Developing a brief tool for anger assessment in clinical settings

Brian Merriman, Suzanne Guerin, Fiona Horgan, Brian Maguire

Abstract

Objectives: To develop and validate a new brief assessment tool for anger in clinical settings.

Methods: The Cluain Mhuire Clinical Anger Scale (CMCAS) was developed using mixed methods including content analysis of interviews with five clients and six clinicians and qualitative item analysis of nine existing assessment tools. An initial 16-item scale was completed by 112 clients of a psychiatric day hospital and a non-clinical comparison group (n = 76).

Results: Psychometric analysis found that the CMCAS consisted of one 12-item factor with good internal reliability (α = 0.82, n = 178) and good test-retest reliability (r = 0.93, n = 12) and converged with scores on STAXI-2. It distinguished between a subgroup referred for an anger management programme and matched groups from non-anger clinical and non-clinical samples (F(2) = 18.13; p < 0.01).

Conclusions: Findings suggest the CMCAS may be useful in clinical settings as a screening and assessment tool.

Key words: Anger; Screening; Self-assessment.

Introduction

Anger is a widely studied human emotion and has been investigated with respect to its physical and cognitive components, history, and social implications. Distinctions have been drawn between anger as a response to provocation or to a threat, aggression as one form of expression, and hostility as an attitude to the provoking agent. If anger is expressed effectively, it can be useful for self-preservation and Faupel et al identified it as an opportunity for learning and change, especially communicating concerns while respecting others’ rights to have alternative views. The ineffective expression of anger, such that it becomes a clinical problem, has a range of negative consequences and is related to other clinical conditions.

Before proceeding to address anger as it presents clinically and how it might be measured, it is important to define anger and some associated concepts. Anger is considered an emotion in that it results from an evaluative perception of a relationship (actual, imagined, or anticipated) between a person and the environment. Furthermore, it has the identifiable autonomic, central nervous system, and cognitive components of an emotion. The evaluative perception leading to anger is provocation or threat and the response to provocation is to struggle with increasing violence until the source of provocation is removed or conquered. If there is no way of removing the provoking stimulus or situation, the anger is said to be ‘repressed’ or ‘introverted’.

On the other hand, the cumulative effect of the autonomic tensions sometimes reaches breaking-point and becomes ‘extroverted’ in a response of unexpected violence: aggression. ‘Hostility’, which Allport also introduced here, is an attitude to the provocative agent usually expressed as resentment or mistrust.

These three terms – anger, aggression, and hostility – have been used interchangeably in the literature. For the purposes of the present research anger is an emotion, aggression is its behavioural expression, and hostility is an attitude, a cognitive response to anger.

In everyday life, it is also widely acknowledged that anger is a normal human emotion. Cummins even noted that some people “actually enjoy the experience of being angry... While angry they experience a sense of power and validation that is often lacking in the rest of their lives,” and Faupel et al identified it as an opportunity for learning and change, especially communicating concerns while respecting others’ rights to have alternative views.

Anger does not occur as a discreet category in the foremost manual of clinical psychology, the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR); Eckhardt et al claimed that ‘irritability’ is the DSM’s euphemism for anger. The DSM-IV-TR15 mentions anger explicitly in the diagnoses of at least six other disorders: on Axis I, dysthymia and post-traumatic stress disorder; on Axis II, paranoid personality disorder, borderline personality disorder, and anti-social personality disorder; and on Axis III, coronary artery disease. Another Axis I diagnosis, intermittent explosive disorder has to do with “failure to resist aggressive impulses that result in serious assaultive acts or destruction of property.”

It should be noted that a difficulty expressed by clients does not require a clear Axis I diagnosis to make it a difficulty for that client. Furthermore, whether or not anger is formally recognised as a clinical problem and how that recognition is expressed are consequential to the questions of how anger is understood in the clinical setting.

