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To cite this article: A. Oulevey Bachmann, J. Jubin, J. Pasquier, O. Portela Dos Santos, M. Guzman Villegas-Frei & C. Ortoleva Bucher (2023) Validation of the French Versions of the Flourish Index and the Secure Flourish Index, Cogent Psychology, 10:1, 2173043, DOI: [10.1080/23311908.2023.2173043](https://doi.org/10.1080/23311908.2023.2173043)

To link to this article: <https://doi.org/10.1080/23311908.2023.2173043>



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Published online: 13 Feb 2023.



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Received: 06 March 2022
Accepted: 20 January 2023

*Corresponding author: A. Oulevey Bachmann, Laboratory of Prevention and Health Promotion in the Community, La Source School of Nursing, University of Applied Sciences and Arts Western Switzerland (HES-SO), Lausanne, Switzerland
E-mail: a.ouleyvey@ecolelasource.ch

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HEALTH PSYCHOLOGY | RESEARCH ARTICLE

Validation of the French Versions of the Flourish Index and the Secure Flourish Index

A. Oulevey Bachmann, PhD^{1*}, J. Jubin, PhD¹, J. Pasquier², O. Portela Dos Santos, MSc³, M. Guzman Villegas-Frei, MSc¹ and C. Ortoleva Bucher, MSc⁴

Abstract: Individual well-being is generally thought of from the perspective of the risk factors which might compromise it. Assuming that positive dimensions of well-being are also worth considering, VanderWeele and Węziak-Białowolska et al. developed and tested the Flourish Index (FI) and the Secure Flourish Index (SFI). These 10- and 12-item questionnaires, respectively, measure 5 and 6 dimensions of human flourishing. This article presents the translation of these indexes into French (as FI-F and SFI-F) and the assessment of their psychometric properties on a sample of 2,376 French-speaking respondents. The validity and reliability indicators used by Węziak-Białowolska et al. were calculated for our French indexes and found to be very close to theirs. Item groupings were confirmed using correlation and factor analyses. The hierarchical structure of both French indexes matched the English indexes' second-order and bi-factor model analyses. Reliability and construct validity were good. The brief time required to complete the FI-F or SFI-F and their excellent psychometric properties make them very promising tools for research on the general well-being of Francophone populations.

Subjects: Mental Health; Population Health; Quality of Life; Epidemiology; Global Health
Keywords: well-being; human flourishing; flourish index; secure flourish index; French; validation

1. Introduction

Several academic disciplines (e.g., psychology, medicine, public health, management) have combined the notions of health and well-being. However, those concepts are usually considered in either a fairly narrow sense or in investigations of what might be detrimental to them (i.e. from a pathological perspective) rather than what might contribute positively to them (i.e. from a salutogenic perspective; VanderWeele, 2017). In the last 20 years, the positive psychology movement (Seligman & Csikszentmihalyi, 2000; Shankland, 2014; Al Taher, 2015) and the “rediscovery” of the works of Antonovsky (Mittelmark & Bauer, 2017) have encouraged researchers to broaden the range of dimensions associated with well-being and to explore the more positive ones by using, for example, the concept of human flourishing (VanderWeele et al., 2019).

1.1. Measuring well-being

Work on well-being carried out by Diener et al. (2010), (2015) led to the development of two measurement tools. The first, the 8-item Flourishing Scale (FS), evaluates psychosocial well-being (Diener et al., 2010). The second, the 12-item Scale of Positive and Negative Experience (SPANE), measures subjective feelings of positive well-being (6 items) and negative well-being (6 items; Diener et al., 2010). The FS evaluates social relationships, feelings of leading a purposeful life, participation in activities with others and one's interest in one's own activities, the search for self-respect and

optimism, and feelings of competence and capability (Diener et al., 2010). However, the FS does not address physical and mental health or financial and material stability (VanderWeele, 2017). The SPANE is centred on emotions and feelings and the frequencies with which they are experienced, whether positively or negatively (e.g., joy, sadness; Diener et al., 2010). Likewise, this scale is also unable to capture all of the dimensions of general well-being (VanderWeele, 2017).

Based on an empirical review of the literature examining longitudinal, experimental and quasi-experimental research, VanderWeele (2017) found that the concept of “psychological well-being”—frequently used in numerous research or clinical disciplines—was unable to affirm whether a person was flourishing. A more comprehensive concept was necessary. VanderWeele proposed the concept of “complete human well-being” encompassing domains other than human psychological well-being. In VanderWeele’s opinion, the two necessary conditions for a domain to be considered part of complete human well-being were that it could (a) be seen as an end in itself (meaning that the domain can be a life goal in itself rather than a way to achieve certain other goals) and (b) be almost universally desired (meaning that most human beings, regardless of their culture or personal traits, would perceive this domain as desirable). The domains VanderWeele identified through these two postulates were: (D1) finding joy and satisfaction in life; (D2) mental and physical health; (D3) leading a purposeful and meaningful life (reflecting the subjective value attached to life); (D4) adopting good character and virtues, seen as behaviour matching the four cardinal Platonic virtues of wisdom, justice, courage and moderation; (D5) close social relationships (in sufficient quantity and quality); and (D6), added by VanderWeele himself, financial and material stability. Indeed, he saw this sixth domain as necessary for supporting domains one to five through time (VanderWeele, 2017). Built on this platform, human flourishing can be defined as “a state in which all aspects of a person’s life are good” (VanderWeele, 2017, p. 8149).

