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Well-BOA: Exploring a New Preference-Based Instrument to Compare Well-Being Across Older People

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Abstract

Well-being comparisons of older people are at the heart of many aging and social policies. This study introduces the 'Well-Being at Older Age' (Well-BOA) instrument, a new tool that allows policymakers to compare well-being across older people while respecting their preferences regarding the relative importance of six well- being dimensions: health, social relations, income, leisure, engagement, and religion. The Well-BOA instrument was validated through an online factorial survey experiment among individuals aged 50 years and older in the Flemish Region of Belgium. The results reveal that health, social relations, and income are crucial to older people's well-being. Lower well-being was found among those with limited education and residing in larger households and the unemployed, single, and childless. The Well-BOA instrument had stronger associations with factors such as disability and financial difficulties than a subject measure based on life satisfaction and objective measure that treats the six well-being dimensions as equally important. These differences underscore the implications of the choice of well-being measure for policy design and evaluation.

Keywords: preferences, relative importance, factorial survey, vignette, multidimensional well-being, life satisfaction, successful aging, composite index, quality of life, mental well-being

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1. Introduction

The World Health Organization (2015) predicts that the global population of people aged 60 years or older will increase by 56 percent between 2015 and 2030. This aging trend, coupled with the financial strain on public budgets, poses new challenges for aging and social policies. Policymakers need robust methods to compare the wellbeing of older people, enabling the efficient allocation of scarce resources to the worst off (Kong & Yang, 2018). Additionally, comparing older people's well-being is vital for monitoring social progress, tracking inequality in old age, understanding how well-being evolves trough life stages, and assessing the impact of aging policies (Adler & Seligman, 2016; Bass et al., 1990). Unfortunately, the literature on aging and social policies currently lacks a universally accepted operational measurement tool for this purpose. In this paper, we address the central problem of how to make well-being comparisons, propose a novel method and compare the resulting well-being positions with existing objective and subjective approaches.

Despite the longstanding dominance of biomedical models in assessing who is aging well, a consensus has emerged that well-being is multifaceted (Makai et al., 2014; Walker, 2005). It encompasses dimensions beyond mere health-related life aspects, including social, psychological, and financial facets (Brown et al., 2004; Hung et al., 2010; van Leeuwen et al., 2019). However, comparing the well-being of older people in a multidimensional framework poses challenges. How can we compare the well-being of two persons, if one person is better off in one dimension (e.g., health) and the other person in another dimension (e.g., income or social relations)? Moreover, how can we discern whether an individual's well-being has improved over time, when faced with health decline, but gains in income or social life? Addressing these questions requires assigning weights to different dimensions. In the existing literature, two predominant approaches emerge: relying on objective expert opinions or considering subjective well-being scores reported by the individuals themselves (Decancq & Michiels, 2019).

The objective approach makes use of a composite well-being index. Experts, policymakers, or researchers define the relative importance of the dimensions within this index. A notable example of such an index is the CASP-19 scale which assess older people's quality of life. Grounded in the theory of Maslow (1968), the scale comprises four domains of basic human needs: control, autonomy, self-realization, and pleasure (Hyde et al., 2003). Like most indices, the CASP-19 scale, employs equal weights to combine the outcomes on different domains into a single index. However, this uniform weighting is an arbitrary decision that may not align with the perspectives held by older people themselves. Empirical evidence suggest that older people do not perceive all well-being dimensions as equally important (Chen & Olson, 2022, Coast et al., 2008; Himmler et al., 2022; Van Loon & Decancq, 2022; Whitley et al., 2020). Consequently,

some researchers expressed concerns about the paternalistic and arbitrary nature of the objective approach to compare older people's well-being (Phelan et al., 2004).

In the subjective approach, emphasis is placed on the opinions of older people themselves by using their self-rated subjective scores (Lee et al., 2021). Havighurst (1963) pioneered this approach within the field of social gerontology and suggested that 'inner satisfaction can be meaningfully defined and measured as a criterion of successful aging' (p. 311). Proponents of this approach argue that subjective measures, such as self-rated happiness or life satisfaction, capture all aspects that multidimensional well-being measures aim to aggregate, while allowing individuals full autonomy in determining what constitutes a fulfilling life (Kahneman et al., 1997; Layard, 2005).

