Quantifying Quality of Life: An Instrument Development Study for Personal Well-Being

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ABSTRACT

Studying about an individual's well-being is incredibly important for a multitude of reasons, impacting not only the individual themselves but also their communities and society at large. There are a number of wellbeing frameworks such as, Diener's Subjective Well-Being (1988) comprising three core components: life satisfaction, positive affect, and low negative affect, Ryff's (1989) model of eudaimonic well-being focuses on psychological development and self-actualization and Seligman's PERMA model (2011), that seek to explain the intricacies of this construct in relation to how it is being practiced. This study seeks to connect the theoretical concept of well-being with how it's measured in practice by determining a best fit model for the wellbeing questionnaire. Two hundred (200) randomly selected participants from the Arts and Sciences Program of Lourdes College, Inc. Cagayan de Oro City participated in answering the pilot test. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA**)** were the two statistical methods applied to meet the aims of this study. Through EFA, four (4) factors were identified namely psychological wellbeing (20 items), psychological distress (22 items), life satisfaction (12 items) and self-compassion (8 items). The reliability test conducted yielded an acceptable range value for its reliability. When CFA was administered, several items were removed which resulted in acquiring the best model fit that met the criterion indices; CMIN/DF, CFI, SRMR, RMSEA and PClose. The psychological wellbeing factor now has seven (7) items, psychological distress with seven (7) items, life satisfaction with five (5) items and self-compassion with five (5) items. Furthermore, the tool created from this study can be used to conduct future research aimed to identify groups most in need, prioritize resources, and design targeted programs.

Keywords: psychological wellbeing (PWB), psychological distress (PD), life satisfaction (LS), self-compassion (SC)

INTRODUCTION

The concept of well-being has gained considerable attention across multiple disciplines including psychology, public health, education, and sociology. Despite variations in its definition, there is a growing consensus that well-being is a multi-dimensional construct that reflects not only the absence of distress but also the presence of positive emotional, psychological, and social functioning. From a public health and sociological perspective, well-being is also influenced by broader social determinants such as income, education, social support, and access to healthcare (Marmot, 2005; Wilkinson & Pickett, 2009). These views stress that well-being is not solely a personal or psychological matter, but is also shaped by structural and environmental factors. The World Health Organization (2004) further defines well-being as a state in which individuals realize their abilities, cope with normal stresses, work productively, and contribute to their communities. This definition underscores the importance of both personal resilience and societal participation.

Despite the growing interest in promoting mental health and holistic development, measuring well-being remains a complex task due to its multi-dimensional and subjective nature. While various theoretical models—such as Diener's Subjective Well-Being (1984), Ryff's Psychological Well-Being (1989), and Seligman's PERMA model (2011)—have helped define the construct, there remains a lack of context-specific, standardized tools that can comprehensively assess well-being across emotional, psychological, and social domains. Existing

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questionnaires are often designed for specific populations or cultural settings, limiting their relevance and applicability in diverse contexts. Thus, there is a pressing need to develop a well-being questionnaire that is valid, reliable, and sensitive to the needs of the target population. Such a tool would not only contribute to academic research but also provide a practical means for educators, health professionals, and policymakers to identify well-being issues early, design targeted interventions, and monitor progress over time.

This study aims to bridge the gap between conceptual understanding and practical assessment of well-being. Specifically, this study aims to determine the following:

1. How many possible factors can be acquired in this Exploratory Factor Analysis (EFA) study?
2. What are the statements that belong to each factor?
3. What were the latent variables?
4. Is there a best fit model for the wellbeing questionnaire as determined by Confirmatory Factor Analysis (CFA)?

