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ORIGINAL RESEARCH

Creating and Piloting a Spanish-Language Version of the Clinical Opiate Withdrawal Scale (COWS): La Escala Clínica de Síndrome Abstinencia de Opiáceos (ECAO)

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Background: Using English-only assessment tools with Spanish-speaking patients can lead to miscommunication and inadequate care. The current study translates the commonly used Clinical Opiate Withdrawal Scale (COWS) into La Escala Clínica de Síndrome Abstinencia de Opiáceos (ECAO) for use by healthcare workers to use with Spanish-speaking patients.

Methods: First, the COWS was translated using standard forward/backward methods. Next attitudes and feedback about the ECAO were assessed via a mixed-methods pilot study.

Results: The translation went according to plan. The final sample size of the pilot study was N=107 healthcare providers (M_{age} = 40.00 years; woman = 58.88%; master's degree = 42.06%). The translation was rated as accurate (M=7.83; SD = 1.71; range 4–10) with a majority (62.62%) of participants rating it at an 8 or above. Ratings of *acceptability, appropriateness, feasibility, understandability*, and *actionability* were also quite high, with agreement across questions in these sections ranging from 72.09–95.33%. Qualitative results highlighted favorability toward the ECAO such as its accurate and culturally sensitive translation with areas of improvement including use of overly medical terms.

Conclusion: Based on the results of this pilot study, the ECAO appears to be an accurate, feasible, useful tool for Spanish-speaking healthcare workers who treat patients struggling with opioid withdrawal. The free availability of the Spanish-language ECAO will help patients and providers communicate adequately in order to determine the extent of opioid withdrawal accuracy as well as develop appropriate treatment plans.

Plain Language Summary: There are few widely available Spanish-language tools for measuring opioid withdrawal across medical or clinical settings. This study translated a popular tool, the Clinical Opiate Withdrawal Scale (COWS), into a Spanish-language version, La Escala Clínica de Síndrome Abstinencia de Opiáceos (ECAO). The ECAO was tested among healthcare workers who were generally favorable toward the tool. We encourage widespread dissemination of the ECAO into healthcare facilities to reduce health disparities for Spanish-speaking patients.

Keywords: opioid use, withdrawal, assessment, treatment, COWS

Introduction

The Clinical Opiate Withdrawal Scale (COWS) is a commonly used tool to systematically assess the severity of patients who are experiencing withdrawal from opioids in a clinical or medical setting.[1] The COWS is designed to be repeatedly administered to patients over the course of hours or days without risk of over-exposure to the assessment. Evaluating 11

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observable signs, it generates a total score that classifies withdrawal as mild (score 5–12), moderate (score 13–24), moderately severe (score 25–36), or severe (score 36+).[1] Although widely used in clinical and medical settings, the tool is not without limitations, particularly when applied across diverse linguistic and cultural populations. Thus, the purpose of the current study was to translate and pilot test a Spanish-Language version of the COWS.

Despite the fact that the COWS has been used for decades, there exists no official or published Spanish-language version. Native Spanish-speaking populations are the second largest worldwide and fourth largest when considering all levels of speaking fluency.[2] The US is estimated to become home to the second-largest populace of Spanish speakers by 2060,[2] and over half (56%) of those who currently live in the US speak Spanish at home.[3] With nearly 42 million Spanish speakers in the US,[3] it is imperative that there is alignment in language between patients and providers across healthcare access, health literacy, and treatment. While over 78% of Spanish-speakers in the US speak English "well" or "very well", about a fifth (22%) do not,[3] putting them at risk of experiencing subpar care. Thus, language misalignment remains a significant barrier to the use of healthcare tools such as the COWS.

Hispanic and Latino communities, the most common Spanish-speaking communities, face persistent disparities in access to culturally and linguistically appropriate care.[4,5] Hispanic and Latino individuals are also inconsistently represented in OUD-related clinical trials, raising concerns about whether existing tools and treatments reflect their needs.[6] These disparities reflect deeper structural inequities. Despite similar rates of opioid use (18.5%) and misuse (3%) compared to non-Hispanics (23.5% and 3.1%, respectively),[7] opioid-related deaths among Hispanic individuals rose twelvefold between 2013 and 2017, outpacing increases among White populations.[8] This growing burden means that people of color, including Hispanic individuals, remain less likely to receive medications for OUD and often face stigma, legal obstacles, and lower-quality care including less access to gold-standard medication-assisted treatment (MAT).[4] For example, the Culturally and Linguistically Appropriate Services in Health and Healthcare (CLAS standards) has not been widely implemented across the US, compounding barriers to treatment for OUD.[4] Relatedly, more than half of Hispanic individuals prefer Spanish-speaking physicians, which highlights the importance of linguistically appropriate tools in fostering trust and accurate communication.[9]

To date and to our knowledge, no other comparable assessments exist that could be used in place of a Spanish-language version of the COWS. The Spanish Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP-R) evaluates the risk of misusing opioid prescriptions but does not screen for current withdrawal symptoms.[10] Thus, given the COWS' widespread use in settings such as emergency departments, urgent care facilities, and rehabilitation centers, properly translating it will likely lead to improved care for Spanish-speaking patients experiencing withdrawal. This new tool may also reduce burden on healthcare providers by streamlining workflow and providing consistency by simply being a different version of a well-known tool.

