. 36], this macro narrative reduces older adults to "passive victims of irreversible (…) decline" and deprives them of a role in society and meaningfulness in life. Older adults are prone to internalize this dominant discourse, even further oppressing the self and cultivating narrative foreclosure. This concept refers to life being experienced as lacking any developmental possibilities, new impulses and meaning, ultimately resulting in an inability or unwillingness to identify with one's actual life [12,22,24].

Furthermore, our findings add to the literature by expanding the concept of connectedness. Existing research on connectedness predominantly relates to the theoretical concept of social connectedness, which refers to a sense of belongingness and acceptance resulting from positive social relationships, and emphasizes its fundamental importance in creating meaning from a biological-evolutionary perspective [8,9,31,32]. Our findings however indicate the importance of internal and environmental connectedness along with social relatedness. Moreover, older adults demonstrate a non-hierarchical distribution of internal and external connectedness, in which both forms are deemed vital and reflect personal preferences and context.

Lastly, our findings contribute to the theoretical understanding of the relatively unresearched concept of vitality. To our knowledge, this study is the first in its kind to integrate diverging perspectives on vitality into an overarching holistic conceptualisation. Studies on vitality disclose two dominant perspectives. The first proposes a holistic definition of vitality in terms of aliveness, while the second explores vitality on the premise of one's functioning, and in terms of attributes [4,7,9,10]. By proposing connectedness constituents and tools, our study elucidates the manner in which a sense of aliveness is attained and what role objectively measurable attributes play within this process, thus providing a theoretical framework in which both perspectives can be integrated. Accordingly, our insights into older adults' vitality preservation strategies can contribute to the development of effective healthcare interventions.

4.3. Strengths and limitations

Our study's reliance on a pre-existing database, collected by an extensive research project on vitality, presented several strengths and limitations. First, as the concept of connectedness was not part of this study design, interviewers did not target it as such, generating unbiased data on the association between connectedness and vitality. Moreover, the interviewers were not familiar with theoretical conceptualisations of vitality, strengthening an open attitude towards the participants' emic perceptions. Also, although the interviews were carried out by master students who did not have extensive experience in conducting interviews, the number of interviewers and their multidisciplinary backgrounds resulted in equally rich data from participants.

Secondly, though the pre-existing database did not allow for pure theoretical sampling, as constant comparative analysis was not translated into new interviews, the amount of diverse topics related to vitality discussed in the interviews resulted in enough variation to be able to carry out theoretical sampling.

Lastly, since our study population is relatively homogeneous, highly educated and healthy, the transferability of our findings might be limited. Nevertheless, we think our findings point to fundamental notions that merit further research amongst other groups of older adults. We thus suggest that further research should focus on older adults with complex health problems in order to investigate a possible change in when considering decreasing health, different chronic diseases, disease severity and participants' activity of daily living.

5. Conclusions

This study explores insights into older adults' vitality preservation strategies and provides an overarching holistic framework of vitality through connectedness. Our findings can therefore contribute to the development of effective healthcare interventions, by tailoring them to the individual needs of older adults. We appeal for a multidisciplinary research approach to further explore the practical implementation of the holistic conceptualisation of vitality and connectedness into health care policy, clinical interventions and welfare services for diverse groups of older individuals.

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CRediT authorship contribution statement

Anneke G. Julien: Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Wendy P.J. den Elzen:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Formal analysis, Conceptualization. **Prof Ria Reis:** Writing – review & editing, Writing – original

draft, Validation, Formal analysis. **Dorothea P. Touwen:** Writing – review & editing, Writing – original draft, Validation, Formal analysis. **Prof Jacobijn Gussekloo:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Formal analysis. **Yvonne M. Drewes:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Due to the qualitative nature of these data, the interview transcripts contain attributable sensitive information that potentially identifies participants and would breach participant confidentiality if made publicly available. Data requests from researchers who meet the criteria for access to confidential data may be sent to the corresponding author. All other relevant data are presented within the article.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ahr.2024.100185.

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