Theoretical Framework:

In the field of psychology, Subjective Well-Being (SWB) is one of the earliest and most widely studied models. Diener (1984) conceptualized SWB as comprising three core components: life satisfaction, positive affect, and low negative affect. This framework highlights the subjective evaluation of one's life and emotional experiences. Later, Diener et al. (1999) reinforced this view, emphasizing that well-being is best understood from the individual's perspective and should include both affective and cognitive components. In contrast, Ryff's (1989) model of eudaimonic well-being focuses on psychological development and self-actualization. Her six-dimensional model—which includes autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance—reflects a deeper view of well-being as a process of realizing one's potential. This model moves beyond fleeting happiness to emphasize long-term fulfillment and functioning. Adding further nuance, Seligman's (2011) PERMA model from the field of positive psychology outlines five core elements of well-being: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. This holistic framework integrates both hedonic and eudaimonic aspects of well-being and is widely used in educational and organizational settings.

Given these diverse perspectives, there is a clear need for tools that can reliably measure well-being across different dimensions. Developing a well-constructed questionnaire based on these theoretical foundations is essential not only for academic research but also for practical applications in schools, workplaces, and healthcare settings. A robust well-being instrument can help identify individuals at risk, evaluate interventions, and inform policies that promote mental health and life satisfaction.

METHODOLOGY

The respondents of the pilot testing were two hundred (200) randomly selected participants from the Arts and Sciences Program, Lourdes College. Inc., and data collection was facilitated via Google Forms. Each prospective respondent received a direct link to the survey. Most importantly, the survey form began with a data privacy section and an informed consent agreement, which all respondents were required to accept before they could proceed with answering the questionnaire completely. The tool used for data collection was validated by two (2) field experts to ensure its reliability and accuracy in capturing the relevant information. To uphold ethical standards, informed consent was obtained from all respondents, ensuring they were fully aware of the study's objectives and their role in it. Anonymity and confidentiality were guaranteed to protect the identities of the participants. The entire research process, including these ethical considerations, was reviewed and approved by the Research Ethics Committee of Lourdes College, Inc., ensuring compliance with ethical guidelines.

Having 200 respondents for an Exploratory Factor Analysis (EFA) is generally considered a fair to good sample size (Comrey & Lee, 1992). The tool used was adapted from the following Wellbeing Likert-scale questionnaire; Flourishing Scale-FS (Diener, 2009), Oldenburg Burnout Inventory-OLBI (Demerouti, 1999), Self-Compassion Scale Short Form- SCS-SF (Raes et al.,2011), Satisfaction with Life Scale -SWLS (Diener, 1985), Perceived Stress Scale-PSS-10 (Cohen & Williamson, 1988), Personal Wellbeing Index – Adult - 5 (PWI-A) (International

Wellbeing Group, 2013) and Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965). Two statistical treatments were applied to accomplish the goals of this study; Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA is employed to identify the latent constructs (factors) that explain the relationships among observed variables. This multivariate statistical technique operates without a preconceived structure (Fabrigar et al., 1999; Tabachnick & Fidell, 2019), making it particularly well-suited for the initial stages of scale development, where the instrument's underlying dimensions are still being explored. Prior to conducting the EFA, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were used to assess the suitability of the data. A KMO value of 0.60 or above and a significant Bartlett's Test ($p < .05$) were considered indicators that the data were appropriate for factor analysis (Field, 2018). In this study, EFA was conducted using the Principal Axis Factoring (PAF) method, as it is appropriate for uncovering latent variables when the data may not be normally distributed (Costello & Osborne, 2005). Factors were extracted based on eigenvalues greater than 1.0 (Kaiser's criterion) and further supported by a scree plot. Varimax with Kaiser Normalization, a rotation method, was applied to allow for correlation among factors, as psychological constructs such as well-being dimensions are often interrelated.

CFA was conducted to assess the validity of the measurement model. It is a multivariate statistical technique used to confirm the factor structure of a set of observed variables. To determine the model fit, a table of criterion indices must be met. To identify the best-fit model, several criteria outlined by Hu & Bentler (1999) were applied: the minimum discrepancy test (CMIN/DF), comparative fit index (CFI), standardized root-mean square residual (SRMR), root mean square error of estimation (RMSEA), and chi-square value (PClose). IBM Amos software facilitated the determination of this model. To ensure consistency of the indicators on its corresponding latent variables, a reliability test was conducted; using Cronbach's alpha. The criterion and cutoff criteria were shown in Table 1.