Present Study

The current study aimed to create and evaluate (via pilot test) a Spanish-language version of the COWS for free use among clinical and medical providers. There were two aims: 1) translate the COWS into the ECAO; 2) ensure accurate and appropriate translation via assessing attitudes and gathering feedback about the ECAO in a pilot study. This approach and these aims align with Spanish-language translations of other assessments. eg,[10–12] Expanding and optimizing tools like the ECAO (the current Spanish-language version of the COWS) is an essential step toward improving clinical accuracy, promoting patient-centered care, and addressing longstanding disparities in addiction medicine.

Materials and Methods

Approach

This was a multi-aim study, as outlined below, that was approved by the university's Institutional Review Board and complies with the Declaration of Helsinki. Participants gave consent to de-identified data and responses being shared.

Aim 1 Translation

The translation occurred using members of the research team who were all fluent Spanish speakers (SJ, SN, KV). Standard forward/backward translation methods were used, per current best practice,[10–13] although we did not do

reconciliation until the end due to having a small research team (see *Limitations*). One member of the team did a forward translation, translating the English-language COWS into the Spanish-language ECAO. Another member of the team did a backward translation of the Spanish-language ECAO back into the English-language COWS. The final member of the team provided reconciliation, overseeing the translation and editing the ECAO to create the final version that was used in the study. Following the study, a final edit was made per feedback to address minor errors.

Aim 2 Attitudes and Feedback

Once the translation occurred, a comprehensive survey was developed to be distributed online to Spanish-speaking healthcare workers with experience treating OUD (see *Sample*). Given that this was a pilot test of the ECAO, we felt it was more appropriate to gather initial attitudes and feedback online rather than adding burden to healthcare workers by conducting this aim in a healthcare setting (see *Limitations*). The survey had three parts: initial attitudes about the ECAO, utilization of the ECAO using a fake patient via video (to assess accuracy and cultural competency), and final thoughts. Specifically, the fake patient video served to mimic a patient experiencing withdrawal symptoms. A single participant was recruited (see *Sample*) and consented to create two videos – one in English and one in Spanish. The video was carefully worded to cover all symptoms from the COWS/ECAO (see Appendix A for the script) with a "correct" score of 15 (pulse-2; sweating-1; restlessness-0; pain-1; runnose/tearing-1g-1; gastrointestinal upset-3; tremors-2; yawning-anxiety/irritability-1y-1; gooseflesh-0). For symptoms that were difficult to communicate visually (eg, pulse), a script describing the patient was shown to participants prior to them watching the video.

Blocks

Participants were randomized into one of four blocks: 1) Spanish video, Spanish ECAO; 2) English video, Spanish ECAO; 3) Spanish video, English COWS; 4) English video, English COWS. The instructions that accompanied the video were in their respective languages (see Appendix A).

Sample

Aim 2 Attitudes and Feedback – Fake Patient Video

A single participant volunteered to be recorded to make an English- and Spanish-language video to be used during the survey. The participant consented to the research and was compensated $12 for their time. Demographic information was not collected to protect their privacy. Inclusion criteria for this participant were as follows: 1) 18+ years or older; 2) fluent or native English speaker; 3) fluent or native Spanish speaker; 4) comfortable with minimal acting (eg, yawn, act irritated). This allowed for "correct" responses during the COWS/ECAO assessment in the study, with the total "correct" score being 15 (moderate withdrawal).

Aim 2 Attitudes and Feedback – Pilot Study

Inclusion criteria were as follows: 1) 18+ years or older; 2) fluent or native English speaker; 3) fluent or native Spanish speaker; 4) is a healthcare worker; 5) experience treating patients with OUD; 6) using a laptop or computer so that they could have multiple screens up during the survey. While not part of the inclusion criteria, they were further asked what type of healthcare worker, their specific experience with opioid withdrawal in patients, and number of years of experience treating any alcohol or substance use disorder. All participants consented to the research, and the protocol was approved by the university's Institutional Review Board. Participants were compensated $12 for their time.

Measures

After assessing inclusion criteria and gathering demographic information, there were seven sections of the survey to assess attitudes and feedback, including accuracy. Four of these sections included measures from prior studies measures and three included questions we designed for this study.[14,15] The six sections and measures are outlined below.

COWS/ECAO

The COWS and its proposed Spanish-Language version, ECAO, evaluate 11 observable signs of opioid withdrawal (pulse; sweating; restlessness; pain; runny nose/eating; gastrointestinal upset; tremors; yawning; anxiety/irritability;

gooseflesh).[1] They generate a score that classifies withdrawal as mild (score 5–12), moderate (score 13–24), moderately severe (score 25–36), or severe (score 36+). Including these ensured that we could assess the accuracy of participants' responses across blocks and to the "correct" scores.