Although the issue of selecting an appropriate weighting scheme becomes superfluous in the subjective approach, this method raises other normative concerns. Systematic variations in how people use and interpret the response scale of the subjective measures can lead to different subjective well-being scores for people in identical objective situations (Angelini et al., 2012). This phenomenon, known as 'response-scale heterogeneity', stems from various factors, including cultural norms, personality traits (such as optimism), expensive tastes (Arrow, 1973) and adaptation (Sen, 1985). Older people, for instance, often develop coping mechanisms that enable them to maintain high levels of life satisfaction despite age-related challenges (as seen in Baltes and Baltes' model of selection, optimization, and compensation, 1990). Consequently, this approach risks ranking older people based on personality traits, expensive tastes or 'adaptive ability' rather than on their actual life condition.

Decancq and Michiels (2019) recently showed that neither the objective nor the subjective approaches adequately account for 'what matters to older people' in interpersonal comparisons. As an alternative, they proposed a *preference-based* approach rooted in micro-economic theory (Deaton & Muellbauer, 1980) and political philosophy (Adler, 2019). Instead of relying on experts, this approach directly derives weights from older people's preferences regarding the relative importance of different well-being dimensions. However, the implementation of this approach presents challenges, as it requires additional information about older people's preferences. Fortunately, promising advances have been made using elicitation methods such as choice experiments (Chen & Olsen, 2022; Himmler et al., 2022) or best-worst scaling (Coast et al., 2008).

This study presents the 'Well-Being at Older Age' (Well-BOA) instrument to implement the preference-based approach to compare the well-being of older people. At the core of this instrument lies a factorial survey experiment that estimates older people's preferences about the relative importance of six well-being dimensions. To the best of our knowledge, our instrument is the first to utilize a factorial survey experiment for this purpose. In a factorial survey, respondents rate several hypothetical descriptions of objects or situations (referred to as vignettes)

(Auspurg & Hinz, 2015). Despite its long pedigree in the social sciences, where it is used to explore human judgments (for an overview, see, Wallander, 2006), it has only recently garnered attention from researchers studying older people's preferences (e.g., Van Loon & Decancq, 2022; Whitley et al., 2020). We illustrate the implementation of the Well-BOA instrument using data of 813 respondents aged 50 years or older in Flanders (the Dutch-speaking northern part of Belgium). Interestingly, this data allowed an empirical comparison of our instrument with the dominant objective and subjective approaches, focusing on exactly the same six dimensions: health, social relations, income, leisure, engagement, and religion.

2. Methods

2.1 Well-being states

To describe the well-being of older people, we considered six dimensions – health, social relations, income, leisure, engagement, and religion. These dimensions were selected based on qualitative studies that explored lay views on successful ageing and quality of life (for an overview, see, Brown et al., 2004; Hung et al., 2010; van Leeuwen et al., 2019). The dimensions were divided into four mutually exclusive levels (see Table 1).

By combining one level from each of the six dimensions, $4^6 = 4{,}096$ unique combinations were possible. These combinations were called well-being states (for a similar approach, see the EQ-D5 health states of the EuroQol Group (2020)). Each well-being state was summarized in terms of a six-letter code. For example, state '*b-a-d-a-a-a*' referred to a state with moderately severe health problems, no contacts with family or friends, a high equivalized disposable income, and no time spend on hobby or leisure activities, useful or meaningful activities or religion.

Table 1. Well-being dimensions

Dimension	Indicator	Outcome levels
1. Health	Physical or mental health problems	a. Severe / b. moderately severe / c. non-severe / d. no
2. Social relations	Contact with family or friends	a. Never / b. less than once per week / c. once per week / d. several times per week
3. Income	Equivalized disposable income	a. Low / medium-low / c. medium-high / d. high
4. Leisure	Hobby or leisure activity	a. Never / b. less than once per week / c. once per week / d. several times per week
5. Engagement	Useful or meaningful activity (e.g., paid work, volunteering, helping, or caring for others)	a. Never / b. less than once per week / c. once per week / d. several times per week
6. Religion	Time spent on religion or spirituality	a. Never / b. less than once per week / c. once per week / d. several times per week

Note: The income levels are based on the median national disposable equivalized income in Belgium for the year 2020 (data source: EU-SILC 2020). The thresholds are as follows: low = at or below 60% of the median; medium-low = above 60% and up to 100% of the median; medium-high = above 100% and up to 120% of the median; medium-high = above 120% of the median.

