David Sánchez-Teruel[1]
Mª-Auxiliadora Robles-Bello[2]
José-Antonio Camacho-Conde[3]

Validity of the spanish version of the Herth Hope Index and The Beck Hopelessness Scale in people who have attempted suicide

[1] Lecturer for the Department of Personality, Assessment and Treatment of the Faculty of Psychology at the University of Córdoba. Spain
[2] Lecturer for the Department of Developmental Psychology and Education of the Faculty of Psychology at the University of Jaen. Spain
[3] Lecturer for the Department of Medicine and Dermatology of the Faculty of Medicine at the University of Malaga. Spain

Introduction. Suicide risk assessment remains a handicap for public health policies. Suicide is a major global public health problem. The most predictive behavior of completed suicide is prior suicide attempt. However, studies focused on risk factors have to date proved unsuccessful in reducing death by suicide rates.

Aim. To adapt the Herth Hope Index and the Beck Hopelessness Scale as assessment tools for assessing hope and hopelessness to a Spanish clinical population having carried out a suicide attempt, and assess its structural validity and divergent validity.

Methods. The sample comprised 682 people (62.4% female) aged between 18 and 77 years (M=39; SD=19.1) with previous suicide attempts who were administered the Herth Hope Index (HHI), the Beck Hopelessness Scale, and the CD-RISC-10 Resilience Scale.

Results. The findings showed that the HHI had a two-dimensional structure that explains 71.2% of the variance, a high internal consistency (α=.97), and adequate divergent validity with hopelessness of -.77. And there are also important differences in hope according to the resilience level of the participants.

Conclusion. The suicide risk should be assessed by preventive and clinical approaches. Hope modulates resilience to suicide attempts and a new short scale adapted to the Spanish clinical population is offered. This short tool is easy to use in emergency department settings and predicts the level of potential vulnerability to more serious future repeated attempts.

Keywords: Suicide, Hope, Resilience, Emergency Department, Hopelessness, Assessment

Correspondence:
María Auxiliadora Robles-Bello
Universidad de Jaén
Campus Las Lagunillas
Edificio Humanidades y Ciencias de la Educación II (C5), Despacho: 223
23071 Jaén (Spain)
Tel.: +34 953 21 17 21
E-mail: marobles@ujaen.es

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Validez de la versión española del Herth Hope Index y la Beck Hopelessness Scale en personas que han realizado una tentativa de suicidio

Introducción. La evaluación del riesgo suicida sigue siendo un hándicap para políticas públicas sanitarias. La conducta más predictiva del suicidio consumado es la tentativa suicida previa. Sin embargo, los estudios centrados en factores de riesgo, hasta la fecha, no han disminuido las tasas de muertes por suicidio.

Objetivo. El objetivo de este estudio sería adaptar el Herth Hope Index (HHI) y la Beck Hopelessness Scale como instrumentos de evaluación de la esperanza y desesperanza en población clínica española que ha realizado una tentativa de suicidio y valorar su validez estructural y validez divergente.

Metodología. La muestra estuvo constituida por N=682 personas (62,4% mujeres), con edades comprendidas entre 18 y 77 años (M=39; DT=19,1) con tentativas suicidas previas a los que se les aplicó la Herth Hope Index (HHI), la Beck Hopelessness Scale y la Escala de Resiliencia CD-RISC-10.

Resultados. Los resultados muestran que la HHI presenta una estructura bididimensional que explica el 71,2% de la varianza, una alta consistencia interna (α=0,97), y adecuada validez divergente con desesperanza de -0,77. Y además existen importantes diferencias en esperanza según el nivel de resiliencia de los participantes.

Conclusiones. El riesgo de suicidio debe evaluarse mediante enfoques preventivos y clínicos. La esperanza modula la resiliencia ante tentativas de suicidio y se ofrece una nueva escala breve adaptada a población clínica española y fácil de aplicar en urgencias hospitalarias que predice el nivel de vulnerabilidad futura al reintento de suicidio futuro más grave.