In clinical settings, the ineffective expression of
anger – aggression – is seen as a problem. It is beyond rational control, has negative physiological effects, and can lead to damaged relationships. Robbins also pointed out that aggression can sometimes have dire consequences for the individual and those around him if not kept within acceptable limits. It is these acceptable limits, and the line between appropriate expression of anger and long-term problems of inappropriate expression, that is the distinction between anger as a clinical issue and not. The ineffective expression of anger such that it becomes a clinical problem has a range of negative consequences.

Deffenbacher et al developed a 33-item Anger Consequences Questionnaire (ACQ) abstracted from interviews with participants. Cluster analysis yielded eight clusters, all with good internal reliability. These were physical fights, verbal fights, damaged friendships, property damage, hurt self physically, alcohol use, negative emotions, and legal/vocational difficulties. Suinn proposed anxiety-anger as a clinical disorder. Anxiety-anger, he suggested, led to vigilance and scanning and the activation of sympathetic nervous system. This was associated with psychosocial characteristics affecting vulnerability. In the long-term, this led to poor health behaviours.

Clinical assessment in mental health services is usually based around interviews. The questions in these kinds of assessments can be formalised, as in the Structured Clinical Interview for DSM-IV-TR (SCID-CV). Clinical assessment can also include standardised questionnaires and in the case of anger assessment the State-Trait Anger Expression Inventory (STAXI) and the Novaco Anger Scale (NAS) are the most common. A range of other assessment tools exists, most of them with a more specific focus than the STAXI and NAS. For example, the Novaco Imaginal Provocation Test (NIPT) was designed for people with intellectual disabilities and the Propensity for Anger Driving Scale (PADS) is a measure of road rage.

Several other measures were investigated in the course of the present study, as detailed in the Scale Development section below, two of which have been used widely enough to merit consideration. They are the Aggression Questionnaire (AQ) and the Reactions Inventory – Anger (RIA). The AQ is a 29-item measure with a five-point rating scale ranging from ‘extremely uncharacteristic of me’ to ‘extremely characteristic of me’. It has four subscales: physical aggression, verbal aggression, anger, and hostility. Internal reliability was given in respect of each subscale as α = 0.85, 0.72, 0.83, and 0.77 with the total score yielding a value of α = 0.89. Test-retest reliability at nine weeks was r = 0.8, 0.76, 0.72, and 0.72 for the subscales and 0.8 for the total score.

Spielberger et al suggested that the rating format, some of the individual items, and the high test-retest reliability make the AQ a measure of trait aggression, measuring individual differences in the disposition to engage in aggressive behaviour. The RIA, however, was developed to assess anger as evoked in specific situations. In Biaggio et al’s review, the RIA was found to have good test-retest reliability (r = 0.7) and to have some capacity to predict the experience of anger. The STAXI-2 was recommended as the best available assessment tool on the basis of being theoretically clear, well-normed scales, with a multitude of uses in clinical and research settings. The STAXI-1,2 and NAS have been used with great success but some anger research has used tools which may be considered inappropriate or none at all. In general, the problems with assessment tools appear to be their clinical validity, their availability, the level of knowledge of assessment tools for practitioners, their applicability to specific populations, and completion rates among particularly vulnerable populations including those with poor literacy skills.

Furthermore, there is a growing awareness of the need for developmentally culturally appropriate assessment tools, evidenced by the adaptations of the STAXI for children and adolescents and in Spanish. Merriman and Guerin reported interviews with mental health practitioners who emphasised the importance of cultural sensitivity. For example, the ways in which clients understood and expressed their experiences varied considerably and a statement on the STAXI-2 State anger scale like ‘I am mad’ (Item 6) has undesirable overtones for Irish people attending a mental health service compared to American people at American services. The interviewees also commented on the limited cognitive capacities of their clients, showing a preference for shorter scales and simpler language.

This client-centred awareness is consistent with the adaptation of interventions so they can be used conveniently and productively with the population who need them. A logical extension of this argument and a possible solution to some of the concerns identified here is the development of measures for, in this case, an Irish population of practitioners and service users.

