ISSN 2561-7516

« Post publication »

“Postprint”

Science of Nursing and Health Practices

Science infirmière et pratiques en santé

ARTICLE DE RECHERCHE EMPIRIQUE : Cet article a été accepté par l’éditeur après l’évaluation par les pair·es. Ce format, qui permet une diffusion rapide de la recherche, diffère du PDF officiel (paginé) de l’article, tel qu’il sera publié dans le Volume 7, Numéro 2 (décembre 2024) de la revue.

EMPIRICAL RESEARCH ARTICLE: This article was accepted by the editor after peer review. This format, which allows for the rapid dissemination of research, differs from the official (paginated) PDF of the article, which will be published in Volume 7, Issue 2 (December 2024) of the journal.

Title: Development and Validation of the Strengths-Based Nursing and Healthcare Leadership Scale

Titre : Développement et validation de l’échelle de Leadership en sciences infirmières et de la santé fondé sur les forces

Julie Frechette[1] https://orcid.org/0000-0003-1666-4429

[1] John Molson School of Business, Concordia University, Ingram School of Nursing, McGill University, Ordre des infirmières et infirmiers du Québec, Science of Nursing and Health Practices / Science infirmière et pratiques en santé, Quebec, Canada julie.frechette2@mail.mcgill.ca

Voir la page suivante pour les coauteur·trices

See the next page for coauthors

ISSN 2561-7516

Kathleen Boies[2] https://orcid.org/0000-0002-3288-116X Mélanie Lavoie-Tremblay[3] https://orcid.org/0000-0001-8707-9855 Christina Clausen[4] https://orcid.org/0009-0000-6724-3566 Kimberley Ens Manning[5] https://orcid.org/0009-0008-0869-4066 Meghan Mastroberardino[6] Geneviève Lavigne[7] https://orcid.org/0009-0003-7143-7584 Laurie N. Gottlieb[4]

[2] John Molson School of Business, Research Chair in Leadership Development, Concordia University, Quebec, Canada

[3] Faculty of Nursing, Université de Montréal, Quebec, Canada

[4] Ingram School of Nursing, McGill University, Quebec, Canada

[5] Department of Political Science, Simone de Beauvoir Institute, Concordia University, Quebec, Canada

[6] Concordia University, Quebec, Canada

[7] Social and Health research consultant, Quebec, Canada

ISSN 2561-7516

Abstract

Introduction: The healthcare system is currently facing significant human resource challenges. Strengths-Based Nursing and Healthcare Leadership (SBNH-L), a unique, value-driven leadership approach, holds great potential in creating healthy workplaces in healthcare.

Objective: To develop and validate a scale to measure SBNH-L.

Methods: The development and validation of the SBNH-L scale followed a rigorous process including 3 stages: 1) Item generation, 2) Scale development, and 3) Construct validation. For construct validation, a quantitative psychometric design, with two cross-sectional samples, was used (the first sample in February 2021, n = 194 North American healthcare managers and the second sample in April 2022, n = 357 Canadian healthcare workers).

Results: The scale showed good psychometric properties (notably, Cronbach's alphas ranged from .73 to .96) as well as evidence of construct validity; data showed satisfactory fit with the hypothesized 8-factor structure ($\chi 2 = 747.43$, $df = 224$, $p<.001$), and one-factor long ($\chi 2 = 811.87$, $df = 252$, $p <.001$) and short versions ($\chi 2 = 97.70$, $df = 20$, $p <.001$). The scale predicted organizational support ($r =.40$, $p < .01$) and work satisfaction of workers ($r = .51$, $p < .01$), two key outcomes, beyond other common leadership approaches.

Discussion and Conclusion: The SBNH-L Scale is theoretically and structurally strong: the principal component analysis and the confirmatory factorial analyses results aligned with SBNH-L theory and the SBNH-L Scale demonstrated high internal consistency. The scale provides a unique way to tap into the protective potential of SBNH-L and can be used for evaluative and formative purposes of healthcare leaders and their organizations.

Keywords: strengths-based leadership, scale development, validation, CFA, nursing, healthcare professionals

ISSN 2561-7516

Résumé

Introduction : Le système de la santé est actuellement confronté à d'importants défis en matière de ressources humaines. Le Leadership en sciences infirmières et de la santé fondé sur les forces (L-ASFF), une approche unique de leadership ancrée dans des valeurs humanistes, représente un grand potentiel pour la création d'environnements de travail sains dans le secteur de la santé.

Objectif : Développer et valider une échelle de mesure du L-ASFF.

Méthodes : Le développement et la validation de l'échelle L-ASFF ont suivi un processus rigoureux comprenant 3 étapes : 1) la génération d'items, 2) le développement de l'échelle et 3) la validité de construit. Pour la validité de construit, un modèle psychométrique quantitatif, avec deux échantillons transversaux, a été utilisé (le premier échantillon en février 2021, n = 194 gestionnaires de soins de la santé nord-américains et le second échantillon en avril 2022, n = 357 travailleurs de la santé canadiens).

Résultats : L'étude a démontré de bonnes propriétés psychométriques de l'échelle (notamment, les alphas de Cronbach varient de 0,73 à 0,96) ainsi que des preuves de validité de construit; les données ont montré une adéquation satisfaisante avec la structure hypothétique à 8 facteurs ($\chi2 = 747.43$, df = 224, $p<.001$), ainsi qu'aux versions longue ($\chi2 = 811.87$, df = 252, $p <.001$) et courte ($\chi2 = 97.70$, df = 20, $p <.001$). L'échelle prédit le soutien organisationnel ($r = .40$, $p < .01$) et la satisfaction au travail ($r = .51$, $p < .01$), deux résultats clés, au-delà d'autres approches courantes en leadership.

Discussion et conclusion : L'échelle L-ASFF est solide sur le plan théorique et structurel : les résultats de l'analyse en composantes principales et de l'analyse factorielle confirmatoire sont cohérents avec la théorie du L-ASFF et l'échelle présente une cohérence interne élevée. L'échelle L-ASFF offre une opportunité unique d'explorer le potentiel protecteur du L-ASFF et peut être utilisée à des fins d'évaluation et de formation des leaders dans le secteur de la santé et de leurs organisations.

Mots-clés : leadership fondé sur les forces, développement d'une échelle, validation, CFA, sciences infirmières, professionnels de la santé

ISSN 2561-7516

INTRODUCTION

The healthcare system is currently facing significant human resource challenges. Despite over a decade of research into the antecedents of healthy and productive work environments, high turnover rates, absenteeism, dissatisfaction, and compassion fatigue remain prevalent (Marshman et al., 2022). Positive leadership within healthcare institutions has been identified as conducive to nurses' well-being and maintaining a healthy workforce (Cummings et al., 2018; Niinihuhta & Haggman-Laitila, 2022).

