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Context sensitive regulation of pain and emotion: Development and initial validation of a scale for context insensitive avoidance

Ida K. Flink*, Ester Klein-Strandberg, Steven J. Linton

Center for Health and Medical Psychology (CHAMP), School of Law, Psychology, and Social Work, Örebro University, Örebro, Sweden

HIGHLIGHTS

- Context insensitivity is a possible shared mechanism in pain and emotion.
- One core aspect of context insensitivity is avoidance of expression.
- There are no instruments for assessing context insensitive avoidance of expression.
- We describe the development of a scale to assess this construct.
- This tool may be used both clinically and in further research.

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ABSTRACT

Background and aims: Context insensitivity has been put forward as a potential mechanism explaining the high co-occurrence of pain and emotional distress. In the pain literature, the concept has only been introduced at a theoretical level and an assessment tool for exploring its impact is lacking. In an interpersonal setting, a core aspect of context sensitivity and insensitivity concerns when to disclose and when to avoid expressing pain and related distress. Both context insensitive disclosure and context insensitive avoidance may hamper interpersonal support and fuel the problem. This exploratory study describes an attempt to develop a self-report instrument to assess tendencies to disclose vs. avoid expressions of pain and related distress, as well as self-perceived adjustment of disclosure vs. avoidance to the context.
Methods: A pool of items was systematically developed to assess different aspects of context insensitivity, including disclosure vs. avoidance of expression. 105 participants with persistent pain were recruited at pain rehabilitation clinics (80% of the sample) and in a university setting (20% of the sample). The participants responded to the pool of items as well as to a number of validated self-report instruments covering pain, pain-related disability, pain catastrophizing, emotion regulation tendencies, self-compassion and pain acceptance. The analyses explored the factorial structure of the initial instrument, as well as the criterion and construct validity.
Results: The analyses confirmed a stable underlying structure of the initial scale, with four distinct factors explaining 64.4% of the total variance. However, the criterion and construct validity could only be confirmed for one of the factors, which contained items reflecting context insensitive avoidance of expression. Consequently, only this factor, demonstrating very good internal consistency, was kept in the final version of the instrument which was named context insensitive avoidance (CIA).
Conclusions: We found support for the final version of our instrument, capturing one prominent aspect of context insensitivity. Avoidance of expression was related to higher ratings of pain, disability, catastrophizing and suppression as well as to lower levels of self-compassion. We encourage further studies to explore the impact of context insensitive avoidance for regulating pain and associated negative emotions. Yet, more research is needed that goes beyond self-report and includes other aspects of context. It is urgent to develop systematic ways for assessing context insensitivity, as it will enhance our understanding of regulatory strategies as potential transdiagnostic mechanisms in pain and emotion.
Implications: This tool for assessing contextually insensitive avoidance of expression could potentially be used both clinically and in future research to advance our understanding of comorbid problems with pain and emotional distress. Further research is needed to develop methods for assessing other aspects of context insensitivity to fully understand its impact in patients suffering from pain.

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* Corresponding author at: School of Law, Psychology, and Social Work, 70182 Örebro, Sweden.
E-mail address: ida.flink@oru.se (I.K. Flink).

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1. Introduction

Context sensitivity is an inciting newly introduced concept in the pain literature. It has been defined as "the degree to which a response is in tune with the ever changing demands of the context" ([1], p. 130) and is put forward as a potential mechanism explaining the high co-occurrence of pain and emotional distress [1]. Earlier research has shown that up to half of pain patients experience coexisting major depression [26], and even more display depressive symptoms [2]. A recent study found that more than 50% of chronic pain patients displayed clinically relevant levels of *both* depressive symptoms and anxiety [27]. According to a transdiagnostic approach, pain as well as emotions may be driven by certain shared mechanisms [3]. In fact, the strategies used for regulating pain ("pain coping strategies") and negative emotions ("emotion regulation strategies") are markedly similar. For instance, withdrawal or avoidance is commonly described in both areas [4]. To be adaptive, regulatory strategies need to be applied flexibly depending on the circumstances, which is the core aspect of context sensitivity.

In the emotion regulation literature, the importance of context sensitive use of regulation strategies has been raised. According to the *regulatory flexibility model* [5], which has provided the theoretical source of inspiration for the current study, no emotion regulation strategy is either adaptive or maladaptive in and of itself, it is rather the ability to adjust it to the context that determines whether it is functional or not.