Acceptability

Acceptability assesses how well participants liked the ECAO. Four questions assessed on a 5-point Likert scale from the Intervention Appropriateness Measure were used. Questions included asking whether the ECAO is liked and meets participants' approval.[15]

Appropriateness

Appropriateness assesses how well participants think the ECAO fits into a healthcare setting. Four questions assessed on a 5-point Likert scale from the Intervention Appropriateness Measure were used. Questions included asking whether the ECAO is fitting and suitable.[15]

Feasibility

Feasibility assesses how much participants think the ECAO can be implemented into a healthcare setting. Four questions assessed on a 5-point Likert scale from the Intervention Appropriateness Measure were used. Questions include asking whether the ECAO is implementable and easy to use.[15]

Understandability

Understandability assesses the literal ease of using the ECAO, including formatting. Seventeen questions assessed on a 2-point agree/disagree scale from the PEMAT-P were used. Questions included asking whether the ECAO has a clear purpose, has breaks of information in short sections, and uses visual aids with clear titles/captions.[14]

Actionability

Actionability assesses whether the ECAO's instructions are easy to follow. Seven questions assessed on a 2-point agree/disagree scale from the PEMAT-P were used. Questions included asking whether the ECAO breaks down actions into manageable steps, and provides simple instructions.[14]

Accuracy and Cultural Competency

Accuracy and cultural competency were additionally assessed by asking participants how accurately the ECAO was translated from the COWS on a 0–10 scale. They were additionally asked if there were language barriers or errors and/or cultural insensitivities present in the ECAO (open-ended responses).

Final Questions

These questions asked participants for the top three things that they liked the most and the least about the ECAO (open-ended responses).

Analyses

Quantitative analyses were conducted by the study PI (JLB). Two-sample *t*-tests were used to test for differences in COWS/ECAO scores across blocks. All other analyses involved simple descriptives. Analyses of the qualitative (open-ended) data took place with members of the research team who were fluent and native Spanish speakers (AL, MH) because many responses were in Spanish, overseen by the study PI (JLB). Coding disagreements were resolved in larger team meetings via commonly used protocols. Specifically, the study PI (JLB) had ultimate decision-making authority after hearing justifications from the research team coders (AL, MH).

Results

Sample

Initially, 312 individuals attempted to take the study via Prolific.[16] Of those, 110 met inclusion criteria; the final sample size was N=107 (M_{age} = 40.00 years; woman = 58.88%; White = 71.64%; Hispanic/Latino = 12.26%; straight = 50.47%;

master's degree = 42.06%) because 1 participant did not consent, 1 consented but did complete the survey, and 1 only completed the first few questions of the survey and was removed from the dataset. See Table 1 for a full demographic breakdown. No power calculations were conducted due to this being a pilot study; sample size was based on available funds for the project.

Table 1 Demographics of the Final Sample

	Mean (SD); Range
Age	40.00 (11.36); 20–83
	Count (percentage)
Gender	
Woman	65 (58.88%)
Man	44 (41.12%)
Nonbinary, genderqueer, genderfluid	0
Another	0
Prefer not to answer	0
Race	
American Indian or Alaska Native	0
Asian	5 (4.72%)
Black	23 (21.70%)
Native Hawaiian or Other Pacific Islander	0
White	77 (71.64%)
Multi	1 (0.94%)
Another race	0
Prefer not to answer	0
Missing	1
Hispanic or Latino/a	
Yes	12 (12.26%)
No	92 (86.79%)
Prefer not to answer	0
Missing	1
Sexual orientation	
Asexual	3 (2.80%)
Bisexual	19 (17.76%)
Demisexual	0
Gay	15 (14.02%)
Lesbian	14 (13.08%)
Pansexual	0
Straight	54 (50.47%)
Multi	2 (1.87%)
Another	0
Unsure	0
Prefer not to answer	0
Educational level	
Less than high school	0
High school or GED	0
Some college	0
Associate's degree	3 (2.80%)
Bachelor's degree	35 (32.71%)
Master's degree	45 (42.06%)
Doctorate	11 (10.28%)
Professional degree (MD, DO, JD, DDS)	13 (12.15%)

Translation, Accuracy, Cultural Competency

The translation went according to plan, as outlined in *Approach* above. See Table 2 for the items in the final ECAO and COWS, Appendix B for the fully translated and final ECAO version. This may be used freely and appropriately in medical and research settings with proper citation.