Moreover, the persistent dehumanization of the healthcare system continues to negatively affect nurses and healthcare workers' workplace satisfaction (Lekka et al., 2022). We argue that what is needed to improve this situation is a shift towards a strengths-based approach that focuses on what is working and how to leverage strengths to circumvent problems (Gottlieb, 2013). The Strengths-Based Nursing and Healthcare (SBNH) philosophy and value-driven approach is based on underlying foundations of person centeredness, empowerment, relationships and innate capacities (Gottlieb). Healthcare leaders/managers play a crucial role in helping nurses and healthcare teams practice SBNH through modeling of strengths-based ideals in their attitude and behavior. This leadership approach is referred to as Strengths-Based Nursing and Healthcare Leadership (SBNH-L).

SBNH-L

Gottlieb et al. (2021, p. 173) defined SBNH-L as "a unique, value-driven, embodied approach that guides leaders and managers to create equitable and safe workplace cultures and environments that honor, develop, mobilize, and capitalize on the strengths of individuals and their team". They further argue that SBNH-L allows for nurses and other healthcare staff to provide "knowledgeable, compassionate, safe, high-quality person and family centered care" (idem). Gottlieb et al. theorized that SBNH-L is guided by eight core values, specifically: 1) systems thinking, 2) uniqueness, 3) health and healing, 4) multiple perspectives and creating meaning, 5) self-determination, 6) goodness-of-fit, 7) timing, readiness, and learning, and 8) collaborative partnership.

SBNH-L and Other Leadership Styles

Historically, leadership in nursing and healthcare have been studied using several validated instruments and more commonly, the Global Transformational Leadership Scale (Carless et al., 2000), the Authentic Leadership Questionnaire (Avolio et al., 2007), and the Servant Leadership Scale (Liden et al., 2015). We argue that SBNH-L covers a leadership

approach that is not well captured, in its entirety, by any one of these constructs (either in isolation or together) and that this distinction may hold the key to best human resources outcomes.

Transformational leadership can be understood as a charisma-based relational leadership style, whereby leaders motivate employees to perform beyond expectations (e.g., Bass, 1998). The literature tends to consider the transformational leader as an all-powerful individual. Philosophically, this is far removed from the values of SBNH-L, which taps into the collective strengths and resources to create movement towards a common goal. In addition, the four behaviours through which transformational leadership is expressed are conceptually linked to some of the SBNH-L values but form only a subset. Authentic leadership also focuses on the individual characteristics of the leader, acting in alignment with their values based on ethical foundations (Barling, 2014). In SBNH-L, acting authentically is only one part of being a leader. Finally, servant leaders' primary motivation is the desire to serve with "humility, authenticity, and interpersonal acceptance" (van Dierendonck, 2011, p. 1235). Servant leaders have much in common with SBNH-Leaders, whereby both leaders help their teams flourish. However, instead of positioning themselves in a servant role towards their team, SBNH-Leaders are positioned as integral to their teams whereby the "service" can come from all team members based on their potential and resources. Like with the other two leadership styles, SBNH-L is more encompassing than is servant leadership.

By looking at these theories independently, we can see many commonalities between each of them and SBNH-L. However, no individual leadership theory fully captures the construct of SBNH-L, nor do they encompass the essential core concepts of autonomy, empowerment, and agency (Gottlieb et al., 2021). These core concepts are key to healthcare and better reflect its realities and those of nursing, highlighting the importance of the origin of SBNH-L in the field of nursing.

OBJECTIVE

Currently, a "dearth" of scientific literature exists about value-based leadership in nursing (James et al., 2021) and no measure of SBNH-L is readily available. Thus, the SBNH-L approach contributes to the leadership literature by covering an area not well captured by existing leadership theories. This study presents the development and validation of a SBNH-L Scale which will enable the assessment of the eight SBNH-L core values described previously

and will increase our understanding of how this leadership approach can help healthcare leaders create positive and healthy work environments. A valid scale will promote research around SBNH-L, in addition to facilitating its adoption in healthcare settings.

METHODS

Scale Development and Validation Methods

The development and testing of the SBNH-L Scale followed the three stages of scale development proposed by Hinkin (1995), and the recommendations for leadership scale development and validation suggested by Crawford and Kelder (2019). For the scale development and validation, a committee approach was used to improve the rigor (n = 4 researchers with expertise in leadership, healthcare management, and nursing).

Stage 1: Item Generation

In the first stage, the first author tapped into three sources of data to generate 150 items: theory, research results, and experts. Sources were reviewed until data saturation was reached. For theory, Gottlieb's (2013) book concerning Strengths-Based Nursing Care, and Gottlieb et al.'s (2012) article about Strengths-Based Nursing Leadership served as the starting point for item generation. For research results, a secondary analysis of interview transcripts (n = 18 recognized SBNH-Leaders) from a pilot program conducted to train nurse managers in SBNH-L was undertaken to identify language used by leaders to describe their leadership behaviors and attitudes. This was done to refine items, as well as extract any items that were not already generated through theory. Finally, documents developed by experts involved in a SBNH-L research project were used to further generate and refine items.

Stage 2: Scale Development

In this second stage, multiple steps of content validation were undertaken to reduce the number of items and improve their clarity and relevance. Firstly, graduate nursing students (n = 5) were asked individually to place each item in one dimension and rate their clarity, relevance, and uniqueness for the construct of SBNH-L (53 deleted; 19 reworded; n = 97 items left). Secondly, the developer and founder of the SBNH and SBNH-L constructs, Dr. L. N. Gottlieb, was asked to categorize each of the 97 items as either: remove, keep as is, or keep but reword (and suggest alternative phrasing). She also added comments for each item as needed, and entered any additional items she felt were essential to SBNH-L and currently missing from the item pool (24 deleted; 3 added; 60 reworded; n = 76 items left). Thirdly, a focus group of

SBNH-L experts (n = 3 nursing academics) was asked to further reduce and refine the SBNH-L Scale items. The first author, who is also a trained facilitator, used a Q-sort methodology (McKeown & Thomas, 2013), where participants divided the items into three categories: keep, delete, or park–need to come back. Items in the parking category were revaluated at the end considering items kept and deleted (36 deleted; 22 reworded; n = 40 items left). Fourthly, the first author and fifth author (an EDI; equity, diversity, and inclusion expert) assessed the language used in the scale from an EDI lens to make sure it adequately represented this mindset and, if needed, added items that captured the operationalization of EDI in a SBNH-Leader's practice (0 deleted; 2 added; 6 reworded; 34 kept the same; n = 42 items left). Fifth, a native English speaker with an understanding of SBNH-L offered feedback about the understandability of the items. Finally, the development committee further refined the items considering unresolved feedback received by the various groups/individuals described above (2 deleted; 24 reworded; 16 kept the same; n = 40 items left).