Dimensions D1 to D5 make up the Flourish Index (FI); when D6 is added to them, we obtain the Secure Flourish Index (SFI; Węziak-Białowolska et al., 2017). The Secure Flourish Index is currently the only instrument capable of measuring general well-being or human flourishing, as defined above, using a single, rapidly completed scale composed of 12 questions. Indeed, other scales often leave out certain domains (e.g., physical health) or measure them indirectly using several subscales, sometimes significantly lengthening the time needed to complete them (Węziak-Białowolska et al., 2019a). Finally, VanderWeele (2017) determined that there was a multitude of very well-known measures of human well-being in each of the domains. Their degree of precision was often proportional to the number of questions asked. Thus, VanderWeele developed a short scale measuring what he considered to be the essential elements of the five (FI) or six (SFI) domains. To do this, he borrowed from existing, frequently-used instruments with robust psychometric properties and selected two questions per domain. The questions for domain D4 —“Character and Virtue”—are the exceptions, as he created these himself (VanderWeele, 2017).

1.2. Psychometric properties of the English-language Flourish Index

Validity, reliability and applicability were tested in different studies (Węziak-Białowolska et al., 2017, 2019b, 2019a). First, those authors tested whether empirical data justified how items were grouped into the domains of flourishing by assessing a correlation matrix and using exploratory factor analysis (EFA). Second, they analysed whether the data reflected the hierarchical structure of the indexes (items grouped into domains, domains grouped into the indexes) using confirmatory factor analysis (CFA) models. They chose a bi-factor model to confirm that grouping items into the five or six domains of FI and SFI, respectively, was relevant. Third, they checked whether both indexes could be calculated as a reflection of a single construct or should be separated into subscales. Fourth, correlations with existing measures of good health allowed them to test convergent validity, and measures of health behaviours were used to test discriminant validity (Campbell & Fiske, 1959). Fifth, they assessed the FI and SFI’s properties of measurement invariance using multi-group confirmatory factor analysis (MG-CFA).

Because of our theoretical interest in the concepts of well-being, flourishing and salutogenic approaches, together with the empirical potential for applying the easy-to-understand and rapidly completed FI and SFI, and their robust psychometric properties in English, we decided to translate them into French and validate them.

2. Method

2.1. Participants

In February and 2 March 2020, 376 French-speaking participants answered the FI-F plus the two additional items on the SFI-F as a part of a large-scale health study (manuscript in preparation). All were undergraduate students enrolled in different faculties of the University of Applied Sciences and Arts Western Switzerland (HES-SO). Three respondents' answers were removed from the dataset for double entries, and two for withdrawal of consent.

The mean participant age was 23.03 years old ($sd = 4.06$), 67.8% were women, 30.4% were men and 1.9% identified as non-binary or preferred to self-describe. More than half lived with their parents (54.5%), whereas others lived with roommates (17.9%), as part of a couple (11.8%) or alone (11.6%). The largest proportion was studying in the field of health (34.1%), with others enrolled in engineering and architecture (21.6%), economics and business (18.6%), social work (17.4%), design and visual arts (4.5%) and music and the performing arts (3.7%). Moreover, 51.5% earned money through a job held in parallel to their studies.

2.2. Measures

2.2.1. Flourish Index

This index is composed of ten questions—two for each domain. Each item is measured on an 11-point scale running from 0–10: the more favourable the response, the higher the score. Domain-specific scores are obtained by averaging the scores for their two questions. The overall FI mean score is calculated by averaging the score for each domain; thus, the final score ranges from 0 (minimum) to 10.00 (maximum). Respondents with the highest scores are those who perceive themselves to be as “flourishing” as much as possible.

2.2.2. Secure Flourish Index

The two supplementary questions for the sixth domain of “Financial and Material Stability” complete the ten from the FI and give us the SFI. The two items allow us to measure the FI's sustainability over time because they examine two elements deemed necessary to its maintenance. The overall mean SFI score is calculated in the same manner as the FI.

2.2.3. Translation

We followed the ten steps of the translation process described by Wild et al. (2005; see, Table 1). The original English-language items and their French translation are available in Annex 1.

2.3. Ethics

This research was approved by the Human Research Ethics Committee of the Canton of Vaud (CER-VD, protocol no. 2019–01379). All participants gave their informed consent to take part in the research.

2.4. Analyses

To ensure a comparable analysis of the items and their internal structure, we followed Węziak-Białowolska et al.'s (2017) validation procedure for the FI and SFI questionnaires.