Table 2 Items in the Spanish-Language Translation of the COWS, La Escala Clínica de Síndrome Abstinencia de Opiáceos (ECAO) Compared to the English-Language COWS

Item	COWS	ECAO
1. Pulse	Pulse Rhythm: _____beats/minute *Measured after patient is sitting down or lying for one minute.* 0 pulse rate 80 or below 1 pulse rate 81–100 2 pulse rate 101–120 4 pulse rate greater than 120	Frecuencia cardíaca en reposo: _____latidos/minuto *Medir después de que el paciente esté sentado o se haya recostado por un minuto* 0 frecuencia de 80 o menos 1 frecuencia de 81 a 100 2 frecuencia de 101 a 120 4 frecuencia superior a 120
2. Sweating	Sweating: *over past ½ hour not accounting for by room temperature or patient activity.* 0 no report of chills or flushing 1 subjective report of chills or flushing 2 flushed or observable moistness on face 3 beads of sweat on brow or face 4 sweat streaming off face	Sudoración: *Durante la última media hora, sin considerar la temperatura ambiente o la actividad del paciente.* 0 sin indicación de escalofríos o sofocos 1 indicación subjetiva de los escalofríos o sofocos 2 enrojecimiento o humedad observable en el rostro 3 gotas de sudor en las cejas o rostro 4 sudor en el rostro
3. Restlessness	Restlessness: *Observation during the assessment.* 0 able to sit still 1 reports difficulty sitting still, but is able to do it 3 frequent shifting or extraneous movements of the legs/ arms 5 unable to sit still for more than a few seconds	Inquietud: *Observación durante la evaluación.* 0 capaz de sentarse y permanecer quieto 1 informa que hay dificultad para sentarse y permanecer quieto, pero es capaz de hacerlo 3 desplazamiento frecuente o movimientos exteriores de piernas/ brazos 5 Incapaz de sentarse y permanecer quieto durante mas de unos pocos segundos
4. Pupil size	Pupil size: 0 pupils pinned or normal size for the light in the room 1 pupils possibly larger than normal for room light 2 pupils moderately dilated 5 pupils so dilated that only the rim of the iris is visible	Tamaño de pupila: 0 Pupilas de tamaño normal para la luz de la habitación 1 Pupilas posiblemente más grandes de lo normal para la luz de la habitación 2 Pupilas moderamente dilatadas 5 Pupilas tan dilatadas que solo el borde del iris es visible
5. Orthopedic pain	Pain in bones or joints: *If patient was having pain previously, only the additional component attributed to the opiate withdrawal is scored.* 0 not present 1 mild diffuse discomfort 2 patient reports severe diffuse aching of joints/muscles 4 patient is rubbing joints or muscles and is unable to sit still because of discomfort	Dolores de huesos o articulaciones: *Si el paciente tenía dolor anteriormente, se puntúa solamente el componente adicional atribuido al síndrome de abstinencia de opiáceos.* 0 no presente 1 incomodidad difusa y leve 2 el paciente informa que hay dolor difuso y severo de las articulaciones/músculos 4 el paciente se frota las articulaciones o los músculos y es incapaz de sentarse y permanecer quieto debidoa la incomodidad

(*Continued*)

Table 2 (Continued).

Item	COWS	ECAO
6. Runny nose/ tearing	Runny nose or Tearing: *Not accounted for by cold symptoms or allergies*. 0 not present 1 nasal stuffiness or unusual moist eyes 2 nose running or tearing 4 nose constantly running or tears streaming down cheeks	Moqueo o lagrimeo: *Descontando síntomas de resfriado o alergias*. 0 no presente 1 congestión nasal u ojos inusualmente húmedos 2 moqueo o lagrimeo 4 moqueo constante o lagrimeo por las mejillas
7. Gastrointestinal distress	GI Upset: *over last ½ hour.* 0 No GI symptoms 1 stomach cramps 2 nausea or loose stool 3 vomiting or diarrhea 5 multiple episodes of diarrhea or vomiting	Malestar gastrointestinal: *en la última media hora* 0 sin síntomas gastrointestinales 1 retorcijones en el estómago 2 náuseas o heces líquidas 3 vómitos o diarrea 5 episodios múltiples de diarrea o vómitos
8. Tremors	Tremors: *Observation of outstretched hands.* 0 no tremor 1 tremor can be felt, but not observed 2 slight tremor observable 4 gross tremor or muscle twitching	Temblor: *Observación con los brazos extendidos*. 0 sin temblor 1 temblor que puede sentirse pero no es visible 2 escaso temblor observable 4 temblor severo o espasmos musculares
9. Yawning	Yawning: *Observation during assessment.* 0 no yawning 1 yawning once or twice during assessment 2 yawning three or more times during assessment 4 yawning several times per minute	Bostezo: *Observación durante la evaluación*. 0 sin bostezo 1 bosteza una o dos veces durante la evaluación 2 bosteza tres o mas veces durante la evaluación 4 bosteza varias veces por minuto
10. Anxiety/ irritability	Anxiety or Irritability: 0 neither 1 patient reports increasing irritability or anxiousness 2 patient obviously irritable or anxious 4 patient so irritable or anxious that participation in the assessment is difficult	Ansiedad o Irritabilidad: 0 ninguno 1 paciente que informa un aumento de la irritabilidad o ansiedad 2 paciente obviamente irritable o ansioso 4 paciente tan irritable o ansioso que la participación en la evaluación es difícil
11. Goosebumps	Gooseflesh skin: 0 skin is smooth 3 piloerrection of skin can be felt or hairs standing up on arms 5 prominent piloerrection	Piel de gallina: 0 piel lisa 3 piel de gallina que puede sentirse o pelos erizados en los brazos 5 piel de gallina prominente
FINAL SCORE	Total score is the sum of all 11 items Score: 5–12= mild; 13–24= moderate; 25–36= moderately severe; more than 36= severe withdrawal	La puntuación total es la suma de los 11 ítems Puntuación: 5–12 = leve; 13–24 = moderada; 25–36 = moderamente severo; mas de 36 = abstinencia severa