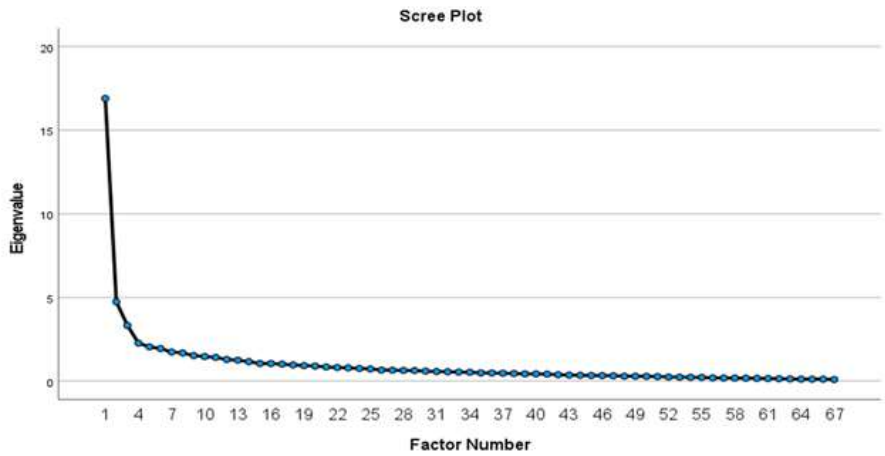
Table 1 Measures and Cutoff Criteria for Best Fit Model

Criterion	Cutoff Criteria
CMIN/DF	Between 1 and 3
CFI	>0.95
SRMR	<0.08
RMSEA	<0.06
PClose	>0.05

RESULTS AND DISCUSSION

The Scree Plot identifies the number of factors that can be created from the statements.

Figure 1 Scree Plot



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There were four (4) factors identified. Based on the figure shown above. The point of infliction "elbow" falls on the factor number 4.

Table 2 Total Variance Explained

	Initial Eigenvalues		
Factor	Total	% of Variance	Cumulative %
1	16.904	25.230	25.230
2	4.738	7.072	32.302
3	3.328	4.967	37.268
4	2.271	3.389	40.658

Extraction Method: Principal Axis Factoring.

The purpose of this table is to know what the percentage from the statements are included on the factors which is 40%. The remaining 60% of the total variance was dispersed across several other factors, each accounting for a minor portion and containing only one or two significant item loadings.

Table 3 KMO and Bartlette's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.867
Bartlett's Test of Sphericity	Approx. Chi-Square	7352.342
	df	2211
	Sig.	<.001

This table shows how valid the results are based on the sample. The KMO value is .867 with a significant value on the Bartlett's Test ($p<.001$) considered indicators that the data were appropriate for factor analysis.

Table 4 Rotated Factor Matrix

	Factor			
	1	2	3	4
S55	.674			
S51	.672			
S49	.656			
S3	.623			
S47	.574			
S67	.560			
S59	.556			
S4	.531			
S53	.527			
S48	.512			

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S24	.508			
S10	.490			
S54	.476			
S61	.467			
S52	.457			
S50	.442			
S23	.405			
S7	.374			
S64	.339			
S15	.336			
S22		.642		
S29		.627		
S28		.601		
S25		.595		
S20		.587		
S62		.576		
S21		.546		
S66		.527		
S6		.526		
S5		.491		
S46		.482		
S63		.480		
S2		.478		
S9		.474		
S57		.467		
S56		.451		
S45		.436		
S65		.432		
S35		.431		
S42		.425		
S38		.419		
S43		.402		
S12			.691	
S31			.656	
S11			.652	
S32			.629	
S30			.624	

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S18			.602	
S14			.551	
S33			.476	
S17			.468	
S1			.453	
S13			.419	
S34			.415	
S37				.665
S36				.639
S41				.542
S39				.535
S26				.486
S40				.473
S16				.435
S44				.411
Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 8 iterations.				