The aim of the present study was to develop a new assessment tool for anger which is suitable for a particular population. Its impetus was from practitioners in a mental health setting who found that the available anger assessment tools did not suit their needs. Their expectation was of a short, single scale assessment tool suitable for identifying anger issues in the clinical population. The methodology of this study borrows from Guyatt et al’s model of best practice for tool development and combines consultation with stakeholders with thorough review of literature and of existing tools. There are also parallels with the development of the NAS though on a scale consistent with the population setting of the study. This paper has two aims: to describe the development of the Cluain Mhuire Clinical Anger Scale (CMCAS) and to report its psychometric testing.

**Scale development**

**Design**

The development phase of the present study combined concurrent qualitative elements: interviews and item analysis. Interviews were used to identify problems with the assessment process as it stands from the points of view of clients and clinicians, to access the clients’ views on anger, and to learn how clients describe anger in order to use the same terms in the new assessment tool. The item analysis, as detailed below, looked for recurring themes among items on the scales commonly used to measure anger, aggression, and hostility, and established how many of these recurred in the interviews. The final phase of the development involved asking interviewees for comments on an initial draft of the new tool.
Method
The research setting was an acute psychiatric day hospital in an urban area serving a population of approximately 172,000. Five clients of the day hospital who had been referred to an anger management programme were interviewed in this phase of the study (age range 17-76 years; mean = 36.11 years; SD = 13.37). Data were collected from individuals referred to and voluntarily attending an acute psychiatric day hospital (n = 112; 59.57%) as part of their initial clinical assessment. Seventy-six participants (40.43%) were sourced to act as a non-clinical comparison group to match the demographic characteristics of the individuals recruited through the day hospital.

Within the total sample, three groups were identified. Among the group attending the day hospital, 30 were referred for the hospital’s anger management programme (Anger group, n = 30). These were matched for age, gender, and marital status to a group from the day hospital but attending other programmes and services (Clinical group, n = 30) and from the non-clinical sample (Non-clinical group, n = 30). Demographic data for these three groups are presented in Table 1. There were no significant differences among the groups in age (F(2) = 0.046, p > 0.01), gender (χ²(2) = 0; p > 0.01), or marital status (χ²(6) = 2.36; p > 0.01).

Table 1: Demographic data for Anger, Clinical, and Non-clinical groups

<table>
<thead>
<tr>
<th></th>
<th>Anger</th>
<th>Clinical</th>
<th>Non-clinical</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>90</td>
</tr>
<tr>
<td>Mean age</td>
<td>39.7</td>
<td>40.27</td>
<td>39.27</td>
<td>39.34</td>
</tr>
<tr>
<td>SD</td>
<td>13.42</td>
<td>12.18</td>
<td>12.01</td>
<td>12.12</td>
</tr>
<tr>
<td>Range</td>
<td>17-76</td>
<td>17-76</td>
<td>19-75</td>
<td>17-76</td>
</tr>
<tr>
<td>Male</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>69</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Married</td>
<td>14</td>
<td>16</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>Single</td>
<td>11</td>
<td>13</td>
<td>11</td>
<td>35</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

The participants in the clinical group did not report marital status.

Scale validation

Method
Participants. Participants were 188 Caucasian Irish adults, 100 males (53.19%) and 87 females (46.82%; one not reported). They ranged in age from 17-76 years (mean = 36.11 years; SD = 13.37). Data were collected from individuals referred to and voluntarily attending an acute psychiatric day hospital (n = 112; 59.57%) as part of their initial clinical assessment. Seventy-six participants (40.43%) were sourced to act as a non-clinical comparison group to match the demographic characteristics of the individuals recruited through the day hospital.

From the interviews with the clients, a clear picture of their experiences of anger emerged. The factors that contribute to anger for this population which were identified from the interviews were work, home, social, and nuisance or obstacle. Abstractions from a number of these contributing factors were included in items on the new assessment tool, for example, “Do you get angry when you do something well and don’t get credit?” is based on reports of anger at work. Among the findings from the clinician interviews included the requirement for simple language. Finally, the manifestation of anger in self-harm was a theme that emerged but that is not included in any of the existing anger assessment tools.

