

HERO Wellness Scale: Examining a new mental wellness scale

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BACKGROUND: Mental wellness has traditionally not been tracked by mental health clinicians. The aim is to examine the reliability and validity of the HERO Wellness Scale.

METHODS: Eighty-four college students (age ≥ 18) with and without psychiatric morbidity from a small, private college in the north-central United States enrolled in the WILD 5 Wellness Program—a longitudinal, quasi-experimental clinical trial that included 2 groups (intervention and waitlist). Mental wellness scores at the beginning of the WILD 5 intervention were assessed by the HERO Wellness Scale and the World Health Organization–Five (WHO-5) Well-Being Index.

RESULTS: Internal consistency was calculated from baseline data ($N = 84$) using Cronbach's alpha for the 5-item HERO composite = .93. The corrected item-total correlations were adequate ($>.50$), ranging from .67 (resilience) to .86 (mental wellness). The HERO Wellness Scale covers a representative sample of the domain of wellness. It diverges from WHO-5 items by specifically assessing for well-established positive psychology traits such as happiness, enthusiasm, resilience, and optimism.

CONCLUSIONS: The HERO Wellness Scale showed good validity and reliability, and should be considered for individual-level assessment of mental wellness. The HERO Wellness Scale adds to the body of knowledge in psychiatry, nursing, and psychology.

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INTRODUCTION

Mental health professionals are trained primarily to diagnose and remediate mental illness and mental pathology¹ with little focus on wellness.^{2,3} Alleviating psychiatric morbidity is the most important priority for mental health clinicians, but it is not the only priority. Other medical disciplines, such as cardiology, endocrinology, and primary care, have recognized that care does not end with prescription to treat hypertension, diabetes, or asthma. Holistic care extends to disease prevention and health promotion. Should mental health clinicians follow the lead of medical providers and expand traditional psychiatric nosology by beginning to assess, promote, and measure mental wellness?

Interest in human psychological well-being has been growing steadily within the health and social sciences,⁴⁻¹¹ based on increasing evidence that well-being is a theoretical construct that can be operationalized and measured.¹² Mental wellness and mental well-being have often been used interchangeably in the literature. Mental wellness has been explored from 2 major perspectives: eudaimonic and hedonic.¹³⁻¹⁵ A eudaimonically-oriented understanding of well-being seeks to understand how life's purpose, personal growth, autonomy, and positive relationships help define well-being. Hedonic well-being is largely derived from subjective report, is feeling-oriented, and is associated with high life satisfaction and high positive affect.¹⁶

Recent research reveals a lack of agreement between what clinicians vs patients consider to be important in terms of relief from a mental illness¹⁷ (TABLE 1¹⁷). While patients rate a meaningful life as the number 1 goal of mental health care, clinicians rank this priority 9th out of 10.¹⁷ On the other hand, the elimination of negative feelings is rated as the top priority for clinicians but is only the 5th priority for patients.¹⁷ Therefore, clinicians should not limit clinical assessment of symptom severity alone but should also assess for a return of mental well-being.¹⁷ Additionally, the clinician assessment alone is not enough for assessing mental wellness; the patient's self-report is indispensable, and has gained greater credibility in recent years.¹⁸

The HERO Wellness Scale is a brief self-report screening tool that allows both the clinician and respondent together to track wellness and to aim toward a full return to health.

The creators of the HERO Wellness Scale searched for traits (concepts) that fit the following criteria: (1) mental wellness attributes should be universally desired by all human beings regardless of nationality, gender, or socioeconomic status; (2) these traits should constitute intrinsic defining elements of mental wellness; (3) deficit of these traits should be correlated with psychiatric disorders; (4) these traits must be measurable; (5) amelioration of a trait-deficit through wellness interventions must be possible; and finally, (6) there is a demonstrable neurobiologic benefit associated with each trait.

The 4 HERO concepts meet these 6 criteria and satisfactorily carve the nature of mental wellness at its joints: Happiness, Enthusiasm, Resilience, and Optimism (HERO).¹⁹ Mental wellness is conceptually defined as a state of both dynamic and optimal intrinsic psychological functioning that consists of these 4 traits: happiness, enthusiasm, resilience, and optimism.