2.2 Valuing well-being states

On the basis of the six-letter code of the well-being state alone, we cannot make well-being comparisons. A procedure is needed to value the well-being states. It is in this procedure that the main difference between the objective, subjective and preference-based well-being measures is situated.

Objective approach

In the objective approach, the researcher assigns a score to each well-being state. This is often done by attributing equal weights to all well-being dimensions, assuming that each dimension is equally important for well-being. In this study, we implement the objective approach by assigning scores to sequential changes in dimension levels. For instance, the worst level ‘a’ receives a score of 1, level ‘b’ of 2, level ‘c’ of 3 and level ‘d’ of 4. Valuing a well-being state

becomes straightforward by summing up the scores across dimensions. The well-being state 'a-a-a-a-a-a' receives the lowest score of 6, and the well-being state 'd-d-d-d-d-d' receives the highest score of 24. Consequently, two individuals in well-being states 'a-a-a-b-c-b' and 'b-b-a-a-c-a' are both assigned a score of 10 (that is, 1 + 1 + 1 + 2 + 2 + 3) and considered equally well off. However, note that these two individuals may not agree with this valuation of their well-being, as they might prioritize health and social relations over leisure and religion.

Subjective approach

In the subjective approach, older people are directly asked to assign well-being scores to their own well-being states. The standard approach is to use general, self-rated happiness or life satisfaction questions, such as: 'Everything considered, how satisfied are you with your life?' The response to these questions can be considered as a synthetic evaluation of all relevant well-being dimensions. However, the set of relevant well-being dimensions may or may not align with the six dimensions considered in the objective approach (as outlined in Table 1). Respondents might consider additional aspect of their lives or focus on fewer dimensions when valuating their well-being states.

In this paper, we aim to compare the objective, subjective and preference-based approach, considering a fixed set of well-being dimensions. To achieve this, we requested respondents to evaluate their well-being while concentrating solely on the six dimensions outlined in Table 1. We constructed a vignette – a stylized description of the respondent's life across the six dimensions – based on the information they provided in the survey (see, Figure I in the Supplementary Material). Respondents were then asked to evaluate this vignette using a 11-point satisfaction scale, ranging from 0 (not satisfied at all) to 10 (completely satisfied). Although, to the best of our knowledge, this specific method has not yet been directly used to derive life satisfaction scores, it is commonly employed to address response scale bias through anchoring vignettes (Angelini et al., 2012).

As mentioned earlier, respondents may interpret the satisfaction scale differently due to response-scale heterogeneity. One person may assign a score of 7 to the well-being state '*a-a-a-b-c-b*'. In contract, another person may assign a much lower score to the same well-being state, because she uses the response scale in a more stringent way. However, it would be odd to consider the first person better off merely because he interpreted and used the satisfaction scale in a different way.

Preference-based approach

In the preference-based Well-BOA instrument, we used a factorial survey experiment to valuate well-being states in a comparable way, but which does not suffer from the issue of response-scale heterogeneity. In this survey experiment, older people evaluated one of the 50 randomly chosen subsets of well-being states – each consisting of 7 different states. The well-being states were again described by means of a vignette. Each vignette represented a combination of randomly chosen dimension levels (see, Figure I in the Supplementary Material). For more details on the experimental design of the factorial survey, we refer to Van Loon and Decancq (2022).