The item analysis was a content analysis of the items on nine assessment tools listed above. Twenty-seven items met the inclusion criteria of occurrence in at least two assessment tools and one interview. For example, ‘It makes me furious when I am criticised in front of others’ (STAXI-2) was coded as being criticised with ‘Being singled out for a correction, while the actions of others go unnoticed’ (NAS)23. The corresponding item in the CMCAS reads: ‘Do you get angry if you are criticised unfairly?’ The 27 items were referred to the original interviewees who were asked to identify the most important items and whether there was any duplication. Comments on response format – whether four or five options – font size, and typeface were also requested. This process yielded a 16-item measure, with a four-point response scale from ‘Almost always’ to ‘Almost never’ which was then validated using the method described below.

Table: Cluain Mhuire Clinical Anger Scale (CMCAS)

<table>
<thead>
<tr>
<th></th>
<th>Anger</th>
<th>Clinical</th>
<th>Non-clinical</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>90</td>
</tr>
<tr>
<td>Mean</td>
<td>39.7</td>
<td>40.27</td>
<td>39.27</td>
<td>39.34</td>
</tr>
<tr>
<td>SD</td>
<td>13.42</td>
<td>12.18</td>
<td>12.01</td>
<td>12.12</td>
</tr>
<tr>
<td>Range</td>
<td>17-76</td>
<td>17-76</td>
<td>19-75</td>
<td>17-76</td>
</tr>
<tr>
<td>Male</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>69</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Married</td>
<td>14</td>
<td>16</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>Single</td>
<td>11</td>
<td>13</td>
<td>11</td>
<td>35</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

The participants in the clinical group did not report marital status.

State-Trait Anger Expression Inventory-2 (STAXI-2). The STAXI-2 is a 57-item measure with six scales, five subscales, and the anger expression Index. Reliability statistics were reported separately for male and female normal adults and for male and female psychiatric patients (sic) by Spielberger and range from α = 0.73 to α = 0.95. Responses are on a four-point
Likert Scale to first person statements. Spielberger presented normative tables based on over 9,000 participants as well as data for special interest groups such as prison inmates and military recruits. The scales and subscales of the STAXI have been shown independently to have good internal reliability, of the order of $\alpha = 0.69$ to $\alpha = 0.93$ and good test-retest reliability of $\alpha = 0.58$ to $\alpha = 0.78$. There were also significant positive correlations between trait anger and anger expression style ($r = 0.32$ to $r = 0.61$). The STAXI has also been shown to discriminate between maritally violent men and non-violent men. Construct validity of the CMCAS can be established by comparison to the STAXI-2.

Somatic, Cognitive, and Behavioural Anxiety Inventory (SCBAI). The SCBAI is a 36-item measure with subscales for somatic, cognitive, and behavioural anxiety. Responses are on a nine-point Likert Scale to first person statements. Reliability for the somatic factor is 0.93, for the behavioural factor is 0.92, and for the cognitive factor is 0.92.41 However, some 25-35% of variance in each subscale is due to social desirability. Good concurrent validity was established with the Spielberger State-Trait Anxiety Inventory, Eysenck Neuroticism, Eysenck Introversion, SCL-90, and IPAT Anxiety Inventory. The SCBAI was included as a measure of discriminant validity of the CMCAS, whether any differences between groups in scores on the anger assessment could be attributed to anxiety.