2.4.1. Exploratory factor analyses

FI is supposed to reflect five dimensions (Happiness and Life Satisfaction, Mental and Physical Health, Meaning and Purpose, Character and Virtue, Close Social Relationships) and SFI six (the first

Table 1. Description of the translation procedure

Steps	Goals	Work performed
1. Preparation	Organise the process. Contact the developer for permission. Invite the developer to be part of the process.	The principal investigator (PI) organised this process in collaboration with a research trainee and contacted Prof. VanderWeele, inviting him to participate. He gave his permission for the translation.
2. Forward translation	Have more than one native speaker of the target language (French) translate the questionnaire.	Three members of the research team translated the questionnaire independently of one another.
3. Reconciliation	Discuss any differences between the existing translations. Decide on a single forward translation.	The introduction and the 12 questions were thoroughly and thoughtfully discussed. The researchers could not reach a consensus on the precise meaning of the scale's sixth item ("purpose in life") or on how to translate this properly. Thus, the trio of translators (1) asked the developer to clarify the term's meanings and connotations in English, and (2) examined existing literature on this concept to understand the etymology, meanings and possible connotations of "purpose" with regard to the concept of "purpose in life". They were subsequently able to propose an item question best adapted to the context and settings in French. When added to the original author's explanations, this combined strategy helped the researchers establish a consensus.
4. Back translation	Translate the reconciled translation back into the source language (English).	One back translation was carried out by a native-English speaker, a professional translator and editor with whom the research team is used to working.
5. Back translation review and 6. Harmonisation	Review the back translation against the source language to ensure the translation's conceptual equivalence.	The three researchers examined all the discrepancies between the original scale and its French translation. Any statements or terms that were problematic were examined and fixed. No clarification was needed from the developer. As there were no other French translations of the FI or SFI, the harmonisation step, as originally described, was unnecessary.
7. Cognitive debriefing	Test the translated scale with members of the target population.	The scale was included in the main questionnaire's pre-test. French-speaking students and research trainees who had not participated in the translation process were asked to test the FI-F and the SFI-F.
8. Review of cognitive debriefing results and finalisation	Review the remarks made or questions asked by the pre-test population.	No remarks were made on the FI and SFI scales. No re-wording was necessary.
9. Proofreading	Check for minor errors.	The PI checked the final questionnaire with particular attention to the FI and SFI questions.
10. Final report	Describe the procedure followed.	A research trainee wrote a full report on the translation process under the PI's supervision.

five, plus Financial and Material Stability). We thus performed an Exploratory Factor Analysis (EFA) to test the questionnaires' dimensional structures. As the domains of Flourishing are correlated (Keyes, 2005), Węziak-Białowska et al. (2017) advocated using an oblimin rotation in these analyses. We used the Principal Factor Method for our factor analyses.

2.4.2. Confirmatory factor analyses

As per Węziak-Białowolska et al. (2017), we tested three models via a Confirmatory Factor Analysis (CFA). First, the unidimensional model assumes that a single latent construct underlies all ten items in the FI and all twelve in the SFI (Figure 1a). The second-order model assumes that a general latent construct underlies all five primary dimensions (six in the SFI). Each of these dimensions reflects one domain of flourishing that, in turn, influences its two respective items (Figure 1b). Finally, the bi-factor model assumes that both the general construct and the domain-specific constructs directly influence the items (Figure 1c). All the latent variables' covariances were constrained to be orthogonal, and their variances were fixed to unity.

2.4.3. Reliability

Like Węziak-Białowolska et al. (2017), we assessed the questionnaires' reliability by computing their Explained Common Variances (ECV), their Percentage of Uncontaminated Correlations (PUC, a measure of the construct's unidimensionality) and their omega hierarchical coefficients (ω_h , the coefficient that reflects the amount of variance explained by a general construct while considering the model's multidimensional nature; Rodriguez et al., 2016; Zinbarg et al., 2005).

2.4.4. Construct validity

The Pearson correlation coefficient was used to evaluate our indexes' convergent validity with two variables: the first item of the World Health Organization Quality of Life questionnaire (WHOQOL-BREF Skevington et al., 2004), "How would you rate your quality of life?" was answered from 1—Very poor to 5—Very good; and the total score of the Perceived Stress Scale (PSS-14, Jiang et al., 2017; Lesage et al., 2012), which asks individuals to describe how often they have been exposed to stressors during the last month. We expected FI-F and SFI-F scores to be strongly associated with these measures—positively with the former and negatively with the latter.

Discriminant validity was evaluated through the Pearson's correlation of two questionnaire variables that should not necessarily be associated with flourishing. First, participants' willingness to retake the study one year from then ("Do you agree to be contacted in a year's time to complete the same questionnaire and thus explore the evolution of your situation?/Yes-No"). The second variable was whether participants had a means of earning money in parallel to their studies ("Do you have any incidental gainful activity?/Yes-No").