In the next step, a content validation survey was conducted. Academics and healthcare managers (n = 27) completed a survey collecting their opinion about the clarity (clear/not clear), and relevance (from 1-not relevant to 4-very relevant) of the items for the purpose of measuring SBNH-L. Participants were invited to include comments for each item and to provide any additional potentially relevant items. They were then asked to sort each item into one of eight dimensions (values). Finally, they selected items (maximum of 10) that they deemed most central to SBNH-L from the item set (15 deleted; 0 added; 20 reworded; 5 kept the same; n = 25 items left). A cognitive appraisal was conducted in the form of an online focus group with six healthcare managers (retired or active), to assess the utility and understandability of the scale, and perceived social desirability of the items. A purposive sampling strategy was used to recruit participants with sufficient knowledge of SBNH-L. Inclusion criteria were namely experience of two years or more in a managerial role in a healthcare organization, and English fluency (both native and non-native speakers) (1 deleted; 1 added; 9 reworded; 15 kept the same; n = 25 items left). These 25 items were used for testing in Sample 1.

Following data collection and analysis of the first sample, we undertook a second cognitive appraisal, which was part of a larger undertaking aimed to translate the instrument in French (see Appendix 1 for a detailed description of the translation and cultural adaptation of the scale). This second cognitive appraisal was conducted in the form of an online focus group with six healthcare managers and academics (retired or active), to assess the utility, understandability and cognitive equivalence of the translation of the scale (French-Canadian

version of the scale). A purposive sampling strategy was used to recruit participants with the following inclusion criteria: knowledge of SBNH-L, experience (current or past) as a healthcare manager or academic and bilingual (mother tongue: French) (1 deleted; 3 reworded in the English version for cognitive equivalence; different rating scale for responses proposed; 21 kept the same; n = 24 items left). These revised 24 items were used in Sample 2 and appear in the Appendix 1 in English and French.

Stage 3: Construct Validation

1) Construct validation was tested with data from an online survey administered in February 2021 (Sample 1) and April 2022 (Sample 2). The following instruments were included: 25 items from the preliminary SBNH-L Scale (Sample 1: managers) and 24 items (Sample 2: workers).
2) Demographic information: Age, sex, ethnicity, geographic location, professional discipline, education, healthcare setting, years of experience in job/management, number of people in team/unit, number of people under direct supervision (managers only).
3) To assess convergent validity in Sample 1, we relied on the 7-item Global Transformational Leadership scale (Carless et al., 2000), Servant Leadership Scale (short version SL-7) (Liden et al., 2015), and 16-item Authentic Leadership Questionnaire (Avolio et al., 2007), as these are expected to correlate with SBNH-L items. In Sample 2, we added the 8-item Flourishing Scale (Diener et al., 2009).
4) Divergent validity was evaluated in Sample 1 with social desirability, using the 11-item Marlowe-Crowne Social Desirability Short-Form Scale (Vésteinsdóttire et al., 2017).
5) Criterion-related validity was assessed in Sample 2, with the 8-item Perceived Organizational Support scale (Eisenberger et al., 1986), the 4-item Work Satisfaction Scale (Laschinger et al., 2004), one item measuring absenteeism (Austin et al., 2020) and two items assessing turnover (O'Driscoll & Beehr, 1994).

Sample and Recruitment

Sample 1 consisted of 194 healthcare managers from Canada (n = 108) and the United States (n = 86). Sample 2 consisted of 357 healthcare workers who all came from Canada. Inclusion criteria for healthcare managers (Sample 1) were: 1) having worked in a managerial role for the past six months or more, 2) currently working as a manager in Canada or the United States, and 3) having worked in a healthcare organization for the past six months or more. For healthcare workers (Sample 2), the inclusion criteria included: 1) having worked in the

healthcare field for the past six months and 2) not being in a managerial or supervisory role at the time of completing the survey. Participants in both samples were recruited with an online data collection service (Qualtrics; https://www.qualtrics.com/research-services/online-sample/ for Sample 1 and Asking Canadians; https://www.delvinia.com/solutions/askingcanadians/ for Sample 2).

Sample Size and Power

We based our *a priori* estimations of the minimum sample sizes necessary to reach adequate statistical power on the main analysis planned for Sample 1 (principal component analysis with 25 items) and Sample 2 (confirmatory factor analysis with 24 items). Based on the literature, we aimed to reach a minimum N (participants) to P (items) ratio of 3:1 (i.e., 75 participants for sample 1 and 72 participants for sample 2) (Myers, Ahn, & Jin, 2011) and considered the suggested rules of thumb of absolute sample sizes between 100 and 300 participants for these types of statistical analyses. Both sample sizes (Sample 1: n = 194; Sample 2: n = 357) respected these guidelines.

Quality Appraisal

Data quality was considered both in the design of the survey and in screening the data. In the design of the survey, we included five instructed items (e.g., “Please answer neutral”), and participants had to answer all five of these correctly to be included in the final sample. Upon completion, we identified “racers” (i.e., survey completed in less than 1/3 of the median time at soft launch) and “straight-liners” (i.e., standard deviation of zero on at least three of the scales included in the data collection or as having a standard deviation of zero on the SBNH-L Scale). After screening, the final samples were 194 healthcare managers (Sample 1) and 357 healthcare workers (Sample 2). Missing data were examined, but not considered to be a significant issue. One participant in each sample was missing one scale score, representing less than 1% in each sample. These participants were retained in the final sample because their data could still be used for evaluating the structure of the SBNH-L Scale.

Data Analysis

To first explore the factorial structure of the scale, we conducted a PCA with varimax with Sample 1. We opted to first conduct an exploratory factorial analysis to freely identify the underlying relationships between the items of the scale and to potentially identify latent constructs without forcing items onto a specific latent factor (Norris & Lecavalier, 2010). Then, with Sample 2, a completely independent sample, we conducted a confirmatory factor analysis (CFA) to test the factorial structure of the scale, guided by the exploratory results from Sample

1 and the theoretical underpinnings of SBNH-L. This procedure was favored over a more flexible exploratory structural equation analysis (Asparouhov & Muthén, 2009; Marsh et al., 2009) in order to take full advantage of our two independent samples and to adhere to the SBNH-L core values.

Cronbach's alphas to assess inter-item reliability and bivariate correlations to determine convergent and discriminant validity were computed in both samples. In Sample 2, we also ran a series of partial correlations to assess convergent and criterion-related validity, specifically looking at SBNH-L's ability to predict outcomes over and above conceptually related constructs. All analyses were conducted with IBM Corp. SPSS 21.