Procedure. The clinical nursing assessment completed by the participants in the day hospital included the tools required for the research. The order of the presentation of the tools was not dictated and was determined by the staff according to the course of the assessment. A subgroup of the clinical sample ($n = 12$) was contacted by telephone two weeks subsequent to their initial assessment but before commencement of any intervention and asked to complete the CMCAS again in order to establish test-retest reliability. The non-clinical participants were asked to participate in person by email and were given the same information as the clinical participants. Data were entered and analysed using Statistical Package for the Social Sciences.
Results

Factor analysis of the CMCAS. The correlation matrix of the 16 items in the CMCAS for the sample of 188 participants was subjected to a principal-axis factoring and varimax rotation with Kaiser normalisation. This analysis suggested the presence of four factors accounting for 55.46% of the total variance with one factor accounting for 26.67% of variance (see Table 2). The items loading on Factor 2 all had low item-total correlations and two in Factor 4 had higher loadings in Factor 1. Furthermore, a single factor scale would be easier for practitioners to use. Therefore, confirmatory factor analysis was carried out requesting a one-factor solution and identified one factor containing 12 items with factor loadings greater than 0.4 (see Table 2) and accounting for 26.67% of the variance. The negative factor loadings identified for items 8 and 9 (see Table 2) suggested that these should be reversed scored.

Reliability analysis of the CMCAS. Exploratory reliability analysis of the full 16-item CMCAS yielded a Cronbach’s α of 0.55 (n = 178). Four items showed low item-total correlation (r = 0.02 to 0.17; see Table 2). These were the same four items excluded in the confirmatory factor analysis. The two items to be reversed from the confirmatory factor analysis also emerged from this analysis showing negative item-total correlations. Reliability analysis of the single 12-item factor identified through the confirmatory factor analysis yielded a Cronbach’s α of 0.82 once items 8 and 9 were reversed (n = 178). In addition the item-total correlations did not identify any problematic items remaining (see Table 2). Based on the factor analysis and the reliability analysis, the CMCAS was reduced to 12 items and all subsequent results reported are from the 12-item version.

Test-retest reliability of the CMCAS. A group of 12 participants from the acute psychiatric day hospital cohort was used to establish the two-week test-retest reliability of the CMCAS. At initial testing, the mean score for this group on the CMCAS was 26.25 (SD = 8.13) At retesting, the mean score was 25.5 (SD = 8.04). Using Pearson’s Correlations, the relationship between test occasions was r = 0.93 (n = 12; p < 0.01), representing a high level of test-retest reliability. This suggests that the CMCAS shows consistent measurement over a two-week period.

Distribution of CMCAS Scores. Before parametric analyses could be carried out, it was important to establish whether scores on the scale showed evidence of a normal distribution. Figure 1 graphs the frequency of CMCAS scores (n = 184) with the normal curve. The mean score was 25.42 (SD = 6). The median was 25 and the mode was 22, both close to the mean score. The skewness of the curve was 0.64 and the kurtosis was 0.28, both within range of the normal curve. The graph and summary statistics suggested that CMCAS scores were acceptably close to the normal distribution to proceed with parametric analyses.

Convergent validity. Convergent (or concurrent) validity of the CMCAS was established by testing the correlations with scores on the STAXI-2 from the clinical participants (n = 112) who had completed both measures. However, prior to testing the correlations between the two scales, the reliability of the STAXI-2 with this population was tested. As shown in Table 3, the STAXI-2 scales and subscales showed good reliability for this clinical population. Pearson’s Correlations were then used to explore the relationships between these two measures. As can be seen in Table 3 correlations between the CMCAS and the scales and subscales of the STAXI-2 were significant at the 0.01 level (range r = 0.277 to r = 0.743). Correlations with the state anger scales and subscales, which measure the level of anger experienced at the time of completion rather than a general disposition, though significant, were low (r = 0.28 to r = 0.35). Evidence that the CMCAS might be tapping into a general disposition of anger comes from the correlations with the trait anger scale and subscales, which were much stronger (r = 0.59 to r = 0.75) with more than 50% of variance in the CMCAS accounted for by both the trait scale and the angry temperament subscale. Though further study is necessary, the CMCAS appears to have
Divergent validity. To determine divergent validity, participants in the Clinical and Anger groups also completed an anxiety scale, the SCBAI.41 The SCBAI was a reliable measure of anxiety for the general clinical group on each of the three scales – somatic ($\alpha = 0.943$; $n = 98$), cognitive ($\alpha = 0.836$; $n = 98$), and behavioural ($\alpha = 0.909$; $n = 101$) – so could be used to distinguish anxiety from anger problems in this group.