To distil the relative importance of the dimension levels from the vignette evaluations, we estimated the following multilevel random intercept model:

$$S_{ij} = \alpha_0 + \beta X_{ij} + \gamma_{ij} Z_{ij} + u_{0j} + e_{0ij} \,. \qquad (1)$$

In this model, S_{ij} represents the satisfaction score given by respondent *i* (Level 2 unit of analysis) to vignette *j* (Level 1 unit of analysis). The relative importance of the well-being dimensions is reflected by the β coefficients of X_{ij}, a vector of variables related to the dimension levels (taking level '*a'* as the reference category). Z_{ij} is a vector of control variables accounting for the position (order) in which the vignette was presented and the subset of the vignette. u_{0j} is the Level 2 error component and e_{0ij} is the Level 1 error component. By capturing all between-respondent variation, the Level 2 error term effectively controlled for variation in the scale use between respondents (Hox et al., 1991). Moreover, the experimental variation in dimension levels allowed for a causal interpretation of the β coefficients, unlike regressions based on non-experimental observational data.

2.3 Survey experiment and data

To implement the preference-based Well-BOA instrument and to compare the results to the objective and subjective approaches, we conducted an online longitudinal survey experiment among people aged 50 years or older in Flanders. Participants were recruited from an online panel administered by Qualtrics, a survey agency which employs non-probability sampling strategies in developing its sample frame. Cross-quotas were set on age and gender in order to obtain a balanced sample. We used data from Wave 1 of the survey which was conducted in May 2020. Unlike subsequent waves, this wave contained unique data that allowed us to compare the Well-BOA instrument with the existing objective and subjective approaches, focusing exactly on the same well-being dimensions. A total of 1,003 individuals completed the survey in Wave 1. We

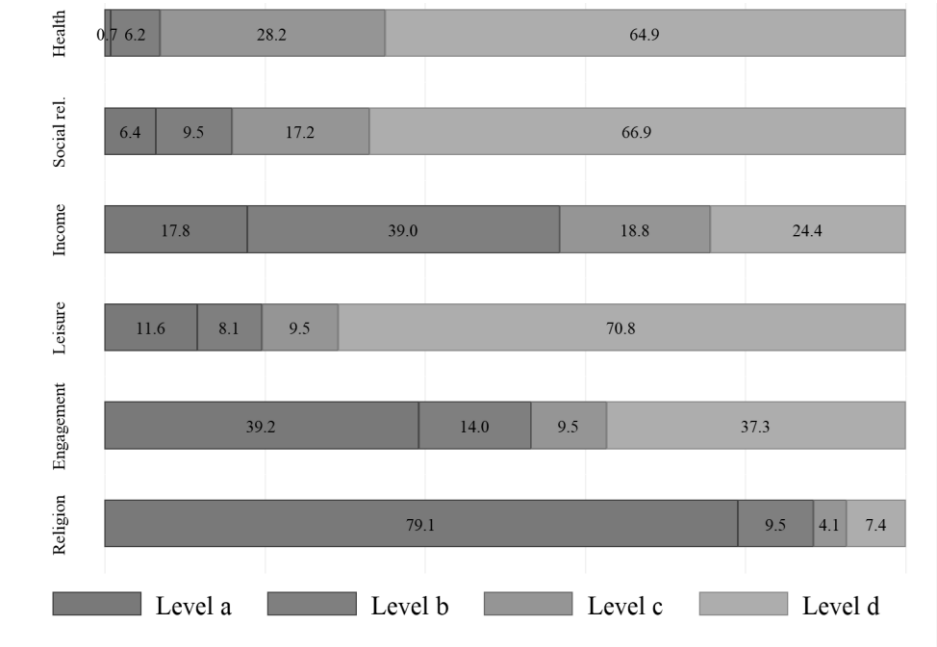
further refined the sample by excluding respondents with missing values on the levels of the well-being dimensions, resulting in a final sample of 813 individuals. All respondents gave their informed consent for inclusion before they participated in the survey. The survey was approved by the Ethics Committee for the Social Sciences and Humanities of the University of Antwerp (SHW_16_07). More details on the sample characteristics can be found in Table I and Figure II in the Supplementary Material.

3. Results

3.1 Illustration of the preference-based Well-BOA instrument

Figure 1 summarizes the well-being dimensions. A significant proportion of respondents (35.1%) reported being free from health problems. Less than 1% indicated severe health problems. The majority (66.9%) reported having frequent contact with family or friends. Only a small percentage (6.4%) reported no contact with family or friends. Approximately 17,8% reported a low income, below the national poverty threshold. Nearly 40% had a medium-low income, below the national median but still above the national poverty threshold. A majority (70.8%) reported regular engagement in leisure activities. 37.3% reported being actively engaged in meaningful activities (i.e., several times per week), while 39.2% never engaged in such activities. Almost 80% reported that they did not spend any time to religious or spiritual practices.