ETHICAL CONSIDERATIONS

Ethics approval was obtained from the ethics board of the first author's institution. Qualtrics and Asking Canadians panel services were mandated to recruit study participants. The panel services sent an initial email informing individuals of study availability with a link to detailed study information and the consent form. The consent form specified that participation was voluntary and that participants could stop at any time. A code number was transmitted from the panel services into the data file when participants submitted their survey responses and since the researchers did not have access to participants' identification (anonymous), the data could not be traced back to one individual. Participants were informed that all the data they provided, until they stopped, were retained and archived in data files for the study (secured servers from the first author's institution). Panel services compensated participants with points to loyalty programs (e.g., Canadian Tire Rewards). The amount of the remuneration is determined by the panel service.

RESULTS

Description of Samples

Healthcare managers of Sample 1 (N = 194, 38.7% women) had an average age of 41.14 years (*SD*=11.50). The majority worked in hospitals (50.5%) and in public settings (54.6%), in the fields of nursing (20.6%) or medicine (22.2%) and held a university degree (85.5%). They averaged 8.44 years of managerial experience (*SD*=8.18) and 89.6% of the sample were either middle- or upper-level managers, most of them front-line managers (business to client; 76.8%).

Participants reported having an average of 59 people under their supervision (*SD*=143).

Healthcare workers of Sample 2 (N=357, 74.9% women) had an average age of 42.91 years (*SD*=12.26). The majority worked in hospitals (43.7%) or specialized hospitals (10.1%). An additional 11.8% worked in long-term care facilities and 11.2% in primary healthcare centers. The majority of the participants were in the fields of nursing (40.3%) or medicine (4.2%) and held a university degree (60%). They averaged 11.11 years of experience in their current position (*SD*=9.67).

Results From Sample 1

Table 1 presents the results of the principal component analysis (PCA). Results for Sample 1 suggest that a one-factor solution is valid and explains 52% of the total variance (Kaiser-Meyer-Olkin = 0.95; Bartlett's Test of Sphericity significant p = .0001). Item loadings on the total component ranged between 0.320 and 0.841. Internal consistency of the one-factor solution was satisfactory with a Cronbach's alpha of 0.96.

To assess convergent validity, the total SBNH-L score (based on the initial 25 items) was correlated with other validated measures of leadership. Moderate levels of convergent validity were detected with significant and positive correlations with transformational leadership (r = .54 p <.001), servant leadership (r = .50, p <.001), and authentic leadership (r = .49, p <.001). As an indicator of divergent validity, the one-factor total SBNH-L was not found to be significantly correlated with social desirability (r = .13, p = .07). Means, standard deviations, and bivariate correlations appear in Table 2.

Results From Sample 2

To confirm the one-factor structure obtained with Sample 1, a confirmatory factorial analysis was conducted on the data from Sample 2 with the remaining 24 items. The results revealed a satisfactory fit to the data ($\chi 2$ = 811.87 (df = 252), p = <.001; NFI = .93; CFI = .95; RMSEA = .08 (07-.09)). Table 3 presents the standardized regression weights of each item, estimates varied between 0.742 and 0.917.

We also sought to determine if the 8-factor model (representing the eight SBNH-L values) that guided the original development of the items would show adequate fit to the data. Results from the eight-latent factor CFA model also showed adequate fit to the data ($\chi 2$ = 747.43 (df = 224), p <.001; NFI = .94; CFI = .95; RMSEA = .08 (.08-.09)). Table 3 presents the standardized regression weights of each item on its respective dimension.

We then aimed to validate a short version of the scale. To do so, we identified the item, from each of the eight original dimensions, with the highest loading score from Sample 1's

principal component analysis (see bold items in Table 1). Then, with these eight items in Sample 2, we sought to determine if the one-factor solution adequately fit the data. The results from the CFA were found to be satisfactory ($\chi 2 = 97.70$ (df = 20), $p < .001$; NFI = .97; CFI = .98; RMSEA = .10 (.08-.13)).

Indices of internal consistency were computed for both the long and the shorter eight-item scales. Both were found to be satisfactory with a Cronbach's alpha of .986 for the long scale and a Cronbach's alpha of 0.965 for the short scale. Furthermore, the indices of internal reliability were high for each of the eight SBNH-L dimensions (see Table 4).

Table 4 presents the means and standard deviations of each variable in Sample 2. It also includes the bivariate correlations between the eight SBNH-L dimensions, the short 8-item scale and 24-item (long version, one-dimensional) scale, the three previously validated measures of leadership (transformational leadership, servant leadership, and authentic leadership) and Flourishing. Correlation coefficients ranged between 0.77 and 0.87 indicating high convergent validity. Correlations with the Flourishing scale were more modest but still significant, as expected, ranging from 0.19 to 0.25.

Table 4 also presents the bivariate correlations between the eight SBNH-L dimensions, the short 8-item scale and 24-item (long version, one-dimensional) scale and four outcomes (i.e., perceived organizational support, work satisfaction, turnover intentions, and absenteeism). All SBNH-L dimensions and total scores (short and long scales) positively and significantly correlated with organizational support and work satisfaction. Conversely, all SBNH-L dimensions and total scores (short and long scales) negatively and significantly correlated with workers' turnover intentions and absenteeism.

To explore the incremental validity of the SBNH-L Scale over and above the influence of other potentially related leadership constructs, we computed a series of partial correlations. Table 5 presents the results of the partial correlations between all eight SBNH-L dimensions, the total score of the long and short scales and the four outcomes of interests. All partial correlations were computed while simultaneously controlling for the influence of transformational leadership, servant leadership, authentic leadership, and flourishing. Results indicate that all eight SBNH-L dimensions and total score (short and long form) remain significant predictors of perceived organizational support and work satisfaction above and beyond the influence of the four control variables. However, the associations between SBNH-L and turnover intentions and absenteeism are no longer significant when the control variables are included.

Table 1

Results of the One-Factor Principal Component Analysis From Sample 1

Items	Factor-loading
UNIQ1	0.575
UNIQ2	**0.811**
SD1	0.320
SD2	**0.788**
TRL1	0.704
TRL2	0.781
TRL3	0.600
TRL4	0.781
TRL5	**0.831**
COLLP1	0.683
COLLP2	0.803
COLLP3	0.685
COLLP4	**0.833**
PERSP1	**0.825**
PERSP2	0.704
PERSP3	0.618
GOOD1	0.730
GOOD2	**0.830**
GOOD3	0.737
SYST1	**0.841**
SYST2	0.535
HEAL1	0.729
HEAL2	**0.796**
HEAL3	0.495

Note. UNIQ: Uniqueness. SD: Self-determination. TRL: Timing, readiness, and learning. COLLP: Collaborative partnership. PERSP: Multiple perspectives and creating meaning. GOOD: Goodness-of-fit. SYST: Systems thinking. HEAL: Health and healing. Values in bold are for the items chosen for the short-form scale.