Bivariate correlations were used to test for significant relationships on each scale. Small significant correlations were observed on the somatic ($r = 0.287$; $n = 106$; $p < 0.01$), cognitive ($r = 0.368$; $n = 106$; $p < 0.01$), and behavioural ($r = 0.277$; $n = 106$; $p < 0.01$) scales.

The significant results were most likely due to the large sample size and the magnitude of the correlations is of greater import here. Furthermore, the scores on the somatic and cognitive scales were below, and on the behavioural scale slightly above, clinical cut-offs.44 These low correlations and sub-clinical scores suggested that any anger group differences observed on the CMCAS were not due to co-existing anxiety problems, so divergent validity was established.

Discriminant validity. To determine if the CMCAS is as effective as the STAXI-2 in identifying people with anger issues, statistical analysis first established whether the STAXI-2 found a significant difference between the anger and clinical groups. A multivariate analysis of variance was carried out for all of the STAXI-2 subscales (see Table 4) comparing these two groups. There were significant differences between the anger and clinical groups on trait anger ($F(1, 55) = 10.28$; $p < 0.01$), trait anger – temperament ($F(1, 55) = 13.39$; $p < 0.01$), and on anger expression-out ($F(1, 55) = 7.85$; $p < 0.01$) such that the anger group scored higher. It is worth nothing that there were no difference between the groups on any of the state anger scales and subscales.

Having identified that only certain subscales of the STAXI-2 discriminated between participants with anger difficulties and those with other clinical difficulties, the same question was asked using the CMCAS. An ANOVA was used to compare CMCAS scores across the three matched groups (anger, clinical, and non-clinical). Means and standard deviations for each of the three groups (incorporating gender) are reported in Table 5. There were no significant differences for the interaction between group and gender or for the lower order effect of gender. However, there was a significant difference between the groups in scores on the CMCAS ($F(2) = 18.13$; $p < 0.01$).

Homogeneity of variance between the groups ($F(5, 84) = 1.62$; $p > 0.01$) and equal group numbers ($n = 30$) were observed so planned orthogonal contrasts were carried out comparing the anger and clinical groups and the anger and non-clinical groups. Planned orthogonal contrasts showed that the anger group scored significantly higher than both the clinical and non-clinical groups ($p < 0.01$).

In order to more rigorously compare the STAXI-2 and CMCAS, an ANOVA was carried out to compare scores on the CMCAS between the anger and clinical groups only, and not the non-clinical group, as with the STAXI-2. There was a significant difference between the groups ($F(1, 59) = 12.858$; $p < 0.01$). Inspection of the means indicates that the anger group had higher scores (see Table 5).
Discussion

The aim of the present study was to develop and test a short, valid, reliable assessment tool for anger in a clinical setting. The result was the Cluain Mhuire Clinical Anger Scale (CMCAS), a 12-item scale that showed good reliability for the population in question, and showed good convergent validity with the STAXI-2 trait anger scales, face validity, and construct validity. As such, the aim of the study has been met. However, continued use and replication of the psychometric properties will be important to further establish its usefulness.

One of the strengths of the present study, which lends confidence to the findings, is the approach used to develop and test the CMCAS. The method was adapted from Guyatt et al. and, while smaller numbers of participants were used here in the development and validation phases, this was due to a comparatively small pool of expert clinicians and of client participants and is still in similar proportions to the samples in other studies. In the scale validation phase, the number of participants recommended by De Vaus to calculate reliability of a pre-test questionnaire, 75 to 100 respondents, was reached.