Palabras clave: Suicidio, Esperanza, Resiliencia, Urgencias, Desesperanza, Evaluación

INTRODUCTION

Suicide is a major global public health problem[1]. Studies focused on assessing suicide risk factors have failed to bring down death by suicide rates[2,3]. It would appear that a past suicide attempt is a strong predictor of a more serious repeated attempt or completed suicide[4]. However, following a suicide attempt, there are people who carry out more harmful future repeated attempts or who succeed at the first attempt, while there are others who increase their resilience level[5]. This has opened up new lines of research centred on protective factors related to suicide attempt. Hope is a notable protective factor among those that modulate resilience to suicide attempt[6]. However, currently there are no hope assessment tools tailored to this clinical population which can be easily implemented in clinical settings, the most frequently used instruments, whose primary focus is on the risk itself, include the Beck Hopelessness Scale[7]. This fact may justify continuing to focus on risk factors such as hopelessness, and not on protective factors such as hope for the assessment of suicide risk. Furthermore, this measure of hopelessness has been validated and adapted to a clinical population in Peru[8] and in Colombia[9], yet there is no knowledge of a previously adapted version of this psychometric test[7] for this population at risk in Spain[10]. This reality may explain why clinical interest still lies in risk factors such as hopelessness and not in protective factors like hope when it comes to assessing vulnerability to suicide behavior.

The Herth Hope Index (HHI, 1992)[11] seems to be a viable instrument for measuring hope as a protective factor. However, cross-cultural adaptations of the HHI scale in clinical and non-clinical samples have presented different factorial structures, for example: one-dimensional structures in Italy[12] and two-dimensional ones in Sweden[13], the Netherlands[14], and Norway[15]. Research studies using the HHI emphasize the advantage of adopting this test as a global measure of hope within a clinical context[14], but by adapting this scale to a specific clinical subpopulation and the specific cultural context. The HHI has been translated for the general Spanish population-IEH[16], although its psychometric properties have not been assessed. There are, however, preliminary studies which have reported its favorable clinical applicability for people who have attempted suicide[17], but its structural validity has not been assessed through factor analysis. Implementation of valid, short and easy-to-administer screening tools in non-psychiatric emergency services would improve detection of the hidden risk of more deadly suicide attempt or retry[18].

On this basis, we sought to adapt a hope assessment tool to a Spanish clinical population having made a suicide attempt, to assess whether hope modulates the resilience level following discharge from the emergency department. We also sought to analyze the psychometric properties of the Beck Hopelessness Scale[7] in this Spanish clinical population.

METHOD

Participants

The sample comprised 682 people (62.4% female) aged between 18 and 77 years (M=39; SD=19.1) with previous suicide attempts. The sociodemographic and clinical characteristics of the sample are shown in Table 1.

Measures

Herth Hope Index (HHI)[11]. We used the Spanish translated version for the general population-IEH[16]. This scale measures hope in adults using 12 Likert-type items (1=completely disagree; 4=completely agree), covering three factors as in the original English version: (a) temporality and future; (b) positive readiness and expectancy; and (c) interconnectedness. The original study found the scale to have adequate psychometric properties (alpha=.97; test-retest=.91) and a three-dimensional structure following the hope model[19].

Beck Hopelessness Scale (BHS)[7]. We used the translated version of Aguilar et al.[20] for the clinical population with psychosis, which measures negative attitudes about the future (hopelessness). This 20-item 'true' or 'false' format questionnaire assesses three factors: feelings about the future, loss of motivation, and future expectations.

Connor-Davidson Resilience Scale-10 (Connor-Davidson Resilience Scale, CD-RISC10; Campbell and Stein. 2007[21]*).* This scale measures the level of general resilience in a one-dimensional way and is made up of 10 items in a Likert-type format (from 0 = not agree to 4 = totally agree). The used instrument was the adaptation to Spanish of young people by Notario-Pacheco et al.[22] As for the psychometric properties it presents, it has a good internal consistency in Spanish workers (alpha=.87)[23].

Procedure

All participants signed an informed consent form which outlined the details of the study: the inclusion criteria, the administered tests, and the pursued objectives—in accordance with Personal Data Protection Law 15/1999 ("LOPD" in Spanish). Favourable reports were obtained from the Bioethics Committee of the University of Jaen and the Research Ethics Commission of the Andalusian Health Service of the Regional Government of Andalusia.