In the pain literature, the concept of context sensitivity has only been introduced at a theoretical level [1] and to our knowledge an assessment tool for exploring its impact is lacking. One explanation for this is that it is difficult to incorporate all aspects of context sensitivity into one measure. In the present study, we chose to focus on a specific regulatory dimension, namely disclosing vs. avoiding expressions of pain and related distress. Moreover, we narrowed our attention to a certain type of context, specifically interpersonal situations. This is extremely relevant since disclosing personal experiences in a context sensitive manner elicits emotional support which in turn relieves suffering. However, when disclosure is not sensitive to the context, e.g. when personal feelings are disclosed to a stranger or when a loved one cues for disclosure, but disclosure is nevertheless avoided, support is lost and the encounter might fuel more distress. By disclosing pain and related distress in a context sensitive manner, the patient gets emotional support which relieves suffering. Both context insensitive disclosure and context insensitive avoidance may hamper interpersonal support and fuel the problem.

This exploratory study describes an attempt to develop a self-report instrument to assess tendencies to disclose vs. avoid expressions of pain and related distress, as well as self-perceived adjustment of disclosure vs. avoidance to the context.

2. Method

2.1. Overview of the design

A preliminary scale was systematically developed as described below, and the psychometric properties were tested on a sample of individuals with persistent pain.

2.2. Participants

Inclusion criteria in the study were age > 18 years and pain duration > 3 months. A total of 105 individuals participated in the study. In terms of gender, 69% identified themselves as women, 29% identified as men and 2% identified as "other". The mean age was 40 (SD = 14.62) and the mean pain duration was 7 years (SD = 9.19). The study was approved by the Regional Ethical Review Board in Uppsala, Sweden (D Number 2015/480/1).

2.3. Recruitment

To get a range of pain problems as well as participants from a range of age groups, we used two sources of recruitment. The majority of the sample (80%) was recruited at two pain rehabilitation clinics in central Sweden. Local staff at the clinics provided patients with printed materials with information regarding the study and handled the administration of questionnaires. Patients were informed that their choice whether to participate or not would not affect their usual care at the clinic. The remaining part of the sample (20%) were students recruited at a Swedish university. Students received information about the study in connection with ordinary lectures and were invited to participate if they fulfilled the inclusion criteria. All participants were offered vouchers worth 10 Euros as incentives. For participants who accepted the vouchers, personal identification data were gathered for administrational purposes and this data was stored separately from the questionnaires. For the purpose of the study, no personal identification data was collected.

2.4. Measures

Swedish versions of all measures were used.

2.4.1. Demographical data

Participants were asked to complete details about age, sex and pain duration.

2.4.2. Development of a scale to measure context insensitivity

The initial version of the instrument was constructed to capture different aspects of context insensitive responding in an interpersonal context with the focus on why people disclose or not disclose difficulties with pain. The regulatory flexibility model [5] was used as the theoretical basis. According to this model, emotion regulation involves detecting cues in the environment, ensuring a broad repertoire of skills and monitoring and adjusting behaviours based on feedback. We included all these aspects in the original pool of items which consisted of 118 items. In addition to the model, qualitative data from two focus groups interviews (described in [1]) on the theme of pain disclosure was used as a source of inspiration. Following the completion of the item pool, the items were reviewed by the authors for clarity and conceptual overlap and tested on 10 pilot participants who provided feedback with regard to face validity and comprehensibility. Based on this feedback and review, 84 items were eliminated. Examples of reasons for elimination were redundancy, questionable ability to capture the construct of interest (e.g. due to ambiguity or complexity) and suboptimal face validity. The remaining pool of items consequently consisted of 34 items as listed in Table 1. Responders used a 7-point scale to rate the extent to which they considered each statement as being true for them (1 = *Not at all true*; 7 = *Completely true*).

2.4.3. Criterion validity

Pain intensity and pain-related disability were used as criterion-variables. A brief version of the pain severity subscale from the Multidimensional Pain Inventory (MPI [6]) was used to assess pain intensity, and the interference subscale from the same questionnaire was used to assess pain-related disability. The brief version of the pain severity subscale consists of two items (severity of pain during the past week; level of pain at the present moment), while the interference subscale consists of 9 items (e.g. affects the ability to participate in social activities; affects ability to work). All items are rated on a 7-point scale. The MPI has demonstrated

Table 1
The pool of items in the instrument to assess different aspects of interpersonal context insensitivity..