The question arises as to whether the CMCAS is significantly different from, or significantly improved upon, existing anger assessment tools, to contribute to the body of research. It should be noted that its intention was not to replace existing measures and the best use might be as a brief screening tool in advance of more detailed assessment. The level of reliability of the CMCAS compared well with the STAXI-2, the NAI, and the AQ. Correlations with the trait anger scale and one of its subscales from the STAXI-2 suggested that it is a measure of trait anger, rather than a measure of state anger or of anger expression. Concurrent validity with the STAXI-2 was also established, just as convergent validity with the STAXI trait anger scale was established by DePasquale et al.

The principal difference in the development of the CMCAS is in the population of clients and clinicians with whom it was developed, specifically Irish rather than American. The CMCAS is also shorter than most existing anger assessment tools and on that basis may be more convenient for clients existing anger assessment tools and on that basis may be more convenient for clients and clinicians. There are, of course, subscales of other tools which are shorter than the CMCAS but these may be too specific to meet clinicians’ needs. Finally, the CMCAS builds on the existing work in the area of anger assessment and attempts to focus those advances towards a particular clinical population. While the development of the CMCAS did not presume to measure trait anger, it was mostly closely related to the trait anger subscales of the STAXI-2 and trait anger is likely to be the focus of any intervention.

There are also implications for evidence-based practice following from the use of the CMCAS with interventions. With particular reference to the setting in which the CMCAS was developed, it can answer a need for evidence of the efficacy of the anger management programme. The CMCAS is appropriate for the client population of the day hospital since it was developed with and for them. It remains to be established how widely the CMCAS can be applied but it is certainly suitable for the setting in which the research took place.

Having introduced the CMCAS as a potential solution to the limitations of existing scales, it is important to consider the next steps in testing the usefulness of the tool. It will be important to replicate the scale validation process reported here, particularly the test-retest reliability which was based on a small sample here. While it may have contributed to the research findings to include other anger assessment tools, a social desirability measure, or a depression measure, the battery was limited to these three assessment tools on the basis of potential participant fatigue, so further work is required here.

In addition, in order for the CMCAS to be clinically useful, it requires clinical cut-off scores, statistics on sensitivity and specificity, and on positive and negative predictive power; these can only be established with larger clinical samples. While not providing clinical cut-offs per se, Spielberger provides norms for groups including military, psychiatric patients (sic), and undergraduate psychology students, and these allow for decisions to be made around the seriousness of an individual’s difficulty. Following this, the next step might be to determine whether the CMCAS can detect change.
as a result of completion of the anger management programme which was at the centre of the present study. This would establish the sensitivity of the CMCAS, something which was beyond the scope of the present study.

Another outstanding question relates to the participants in the present study, and therefore the wider applicability of the CMCAS. It was stated above that the scale may be suitable for English-speaking adults in urban areas. This is based on the generalisability of the results extrapolated from the size and demographic profile of the participants. It remains to be established whether it is reliable for other populations. There is a considerable body of work on age range, cultural, and especially linguistic adaptations of assessment tools. Adaptation of the CMCAS for other adult populations and for children is certainly feasible. Furthermore, the non-clinical sample was matched on particular variables: age, gender, and marital status. These are neither the only nor the most important variables in the clinical population so the comparison should be interpreted cautiously. Further investigation is necessary to determine whether factors such as educational level, drug and alcohol use, social networks, or any other variables might account for the observed differences between the anger and non-clinical groups in the present study.

If the CMCAS itself was not intended to be widely used, at least the method by which it was developed might be repeated elsewhere. The combination of qualitative interviews with the stakeholders and an item analysis to build on previous research, as recommended by Guaytt et al., was an effective method in developing this tool, and there is no reason to suggest that it can be used to develop assessment tools for problems other than anger. At least, the present study highlights the value of the model of tool development on which it was based.

In summary, the Cluain Mhuire Clinical Anger Scale (CMCAS) has been shown to be a brief, valid, reliable assessment tools for anger in a clinical setting. It can distinguish between clients referred to an anger management programme and samples from the general clinical and non-clinical populations. With more research, it may be used as a screening tool and may be used to evaluate anger management programmes. It could also be used in other clinical settings with similar demographic profiles to that with which the CMCAS was developed.

Declaration of interest: None.

References