Figure 1. Summary statistics of the well-being dimensions (in %) (n = 813)

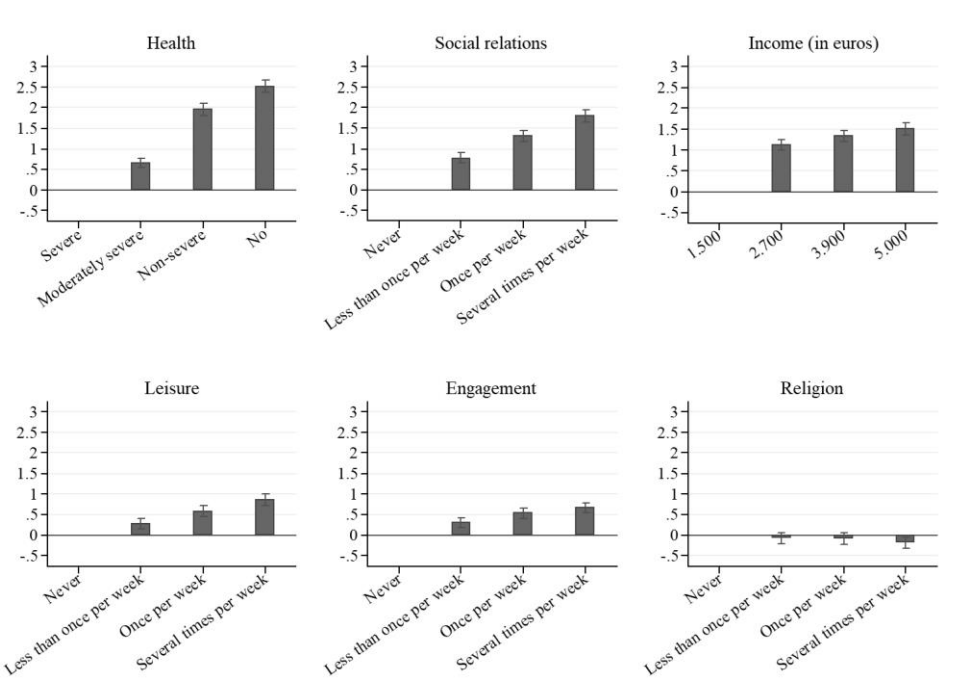


Note: For more details on the outcome levels, see Table 1.

Figure 2 shows the estimated importance weights assigned to the well-being dimensions within the Well-BOA instrument. The highest importance weights are attributed to a change from the lowest to the highest level in the dimension of health, followed by the dimensions of social relations and income. Leisure and engagement were perceived as less important for well-being. Changes within religion appeared to be unimportant or were perceived to have a slightly negative impact on well-being.

The relative importance of the well-being dimensions depends on the size of the changes in the dimension levels. For example, changes from 'moderately severe' to 'non-severe' health problems received a higher weight than changes from 'non-severe' to 'no health' problems. Likewise, an income increase from '€1,500' to '€2,700' was considered to be more important than consecutive income gains (e.g., from '€2,700' to '€3,900' and from '€3,900' to '€5,000').

Figure 2. Relative importance weights (and 95% confidence interval) (n = 813)



Note: The multilevel regression model (generalized least squares) with robust standard errors included controls for vignette position and vignette set (see also Table II in Supplementary Material).

3.2 Older people's well-being position

In the remaining part, we assess respondents' well-being position using the preference-based Well-BOA instrument and compare the results with the standard objective and subjective approaches. For this purpose, we use the percentile rank of each individual. For each individual, this equals the percentage of older people who have a lower well-being position. The individual

with the lowest well-being position receives a percentile rank of 0, while the best-off individual attains a rank of 100.

Table 2 shows cross-tabulations of quintiles based on the Well-BOA instrument in comparison with both standard approaches. Almost three-quarters of respondents in the 1st quintile according to the Well-BOA instrument were also part of the 1st quintile according to the objective approach. The same was true at the top of the distribution. However, some differences persisted among the middle quintiles (2nd, 3rd, and 4th). The Spearman rank correlation coefficient was 0.83.