3. Results and discussion

3.1. Internal structure of items

Table 2 presents the mean item response scores and standard deviations. Our participants rated all the items except D5.1 (*contentedness with friendships and relationships*) and D6.2 (*worrying about safety, food or housing*) lower than Węziak-Białowolska et al.'s participants (Węziak-Białowolska et al., 2017).

The correlation matrix in Table 3 shows that all the items were positively correlated and generally strongly associated ($r > .45$) with the other item in their dimension of measurement, except for items D4.1 and D4.2 (Character and Virtue, $r = .34$). It is of note that items D2.2 and D3.1 were highly correlated with each other ($r = .62$) and with items D1.1 ($r = .72$, $r = .63$, respectively) and D1.2 ($r = .73$, $r = .60$, respectively).

Thus, overall, the internal structure of our items corresponded to what was expected. Items D1.1 and D1.2's dominant role in flourishing was reported previously in validation studies for the FI and the SFI (Węziak-Białowolska et al., 2019b, 2019a). These items concern overall satisfaction with life and general happiness, respectively; it is thus not surprising that they are strongly associated with the other items.

Figure 1. Models tested for the FI-F and SFI-F: (a) Unidimensional model, (b) Second-order model, (c) Bi-factor model. Dotted lines are the model parameters fixed at value 1. “Gen” stands for a general factor. Remark: The FI-F models present the same structure without dimension 6 and items D6.1 and D6.2.

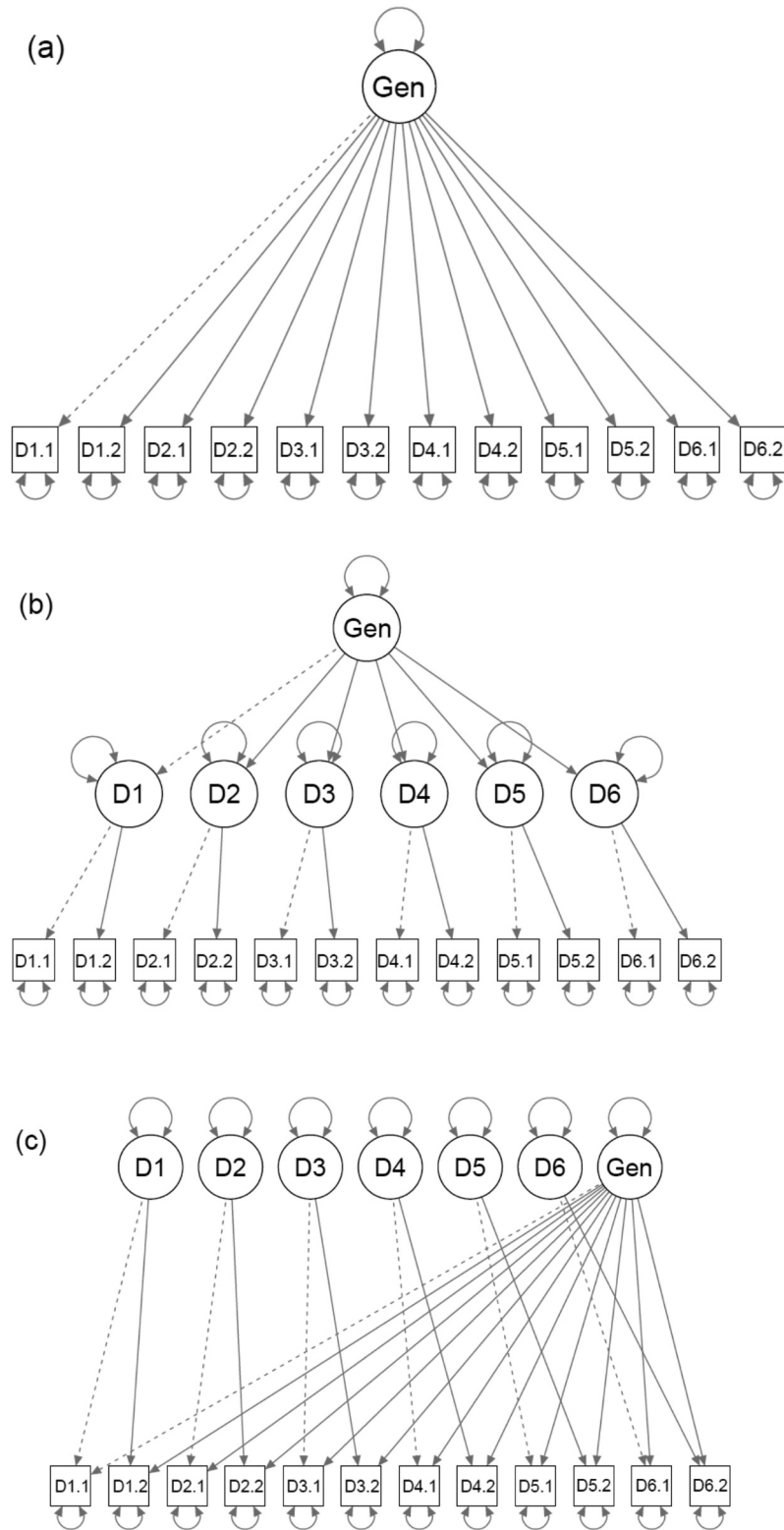


Table 2. Mean and standard deviations of FI-F and SFI-F item scores

#	Mean	SD
D1.1	6.54	2.03
D1.2	6.58	1.95
D2.1	6.96	2.04
D2.2	6.50	2.27
D3.1	7.28	2.16
D3.2	6.99	2.61
D4.1	7.73	1.81
D4.2	7.08	2.20
D5.1	7.61	2.11
D5.2	6.86	2.35
D6.1	6.01	2.96
D6.2	6.92	2.79