There were no differences between the COWS (M=19.13; standard deviation [SD]=6.14; range 5–31) and ECAO (M=19.39; SD=5.43; range 4–29) sum scores (t(71.66)=−0.19, p=0.85). There were also no differences across the four blocks, which were compared within language of the assessment (COWS or ECAO) (block 3 vs 4: t(35.80)=−1.78, p=0.084; block 1 vs 2: t(29.66)=−1.79, p=0.084). Since this was the only section where participants were separated into blocks, no other differences were assessed. Further, participants scored the patient in the video in the "moderate" range, with an average score of 19. The "correct" score was 15, also in the "moderate" range, an acceptable amount of variation.

Participants rated the ECAO as generally accurately translated (*M*=7.83; SD = 1.71; range 4–10) with a majority (62.62%) of participants rating it an 8 and above out of possible 10. Only 3.05% rated it below a 5 (neutral), indicating that few felt it was not an accurate translation of the COWS. Specifically, the open-ended questions revealed that participants viewed the clinical terms "gooseflesh" and "piloerection" (English) / "piel de gallina" (Spanish) as potential barriers in both languages. A few participants mentioned that terms used throughout the COWS/ECAO are overly medical and literal, while others praised the assessments for being "language neutral" and not including regional slang or metaphors.

Attitudes and Feedback

See Table 3 for full results. Overall, participants were favorable toward the ECAO as a measure for opioid withdrawal. Regarding *acceptability, appropriateness*, and *feasibility* of the measure, a large majority of participants "agreed" or "strongly agreed" across all questions in these sections. Within *acceptability*, agreement ranged from 88.78% for "The ECAO is appealing" to 95.33% for "The ECAO meets my approval". Within *appropriateness*, agreement ranged from 87.74% for "The ECAO seems suitable" to 94.34% for "The ECAO seems applicable". Within *feasibility*, agreement ranged from 87.74% for "The ECAO is seems possible" to 90.57% for both "The ECAO seems implementable" and "The ECAO seems easy to use".

Favorability slightly decreased on measures of *understandability* and *actionability* but still remained high. The lowest-rated areas for these sections were similar, with 72.09% favorability for "The ECAO uses visual aids whenever possible to make content more easily understood (eg, illustration of a healthy portion size)" and 73.83% for "The ECAO uses visual aids to make it easier to act on the instructions", respectively. The most favorable *understandability* item was 96.23% for "The ECAO makes its purpose completely evident", and the most favorable *actionability* items were 87.74% for "The ECAO clearly identifies at least one action the user can take" and "The ECAO breaks down actions into manageable, explicit steps".

To add context to the quantitative results, qualitative responses were generally positive and grouped into two themes, favorability and areas to improve, with multiple categories under each. See Table 4 for a detailed breakdown of the qualitative results. Regarding favorability, participants noted that the ECAO presents an accurate, clear, and culturally sensitive translation of the original. Its consistency and ease of use mean that it is applicable in a wide range of settings whilst providing accurate results, resulting in optimal interventions for a broader population of patients. There were seven categories under this theme and a total of 65 codes. Categories included 1) culturally inclusive and clear language (16 codes – eg, "clear and direct language" and "culturally neutral language"); 2) consistency and ease of use (14 codes – eg, "easy to use" and "structured scoring"); 3) accuracy of results and interventions (9 codes – eg, "clinically precise" and "improves quality of care"); 4) patient engagement, trust, and comfort (8 codes – eg, "build trust" and "equity in care"); 5) applicability and accessibility across settings (8 codes – eg, "bridge language gaps" and "improves access to care"); 6) symptom-specific clarity (6 codes – eg, "covers all key withdrawal symptoms" and "full picture"); 7) accurate translation (4 codes – eg, "consistent structure" and "practical, observable terms").

Regarding areas to improve, while some participants expressed no dislikes in the ECAO, the main concerns were related to the translation from the COWS to the ECAO as well as the lack of clear guidance in future directions for providers. In addition, some felt that the assessment was not fully accessible and showed barriers to patient-friendly use and accessibility, which further led to an inaccurate assessment. There were five categories and 28 codes. Categories included 1) barriers to patient-friendly use and accessibility (12 codes – eg, "not patient-facing" and "absence of visual aids"); 2) cultural- and clarity-related mishaps in translation (8 codes – eg, "overly formal terminology" and "lack of regional adaptation"); 3) inaccuracy of assessment (8 codes – eg, "open to misinterpretation" and "limited emotional coverage"); 4) missing clear guidance for providers (4 codes – eg, "no guidance on translating scores into action" and "missing instructions"); 5) None. Both themes also had a "miscellaneous" category that included nonsensical or unclear comments.