The difference was notably higher between the Well-BOA instrument and the subjective approach (with a correlation coefficient of 0.32). For example, 20.9% of respondents in the 1st quintile according to the Well-BOA instrument were in the top quintiles (4th and 5th) according to the subjective approach. Conversely, 21% in the 5th quintile according to the Well-BOA instrument fell into the bottom quintiles (1st and 2nd) according to the subjective approach.

Table 2. Quintiles: Well-BOA vs. objective and subjective approach (n = 813)

	Objective approach					**Subjective approach**				
Well-BOA	1st	2nd	3rd	4th	5th	1st	2nd	3rd	4th	5th
1st	73.01	21.47	4.29	1.23	0.00	44.17	22.09	12.88	7.98	12.88
2nd	26.38	36.81	25.15	7.36	4.29	25.77	20.86	17.79	15.95	19.63
3rd	0.62	41.98	32.72	18.52	6.17	16.67	22.22	20.99	22.84	17.28
4th	0.00	0.00	35.58	44.17	20.25	7.36	20.25	25.77	23.93	22.70
5th	0.00	0.00	1.85	29.01	69.14	6.17	14.81	22.22	29.63	27.16

In the following, we examine the factors associated with older people's well-being position using the Well-BOA instrument and compare the results with both standard approaches. We use a regression model, with the percentile rank (i.e., well-being position) of each individual as the dependent variable. The results for the Well-BOA instrument, as presented in the second column of Table 3, reveal that the well-being position of respondents with low or medium education was 12.4 percentage points lower than that of respondents with higher education. Non-employed respondents faced a well-being position 8.4 percentage points lower than their employed counterparts. Additionally, being single, childless, and living in larger households was negatively associated with respondents' well-being position while being female was positively correlated. Furthermore, age played a role, with the well-being position decreasing by 0.5 percentage points per year of age. Alongside these sociodemographic differences, the results show

that respondents reporting financial difficulties had a well-being position that was 14.1 percentage points lower. Having a disability was associated with a 12 percentage points decrease in well-being position. Finally, each unit increase in depression score led to a 3.9 percentage point decrease in well-being position.

Using the objective approach, we identified similar associations between respondents' sociodemographic characteristics and their well-being position. In line with the Well-BOA instrument, respondents living in large households without a partner, children, post-secondary education, or employment were ranked over 40 percentage points lower than their counterparts. However, contrary to the Well-BOA instrument, the association between respondents' well-being position and financial hardship or disability were smaller.

When comparing the results of the Well-BOA instrument with those of the subjective approach, a different pattern emerged. Unlike in previous approaches, respondents' well-being position did not significantly change with each year of age. Perhaps more striking is the absence of significant differences based on education or employment status. Moreover, having a disability or reporting financial difficulties had a lesser impact on respondents' well-being position. However, the effect of a respondent's depression score was clearly more pronounced than in the Well-BOA instrument (and objective approach).

Table 3. Regression of percentile ranks (n = 772)

	Well-BOA		**Objective appr.**		**Subjective appr.**	
	b	se	B	se	b	se
Age	-0.498 **	(0.155)	-0.563 ***	(0.162)	0.075	(0.161)
Female	4.809 **	(1.827)	5.212 **	(1.918)	6.421 ***	(1.902)
Single	-9.173 ***	(2.422)	-6.913 **	(2.542)	-5.679 *	(2.521)
Childless	-6.691 **	(2.367)	-6.944 **	(2.485)	1.655	(2.464)
Household members	-3.737 **	(1.261)	-4.359 **	(1.323)	-1.775	(1.312)
No tertiary education	-12.444 ***	(1.759)	-14.154 ***	(1.846)	-0.482	(1.831)
Non-employed	-8.395 ***	(2.538)	-9.813 ***	(2.664)	0.883	(2.641)
Migration background	0.568	(3.269)	-2.975	(3.432)	-0.490	(3.402)
Disability	-12.020 ***	(1.936)	-6.211 **	(2.033)	-2.954	(2.015)
Depression score	-3.857 ***	(0.482)	-3.391 ***	(0.506)	-6.619 ***	(0.502)
Diff. making ends meet	-14.139 ***	(2.521)	-11.695 ***	(2.647)	-9.807 ***	(2.624)
Constant	117.907***	(10.827)	121.581***	(11.365)	63.736 ***	(11.269)
Adjusted R^2	33.3%		26.3%		27.3%	