I know when it's the right time, or not the right time, to talk about/show my pain to others.
When I talk about my pain to others, I notice if it's the right time to discuss it or not.
When I talk about my pain to someone, I notice if I need to adapt the way I express myself.
When I talk about/show my pain to another person, I am aware or have in mind the following:
a) The reason or purpose for our meeting.
b) The nature of our relationship.
c) How much time we have.
d) What I imagine or perceive that person thinks, feels, wants and/or needs.
e) My emotions or the image of myself I might portray.
I talk about/show my pain because it causes strong feelings that I struggle to hold in.
I don't know why I talk about/show my pain, it just happens.
I talk about/show my pain because I should be able to achieve what I want/need despite the pain.
I talk about/show my pain so it's easier for others to understand why I behave/feel the way I do.
I talk about/show my pain so that others might find it easier to accept my limitations.
I talk about/show my pain in order to get practical support.
I talk about/show my pain in order to get emotional support.
I hide/stay silent about my pain to avoid becoming sad/depressed.
I hide/stay silent about my pain to avoid being scared/worried.
I hide/stay silent about my pain to avoid feeling ashamed or guilty.
I hide/stay silent about my pain to avoid having to discontinue or accommodate activities.
I hide/stay silent about my pain to avoid feeling weak.
I hide/stay silent about my pain to avoid feeling like a burden.
I hide/stay silent about my pain to avoid making others to feel sad or worried.
I hide/stay silent about my pain to avoid others underestimating my abilities.
I hide/stay silent about my pain to avoid pain "taking over" or "taking away" my life.
When I have pain I hide it from people in my close environment.
When I talk about my pain, I talk in detail and at length.
I'm open about how much pain I have.
I avoid talking about my pain.
When I talk about/show my pain for others:
a) I get emotional support.
b) I receive understanding and acceptance.
When I talk about or show my pain for others:
a) They seem to become uncomfortable or embarrassed.
b) They seem not to hear or see.
c) They seem to question me.
d) They tell others that I'm demanding.

good psychometric properties [6]. In the present study, the internal consistency was .87 for the pain intensity subscale and .93 for the interference subscale.

2.4.4. Construct validity

To assess construct validity, we used a number of measures tapping into theoretically related constructs, namely pain catastrophizing, emotion regulation tendencies, self-compassion and pain acceptance.

The Pain Catastrophizing Scale (PCS [7]) was used to assess pain-related catastrophizing. The PCS consists of 13 statements aimed at capturing different aspects of pain-related catastrophizing (e.g. "When I'm in pain I become afraid that the pain will get worse"; "When I'm in pain I keep thinking about how much it hurts"). Respondents use a 5-point scale to indicate the degree to which they experience the thoughts and feelings described in the statements (0 = *Not at all*; 4 = *All the time*). The PCS is a widely used measure and has demonstrated good psychometric properties [7]. In the present study, we used the total score of this measure and the internal consistency was .92.

The Emotion Regulation Questionnaire (ERQ [8]) was used to assess emotion regulation tendencies. The ERQ consists of 10 items divided into two subscales: cognitive reappraisal (ERQ-R; e.g. "When I want to feel more positive emotion [such as joy or amusement], I change what I'm thinking about") and expressive suppression (ERQ-S; e.g. "I keep my emotions to myself"). Respondents rate each item on a 7-point scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). The ERQ has demonstrated adequate psychometric properties [28]. In the present study, we used the scores of the two subscales and the internal consistency was .80 (ERQ-R) and .67 (ERQ-S).

The short form of the Self-Compassion Scale (SCS-SF [9]) was used to assess self-compassion. The SCS-SF consists of 12 items aimed at capturing different factors related to self-compassion (e.g. "I try to see my failings as part of the human condition"; "When something painful happens, I try to take a balanced view of the situation."). Respondents use a 5-point scale ranging from 1 (*Almost Never*) to 5 (*Almost Always*) to indicate the frequency with which they behave in the stated manner. The SCS-SF has demonstrated satisfactory psychometric properties [9]. In the present study, we used the total score of this measure and the internal consistency was .88.

The 8-item version of the Chronic Pain Acceptance Questionnaire (CPAQ-8 [10]) was used to assess pain acceptance. The CPAQ-8 consists of 8 statements divided into two subscales: activities engagement (CPAQ-AE; e.g. "I am getting on with the business of living no matter what my level of pain is") and pain willingness (CPAQ-PW; e.g. "I avoid putting myself in situations where my pain might increase"). Respondents use a 7-point scale ranging from 0 to 6 to rate the extent to which each statement applies to them (0 = *Never true*, 6 = *Always true*). The CPAQ-8 has demonstrated satisfactory psychometric properties [10]. In the present study, we used the scores of each subscale and the internal consistency was .89 (CPAQ-AE) and .66 (CPAQ-PW).