ISSN 2561-7516

Table 2

Means, Standard Deviations, and Bivariate Correlations (Sample 1)

	Means	SD	1	2	3	4	5	6	7	8	9	10
1. SBNH-L total	3.92	1.06	**.96**									
2. Age	41.14	11.50	-.13	-								
3. Years in current position	8.35	7.25	-.13	.57**	-							
4. Number of subordinates	59.20	142.98	.18*	-.10	-.05	-						
5. Team size	42.14	101.87	.10	.01	-.06	.36**	-					
6. Years as manager	8.44	8.18	-.05	.73**	.63**	-.07	-.02	-				
7. Transformational leadership	4.05	.58	.54**	.14	-.02	.06	.08	.06	**.82**			
8. Servant leadership	5.67	.73	.50**	-.03	-.11	.18*	.03	-.07	.51**	**.73**		
9. Authentic leadership	3.07	.48	.49**	.09	-.01	.14*	.02	.08	.65**	.52**	**.87**	
10. Social desirability	4.38	.81	.13	.29**	.23**	.08	-.01	.19**	.35**	.17**	.25**	**.76**

Note. Values in bold in the diagonal represent Cronbach's alphas. * $p < .05$. ** $p < .01$.

ISSN 2561-7516

Table 3

Results of the 8-factor and the 1-factor CFA Models From Sample 2

Item		Dimension	Standardized Regression Weights	
			8-factor solution	1-factor solution
SYST1	<---	Systems thinking	0.844	0.864
SYST2	<---	Systems thinking	0.800	0.829
UNIQ1	<---	Uniqueness	0.829	0.819
UNIQ2	<---	Uniqueness	0.928	0.912
HEAL1	<---	Health and healing	0.869	0.869
HEAL2	<---	Health and healing	0.899	0.897
HEAL3	<---	Health and healing	0.917	0.917
PERSP1	<---	Multiple perspectives and creating meaning	0.843	0.844
PERSP2	<---	Multiple perspectives and creating meaning	0.892	0.883
PERSP3	<---	Multiple perspectives and creating meaning	0.877	0.868
SD1	<---	Self-determination	0.740	0.742
SD2	<---	Self-determination	0.900	0.899
GOOD1	<---	Goodness-of-fit	0.896	0.889
GOOD2	<---	Goodness-of-fit	0.903	0.897
GOOD3	<---	Goodness-of-fit	0.881	0.882
TRL1	<---	Timing, readiness, and learning	0.806	0.804
TRL2	<---	Timing, readiness, and learning	0.870	0.870
TRL3	<---	Timing, readiness, and learning	0.875	0.879
TRL4	<---	Timing, readiness, and learning	0.881	0.883
TRL5	<---	Timing, readiness, and learning	0.860	0.860
COLLP1	<---	Collaborative partnership	0.863	0.866
COLLP2	<---	Collaborative partnership	0.871	0.872
COLLP3	<---	Collaborative partnership	0.886	0.888
COLLP4	<---	Collaborative partnership	0.882	0.883

ISSN 2561-7516

Table 4

Means, Standard Deviations and Bivariate Correlations (Sample 2)

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Systems thinking	4.35	1.45	**.80**								
2. Uniqueness	4.10	1.54	.84**	**.87**							
3. Health and healing	4.18	1.63	.88**	.88**	**.92**						
4. Perspectives/meaning	4.24	1.48	.89**	.85**	.92**	**.90**					
5. Self-determination	4.41	1.43	.84**	.83**	.87**	.87**	**.79**				
6. Goodness-of-fit	4.20	1.50	.89**	.89**	.91**	.89**	.86**	**.92**			
7. Timing, readiness, and learning	4.25	1.44	.91**	.89**	.93**	.92**	.88**	.92**	**.93**		
8. Collaborative partnership	4.20	1.49	.90**	.90**	.93**	.91**	.87**	.92**	.94**	**.93**	
9. SBNH-L total	4.23	1.43	.93**	.93**	.96**	.95**	.92**	.96**	.98**	.97**	**.99**
10. SBNH-L short	4.19	1.50	.93**	.92**	.95**	.93**	.91**	.95**	.96**	.96**	.99**
11. Age	42.91	12.26	-.16**	-.10	-.11*	-.09	-.08	-.12*	-.11*	-.11*	-.11*
12. Team size	72.58	306.03	.06	.03	.02	.02	.05	.02	.04	.01	.03
13. Years current position	11.11	9.67	-.18**	-.18**	-.19**	-.15**	-.10	-.19**	-.17**	-.18**	-.18**
14. Authentic	2.33	.98	.83**	.77**	.84**	.85**	.82**	.80**	.83**	.82**	.86**
15. Transformational	2.37	1.12	.83**	.79**	.86**	.85**	.83**	.81**	.83**	.83**	.87**
16. Servant	4.51	1.42	.81**	.77**	.82**	.84**	.82**	.82**	.83**	.82**	.86**
17. Turnover Intentions	3.37	2.04	-.25**	-.21**	-.23**	-.23**	-.21**	-.28**	-.23**	-.23**	-.25**
18. Satisfaction	4.48	1.44	.48**	.48**	.48**	.49**	.48**	.52**	.49**	.48**	.51**
19. POS	3.96	.67	.37**	.40**	.36**	.35**	.37**	.40**	.39**	.39**	.40**
20. Absenteeism	10.13	34.24	-.13*	-.11*	-.11*	-.14**	-.11*	-.15**	-.15**	-.11*	-.13*
21. Flourishing	5.52	.92	.21**	.22**	.20**	.22**	.25**	.24**	.21**	.19**	.22**

Note. POS: Perceived Organizational Support. Values in bold in the diagonal represent Cronbach's alphas. * $p < .05$. ** $p < .01$.