3.2. Exploratory factor analyses

EFA revealed that the items could indeed be separated into five dimensions (six for the SFI-F; Tables 4 and 5). Yet, items D2.1 and D2.2 (Mental and Physical Health) were most closely associated with the same factor as items D1.1 and D1.2 (Happiness and Life Satisfaction), whereas items D4.1 (*acting to promote good in all circumstances*) and D4.2 (*ability to give up some happiness now for greater happiness later*) did not correlate with the same factor.

In Węziak-Białowolska et al.'s study (Węziak-Białowolska et al., 2017, 2019a), items D1.1 and D1.2 and D3.1 and D3.2 (Meaning and Purpose) correlated on the same factor. These findings confirmed the preceding section concerning items D1.1 and D1.2. Their very general nature makes it difficult to statistically discriminate them from other items. The same concern was observed for dimension 1 (combining those items), which is difficult to distinguish statistically from dimensions 2 and 3. However, this is not problematic if we consider that one general factor underpins the different domains measured in the questionnaire—a supposition that Węziak-Białowolska et al. verified using CFA.

3.3. Confirmatory factor analyses

We tested the unidimensional, second-order and bi-factor models (Figures 1a, 1b and 1c), described earlier, on the FI-F and the SFI-F, and evaluated three fit indices: the root mean square error of approximation (RMSEA), the standardised root mean square residual (SRMR) and the comparative fit index (CFI; Table 6). According to Schermelleh-Engel et al. (2003), to remain within acceptable limits, the RMSEA should not exceed 0.08 and the SRMR should not exceed 0.10. Moreover, the CFI should reach at least 0.90 to be considered acceptable (Kline, 2016).

The unidimensional model was unsatisfactory for both the FI-F and the SFI-F. On the contrary, the second-order and bi-factor models had very good fit indices, with a very slight advantage in favour of the former, although this has no practical implications. These results echoed Węziak-Białowolska et al.'s (2017) and indicate that each of the domains of the FI-F and SFI-F reflect different facets of flourishing that cannot be attributed to a unique source.

3.4. Reliability

The unidimensionality of the data was assessed using the ECV, the PUC and the ω_h . According to Reise et al. (2013), for the data's multidimensionality not to be significant, the PUC must be lower than 80%, the ECV higher than 60% and ω_h higher than 0.7. Here, our findings differed slightly from those of Węziak-Białowolska et al. (2017), who reported that the FI-F and SFI-F could be conceptualised as unidimensional. In our data, the ECV indicated that the general factor

Table 3. Correlation matrix of FI–F and SFI–F items

Dimension	Item	D1.1	D1.2	D2.1	D2.2	D3.1	D3.2	D4.1	D4.2	D5.1	D5.2	D6.1	D6.2
D1. Happiness and Life Satisfaction	D1.1. Overall, how satisfied are you with life as a whole these days? <i>0 = Not satisfied at All, 10 = Completely satisfied</i>	1											
	D1.2. In general, how happy or unhappy do you usually feel? <i>0 = Extremely unhappy, 10 = Extremely happy</i>	0.76	1										
D2. Mental and Physical Health	D2.1. In general, how would you rate your physical health? <i>0 = Poor, 10 = Excellent</i>	0.45	0.43	1									
	D2.2. How would you rate your overall mental health? <i>0 = Poor, 10 = Excellent</i>	0.72	0.73	0.47	1								
D3. Meaning and Purpose	D3.1. Overall, to what extent do you feel the things you do in your life are worthwhile? <i>0 = Not at all worthwhile, 10 = Completely worthwhile</i>	0.63	0.60	0.35	0.62	1							
	D3.2. I understand my purpose in life. <i>0 = Strongly disagree, 10 = Strongly agree</i>	0.56	0.56	0.27	0.56	0.73	1						
D4. Character and Virtue	D4.1. I always act to promote good in all circumstances, even in difficult and challenging situations. <i>0 = Not true of me, 10 = Completely true of me</i>	0.26	0.30	0.20	0.27	0.32	0.31	1					
	D4.2. I am always able to give up some happiness now for greater happiness later. <i>0 = Not true of me, 10 = Completely true of me</i>	0.25	0.28	0.18	0.28	0.31	0.32	0.34	1				
D5. Close Social Relationships	D5.1. I am content with my friendships and relationships. <i>0 = Strongly disagree, 10 = Strongly agree</i>	0.51	0.52	0.26	0.47	0.46	0.44	0.29	0.25	1			
	D5.2. My relationships are as satisfying as I would want them to be. <i>0 = Strongly disagree, 10 = Strongly agree</i>	0.51	0.52	0.28	0.48	0.45	0.45	0.27	0.25	0.84	1		
D6. Financial and Material Stability	D6.1. How often do you worry about being able to meet normal monthly living expenses? <i>0 = Worry all of the time, 10 = Do not ever worry</i>	0.21	0.21	0.23	0.22	0.14	0.13	0.08	0.08	0.13	0.13	1	
	D6.2. How often do you worry about safety, food or housing? <i>0 = Worry all of the time, 10 = Do not ever worry</i>	0.22	0.22	0.21	0.24	0.18	0.17	0.11	0.10	0.15	0.16	0.71	1