The clinical population of the preliminary study[17] presented some difficulties in understanding the items of the initial version translated into Spanish from the HHI[16], so it was decided to perform a new translation following a stan-

Table 1 Description of the sample's sociodemographic and clinical data

	n(%)	Test statistic	p
Sex		12.14	0.02*
Female	426(62.4)		
Male	256(37.6)		
Age		4.78	0.54^{ns}
18–27 years	86(12.6)		
28–37 years	96(14.1)		
38–47 years	158(23.1)		
48–57 years	130(19.1)		
5 –67 years	117(17.2)		
68– 77 years	95(13.9)		
Civil Status		2.98	0.97^{ns}
Single	216(31.6)		
Married	185(27.1)		
Separated / divorced	151(22.2)		
Civil partnership	91(13.4)		
Widowed	39(5.7)		
Previous pathology		17.22	0.001**
Mood disorders	113(16.5)		
Anxiety disorders	120(17.6)		
Psychotic disorders	64(7.7)		
Personality disorders	53(13.4)		
Control disorders / Addictions	106(15.5)		
Physical disorders	75(11.0)		
No previous diagnosis	125(18.3)		
Employment status		14.1	0.001**
Unemployed	430(63.1)		
Employed	252(36.9)		
TOTAL	682		

*p<0.05; **p<0.01; ns=not significant

dardized process[24]. Firstly, the first author of this manuscript compared the Spanish translation[16] with the original English version[11] based on the rules of the International Test Commission[25]. This review in Spanish was supported by an additional bilingual translator, who worked with this first translator to reach an agreement, especially on those items that raised the greatest semantic and grammatical difficulties in the preliminary clinical population. Subsequently, another bilingual translator (English-Spanish) again performed the translation of the scale through a reverse translation methodology[26]. This latest version in Spanish was the HHI scale used in this investigation.

All the tests were completed in several Hospitals where the collaboration of some members of the plant health staff and the Emergency Department was requested for the help in the application of tests to the participants. At the time of the study, the hospital staff had between 10 and 15 years of professional experience.

Analysis of data

We decided to use the IBM SPSS Statistics Base statistical package (version 22.0.0). The level of significance required in all tests was p≤.05; p≤.01; or p≤.001. First, exploratory factor analyzes of the HHI were performed on two different subsamples. Subsequently, the Pearson correlation test was performed to check the relationship between the variables. Reliability was also verified through the internal consistency procedure of the instruments used (Cronbach's alpha coefficient) and divergent validity. And finally, it was verified which variables modulated a higher degree of resilience.

RESULTS

The results of the exploratory factor analysis of the Kaiser-Meyer-Olkin measure of the sampling adequacy index (KMO=.91), the Bartlett sphericity test (χ2=3,472.49; p<.001), and the determinant of the Correlation matrix (.005) showed the suitability of the data for factor analysis[27]. All items with high factor loads (>.50) are conserved, but the HHI shows a two-dimensional structure (Table 2).

On the other hand, the results in the second subsample of people who have made a suicide attempt (n=342) confirm the two-dimensional structure of the IEH, named as Factor 1=Future and Factor 2=Positive hope, that explains 73% of the variance with high goodness-of-fit indices (GFI=.91; CFI= .89), a high internal consistency (α=.97), a two-dimensional structure and high divergent validity with hopelessness (r=-.93) (see Table 3). The psychometric properties of the BHS showed a high internal consistency (α=.98), a two-dimensional structure (Future and Loss), and an adequate fit (GFI=.98; CFI=.86) in this clinical sample. Important differences in resilience level (CD-RISC-10) by level of hope were also observed (Figure 1).

Table 2 Exploratory HHI Factor Analysis (n = 340)

	Dimensions		h^2
	1	2	
Factor 1			
Item 2	**0.57**	0.11	0.33
Item 3	**-0.47**	-0.11	0.31
Item 7	**0.56**	0.29	0.35
Item 9	**0.70**	0.16	0.52
Item 10	**0.60**	0.22	0.47
Item 11	**0.55**	0.28	0.54
Item 12	**0.61**	0.26	0.63
Factor 2			
Item 1	0.08	**0.71**	0.61
Item 4	0.25	**0.67**	0.51
Item 5	0.15	**0.63**	0.12
Item 6	-0.12	**-0.59**	0.16
Item 8	0.19	**0.55**	0.47

Factorial load with values>.50 in bold; h2=Communities; Factor 1: Temporality and future; Factor 2: Willingness and inner positive hope

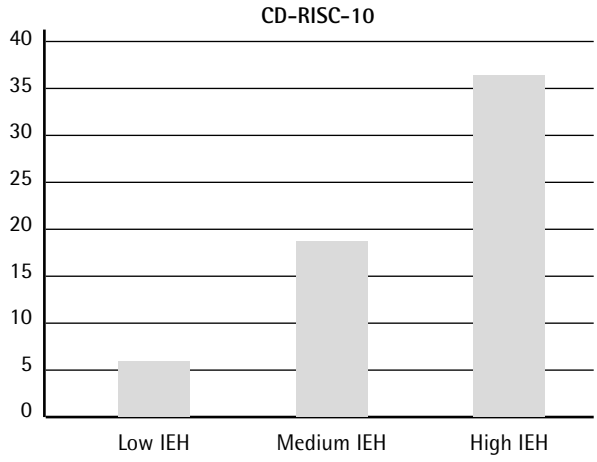

Figure 1 *Level of resilience (RS-14) according to the HHI in Spanish*

DISCUSSION

The study aim was to adapt a hope assessment tool to a Spanish clinical population having carried out a suicide attempt, to evaluate whether hope modulates the resilience level following discharge from the emergency department. We also sought to validate the psychometric properties of the Beck Hopelessness Scale in this Spanish clinical population[7].