2.5. Data analyses

IBM Statistical Package of Social Sciences (SPSS) 24 was used for all analyses. A maximum of one missing value was allowed per subscale. Missing values were replaced with the mean score of the subscale.

2.5.1. Data analytic procedure

A number of steps were taken in the development of the instrument to assess context insensitivity. First, normal distributions were examined to examine skewness and to assure that the variability among items was not too low. Second, intercorrelations between items were examined to assure that the items did not correlate with too few other items or too high with other items. Third, a principal component analysis (PCA) was performed for exploring the underlying factor structure, i.e. to assess whether the instrument reflected different aspects of construct sensitivity. The KMO-value (Kaiser–Meyer–Olkin Measure of Sampling Adequacy) was examined to assure that the PCA was an appropriate choice. To determine the number of factors, Kaiser's eigenvalues-greater-than-one rule (K1) and Cattell's Scree test were used. Fourth, factor loadings of items were examined. Fifth, the internal consistency of the subscales was calculated (Cronbach's alpha). Values above .7 were considered as acceptable [11]. Sixth, criterion validity and construct validity were explored. For examining concurrent criterion-related validity, Pearson product moment correlations were computed between the subscales and outcomes (pain intensity, disability). To explore construct validity, Pearson product moment correlations were computed between the subscales and established measures tapping into theoretically related constructs. The level of significance was set at $p > .05$.

Table 2
Pearson's correlations between the subscales and ratings of pain intensity and disability.

	Subscale			
	Avoidance of expression	Attention to cues	Soliciting understanding	Self-perceived sensitivity
Pain intensity (MPI pain severity)	.37**	.00	.06	−.05
Disability (MPI interference)	.40**	.03	.18	−.10

** Significant at $p < .01$ level.

2.5.2. Hypotheses

The first version of the instrument was hypothesized to consist of four subscales, reflecting different aspects of context insensitivity: avoidance of expression, soliciting understanding, attention to cues and self-perceived sensitivity.

Pain intensity and disability were used as criterion-variables. We expected the avoidance of expression subscale to correlate positively with pain and disability of a small to moderate degree, as actively avoiding disclosure is generally unhelpful but may be adaptive in some contexts. We expected the soliciting understanding subscale to correlate negatively with pain and disability of a small to moderate degree, based on the assumption that this subscale reflects disclosure which in many contexts is adaptive but may be unhelpful in some contexts. The other two subscales were expected to show moderate negative correlations with pain and disability, as these would reflect prerequisites for and actual tendencies to disclose pain in a context sensitive manner.

Our hypotheses in terms of construct validity were as follows:

1) We expected the avoidance of expression subscale to correlate positively with catastrophizing and expressive suppression, as all of these constructs represent attempts at regulating distressing experiences by avoiding them.
2) We expected the avoidance of expression subscale to correlate negatively with self-compassion, activity engagement and pain willingness, as the latter constructs represent attempts at regulating distressing experiences by approaching rather than avoiding.
3) We expected the soliciting understanding subscale to correlate negatively with expressive suppression and positively with activity engagement and pain willingness, as this subscale was interpreted as a measure of disclosure and approaching with the goal of maintaining function.
4) We expected the self-perceived sensitivity and attention to cues subscales to correlate negatively with catastrophizing and expressive suppression, as these two subscales would reflect prerequisites for and tendencies to disclose rather than to avoid. In line with this reasoning, we expected the same subscales to correlate positively with cognitive reappraisal, self-compassion, activity engagement and pain willingness.

3. Results

3.1. Initial documentation of the psychometric properties

As hypothesized, the Principal Component Analysis (PCA; Varimax rotation) of the pool of items generated four factors with eigenvalues above 1. The scree plot confirmed this factor solution. The Kaiser–Meyer–Olkin (KMO) value was .83, which is sufficient to perform a PCA [12]. The four factors explained 64.4% of the total variance. The internal reliability of the four subscales was good ($\alpha = .77–.92$). However, as presented below, the criterion and construct validity were only supported for the *avoidance of expression* subscale (explaining 29.2% of the variance). Consequently, only this subscale was kept in the final version of the instrument (see Table 4). For transparency, we present the results of the analyses regarding criterion and construct validity for all the initial subscales.