Discussion

The purpose of this study was to create and conduct a pilot test of a Spanish-language version of the COWS. This resulted in the creation of the ECAO via typical translation and a unique participant design to query feedback. Overall participants were favorable toward the ECAO, noting its accurate and appropriate translation. While there are some

Table 3 Results of the Quantitative Attitudes and Feedback Toward the ECAO.

Section / Question	Response (Raw Sample Size; Percentage)				
Acceptability	**Completely disagree**	**Disagree**	**Neither disagree nor agree**	**Agree**	**Completely agree**
The ECAO meets my approval	0 (0%)	1 (0.93%)	4 (3.74%)	80 (74.77%)	22 (20.56%)
The ECAO is appealing	0 (0%)	1 (0.94%)	15 (14.15%)	57 (53.77%)	33 (31.13%)
I like the ECAO	0 (0%)	0 (0%)	6 (5.66%)	74 (69.81%)	26 (24.53%)
I welcome use of the ECAO	0 (0%)	1 (0.94%)	5 (4.72%)	64 (60.38%)	36 (33.96%)
Appropriateness	**Completely disagree**	**Disagree**	**Neither disagree nor agree**	**Agree**	**Completely agree**
The ECAO seems fitting	0 (0%)	0 (0%)	7 (6.54%)	77 (71.96%)	23 (21.49%)
The ECAO seems suitable	0 (0%)	1 (0.93%)	11 (10.28%)	60 (56.07%)	35 (32.71%)
The ECAO seems applicable	0 (0%)	0 (0%)	6 (5.66%)	63 (59.43%)	37 (34.91%)
The ECAO seems like a good match	0 (0%)	1 (0.94%)	6 (5.66%)	67 (63.21%)	32 (30.19%)
Feasibility	**Completely disagree**	**Disagree**	**Neither disagree nor agree**	**Agree**	**Completely agree**
The ECAO seems implementable	1 (0.94%)	1 (0.94%)	8 (7.55%)	68 (64.15%)	28 (26.42%)
The ECAO seems possible	1 (0.94%)	0 (0%)	12 (11.32%)	50 (47.17%)	43 (40.57%)
The ECAO seems doable	2 (1.89%)	0 (0%)	9 (8.49%)	60 (56.60%)	35 (33.02%)
The ECAO seems easy to use	1 (0.94%)	1 (0.94%)	8 (7.55%)	59 (55.66%)	37 (34.91%)
Understandability		**Disagree**		**Agree**	
The ECAO makes its purpose completely evident		4 (3.77%)		102 (96.23%)	
The ECAO does not include information or content that distracts from its purpose		14 (13.21%)		92 (86.79%)	
The ECAO uses common, everyday language		14 (12.21%)		92 (86.79%)	
Medical terms are used only to familiarize audience with the terms. When used, medical terms are defined in the ECAO.		13 (12.15%)		94 (87.85%)	
The ECAO uses the active voice		10 (9.52%)		95 (90.48%)	
Numbers appearing in the ECAO are clear and easy to understand		13 (12.15%)		94 (87.85%)	
The ECAO does not expect the user to perform calculations		10 (9.52%)		95 (90.48%)	
The ECAO breaks or "chunks" information into short sections		28 (26.67%)		77 (73.33%)	
The ECAO's sections have information headers		22 (20.75%)		84 (79.25%)	
The ECAO presents information in a logical sequence		8 (7.62%)		97 (92.38%)	
The ECAO presents information in a logical sequence		14 (13.08%)		93 (86.92%)	
The ECAO provides a summary		20 (18.87%)		86 (81.13%)	
The ECAO uses visual cues (eg, arrows, boxes, bullets, bold, larger font, highlighting) to draw attention to key points		18 (17.14%)		87 (82.86%)	

(*Continued*)

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Table 3 (Continued).

The ECAO uses visual aids whenever possible to make content more easily understood (eg, illustration of a healthy portion size)	29 (27.10%)	78 (72.90%)
The ECAO's visual aids reinforce rather than distract from the content	22 (20.75%)	84 (79.25%)
The ECAO's visual aids have clear titles or captions	22 (20.75%)	84 (79.25%)
The ECAO uses illustrations and photographs that are clear and uncluttered	23 (21.90%)	82 (78.10%)
The ECAO uses simple tables with short and clear row and column headings	12 (11.32%)	94 (88.68%)
Actionability	**Disagree**	**Agree**
The ECAO clearly identifies at least one action the user can take	13 (12.26%)	93 (87.74%)
The ECAO addresses the user directly when describing actions	16 (15.09%)	90 (84.91%)
The ECAO breaks down actions into manageable, explicit steps	13 (12.26%)	93 (87.74%)
The ECAO provides a tangible tool (eg, checklist) to help the user take action	20 (18.69%)	87 (81.31%)
The ECAO provides simple instructions or examples of how to perform calculations	25 (23.58%)	81 (76.42%)
The ECAO explains how to use the charts, graphs, tables, or diagrams to take action	27 (25.47%)	79 (74.53%)
The ECAO uses visual aids to make it easier to act on the instructions	28 (26.17%)	79 (73.83%)

Note: The "ECAO" Was Referred to as the "COWS-SL" [COWS-Spanish Language] During the Assessment. The Wording Has Been Changed Below to Reflect Its Accurate Acronym.