The most recently published data in Europe on completed suicide reveal significant differences among member states, with north European countries being the most affected and Mediterranean countries the least affected[28]. However, suicide rates have fallen significantly over the last thirteen years in Germany, Austria, Denmark, France, Greece, the Netherlands, Portugal, Sweden, and the United Kingdom, whereas death by suicide rates have increased in the

Table 3 Psychometric properties of the IEH and BHS (n=342)

	α	r	S^2	BHS	χ^2	d.f.	p	GFI	CFI	RMSEA (95% CI)
IEH	0.97	0.89	73%	-0.82	621.35	132	0.00	0.91	0.89	0.08
Future	0.83	0.79	42%	-0.77						
Hope	0.92	0.81	66%	-0.80						
BHS	0.98	-0.93	69%	--	422.45	167	0.00	0.98	0.86	0.09
Future (feelings)	0.91	-0.94	42%	--						
Loss (motivation)	0.89	-0.80	31%	--						

IEH=*Herth Hope Index* in Spanish; BHS=*Beck Hopelessness Scale*; r=correlation with RS-14; S^2=explained variance; $\chi 2$=chi-squared; d.f.=degree of freedom; p=significance level; GFI=gamma index; CFI=comparative fit index; RMSEA=root mean square error of approximation

Republic of Ireland[29] and Spain[30]. In the case of Spain, the rising linear trend for death by suicide observed in recent years is worrying[4]. Currently, the data available in Spain conclude that suicide is the first external cause of death, well above homicide (315) and road traffic accidents (1,807) (3,569 people have committed suicide; 2,662 males and 907 females)[31]. However, the limited healthcare interventions addressing risk factors in this country have done little to reduce death by suicide rates[4]. Yet as earlier studies have reported[5,6], new avenues are opening up for predicting completed suicide which focus more on prior behaviors such as suicide attempt as well as protective factors including hope which modulate resilience. Nonetheless, this alerts us to the pressing need to create culturally adapted, quick and easy tools and protocols that help predict future repeated suicide attempts, and which guarantee clinical applicability[10].

This study supports the hypothesis corresponding to the effect of the hope–hopelessness suicide continuum raised in earlier studies[31]. Hopelessness is an emotional state of risk which determines the realization of a suicide attempt, mainly because the hopelessness process generates a feeling of losing control over what is happening in one's life. The individual is driven to a state of complete helplessness, which likely fuels a growing need to put an end to the situation via a suicide attempt, as proposed in previous studies[17]. What this study contributes is the confirmation that hope is a protective predictor variable for suicide attempt because it helps the individual to change their situation when faced with difficulties, planning alternative routes when the usual ones prove ineffective. From this perspective, hope as an opportunity for achieving more favorable future outcomes could explain the modulation of the gravity of suicide and, specifically, the future factor, which shows an increased protective effect against suicide attempt.

The factor analyzes of this study confirmed a two-dimensional structure of the HHI different from its Anglo-Saxon version[11] and with high goodness-of-fit indexes, which informs the importance of making adequate psychometric adaptations (reliability and validity) of the clinical assessment instruments in people who have made suicide attempts. This aspect has also been assessed on the Beck Hopelessness Scale[7], offering a different structure consisting of only two sub-dimensions (future and loss) and an excellent level of reliability (α=.98). Measurement instruments in the clinical population must be especially sensitive to the dimensions that are intended to be measured, especially in emergency departments, as other previous studies have suggested[19].

Hope modulates resilience to suicide attempt, and a new scale adapted to the Spanish clinical population is offered. This represents a short and easy tool to implement in hospital emergency departments and clinical and psychosocial services. It allows us to assess the level of future vulnerability to repeated suicide attempt in people who had attempted suicide previously, without focusing on the risk factors.

CONFLICT OF INTEREST

The authors declares that there is no conflict of interest regarding the publication of this article.

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