Note: Unstandardized coefficients (b) are reported for cross-model comparisons. Depression score refers to a sum-score of 10 items from the CES-D scale (see Table III in Supplementary Material). Migration background is indicated if the person or at least one parent was born abroad. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4. Discussion

The development of instruments to compare well-being across older people is vital for informing policy and directing resources effectively to improve the quality of life for older people. However, comparing older people's well-being across multiple well-being dimensions remains challenging. To address this, we introduced a novel instrument – the Well-BOA instrument – which takes into account older people's preferences.

Consistent with prior studies (Chen & Olson, 2022, Phelan et al., 2004; Whitley et al., 2020), the Well-BOA instrument showed that respondents prioritize health, followed by social relations and income as most important well-being dimensions. Interestingly, they strongly disfavoured a life in poverty, while higher income levels yielded modest additional gains.

Similarly, having 'non-severe' rather than 'severe' health issues yielded greater gains in older people's well-being than changes in the other health levels. Moreover, the instrument indicated that older people with a lower well-being position tended to have lower education levels, be unemployed, single, childless and reside in large households. These findings align with existing literature on socioeconomic disparities in aging (for an overview, see, Wagg et al., 2021) and can be linked to explanatory mechanisms related to material conditions (e.g. access to better nutrition, housing, and high-quality care), lifestyle behaviours (e.g. smoking and diet), and exposure to psychosocial stressors (Grundy & Holt, 2001).

When comparing respondents' well-being position according to the Well-BOA instrument with existing approaches, significant disparities emerged. Notably, 20% of respondents who fell into the lowest quintile according to the Well-BOA instrument belonged to the top quintiles of the subjective approach. The difference between the Well-BOA instrument and the objective approach were smaller, but still sizeable. Specifically, respondents' well-being positions were more closely related with disability or financial security in the Well-BOA instrument than in the objective approach.

Overall, this study revealed a weak link between objective life conditions and older people's self-rated quality of life as documented in earlier studies (e.g., see, Cummins, 2000; Strawbridge et al., 2008). In the subjective approach, respondents' well-being position remained stable across age and showed no significant correlation with education or employment status. Moreover, it tended to prioritize individuals with negative emotions, even when their objective living conditions were better. These findings can be attributed to psychological processes, such as social comparison and adaptation (Baltes & Baltes, 1990; Cummins, 2000). They also highlight the concerns expressed by philosophers and welfare economists about using subjective well-being measures in social policy, particularly for redistributive purposes (Arrow, 1973; Sen, 1985). Recently, scholars have therefore advocated considering older people's perceptions of life as one – albeit not the sole – component of well-being (Decancq et al., 2015; Pruchno et al., 2010).

4.1 Limitations and future research

While this study benefited from a unique dataset that allows empirical comparisons of various approaches using exactly the same well-being dimensions, its generalizability is limited by two factors. First, this study occurred during the end of the first wave of the COVID-19 pandemic – which impacted older people's well-being and may have reshaped their priorities in life. Himmler et al. (2022), for instance, found that health and social relations emerged as more important during this time. Follow-up research is needed to clarify whether these shifts are temporary effects or enduring trends. Second, older people in an online survey panel may not be fully representative for the older population in terms of age, cognitive functioning, living

conditions and digital skills (Himmler et al., 2022). Moreover, our rather small and homogeneous sample prevented us from allowing interpersonal variation in the importance attributed to different well-being dimensions within the Well-BOA instrument. Future research should collect data from more diverse and representative samples of the older population.