Purpose

The HERO Wellness Scale is a different instrument from World Health Organization-Five (WHO-5) Well-Being Index. The most specific difference between these 2 wellness-oriented scales is that the HERO Wellness Scale assesses more comprehensively for well-established positive psychology traits of happiness, enthusiasm, resilience, and optimism. The WHO-5 Well-Being Index is a widely used psychometric tool for assessing well-being, designed by the WHO to assist primary care physicians in "capturing" patients who had previously unidentified clinical depression (TABLE 2). The WHO-5 Well-Being Index can be completed by patients in a primary care waiting room.²⁰ The WHO-5 Well-Being Index is essentially the inverse image of the current DSM-5²¹ criteria for major depressive disorder (MDD) (TABLE 3²⁰). The WHO-5 Well-Being Index uses positive language (not symptom-based language) to assess for the absence of depressive symptoms (sadness, agitation, poor energy, poor sleep, anhedonia). A lower summed score indicates an absence of well-being. A score <13 would indicate a possible mood disorder, so then a depression screener would be administered.²⁰ The WHO-5 Well-Being Index assesses for the presence of the positive traits (feeling cheerful, relaxed, rested, vigorous, and interested in life) that typically wane in the presence of a mood disorder (eg, MDD).

While the traits assessed for by the WHO-5 Well-Being Index are desirable, they are not clearly indicative of the

TABLE 1
Symptom alleviation priorities: Patient vs clinician rating

	Outcomes that patients identify as important	Outcomes that clinicians identify as important
1	Feeling that life is meaningful	Eliminate negative feelings (blue mood, despair, anxiety)
2	Able to enjoy life	Not feeling down, depressed, or hopeless
3	Feeling satisfied with yourself	Regain interest/pleasure in doing things
4	Able to concentrate	Not having symptoms disrupt social life/leisure activities
5	Eliminate negative feelings (blue mood, despair, anxiety)	Not feeling tired/having little energy
6	Not feeling tired/having little energy	Feeling satisfied with yourself
7	Not feeling down, depressed, or hopeless	Able to enjoy life
8	Feeling strong	Not having symptoms disrupt work
9	Satisfied with personal relationships	Feeling that life is meaningful
10	Feeling active	Satisfied with personal relationships

Source: Reference 17.

TABLE 2
WHO-5 Well-Being Index (1988 version)

		All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
	Over the last 2 weeks:	Score 5	Score 4	Score 3	Score 2	Score 1	Score 0
1	I have felt cheerful and in good spirits						
2	I have felt calm and relaxed						
3	I have felt active and vigorous						
4	I woke up feeling fresh and rested						
5	My daily life has been filled with things that interest me						

WHO: World Health Organization.

Source: Reference 20.

characteristics of mental wellness. The WHO-5 Well-Being Index is a valuable tool to help identify previously undiagnosed individuals with depression; however, it does not add any new information for those individuals being treated for MDD because psychiatric clinicians routinely use scales such as the Patient Health Questionnaire (PHQ-9)²² to track depression. The WHO-5 Well-Being Index and the PHQ-9 track the same information from different perspectives (the PHQ-9 from a negative perspective, and the WHO-5 Well-Being Index from a positive perspective).²⁰ Recall that based on **TABLE 2**, patients with psychiatric illness are looking for not only remission of the negative symptoms of a mental health disorder, but also a return to well-being as evidenced by a life that feels meaningful and enjoyable.¹⁷ Therefore, any mental wellness psychometric tool must reflect aspirations of clients themselves.

METHODS

The WILD 5 Wellness study was a longitudinal mental wellness clinical trial that included 2 groups (intervention and waitlist).²³ The HERO Wellness Scale was developed to track changes in mental wellness during the trial. The validity, reliability, and responsiveness of the HERO Wellness Scale will be discussed according to the standards set forth by the COSMIN guidelines.²⁴

Study participants. Study participants were recruited from a small private university (undergraduate population of approximately 1,400 students) that serves both urban and rural communities, located in a small city in the north-central United States.

Inclusion criteria. To be included in the study, all participants were required to be age ≥ 18 and be

TABLE 3
WHO-5 vs DSM-5

	WHO-5	DSM-5 criteria for depression
1	I have felt cheerful and in good spirits	Depressed mood
2	I have felt calm and relaxed	Psychomotor retardation or agitation
3	I have felt active and vigorous	Low energy
4	I woke up feeling fresh and rested	Insomnia or hypersomnia
5	My daily life has been filled with things that interest me	Loss of interest or pleasure in most or all activities

WHO: World Health Organization.