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Table 4 Breakdown of Qualitative Analysis of Open-Ended Questions

Theme	Categories	Meaning	Quote
Favorability toward the ECAO	Culturally inclusive and clear language	Highlight how the language used is clear, neutral, and easy to understand, while also being culturally sensitive.	"I value the [ECAO] for its simple, clear Spanish that improves understanding, its cultural relevance that respects how symptoms are expressed, and its accessibility, which supports equity in care for Spanish-speaking patients during opioid withdrawal".
	Consistency and ease of use	This category includes codes that describe the ECAO as clear, well-structured, and easy to use. Respondents noted that the tool's consistent format helps streamline assessment and minimizes confusion.	"The [ECAO] offers a clear and standardized 11-item format, which helps clinicians assess and monitor opioid withdrawal symptoms in a consistent and repeatable way. This structure is particularly helpful in busy clinical environments, ensuring that no key symptoms are overlooked during evaluation".
	Accuracy of results and interventions	Emphasizes the ECAO's ability to generate accurate, reliable assessments of withdrawal symptoms. Respondents highlighted how this accuracy supports appropriate clinical decision-making and ensures patients receive the proper care and interventions.	"The [ECAO] enhances patient understanding by using simplified language, ensuring that Spanish-speaking individuals can accurately describe their symptoms and receive appropriate care".
	Patient engagement, trust, and comfort	How the ECAO improves communication and trust between patients and providers	"I really appreciate the [ECAO] for a few key reasons. First, it's in Spanish, which means my Spanish-speaking patients feel more comfortable and understood. It helps break down language barriers that often get in the way of care. I have seen patients relax a little just because the tool speaks their language. It builds trust almost immediately. Second, it's clear and easy to use. The symptoms are described in a way that makes sense to both me and the patient. I do not have to spend extra time explaining every question. That makes assessments quicker and smoother. Third, it helps me connect with patients on a human level. It shows them I care enough to meet them where they are. I can respond to their needs more accurately. It opens the door to honest conversations. That makes a real difference in treatment. Overall, [ECAO] makes care more respectful, effective, and personal".
	Applicability and accessibility across settings	Describes how the ECAO is practical, adaptable, and easy to use across different clinical environments. Respondents emphasized its accessibility in terms of time, format, and ease of integration into both high-demand and resource-limited settings.	"The Spanish version maintains the original structure and scoring system of the English COWS, which allows providers to use it without needing separate training. This ensures consistency in assessment across languages and supports clinical reliability".
	Symptom-specific clarity	Comments regarding the observable nature of the symptoms as well as relevant clarity / translation accuracy specific to symptoms	"The inclusion of both objective (observable) and subjective (patient-reported) symptoms is valuable. For instance, sweating and pupil dilation are observable, while anxiety, irritability, and pain in bones/joints are subjective reports from the patient. This balanced approach ensures that the assessment is more holistic, considering both the clinician's observations and the patient's experience"

(*Continued*)

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Table 4 (Continued).

Theme	Categories	Meaning	Quote
	Accurate translation	Highlights the precision of the Spanish translation and its fidelity to the original English version. Respondents emphasized that the clinical language was accurately preserved, allowing Spanish-speaking professionals to interpret and use the tool with the same effectiveness as the English version.	"The Spanish version closely mirrors the structure and item order of the English COWS. This is useful for bilingual clinicians and teams working in mixed-language environments, as it allows for easy cross-reference, team training, and consistent scoring".
Areas to improve	Barriers to patient-friendly use and accessibility	Respondents pointed out a lack of visuals, cluttered layout, and unclear wording that limited its ease of use and accessibility, especially for those with lower health literacy.	"The absence of visual aids may make it harder for some clinicians to assess effectively".
	Cultural and clarity-related mishaps in translation	Cultural sensitivity, clarity, grammatical, and tone-related concerns.	"The language in the [ECAO] is highly clinical, which might make it challenging for patients experiencing opioid withdrawal. For example, phrases like 'intensidad de la ansiedad' (intensity of anxiety) could be clearer if simplified, helping patients feel more comfortable when responding to questions. Providing a more conversational tone would ensure that patients accurately reflect their symptoms".
	Inaccuracy of assessment	Respondents noted inaccuracies to either subjectiveness, comorbid conditions, self-reporting, need for further testing, or oversimplification of withdrawal.	"Its reliance on subjective patient reports (such as anxiety ratings) raises the possibility of inaccuracy because of stigma or poor self-assessment".
	Missing clear guidance for providers	Concerns about how the ECAO lacked concrete guidance on how to interpret or apply result.	"The scale effectively assesses the severity of withdrawal symptoms but doesn't offer much guidance on how to manage or treat those symptoms once they are identified".
	None	Respondents who had no concerns.	"None".

suggested areas of improvement, which we will discuss below, we are confident in making the ECAO freely available to those who need to use it. This assessment offers more benefits than barriers, opening up possibilities to better assess Spanish-speaking patients in withdrawal from opioids.