3.2. Criterion validity

As displayed in Table 2, bivariate (Pearson's) correlation coefficients showed that only the avoidance of expression subscale correlated significantly with pain and disability. The correlation was positive and moderate (>.3), which was in line with the hypotheses. This means that the criterion validity was supported for the avoidance of expression subscale, but not for the other subscales.

3.3. Construct validity

As can be seen in Table 3, bivariate (Pearson's) correlation coefficients showed that the avoidance of expression subscale correlated significantly with pain catastrophizing, expressive suppression, self-compassion and activity engagement. The correlations were all in the expected directions, and were weak (.1–.3) to moderate (.3–.5). In contrast to the hypotheses, the avoidance of expression subscale was not significantly correlated with pain willingness. The soliciting understanding subscale was significantly and weakly correlated with pain willingness, but not in the expected direction. The subscale was also weakly correlated with pain catastrophizing and cognitive reappraisal. In contrast to the hypotheses, the subscale did not correlate significantly with expressive suppression and activity engagement. The attention to cues subscale and the self-perceived sensitivity subscale were not significantly correlated

Table 3
Pearson's correlations between the subscales and established measures tapping into similar constructs.

	Subscale			
	Avoidance of expression	Attention to cues	Soliciting understanding	Self-perceived sensitivity
Pain catastrophizing (PCS)	.29**	.08	.22*	−.09
Cognitive reappraisal (ERQ-R)	−.06	−.05	.28**	.00
Expressive suppression (ERQ-S)	.32**	−.15	−.05	−.07
Self-compassion (SCS)	−.32**	−.06	−.04	.08
Activity engagement (CPAQ-AE)	−.23*	−.04	−.14	.05
Pain willingness (CPAQ-PW)	−.04	−.02	−.24*	.12

* Significant at $p < .05$ level.
** Significant at $p < .01$ level.

Table 4
The final version of the scale for context insensitive avoidance (CIA).

I hide/stay silent about my pain. . .
to avoid feeling weak.
to avoid feeling like a burden.
to avoid making others to feel sad or worried.
to avoid having to discontinue or accommodate activities.
to avoid becoming sad/depressed.
to avoid feeling ashamed or guilty.
to avoid others underestimating my abilities.
to avoid becoming scared/worried.
to avoid pain "taking over" or "taking away" my life.
When I have pain I hide it from people in my close environment.
I avoid talking about my pain.

Note. Answers are given on a 7-point scale ranging from 1 *(Not at all true)* to 7 *(Completely true)* (Min 11; Max 77).

with any of the other measures. Taken together, the correlations with established measures provided support for the construct validity of the avoidance of expression subscale, but not for the other subscales.

3.4. Description of the final version of the scale for context insensitive avoidance

As the criterion and construct validity were only supported for the avoidance of expression subscale, we decided to exclude the other subscales. Table 4 displays the items in the final version of the instrument, which we named context insensitive avoidance (CIA). The mean ratings on the scale was 41.65 (SD = 16.15) and the internal consistency was very good (Cronbach's alpha .92).

4. Discussion

In this study, an instrument to assess context insensitive disclosure vs. avoidance of expression was developed and the psychometric properties were preliminary tested in a sample of people with persistent pain. At first, a broader scale was systematically developed in a number of steps, resulting in a pool of items which covered different aspects of the context sensitivity construct. However, although the factor analyses confirmed the hypothesis in demonstrating a stable underlying factor structure with four distinct subscales, we could only confirm the criterion and construct validity for one of the subscales, namely context insensitive avoidance of expression. Consequently, in the final version of the questionnaire we kept only this part, capturing one selected aspect of context insensitivity: the tendency to withhold expressions of distressing pain.

To our knowledge, this is the first attempt at developing a self-report instrument to assess context insensitivity and obvious difficulties have come through. The concept of context sensitivity by definition involves being attentive to cues and adjust the behaviour according to feedback [1]. This means that context insensitive individuals most likely are *not* aware of when their behaviour is not appropriate, which raise questions around the reliability of self-reports. In the emotion regulation literature, there have been different attempts at measuring context sensitivity. One method has been to use film stimuli that have been empirically associated with specific target emotions [13,14]. Contextually sensitive responding has been inferred when participants exposed to these films report or express physiological responses congruent with the associated emotion. Another method was used in a study of bereaved individuals, where the participants were interviewed about different topics and it was observed whether they were able to focus on the topic or if thoughts and feelings about their loss interfered during the interview, where the latter would imply context insensitivity [15]. Similar tasks could be adapted to a pain setting to depict several aspects of context insensitivity, beyond self-reported avoidance of expression.