Factors were extracted based on eigenvalues greater than 1.0 (Kaiser's criterion). Items with factor loadings below 0.30 or cross-loadings on multiple factors were considered for removal to enhance the clarity and interpretability of the factor structure (Hair et al., 2014). The final factor solution was used to inform the refinement of the questionnaire. The table identifies which statements are in one group (factor) based on the factor loading value set to 0.3 and above. Factor 1 has 20 items, factor 2 has 22 items, factor 3 has 12 items and factor 4 has 8 items.

Table 5 Sample Statements from each Latent Variable

Latent Variable	**Items**
Psychological Wellbeing	S3. I feel that I have a number of good qualities. S23. I feel confident about my ability to handle your personal problems. S48. My social relationships are supportive and rewarding. S49.I am engaged and interested in my daily activities. S51. I am competent and capable in the activities that are important to me.
Psychological Distress	S2. At times, I think I am no good at all. S21. I feel that I am unable to control the important things in my life. S22. I feel nervous and "stressed". S38. When I'm feeling down, I tend to feel like most other people are probably happier than I am. S46. I'm intolerant and impatient towards those aspects of my

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	personality I don't like.
Life Satisfaction	S11. Thinking about my own life and personal circumstances, I am satisfied with my life as a whole. S12. I am satisfied with my standard of living. S31. The conditions of my life are excellent. S32. I am satisfied with my life. S33. So far, I have gotten the important things I want in life.
Self-compassion	S36. I try to be understanding and patient towards those aspects of my personality I don't like. S37. When something painful happens, I try to take a balanced view of the situation. S39. I try to see my failings as part of the human condition. S40. When I'm going through a very hard time, I give myself the caring and tenderness I need. S41. When something upsets me, I try to keep my emotions in balance.

The Search for Best Fit Model for the Wellbeing Questionnaire

To get the best fit model, two models were tested. To provide background on the results of the two models, Table 6 presents the summary of the fit indices for Model 1 and Model 2.

Table 6 Summary of the Model Fit Indices

	CMIN/DF	CFI	SRMR	RMSEA	RCLOSE	INTERPRETATION
Model 1	1.903	.716	.0794	.067	1.334	Not a good fit
Model 2	1.334	.952	.0557	.041	.907	Excellent fit
Fit-Criterion	Between 1 and 3	>0.95	<0.08	<0.06	>0.05	