The ECAO is simply another version of a well-established assessment for opioid withdrawal, which is less complicated for healthcare providers and more equitable for patients than having a different assessment for patients who speak Spanish. For this reason, we did not do an in-depth psychometric evaluation of the ECAO. Per best practice for assessments,[17] the ECAO includes approachable translation, description of the assessment, classification, measurement, and scoring. It does not include evaluation of test materials (not applicable), supply/condition/cost (not included – free as outlined here), or evaluation of norms (provided with the COWS).[17] It is designed to be used between Spanish-speaking healthcare providers and Spanish-speaking patients, although we are aware that high-stress healthcare settings may mean that it is used outside of these bounds. For example, given that the ECAO is a tool used by healthcare professionals, not patients, it would be acceptable for a bilingual healthcare worker to use it on an English-speaking patient to improve the workflow for the healthcare worker if Spanish was their primary language. A less ideal situation (but one which may occur) would be if an English-speaking healthcare worker asked a Spanish-speaking patient to fill out the ECAO as a self-evaluation. While not the intent of the COWS or ECAO, even if this were to occur, it would mean that some level of assessment and care occurred versus the alternative, the Spanish-speaking patient not being assessed at all in that moment for their opioid withdrawal symptoms. We acknowledge that translation services are legally required

in healthcare settings, but the time and burden of securing that in a timely manner is unlikely given the urgent need to quickly assess opioid withdrawal symptoms to provide immediate care.

Relatedly, many of the areas of improvement are ones that were either seen as strengths by a majority of participants (eg, medical language, mix of objective observations and subjective reporting) or comments outside the scope of either version of the assessment (eg, training guidelines). Many of these are intrinsic to the assessment. It is reasonable to expect that healthcare professionals in a setting where patients experiencing opioid withdrawal are common, such an emergency department, urgent care, or trauma center, are versed in the medical language used in the COWS/ECAO. It is also reasonable to expect that such healthcare professionals do not need explicit training on the ECAO, as they likely already use the COWS or something commensurate. Of note, one of the most common comments was about the "gooshflesh" / "piel de gallina" section on both assessments. While the wording was a key concern in the study, we chose not to actually change the final version of the COWS or ECAO since those are the medical terms for goosebumps. However, we encourage those who use the COWS and ECAO to clarify what is meant by "gooseflesh", "piloerection", and "piel de gallina".

Limitations

There were several limitations to the current study. First, it would have been ideal to have more researchers conduct the translation. Our team was limited in scope and we could only rely on three team members who were all fluent in Spanish (two students, one faculty) for this stage of the project. Hence, we only had enough people to do one round of forward/backward translation. Second, and similarly, we were unable to do a committee procedure for the translation. This is not a required step but would have added more rigor to the project. Third, while our design was unique for testing the ECAO, it had its limitations. On the one hand, we could control the "correct" response for the COWS/ECAO with the video. On the other hand, this was not a real-life experience. We chose to do this design because testing the ECAO in hospitals would have been too disruptive for staff and patients in early withdrawal. Finally, this was a cross-sectional, pilot design that was appropriate for the scale and scope of this project. Future studies are needed to assess the ECAO's psychometric properties and assess its real-world adoption and impact.

Future Directions

There are three key areas of future research needed for the ECAO. The first is that this was a pilot study, hence the tool needs to be tested in a real-world setting. We acknowledge that it would be unethical to compare use of the ECAO to the COWS for Spanish-speaking healthcare workers and patients. However, treatment-as-usual or step-wedge designs would allow a more thorough assessment of the tool, including psychometric validation. Second, and relatedly, once the ECAO is more thorough tested and validated, then it would be useful to compare it to existing translation services. Translation services vary widely across healthcare settings, and it has been shown that patients prefer those who speak their language, bilingual providers, or in-person translation.[18] There may be settings where the ECAO is welcomed and others where existing in-person translation services are adequate for treating opioid withdrawal. Finally, it would be beneficial to study the adoption of the ECAO across different types of healthcare settings (eg, emergency departments, urgent care facilities, rehabilitation centers).

Conclusions

Although the original COWS is an excellent tool for assessing opioid withdrawal among patients in recovery, it is inaccessible and potentially inaccurate when providing care for patients who do not speak English fluently. For healthcare providers, this new ECAO assessment tool will streamline workflow, maintain consistence by simply being a Spanish version of a common tool instead of a brand-new assessment for opioid withdrawal that may not be the equivalent of the existing COWS. The availability of a Spanish-language COWS, the ECAO, will help patients and providers communicate adequately in order to determine the extent of opioid withdrawal accuracy as well as develop appropriate treatment plans. This expansion of proper recovery healthcare to a greater population will result in improved health outcomes for this underrepresented population. Since this was a pilot test, we encourage future testing of the ECAO across settings.

Statement on Informed Consent

The University of Richmond Institutional Review Board (URIRB250218) approved the study and its materials, and it complies with the Declaration of Helsinki.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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