Table 4. Factor loadings from the EFA for FI-F

Item	Two factors		Three factors			Four factors				Five factors				
	1	2	1	2	3	1	2	3	4	1	2	3	4	5
D1.1	0.82		0.87			0.82				0.81				
D1.2	0.81		0.78			0.78				0.79				
D2.1	0.53		0.53			0.64				0.65				
D2.2	0.86		0.82			0.81				0.82				
D3.1	0.80		0.37		0.52			0.72				0.77		
D3.2	0.70				0.55			0.87				0.87		
D4.1	0.31				0.52				0.55					0.99
D4.2	0.32				0.55				0.54				0.99	
D5.1		0.92		0.92			0.92				0.91			
D5.2		0.91		0.90			0.91				0.92			

accounted for 65.5% of the variance in the items of the FI-F and 50.2% of the items in the SFI-F, whereas the PUC accounted for 88.9% and 90.9%, respectively. Finally, ω_h levels were 0.84 for the FI-F and 0.79 for the SFI-F. These results suggested that the FI-F might be interpreted as unidimensional, but that the SFI-F was better when separated into subscales. This makes sense with regard to the low correlation between items D6.1 and D6.2 (Financial and Material Stability) and the others. This is also in line with that domains' definition. Indeed, whereas domains 1 to 5 represent facets of flourishing, domain 6 (Financial and Material Stability) reflects their stability over time rather than their level (see below for further discussion).

3.5. Construct validity

As expected, the FI-F and SFI-F were strongly associated with item 1 from the WHOQOL-BREF about evaluating one's quality of life ($r = .52, p < .001$ for FI-F and $r = .55, p < .001$ for SFI-F) and negatively associated with the PSS-14 score, assessing perceived stress ($r = -.65, p < .001$ for FI-F and $r = -.66, p < .001$ for SFI-F). It was only weakly associated with having a job to support one's studies ($r = .07, p = .001$ for FI-F and $r = .04, p = .085$ for SFI-F) and was not associated with the willingness to participate in the study's second phase ($r = -.02, p = .430$ for FI-F and $r = -.03, p = .179$ for SFI-F). This indicates that the FI-F and SFI-F do indeed measure a construct that is close to well-being and are not influenced by variables that are irrelevant to it.

3.6. General discussion

Over the past 40 years, a new approach to health theory, research and practice has been developed to focus on the resources individuals can use to improve their own health: salutogenesis (Mittelmark & Bauer, 2022). Although health has often been conceptualized as the binary opposite of illness, some approaches advocate conceptualizing health as a continuum (Antonovsky, 1987; Mittelmark & Bauer, 2022), which provides researchers with greater granularity when studying concepts such as well-being. Indeed, by shifting the focus to the positive end of the continuum, the FI and SFI enable us to assess not only whether individuals are healthy or sick but also how well they are. Indeed, one could be healthy yet not flourishing. Both scales also allow us to assess which of their dimensions contribute positively to individuals' well-being, as per VanderWeele's theoretical proposition. As French is a widely-used language, the translation and validation of the FI and SFI will enable the promotion, dissemination and use of these concepts in several new countries, thus generating more data for the international comparisons begun by Węziak-Białowska et al. (2019b).

Our results showed that the FI-F can be used for both its overall score and the sub-scores it produces in each of its five dimensions. The sixth dimension, added to create the SFI-F—Material and Financial Stability, i.e. the ability to sustain human flourishing over time—should be used as an

Table 5. Factor loadings from the EFA for SFI-F

Item	Two factors		Three factors			Four factors			Five factors					Six factors							
	1	2	1	2	3	1	2	3	4	1	2	3	4	5	1	2	3	4	5	6	
D1.1	0.80		0.80			0.88				0.82					0.82						
D1.2	0.81		0.80			0.79				0.79					0.80						
D2.1	0.44		0.49			0.50				0.61					0.62						
D2.2	0.78		0.84			0.81				0.80					0.81						
D3.1	0.78		0.83			0.44			0.46				0.73					0.77			
D3.2	0.73		0.73			0.32			0.50				0.86					0.86			
D4.1	0.40		0.31						0.50					0.56							0.99
D4.2	0.39		0.33						0.52					0.55							0.99
D5.1	0.70			0.92							0.92					0.91					
D5.2	0.70			0.90							0.91					0.91					
D6.1		0.87			0.88			0.86									0.85				0.84
D6.2		0.81			0.80			0.82										0.84			0.84