Figure 2 Model 1 PATH Diagram

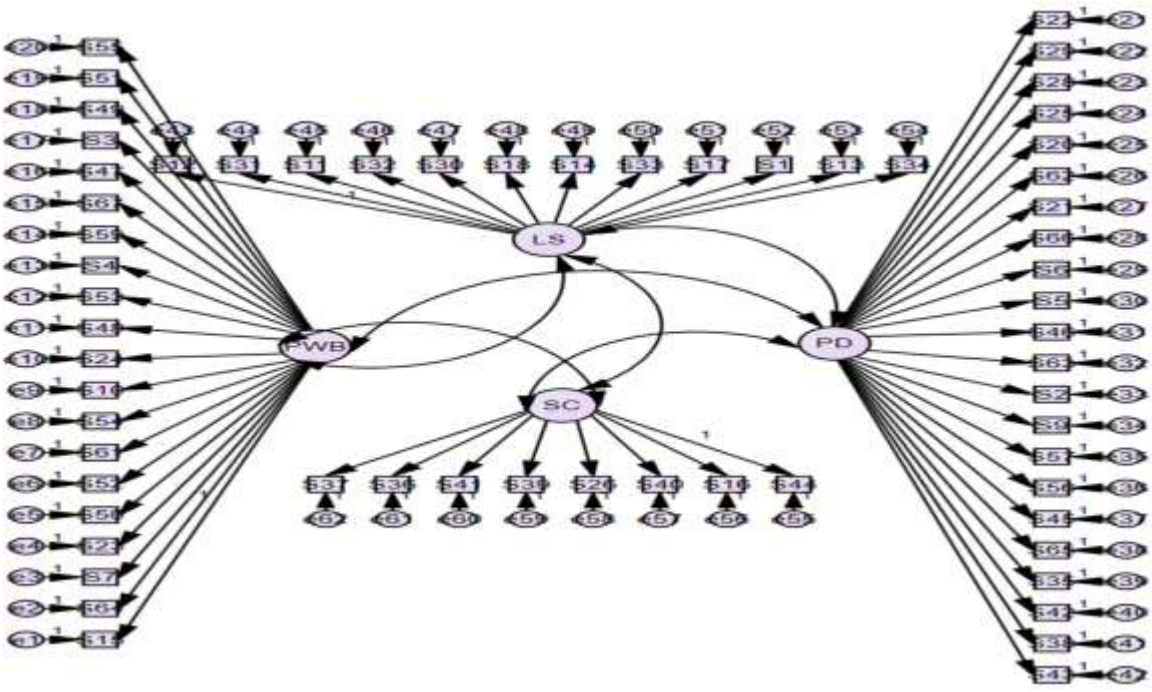

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Table 7 presents the fit indices for model 1. It shows the fit indices using Structural Equation Modelling.

Table 7: Model 1 Fit Indices

Measure	Estimate	Cutoff Criteria	Interpretation
CMIN/DF	1.903	Between 1 and 3	Excellent
CFI	.716	>0.95	Not Acceptable
SRMR	.0794	<0.08	Excellent
RMSEA	.067	<0.06	Not Acceptable
PClose	1.334	>0.05	Excellent

Source: Hu and Bentler (1999), "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis

Results reveal a poor fit. Although CMIN/DF (1.903), SRMR (.052) and PCLOSE (.1334) are excellent fit, CFI (.716) and RMSEA (.067) do not meet the cutoff criteria. Therefore, Model 1 is not the best fit model. In the next section, an alternative model was presented

Figure 3 Model 2 PATH Diagram

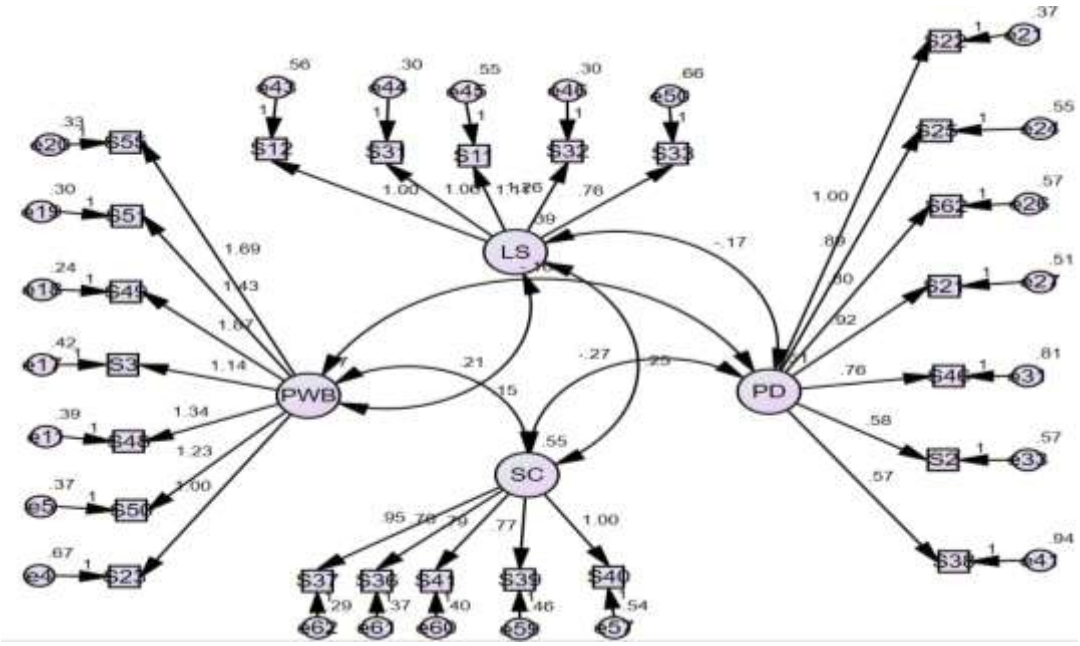

Table 8 presents the fit indices for model 2 after removing items based on the modification indices. It shows the fit indices using Structural Equation Modelling.