Source: Reference 20.

currently enrolled in one of the following undergraduate college-level classes: Anthropology 201 01 “Research designs: Sophomore seminar in anthropology;” Health and Society 240 B1 “Sophomore seminar in Health and Society;” Spanish 218 “Health and Culture in the Spanish-speaking world;” Biology 373 “Neuroscience research;” or Biology 215 “Emerging diseases.” Students enrolled in these courses could volunteer for the study and count participation in the study as part of their course requirement.

Exclusion criteria. Individuals were excluded from participation in the study if they were acutely suicidal and/or actively psychotic, were pregnant or planned to get pregnant during the 60-day intervention, or were not registered in one of the courses listed above. Ineligible participants were referred to the campus Health and Wellness Center or their mental health provider or their primary health care provider. No effort was made to exclude students with a psychiatric condition (other than psychosis or suicidality). Of the 84 participants, 28 (33.3%) had a psychiatric diagnosis, and 16 (19.0%) were receiving a psychiatric medication.

Prior to enrollment in the study, students were emailed a 20-minute program overview video to watch, titled “WILD 5 Wellness: A 30-Day Intervention Program Overview.” Study participants were provided with a copy of the WILD 5 Wellness Workbook one day prior to the study start date. Participants were instructed to document adherence of their daily wellness practices.

A total of 84 students were enrolled in the WILD 5 Wellness Program. The mean age was 20.18 (range 18 to 25, standard deviation = 1.27), with 48 females (57.1%) (with 1 participant identifying as neither male nor female). After receiving an orientation session at the beginning of the program and having their questions answered, they were randomized to the intervention or

TABLE 4
Descriptive statistics for the HERO Wellness Scale

Pre-intervention scores	Mean	Standard deviation
HERO - Happy	5.35	2.19
HERO - Enthusiastic	4.95	2.09
HERO - Resilient	5.18	2.48
HERO - Optimistic	5.07	2.57
HERO - Mental Wellness	5.10	2.64
HERO Scale Total	25.64	10.55
WHO-5 Well-Being Index	11.89	4.93

waitlist group. Group 1 completed the WILD 5 Wellness intervention program during days 1 to 30 (N = 41). Group 2 completed the program during days 31 ± 5 through 61 ± 5 days (N = 43). Baseline data collected prior to intervention for all 84 participants were used to assess the HERO Wellness Scale instrument reliability and validity.

Descriptive statistics for HERO Wellness Scale items and total score are displayed in **TABLE 4**. Descriptive statistics indicate that participants were moderately mentally well with mean item scores close to a moderate score of 5.

Ethical and confidentiality considerations. This study was conducted in accordance with the Belmont Report²⁵ and with professional ethical standards. Written informed consent for data collection was obtained from the Institutional Review Board (IRB submission/approval number 302/ClinicalTrials.gov number NCT03027518). There was no financial compensation for participation in the WILD 5 Wellness study or HERO Wellness Scale validation process. All participants were assigned a unique identification code during the preliminary screening/orientation that was used to identify

TABLE 5
HERO Wellness Scale

Please circle one number for each question below										
1. On average, during the last 7 DAYS, how happy have you felt?										
0	1	2	3	4	5	6	7	8	9	10
Not at all happy	Mildly happy			Moderately happy			Highly happy		Extremely happy	
2. On average, during the last 7 DAYS, how enthusiastic have you felt?										
0	1	2	3	4	5	6	7	8	9	10
Not at all enthusiastic	Mildly enthusiastic			Moderately enthusiastic			Highly enthusiastic		Extremely enthusiastic	
3. On average, during the last 7 DAYS, how resilient have you felt?										
0	1	2	3	4	5	6	7	8	9	10
Not at all resilient	Mildly resilient			Moderately resilient			Highly resilient		Extremely resilient	
4. On average, during the last 7 DAYS, how optimistic have you felt?										
0	1	2	3	4	5	6	7	8	9	10
Not at all optimistic	Mildly optimistic			Moderately optimistic			Highly optimistic		Extremely optimistic	
5. On average, during the last 7 DAYS, how would you rate your mental wellness?										
0	1	2	3	4	5	6	7	8	9	10
Not at all good	Mildly good			Moderately good			Markedly good		Extremely good	

and link their responses over the course of the study. This code was used by participants when completing all program forms to ensure confidentiality.