Table 6. Fit indices for the confirmatory factorial analysis models

Model	CFI	RMSEA	SRMR
<i>Flourish Index-French</i>			
Unidimensional	.79	.18	.08
Second-order	.99	.05	.03
Bi-factor	.99	.06	.03
<i>Secure Flourish Index-French</i>			
Unidimensional	.71	.18	.10
Second-order	.99	.04	.03
Bi-factor	.98	.05	.03

indicator of the stability of the scores in the other dimensions rather than be included in the overall score. This finding is somewhat different from the conclusions drawn by Węziak-Białowolska et al. (2017), who advocated using both the FI and the SFI as unidimensional scales. However, the respective study populations may have perceived the sixth dimension differently: Węziak-Białowolska et al.'s middle-aged employees in America and the present study's higher education students in Switzerland. Indeed, Swiss students' characteristics and life conditions (Fischer et al., 2021) probably differed significantly from those of the population primarily investigated by Węziak-Białowolska et al. (2017).

Despite our scales' very similar internal structures, our results also differed from Węziak-Białowolska et al.'s (2017) in that the responses observed for most items were approximately one point lower. The exceptions were *contentedness with friendships and relationships* and *worrying about safety, food or housing*, for which our participants responded slightly higher than Węziak-Białowolska et al.'s. Again, this is not surprising considering the differences between the studies' populations: young populations, such as students, are living through a relatively unstable phase of their life during which their identity and relationships are still developing and their future can feel uncertain (Dunkel et al., 2011). This could explain their lower scores on most flourishing items. However, items on which our participants scored higher could be explained by the differences between US workers vs Swiss students). Swiss students' social relationships are generally well developed (Fischer et al., 2021), and the majority have easy access to many campus activities and services that contribute to developing their personal networks. Furthermore, Swiss students often live with and financially rely on their parents (Fischer et al., 2021). Finally, university tuition fees are quite modest in Switzerland compared to other countries (about CHF 1,500 per year).

4. Strengths and limitations

The present research's main strength was to have replicated Węziak-Białowolska et al.'s (2017) validation study findings to a satisfactory level of reliability on a large sample. On the other hand, the fact that this was not a general population sample could call into question that validation's generalisability. Nevertheless, obtaining results comparable to those of the indexes' original authors on a different population is a strong argument in favour of using the FI and SFI scores and their translated French versions.

Another potential limitation was the period during which our validation occurred. Data collection took place in February 2020, just before the first wave of the COVID-19 pandemic struck Switzerland. Although Switzerland's government had yet to institute any disease prevention measures, feelings of worry and incertitude may have been growing and may have weighed on participants' answers.

5. Conclusion

The present article described our work to translate into French and validate the Flourish Index and Secure Flourish Index developed by VanderWeele (2017) and Węziak-Białowolska et al. (2017). We

closely followed the validation procedure applied by those authors so that our results would be comparable with theirs. Our results were in close agreement with Węziak-Białowolska et al.'s, which indicated that our translation is valid and reliable: it can be used for French-speaking populations and to conduct studies comparing the Flourish index score of people speaking different languages. Measuring human flourishing can help approach well-being from a salutogenic perspective—one oriented toward factors that sustain it. The scales could prove to be precious tools for assessing the effectiveness of interventions to improve individuals' well-being. Finally, because the FI-F or SFI-F are simple and rapidly completed instruments, they will be easy to integrate into studies using multiple scales.

Acknowledgements

The authors wish to express their gratitude to Prof. T. VanderWeele and Dr D. Węziak-Białowolska for their valuable support. We also thank D. Hart, our professional translator and editor, for his careful work.

Funding

This work was supported by the Health Sciences Faculty of the University of Applied Sciences and Arts Western Switzerland under Internal Research Grant number Sage-X95592.

Author details

A. Oulevey Bachmann, PhD¹
E-mail: a.ouleyvey@ecolelasource.ch
ORCID ID: <http://orcid.org/0000-0001-9537-3587>
J. Jubin, PhD¹
ORCID ID: <http://orcid.org/0000-0001-7830-1709>
J. Pasquier²
ORCID ID: <http://orcid.org/0000-0002-5554-2988>
O. Portela Dos Santos, MSc³
M. Guzman Villegas-Frei, MSc¹
ORCID ID: <http://orcid.org/0000-0001-6188-0046>
and C. Ortoleva Bucher, MSc⁴
ORCID ID: <http://orcid.org/0000-0002-8411-4181>

¹ Laboratory of Prevention and Health Promotion in the Community, La Source School of Nursing, University of Applied Sciences and Arts Western Switzerland (HES-SO), Lausanne, Switzerland.

² Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland.