It is urgent to develop systematic ways of assessing context insensitivity, as it will enhance our understanding of regulatory strategies as potential transdiagnostic mechanisms in pain and emotion. According to the *regulatory flexibility model*, context sensitivity is a key for successful emotion regulation [5]. Indeed, contextually sensitive use of emotion regulation strategies has been found to predict lower levels of psychopathology [16]. Yet, the importance of context sensitivity in the pain area remains unexplored, partly because reliable assessment methods have been missing.

Context sensitivity entails a flexible use of regulating strategies. The *psychological flexibility model* [17], the theoretical foundation of ACT, underscores the importance of behavioural flexibility for maintaining a high quality of life despite suffering from a chronical health condition. Strategies for enhancing behavioural flexibility is beneficial for people with persistent pain, not least as shown by the expanding evidence for acceptance and commitment therapy (ACT) in this population [18,19]. Context sensitivity may be one central aspect of psychological flexibility but the relation between the concepts is yet to be explored.

In this study, we could only validate the avoidance of expression aspect of interpersonal context insensitivity. Avoidance is a well-known risk factor for poor adjustment to pain (see e.g. [20]), which may include avoidance of thoughts and feelings [21]. Certainly, to avoid expressing pain and associated emotions may be adaptive in some settings, such as with strangers or during a work meeting. Yet, widespread suppression of thoughts and feelings has repeatedly been linked to higher levels of pain and disability (e.g. [22,23]). Likewise, there is a substantial body of research on the health benefits of methods for increasing emotional disclosure and expression [24,25]. Individuals scoring high on our scale for Context Insensitive Avoidance would possibly benefit from such methods, preferably complemented by techniques to ensure context sensitive responding, e.g. to train when, where and with whom to disclose.

Although the findings from the current study indicate that we were able to capture an essential aspect of context insensitivity, it is important to keep in mind that we could not validate the other aspects of the concept. The difficulties with self-reporting context sensitivity may be one reason for this, but it may also be that we did not come up with the right items. Another explanation is that avoidance simply is the most prominent aspect of context insensitivity, but to support that hypotheses further studies using other assessment methods are needed.

In this study we preliminary tested the psychometric properties of this scale in a heterogeneous sample of mixed pain conditions, which may rise questions around external validity. It is possible that there are issues around disclosing pain which are linked to specific pain conditions. Genital pain, for instance, may be more delicate to talk about than pain in less intimate regions. Future studies should preferably take such potential differences into account, for instance by controlling for pain condition. Another drawback regarding the sample is that we do not have any information about how many patients were asked to participate and how many refused, which brings up the issue of a possible selection bias. Still, our study is an initial and explorative attempt at creating a tool for assessing context insensitivity in people suffering from pain, an area where valid instruments are missing. Yet, future studies are needed to confirm the properties and applicability of the scale.

Taken together, this study describes the systematic development of an instrument to assess context insensitive avoidance of expression in an interpersonal context. We found support for the final version of our instrument; contextually insensitive avoidance

was related to higher ratings of pain and disability. As expected, avoidance of expression was also associated with higher ratings of pain catastrophizing and suppression as well as lower levels of self-compassion. We encourage further studies to explore the impact of context insensitive avoidance on regulation of pain and pain-related distress.

5. Conclusions

We found support for the final version of our instrument, capturing one prominent aspect of context insensitivity, namely avoidance of expression. Contextually insensitive avoidance was related to higher ratings of pain, disability, catastrophizing and suppression as well as to lower levels of self-compassion. We encourage further studies to explore the impact of context insensitive avoidance for regulating pain and negative emotions. Yet, for assessing other aspects of context insensitivity, more research is needed on methods that goes beyond self-report. It is urgent to develop systematic ways for assessing context insensitivity, as it will enhance our understanding of regulatory strategies as potential transdiagnostic mechanisms in pain and emotion.

6. Implications

This tool for assessing contextually insensitive avoidance of expression could potentially be used both clinically and in future research to advance our understanding of comorbid problems with pain and emotional distress. Further research is needed to develop methods for assessing other aspects of context insensitivity to fully understand its impact in patients suffering from pain.

Ethical issues

The participants filled out informed consents and the study was approved by the Regional Ethical Review Board in Uppsala, Sweden (D Number 2015/480/1). The study protocol was not registered.

Conflict of interest

The authors have no conflicts of interest in relation to this study.

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