Measures

Participants completed multiple computer-based scales before the study started, at the midpoint, and at the end of the WILD 5 Wellness intervention. Study instruments included a “gold standard” mental wellness affiliation measurement scale, the WHO-5 Well-Being Index (TABLE 2), as well as a newly-developed wellness instrument, the HERO Wellness Scale. The HERO Wellness Scale (TABLE 5) is a positively worded, self-administered instrument, composite, static, reflective, multi-item, interval-level, criteria-referenced scale consisting of five 10-point Likert-type items measuring happiness, enthusiasm, resiliency, optimism, and mental wellness. Each item is anchored by 0 (not at all) and 10 (extremely). To calculate total score, all circled numbers were summed. The total possible score ranged from 0 to 50. A higher score indicates a higher

TABLE 6
HERO Wellness Scale item: Total statistics

HERO Wellness Scale item	Cronbach's alpha if item deleted
HERO - Happy	.90
HERO - Enthusiastic	.91
HERO - Resilient	.93
HERO - Optimistic	.90
HERO - Mental Wellness	.90

TABLE 7
HERO Wellness Scale corrected item: Total statistics

HERO Wellness Scale item	Corrected item total correlation
HERO - Happy	.84
HERO - Enthusiastic	.83
HERO - Resilient	.67
HERO - Optimistic	.86
HERO - Mental Wellness	.86

level of mental wellness. The HERO Wellness Scale uses language that is easy for most adults to understand (with a Flesch Reading Ease index for happy at 100, enthusiastic at 66.4, resilient at 83.32, optimistic at 83.3 and an overall Flesch Reading Ease score of 82.2. Flesch Reading Ease scores >60 are considered to be “plain English”).²⁶

Data analysis

Data analyses were performed using the Statistical Package for the Social Sciences (IBM Corp. Released 2017. IBM SPSS Statistics for Windows 25.0. Armonk, NY IBM Corp.). Internal consistency reliability was assessed with unstandardized Cronbach’s alpha coefficient. Scale item-total correlations were computed with the item deleted. Criterion-related validity was assessed with Pearson product-moment correlation. The Shapiro–Wilk test was used to assess distribution normality. Tests of significance were 2-sided and results with $P < .05$ were considered statistically significant.

RESULTS

Reliability. Using scores from baseline data internal consistency reliability for the 5-item scale was calculated using Cronbach’s alpha and found to be .93. Reliability coefficients >.90 are considered excellent.²⁷ Scale item-total statistics for each dimension of the HERO Wellness Scale are displayed in **TABLE 6**. Cronbach’s alpha was calculated with the reflexive item-referent removed from the scale. In other words, the inter-item statistic corrects for the contribution that “happy” made to the Cronbach’s alpha dimension of “happy” within the HERO Wellness Scale. These corrected inter-item coefficients remained close to .90 for each dimension of the HERO Wellness Scale. None of the uncorrected coefficients increased above the uncorrected value of .93, indicating that removing an item would not improve reliability. No items in the HERO Wellness Scale received a Cronbach’s alpha >.95, which would have indicated that the item was redundant.

Correlations between each HERO item and a total scale that excludes that item are presented in **TABLE 7**. Each HERO element is highly correlated with the other elements and with overall mental wellness. All 5 corrected item-total correlations are adequate ($r > .50$), ranging from .67 (resilience) to .86 (mental wellness).

Resilience is the item that shares the least association with the other HERO items. The inter-item correlation matrix (**TABLE 8**) reveals that all 10 correlations were statistically significant ($P < .001$) and ranged from .57 (happy with resiliency) to .82 (happy with mental wellness).

Validity. Content validity establishes if an instrument’s content accurately samples the essence of the actual construct (ie, wellness) in a way that is relevant, comprehensive, and balanced. Although there is no universally accepted definition of wellness, an expert panel of WILD 5 Wellness study clinicians determined that the HERO Wellness Scale covers a representative sample of the domain of wellness. The HERO Wellness Scale exhibits strong face validity because it appears to measure what it intends to measure.