ISSN 2561-7516

Table 4

Bivariate Correlations (Sample 2) (cont'd)

	10	11	12	13	14	15	16	17	18	19	20	21
1. Systems thinking												
2. Uniqueness												
3. Health and healing												
4. Perspectives/meaning												
5. Self-determination												
6. Goodness-of-fit												
7. Timing, readiness, and learning												
8. Collaborative partnership												
9. SBNH-L total												
10. SBNH-L short	**.97**											
11. Age	-.12*	-										
12. Team size	.02	-.02	-									
13. Years current position	-.17**	.55**	.02	-								
14. Authentic	.85**	-.07	.00	-.10	**.97**							
15. Transformational	.86**	-.03	-.01	-.09	.93**	**.94**						
16. Servant	.84**	-.07	.05	-.13*	.86**	.85**	**.90**					
17. Turnover Intentions	-.24**	.02	.07	.07	-.26**	-.26**	-.29**	**.90**				
18. Satisfaction	.50**	-.04	.03	-.09	.45**	.44**	.50**	-.47**	**.86**			
19. POS	.40**	-.21**	.09	-.11*	.29**	.26**	.35**	.02	.34**	**.92**		
20. Absenteeism	-.13*	-.00	-.03	.02	-.13*	-.12*	-.13*	.14**	-.18**	-.06	-	
21. Flourishing	.21**	.23**	.02	.15**	.24**	.26**	.29**	-.13*	.26**	.19**	-.08	**.89**

Note. POS: Perceived Organizational Support. Values in bold in the diagonal represent Cronbach's alphas. * $p < .05$. ** $p < .01$.

Table 5

Partial Correlations Between SBNH-L Dimensions, Short Scale and Long Scale and Outcome Measures in Sample 2

	Perceived Organizational Support	Work Satisfaction	Turnover Intentions	Absenteeism
System thinking	.211**	.147**	-.028	-.028
Uniqueness	.264**	.183**	.026	-.013
Health and healing	.232**	.147**	.023	-.002
Multiple perspectives and creating meaning	.162**	.143**	.035	-.048
Self-determination	.217**	.138**	.072	.001
Goodness-of-fit	.274**	.243**	-.078	-.064
Timing, readiness, and learning	.247**	.152**	.014	-.064
Collaborative partnership	.218**	.162**	.023	.015
Total score – Short scale	.299**	.191**	.003	-.021
Total score – Long scale	.286**	.201**	.010	-.037

Note. Partial correlations control for the influence of transformational leadership, servant leadership, authentic leadership, and flourishing. * $p < .05$. ** $p < .01$.

DISCUSSION

The SBNH-L Scale was developed and validated through a rigorous multi-step process that included nurse and healthcare leaders, as well as a strong theoretical background offered by the SBNH philosophy (Gottlieb, 2013). The long version is a 24-item scale with eight subscales representing the eight SBNH-L values, and a short version with eight items, one per value. Both versions showed high internal consistency and the long version had high internal reliability for each of the eight SBNH-L dimensions, illustrating that both the long and short versions can be stand-alone solid measurement instruments. The choice of relying on the long versus short versions should be guided by the objectives pursued.

Factor Structure

The results from both the principal component analysis (Sample 1) and the confirmatory factorial analyses (Sample 2) supported the one-factor structure of the SBNH-L Scale. The results of the 8-factor confirmatory factor analysis conducted with Sample 2 also supported the use of the eight subscales of the SBNH-L questionnaire, that is, the individual measure of the eight core leadership values (Gottlieb et al., 2021). The validity and reliability of the 8-factor structure led to

an interesting development, specifically the identification of a representative short SBNH-L Scale (8 items). These results confirm the coherence of the scale with the global SBNH-L construct (one-factor model), as well as its consistency with its theoretical background comprising eight values or subscales (eight-factor model). Having both a long and a short version of the scale will facilitate the use of this questionnaire in research, especially given the time pressure and psychosocial risks under which healthcare managers and workers evolve; a short version is more ethical to use amongst a population that is already fragile and exhausted (Marshman et al., 2022). Thus, the SBNH-L Scale is a measurement instrument that is structurally strong, but is it really measuring the construct of SBNH-L? To answer this question, convergent, divergent, and predictive validities were assessed.

Convergent and Divergent Validity

Moderate to high levels of convergent validity were found in both samples with conceptually related leadership styles (transformational, servant, and authentic leadership) and in Sample 2 with the flourishing construct (grounded in positive psychology). Divergent validity was confirmed from social desirability (sample 1). These results attest that the SBNH-L Scale is measuring a "leadership" construct as conceptualized and is not a measure of social desirability.

As expected, some of the features of SBNH-L are shared with other well-studied leadership constructs, such as transformational leadership (Carless et al., 2000), authentic leadership (Avolio et al., 2007), and servant leadership (Liden et al., 2015). However, as argued previously, SBNH-L is a leadership construct that is not entirely captured by these leadership approaches and is thus a distinct construct. Firstly, the results from both samples showed moderate levels of shared variance between the SBNH-L scores and the measures of transformational, servant, and authentic leadership. Thus, although some behaviors of SBNH-L leaders may also be captured by other leadership measures, none of these measures entirely capture the SBNH-L philosophy. Secondly, through the development of the SBNH-L construct, it was theoretically hypothesized that SBNH-L would positively impact perceived organizational support and work satisfaction, as well as act as a buffering factor for workers' turnover intentions and absenteeism; correlations from this study confirm this hypothesis. These results suggest that the SBNH-L Scale is indeed measuring "leadership" of the "SBNH" approach.

Predictive Validity

The results from Sample 2 supported the incremental validity of the SBNH-L Scale as it was significantly related to four outcomes of interest, that is, perceived organizational support, work satisfaction, turnover intentions, and absenteeism. Interestingly, the strongest associations were found with measures of perceived organizational support and work satisfaction.

Indeed, SBNH-L remained a significant predictor of perceived organizational support and work satisfaction above and beyond the influence of the control variables (i.e., the influence of transformational, servant, authentic and flourishing leadership styles). These results are in line with the premise that SBNH-L helps foster healthy work climates, supports the work autonomy of employees, and helps create a goodness-of-fit between employees' strengths and their work environment (Gottlieb et al., 2021). This result further contributes to Cummings and colleagues' (2018) suggestion that leadership is a significant contributor to employees' well-being. Moreover, this highlights the importance of the scale as it predicts organizational support and work satisfaction above and beyond other leadership scales. As it is well documented, organizational support and work satisfaction are key determinants of a healthy workplace, which is a critical leadership outcome (Cummings et al.).

It was hypothesized that SBNH-L would predict more of the perceived organizational support than other leadership styles because the SBNH-leader pays particular attention to mobilizing internal and external resources which can be perceived as support sources. For work satisfaction, SBNH-leaders support the creation of meaning (Gottlieb et al., 2021), and meaning salience has been shown to increase job satisfaction (Klussman et al., 2021). For workers' turnover intentions and absenteeism, it is possible that positive leadership styles in general affect these worker outcomes equally, compared to the more strengths-based outcomes of organizational support and work satisfaction. It is also possible that turnover intentions and absenteeism are more distal from leadership behaviors, within further reach of the manager, and potentially influenced more by other external factors. It is also possible that these relationships may reveal themselves over a longer period.

Strengths and Limitations

This study has several strengths that deserve mention. First, two distinct samples were included in the analyses. Second, a robust scale development and validation procedure was followed. Each step from item generation to statistical analyses was documented in detail.