Finally, we focused on *interpersonal* well-being comparisons across individuals. Alternatively, one can delve into *intrapersonal* well-being comparison within individuals over time. Existing literature studying (subjective) well-being patterns over the life cycle yielded different and even contradictory results – often referred to as the age paradox of well-being (see, e.g., Hansen and Blekesaune (2022) for a discussion of empirical findings on the paradox). We believe that our Well-BOA instrument could set light on intrapersonal well-being comparisons by studying how the importance of well-being dimensions changes as people age.

4.2 Conclusion

This study underscored the challenges in comparing older people's well-being when used to inform aging and social policies. Selecting an appropriate yardstick involves value judgements, including whether mental attitudes should outweigh objective life conditions or expert opinions. We believe that the Well-BOA instrument offers an appealing, non-paternalistic tool for policymakers to compare older people's well-being. By providing information on key life aspects for older people and the profiles of vulnerable groups, it can guide informed priority-setting and tailored interventions for aging and social policies.

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Appendix with supplementary material

Table I. Sample characteristics (n = 813)

Characteristic	%
Age (avg. in years)	64.6
Female	47.0
Single	25.7
Childless	17.7
No. of household members (avg.)	2.0
Low to medium education	46.3
Non-employed	74.7
Migration background	7.3
Disability	30.3
Depression score (avg. on 10-point scale)	2.1
Diff. making ends meet	17.4

Table II. Relative importance weights (n=813 respondents; n=5,961 vignettes)

	b		Se
Physical or mental health problems (ref. severe)			
Moderately severe	0.665	***	(0.059)
Non-severe	1.959	***	(0.077)
No	2.523	***	(0.078)
Having contact with family or friends (ref. never)			
< 1 per week	0.779	***	(0.062)
1 per week	1.312	***	(0.069)
> 1 time per week	1.800	***	(0.073)
Household income (ref. €1,500.00)			
€2,700.00	1.128	***	(0.067)
€3,900.00	1.338	***	(0.072)
€5,000.00	1.511	***	(0.077)
Doing hobbies or leisure activities (ref. never)			
< 1 per week	0.276	***	(0.064)
1 per week	0.583	***	(0.068)
> 1 time per week	0.856	***	(0.069)
Doing useful or meaningful activities (ref. never)			
< 1 per week	0.303	***	(0.061)
1 per week	0.539	***	(0.064)
> 1 time per week	0.670	***	(0.064)
Spending time on religion or spirituality (ref. never)			
< 1 per week	-0.079		(0.067)
1 per week	-0.084		(0.073)
> 1 time per week	-0.180	*	(0.072)
Constant	0.238		(0.389)
Sigma_u	1.28		
Sigma_e	1.73		
Wald chi²	2,998.45	***	
R^2	32.4%		

Note: Based on a multilevel regression (GLS) with robust standard errors. The model included controls for vignette position and vignette set. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table III. Items depression score

	N	Mean	Stand. dev.
1. Bothered by things that usually do not bother me	813	0.571	0.029
2. Had trouble keeping my mind on what I was doing	812	0.392	0.025
3. Felt depressed	812	0.367	0.025
4. Felt hopeful about the future	809	1.541	0.037
5. Felt fearful	812	0.430	0.027
6. Sleep was restless	813	0.699	0.033
7. Felt lonely	813	0.415	0.029
8. Enjoyed life	811	1.909	0.035
9. Felt sad	813	0.431	0.026
10. Could not get going	813	0.560	0.030

Note: Items were rated on a scale from ‘rarely or never’ (0) to ‘very often’ (3).

Figure I. Example of a vignette

'You have [moderately severe] physical or mental health problems.

You have contact with family or friends [several times per week].

The total net household income is [€5,000.00].

You do a hobby or leisure activity [once per week].

You do a useful or meaningful activity [several times per week].

You spend time on religion or spirituality [less than once per week].'

How satisfied would you be if you were in this situation?

☹ 😐 ☺

0 1 2 3 4 5 6 7 8 9 10

Note: The terms enclosed in brackets correspond to the different levels of well-being dimensions. In the subjective approach, these levels were derived from the information provided by respondents in the survey. In the factorial survey experiment, which was used to implement the Well-BOA instrument, the levels were varied randomly across different vignettes. The order of the dimensions within the vignettes varied to mitigate potential order effects.

Figure II. Distribution of satisfaction with own well-being state in % (n = 813)