Table 8: Model 2 Fit Indices

Measure	Estimate	Cutoff Criteria	Interpretation
CMIN/DF	1.334	Between 1 and 3	Excellent
CFI	.952	>0.95	Excellent
SRMR	.0557	<0.08	Excellent
RMSEA	.041	<0.06	Excellent
PClose	.907	>0.05	Excellent

Source: Hu and Bentler (1999), "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis

Results reveal a significant positive regression weight (B-Coefficient) for each line connecting all the variables as seen in Figure 3. The results show a good fit across multiple indices, including CMIN/DF (1.334), CFI (0.952), SRMR (0.0557), RMSEA (0.041), and PClose (0.907), all indicating excellent model fit according to their respective cutoff criteria. These results suggest that the model represents the data and that Model 2 is the best fit model.

Table 9:Final Pool of Items

Latent Variable	Items
Psychological Wellbeing	S3, S23, S48, S49, S50, S51, S55
Psychological Distress	S2, S21, S22, S25, S38, S46, S62
Life Satisfaction	S11, S12, S31, S32, S33
Self-compassion	S36, S37, S39, S40, S41

To ensure consistency of the items for every latent variable, reliability testing of the tool using Cronbach Alpha was conducted. Cronbach's alpha (α), also known as coefficient alpha, was introduced by Lee Cronbach in 1951. This widely utilized method assesses the internal consistency of a survey instrument, thereby testing its reliability (Hu & Bentler, 1999). According to Cinches et al. (2017), an acceptable coefficient typically falls within the range of 0.70 to 0.90. The results of the reliability test were shown in Table 10.

Table 10: Reliability Test Results

Variable	Cronbach's alpha	Number of Items
Psychological Wellbeing	0.848	7
Psychological Distress	0.776	7
Life Satisfaction	0.812	5
Self-compassion	0.821	5

The Cronbach's alpha coefficients for all measures demonstrated acceptable to good reliability specifically, the Psychological Wellbeing scale (7 items) yielded an alpha of .848, the Psychological Distress scale (7 items) yielded an alpha of .776, the Life Satisfaction scale (5 items) yielded an alpha of .812, and the Self-compassion scale (5 items) yielded an alpha of .821 indicating that the items within each scale consistently measure their respective constructs.

A well-constructed questionnaire with strong psychometric properties (reliability and validity) provides confidence that the scores accurately reflect an individual's actual well-being, rather than being influenced by measurement error. Establishing a "best-fit model" is essential for theoretical clarity and empirical support of the underlying structure of this construct. Through techniques like Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), it is determined that the observed data align with the hypothesized theoretical dimensions of well-being.

CONCLUSION AND RECOMMENDATIONS

The robust well-being measurement tool ensures accuracy and reliability in capturing this complex, multidimensional construct. Well-being is not simply the absence of illness; it encompasses various aspects that aids researchers, policymakers, and practitioners to make evidence-based decisions for conducting interventions. This study aims to recommend the following to the researchers that they may use the tool in conducting studies to test theoretical models and explore relationships with other constructs in the Filipino context. This would allow for meaningful comparisons of well-being across different studies, populations, and time points, fostering a cumulative body of knowledge. To the policy makers, this would provide them with critical, evidence-based

insights that can transform how public policy is conceived, implemented, and evaluated. Its utility extends far beyond simply knowing if people are "happy". It would provide a deeper understanding of societal health, progress and promoting mental health. To the practitioners, the tool would help them assess their clients accurately, intervene effectively, monitor progress and evaluate effectiveness of the intervention used in the treatment or management plan. This may aid in enhancing their practice, improve client outcomes, and contribute to the broader field. In essence, studying individual well-being is about understanding what makes people thrive, not just survive. This knowledge is fundamental to creating a healthier, more productive, and more compassionate space for everyone. Investing in the development of a psychometrically sound well-being questionnaire and confirming its best-fit model is not merely a methodological formality. It is a foundational step that underpins the credibility, utility, and impact of any research or practice aimed at enhancing human life.

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