However, some limitations also need to be acknowledged. First, samples only represented Canada and the United States, which limits our ability to generalize to healthcare systems beyond North America. Second, our samples were fairly homogenous; future research would benefit from including managers and workers of more diverse ethnicities. Third, both samples were collected at a single time point which does not allow for any prospective hypothesis testing. It would be important to research how SBNH-leaders can longitudinally influence outcomes in healthcare employees.

Recommendations for Practice and Research

As this study demonstrated the validity and reliability of the SBNH-L Scale both with healthcare managers, self-reporting their own leadership behaviors, and with healthcare workers reporting the leadership behaviors of their manager, the potential use and application of the SBNH-L questionnaire in practice and future research is considerable. Furthermore, as the benefits of a SBNH-L approach to healthcare leadership are increasingly demonstrated (current study in addition to Lavoie-Tremblay et al., 2024a, 2024b), interventions specifically focusing on the SBNH-L eight core leadership values has the potential to help create workplace environments that are healthier and more fulfilling for healthcare workers and subsequently safer for patients.

As the SBNH-L philosophy emerged from a clinical background, the parallel SBNH-L Scale resonates with healthcare leaders which improves acceptability and actionability. The long version of the scale can be an excellent tool for self-assessment and self-reflection of leaders regarding their own behaviors and intentions. It can also serve as a basis for designing several leadership development activities such as training, journaling, mentoring, etc. (c.f. Hubley et al. (2022) for an example of an SBNH-L educational program). More specifically, the long version of the SBNH-L Scale allows for intentional linking and labeling of values to practice which is required for a true shift towards an SBNH-L approach (Durrant et al., 2024). While the items reflect behaviors associated with an SBNH-L value, a concrete recommendation would be that to promote deeper reflection, leaders can be prompted to provide specific examples of such behaviors from their own practice which will illustrate how the values link to their actions. This type of self-reflective activity intentionally guides the individual to link and label SBNH-L values to their own practice, deepening their awareness of the SBNH-L approach. Such targeted nursing leadership development initiatives develop nurses' ability to face the challenges of a taxed healthcare system (Cummings et al., 2018). Additionally, the 8-item version can offer organizations an opportunity

to do a quick environmental scan of their leadership and track it over time. Since the short version takes about five minutes to complete, it makes it more accessible for healthcare leaders.

CONCLUSION

In sum, this study demonstrated the validity and reliability of a SBNH-L questionnaire and its shorter 8-item version. This measure was found to be moderately related to other leadership constructs, to accurately capture all eight SBNH-L core leadership values and to predict, above and beyond other leadership constructs, healthcare workers' perceived organizational support and work satisfaction. Future research is nonetheless needed to determine how to better facilitate SBNH-L behaviors in healthcare managers to foster healthy work environments.

Authors' contributions:

All authors of this study meet at least one of the authorship criteria of the International Committee of Medical Journal Editors (http://www.icmje.org/icmje-recommendations.pdf) and have agreed on the final version. JF, KB and MLT designed and ensured supervision for the study. JF, KB, MLT, CC, KEM, MM and LNG were involved in the conceptualization and methodology. JF, KB, MM and GL were involved in the analysis of the study data. All authors were involved in writing the final manuscript including review, editing and final validation.

Acknowledgements:

The authors would like to thank Dr. Céline Gélinas for her methodological expertise in scale development and all the participants involved in the development of the scale.

Funding:

This research was supported by funds provided by Concordia University to the Concordia University Research Chair in Leadership Development, Concordia University's Horizon post-doctoral program and by the Social Sciences and Humanities Research Council of Canada and the Canadian Institutes of Health Research (PWP-159070).

Statement of conflict of interest:

JF is an active member of the International Advisory Board of this journal: *Science of Nursing and Health Practices / Science infirmière et pratiques en santé*. As such, the editorial supervision and the review of the submission were given to external experts.

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Appendix 1

The English Version and the Translated and Culturally Adapted French (Canadian) Version of the SBNH-L Scale

English version (title): Strengths-Based Nursing and Healthcare Leadership Scale (SBNH-L Scale)	French version (title): Échelle de Leadership en sciences infirmières et de la santé fondé sur les forces (échelle L-ASFF)
Stem & responses	
In thinking about a typical workweek, please indicate how frequently you engage in the following behaviours: Never (1) Rarely (2) Seldom (3) Occasionally (4) Frequently (5) Very frequently (6) Always (7)	**En pensant à une semaine de travail type, veuillez indiquer à quelle fréquence vous adoptez les comportements suivants :** Jamais (1) Rarement (2) Parfois (3) Occasionnellement (4) Souvent (5) Très souvent (6) Toujours (7)
Dimensions	
Systems thinking	Approche systémique
SYST1 - I encourage the team to test out new solutions that open up possibilities for problem solving	**SYST1 - J'encourage l'équipe à essayer de nouvelles solutions qui ouvrent un champ de possibilités pour la résolution de problème**
SYST2 - I keep the big picture in mind when attending to day-to-day activities (e.g., mission, vision, etc.)	SYST2 - Je garde une vue d'ensemble à l'esprit lors de mes activités quotidiennes (p. ex. : mission, vision, etc.)
Uniqueness	Unicité
UNIQ1 - I acknowledge the unique contribution each team member makes	UNIQ1 - Je reconnais la contribution unique de chaque membre de l'équipe
UNIQ2 - I mobilize team strengths to overcome challenges	**UNIQ2 - Je mobilise les forces de l'équipe pour surmonter les défis**
Health and healing	Santé et guérison
HEAL1 - I promote healthy practices amongst the team (e.g., taking a break, talking about difficult situations, etc.)	HEAL1 - Je fais la promotion de saines habitudes auprès de l'équipe (p. ex. : prendre une pause, parler de situations difficiles, etc.)
HEAL2 - I strive to create a safe space for team members (e.g., physical, psychological, communicational, cultural, spiritual and emotional)	**HEAL2 - J'aspire à créer un environnement de travail sain pour l'équipe (p. ex. : sur les plans physique, psychologique, culturel, spirituel, etc.)**
HEAL3 - In day-to-day interactions, I communicate in terms of strengths and possibilities	HEAL3 - Dans mes interactions quotidiennes, mes communications sont basées sur les forces et les possibilités
Multiple perspectives and creating meaning	Perspectives multiples et création de sens
PERSP1 - I encourage members of the team to share their understanding of a particular situation	**PERSP1 - J'encourage les membres de l'équipe à partager leur compréhension d'une situation particulière**
PERSP2 - I seek multiple perspectives to inform decision-making	PERSP2 - Je sollicite de multiples perspectives pour éclairer le processus décisionnel