³ School of Health Sciences Valais-Wallis, University of Applied Sciences and Arts Western Switzerland (HES-SO), Sion, Switzerland.

⁴ Laboratory of Ageing and Health, La Source School of Nursing, University of Applied Sciences and Arts Western Switzerland (HES-SO), Lausanne, Switzerland.

Data availability statement

Due to the sensitive nature of some of the data (health information), they will not be made freely available. However, they will be accessible via SWISSUbase data repository upon presentation of an authorisation delivered by an ethics committee. The DOI <https://doi.org/10.48573/kgbs-hk17> will be accessible in Summer 2023.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: Validation of the French Versions of the Flourish Index and the Secure Flourish Index, A. Oulevey Bachmann, J. Jubin, J. Pasquier, O. Portela Dos Santos & M. Guzman Villegas-Frei & C. Ortoleva Bucher, *Cogent Psychology* (2023), 10: 2173043.

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Appendices

The following table (Table A1.) shows the original items and their French translation.

Table A1. The twelve items of FI and SFI and their French translation			
#	Domain	English	French
D1.	D1. Happiness and Life Satisfaction	Overall, how satisfied are you with life as a whole these days? <i>0 = Not at all satisfied, 10 = Completely satisfied</i>	Dans l'ensemble, à quel point êtes-vous satisfait de la vie en général ces derniers jours ? <i>0 = Pas du tout satisfait, 10 = Complètement satisfait</i>
D1.	D1. Happiness and Life Satisfaction	In general, how happy or unhappy do you usually feel? <i>0 = Extremely unhappy, 10 = Extremely happy</i>	De manière générale, à quel point vous sentez-vous heureux ou malheureux d'habitude ? <i>0 = Extrêmement malheureux, 10 = Extrêmement heureux</i>
D2.	D2. Mental and Physical Health	In general, how would you rate your physical health? <i>0 = Poor, 10 = Excellent</i>	De manière générale, comment évalueriez-vous votre santé physique ? <i>0 = Mauvaise, 10 = Excellente</i>
D2.	D2. Mental and Physical Health	How would you rate your overall mental health? <i>0 = Poor, 10 = Excellent</i>	Comment évalueriez-vous votre santé mentale générale ? <i>0 = Mauvaise, 10 = Excellente</i>
D3.	D3. Meaning and Purpose	Overall, to what extent do you feel the things you do in your life are worthwhile? <i>0 = Not at all worthwhile, 10 = Completely worthwhile</i>	Dans l'ensemble, à quel point estimez-vous que les choses que vous faites dans votre vie en valent la peine ? <i>0 = N'en valent pas du tout la peine, 10 = En valent tout à fait la peine</i>
D3.	D3. Meaning and Purpose	I understand my purpose in life. <i>0 = Strongly disagree, 10 = Strongly agree</i>	J'ai conscience de ma raison d'être dans la vie. <i>0 = Pas du tout d'accord, 10 = Tout à fait d'accord</i>
D4.	D4. Character and Virtue	I always act to promote good in all circumstances, even in difficult and challenging situations. <i>0 = Not true of me, 10 = Completely true of me</i>	J'agis pour promouvoir le bien en toutes circonstances, même dans des situations difficiles. <i>0 = Pas vrai pour moi, 10 = Tout à fait vrai pour moi</i>
D4.	D4. Character and Virtue	I am always able to give up some happiness now for greater happiness later. <i>0 = Not true of me, 10 = Completely true of me</i>	Je suis toujours capable d'abandonner un peu de bonheur maintenant pour un plus grand bonheur plus tard. <i>0 = Pas vrai pour moi, 10 = Tout à fait vrai pour moi</i>
D5.	D5. Close Social Relationships	I am content with my friendships and relationships. <i>0 = Strongly disagree, 10 = Strongly agree</i>	Je suis satisfait de mes amitiés et de mes relations. <i>0 = Pas du tout d'accord, 10 = Tout à fait d'accord</i>
D5.	D5. Close Special Relationships	My relationships are as satisfying as I would want them to be. <i>0 = Strongly disagree, 10 = Strongly agree</i>	Mes relations sont aussi satisfaisantes que je le voudrais. <i>0 = Pas du tout d'accord, 10 = Tout à fait d'accord</i>
D6.	D6. Financial and Material Stability	How often do you worry about being able to meet normal monthly living expenses? <i>0 = Worry all of the time, 10 = Do not ever worry</i>	À quelle fréquence vous inquiétez-vous de ne pas être en mesure de faire face à vos frais de subsistance mensuels ordinaires ? <i>0 = Je m'inquiète tout le temps, 10 = Je ne m'inquiète jamais</i>
D6.	D6. Financial and Material Stability	How often do you worry about safety, food, or housing? <i>0 = Worry all of the time, 10 = Do not ever worry</i>	À quelle fréquence vous inquiétez-vous de la situation en matière de sécurité, de nourriture ou de logement ? <i>0 = Je m'inquiète tout le temps, 10 = Je ne m'inquiète jamais</i>



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