Criterion validity, according to COSMIN for Health Related Patient-Reported Outcomes (HR-PRO) instrument, must adequately reflect a putative gold standard.²⁴ Although measuring mental wellness is an inexact science, the WHO-5 Well-Being Index can be seen as the closest current gold standard for evaluating mental wellness. Criterion validity of the HERO Wellness Scale was obtained from an analysis of the relationship between the content of the HERO Wellness Scale and the WHO-5 Well-Being Index (**TABLE 9**). It is not a redundant scale because it diverges considerably from WHO-5 Well-Being Index by specifically assessing for well-established positive psychology traits such as happiness, enthusiasm, resilience, and optimism.

The HERO Wellness scale and the WHO-5 Well-Being Index were chosen to measure wellness, and to establish concurrent validity for the HERO scale. Both the HERO composite scale (Shapiro–Wilk test = .97, $P = .126$) and the WHO-5 Well-Being Index (Shapiro–Wilk test = .98, $P = .274$) were normally distributed. Pearson correlation coefficients were computed to assess the direction and magnitude of the relationship between the HERO composite scale scores and WHO-5 Well-Being Index scores at baseline ($N = 84$). There was a statistically significant positive correlation ($r = .79$, $P < .001$). According to Cohen,²⁷ correlations >.50 represent a large effect size and with a correlation of .79, $R^2 = .62$ indicates 62% common variance or shared variance among the scales. Although the large and significant correlation is strong evidence of validity, the HERO Wellness Scale and the WHO-5 Well-Being Index are not so closely related as to be identical measures.

TABLE 8
HERO Wellness Scale inter-item correlation matrix

	HERO - Happy	HERO - Enthusiastic	HERO - Resilient	HERO - Optimistic	HERO - Mental Wellness
HERO - Happy	–	.76 ^a	.57 ^a	.78 ^a	.82 ^a
HERO - Enthusiastic		–	.61 ^a	.75 ^a	.80 ^a
HERO - Resilient			–	.67 ^a	.61 ^a
HERO - Optimistic				–	.81 ^a

^aCorrelation significant at the .01 level (2-tailed).**TABLE 9**
HERO items and WHO-5

HERO Wellness Scale	Pearson Correlation WHO-5
HERO - Happy	.75 ^a
HERO - Enthusiasm	.74 ^a
HERO - Resilience	.54 ^a
HERO - Optimistic	.71 ^a
HERO - Mental Wellness	.74 ^a
HERO - Composite	.79 ^a

^aCorrelation significant at the 0.01 level (2-tailed).

DISCUSSION

Results from the current study indicate that the HERO Wellness Scale is a psychometrically sound, theoretically valid measure of mental wellness. Analyses of the HERO Wellness Scale demonstrated strong evidence of reliability and validity. The Cronbach's alpha coefficients were found to be excellent (>.90) and therefore this scale should be considered for individual-level assessment of mental wellness. Because there was a strong correlation with the WHO-5 Well-Being Index and the HERO Wellness Scale, clinicians who wish to directly assess positive psychology traits such as happiness, enthusiasm, resilience, optimism, and overall mental wellness could consider using the HERO Wellness Scale in their practice. The scale is a brief, easily understood, valuable index of the construct of mental wellness.

Further research into the validity and reliability of the HERO Wellness Scale is ongoing. Data will need to be defined by further investigations utilizing the HERO Wellness Scale.

Limitations

Some limitations in the study's generalizability include a modest sample size and homogenous population

(undergraduate college students, age 18 to 25). Another possible limitation to the HERO Wellness Scale is the Western orientation to the language of the scale (other traits could have included equanimity or peace as measures of mental wellness). Future inquiry will be necessary to determine the cross-cultural validity of the positive constructs and the global generalizability of the scale.

CONCLUSIONS

In conclusion, the HERO Wellness Scale consists of 5 simple and noninvasive questions that capture the subjective mental wellness of the respondents and demonstrated adequate reliability and validity. This instrument allows clinicians and researchers to meaningfully quantify changes in mental wellness traits and brings greater concordance between the aspirations of both clients and clinicians. ■

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