PERSP3 - When I am in a conflict, I make an effort to explore other people's understanding in order to find a solution	PERSP3 - Lorsque je suis en conflit, je m'efforce de comprendre la perspective des autres afin de trouver une solution
Self-determination	Autodétermination
SD1 - I act in ways that are aligned with my values	SD 1 - J'agis en cohérence avec mes valeurs
SD2 - I reflect on the effects my actions can have on the team	**SD2 - Je réfléchis aux effets que mes actions peuvent avoir sur l'équipe**
Goodness-of-fit	Adéquation personne-environnement
GOOD1 - Together with team members, I allocate department/unit activities with their strengths in mind	GOOD1 - Avec les membres de l'équipe, je répartis les activités du département/de l'unité en tenant compte de leurs forces
GOOD2 - I pay attention to how team members' capacities fit with workplace demands	**GOOD2 - Je porte attention à l'adéquation entre les capacités des membres de l'équipe et les exigences du travail**
GOOD3 - I seek strategies with team members to overcome barriers to achieving their professional growth	GOOD3 - Je recherche des stratégies avec les membres de l'équipe pour qu'ils surmontent les obstacles à leur épanouissement professionnel
Timing, readiness, and learning	Moment opportun, disposition et apprentissage
TRL 1 - I adjust strategies for implementing new changes in light of team readiness	TRL 1 - J'adapte les stratégies de mise en œuvre des changements selon le niveau de préparation au changement de l'équipe
TRL2 - I create opportunities for team members to share their knowledge	TRL 2 - Je crée des occasions pour que les membres de l'équipe partagent leurs connaissances
TRL3 - I encourage team members to participate in activities that develop their strengths	TRL3 - J'encourage les membres de l'équipe à participer à des activités qui développent leurs forces
TRL4 - I use day-to-day situations as learning opportunities for the team	TRL4 - J'utilise des situations quotidiennes comme occasions d'apprentissage pour l'équipe
TRL5 - To inform team actions, I encourage the use of varied forms of knowledge (e.g., scientific evidence, practical experience, etc.), applicable to the context	**TRL5 - Pour que les actions de l'équipe soient éclairées, j'encourage l'utilisation de divers types de savoirs (p. ex. : preuves scientifiques, expérience pratique, etc.), applicables au contexte**
Collaborative partnership	Collaboration en partenariat
COLLP1 - I create opportunities for team members to develop collaborative relationships at work	COLLP1 - Je crée des occasions afin que les membres de l'équipe développent des relations collaboratives au travail
COLLP2 - I invest energy in developing relationships with team members and colleagues	COLLP2 - Je consacre de l'énergie à développer des liens avec les membres de l'équipe et les collègues
COLLP3 - I set goals together with team members and/or colleagues	COLLP3 - Je fixe des buts en collaboration avec les membres de l'équipe et/ou les collègues
COLLP4 - Together with team members and/or colleagues, I adjust plans in order to achieve our goals	**COLLP4 - J'adapte les plans en collaboration avec les membres de l'équipe et/ou les collègues afin d'atteindre nos buts**

Note. The 24 items listed here are the items that compose the long-form versions of the SBNH-L and L-ASFF scales. The 8 items in bold are those included in the short-form version.

The other-rated version of the SBNH-L scale uses “They” as pronoun instead of “I” for the items and “your manager* engages” vs. “you engage” for the stem with the mention “*Please note that "manager" refers to the individual you report to (i.e., direct supervisor)”. The other-rated version of the L-ASFF uses “Il/elle” as pronoun instead of “Je/j’” for the items and “votre gestionnaire* adopte” vs. “vous adoptez” for the stem with the mention “*Veuillez noter que le terme « gestionnaire » désigne la personne dont vous relevez (c’est-à-dire votre supérieur immédiat)”.

The translation and cultural adaptation of the SBNH-L Scale followed the ISPOR principles of good practice (Wild et al., 2005). Wild et al. (2005) suggest a 10-step process for translation and cultural adaptation: 1) Preparation, 2) Forward Translation, 3) Reconciliation, 4) Back Translation, 5) Back Translation Review, 6) Harmonization, 7) Cognitive Debriefing, 8) Review of Cognitive Debriefing Results and Finalization, 9) Proofreading, and 10) Final Report. As suggested by the authors (2005), a translation panel approach and a methodological log were used to improve rigor (n = 3 researchers with expertise in leadership, healthcare management, and nursing). Two translators were used in the process: Translator A was a native speaker of the target language (French Canadian), fluent in the source language (English), and residing in the target country (Canada) and Translator B was a professional translator, native speaker of the source language (English), fluent in the target language (French Canadian), and residing in the target country (Canada). **Step 1) Preparation.** Since translator A and the committee were part of the research team developing the SBNH-L Scale, permission to use the instrument as well as inviting the instrument developers to be involved were not necessary. In the preparatory phase, Translator A was also named as project manager and key in-country consultant for the process. The SBNH-L definition and glossary of terms, developed as part of a larger research project, served the translators as an explanation of key concepts for the scale. **Step 2) Forward Translation.** Translator A and translator B developed two independent forward translations. **Step 3) Reconciliation.** The two translators met online to discuss discrepancies in the two forward translations and reconcile these into a single translation ready for back translation. **Step 4) Back Translation.** Translator B proceeded to a back translation of the single forward translation into the source language (English). **Steps 5 & 6) Back Translation Review & Harmonization.** The translation panel met in-person to review the back translation against the scale in the source language (English)

and harmonized the English and French versions. **Step 7) Cognitive Debriefing**. A cognitive appraisal was conducted in the form of an online focus group with six healthcare managers and academics (retired or active), to assess the utility, understandability and cognitive equivalence of the translation of the scale. A purposive sampling strategy was used to recruit participants with the following inclusion criteria: knowledge of SBNH-L, experience (current or past) as a healthcare manager or academic and bilingual (mother tongue: French). **Step 8) Review of Cognitive Debriefing Results and Finalization.** The translation panel met in-person to review the cognitive appraisal focus group results and finalize the English and French scales. **Step 9) Proofreading.** The final translated version was proofread for minor errors by a professional with higher education in French language. **Step 10) Final Report**. The project manager finalized reporting of the scale using the methodological log. Two additional steps were added since the SBNH-L Scale development is part of a larger SBNH endeavor. **Step 11) Harmonization of SBNH-L and SBNH values**. An online focus group with four SBNH and SBNH-L experts, was led to achieve the harmonization of wording for SBNH and SBNH-L values. A purposive sampling strategy was used to recruit participants with the following inclusion criteria: SBNH and SBNH-L expertise and bilingual. **Step 12) Review of Harmonization.** Dr. L. N. Gottlieb, founder of SBNH and SBNH-L, and the translation panel reviewed the harmonization recommendations and finalized the translation.