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CERSA: How does emotion regulation vary according to context?

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1 **Introduction**

2 Emotion regulation (ER) has mostly been studied in children and adults, underscoring its
3 importance to various psychological outcomes such as well-being or quality of social interactions
4 (Lopes et al., 2005; McRae, Jacobs, et al., 2012; Nelis et al., 2011). Yet, few studies have focused on
5 how adolescents regulate their emotions and the effectiveness of this regulation. ER may be
6 particularly important in this period of life, which is characterised by many developmental changes
7 (e.g., biological, cognitive, social) and many new emotional experiences (e.g., in parents, peers and
8 with romantic relationships) that often elicit negative emotions (e.g., Silk et al., 2003).

9 ER is defined as “the extrinsic and intrinsic processes responsible for monitoring, evaluating
10 and modifying emotional reactions, especially their intensive and temporal features, to accomplish
11 one’s goals” (Thompson, 1994, pp. 27-28). Most research has studied ER independently of
12 individuals’ goals and the situations in which they find themselves. However, recent advances have
13 suggested that ER might be context-dependent, and that individuals’ flexible use of different ER
14 strategies depending on the situation should be investigated (Aldao et al., 2015). Based on these new
15 insights, our aim was to develop a questionnaire assessing adolescents’ ER strategies and abilities in
16 different situations: the Contextualised Emotion Regulation Survey for Adolescents (CERSA).

17 **From general to contextualised ER approaches**

18 ER studies are largely based on the theoretical process model Gross proposed in 1998,
19 defining different families of ER strategies (i.e., situation selection, situation modification,
20 attentional deployment, cognitive change and response modulation). In particular, many of them
21 have focused on two different ER strategies, comparing the general use of reappraisal and expressive
22 suppression. Reappraisal is a form of cognitive strategy consisting in changing the interpretation of a

23 situation to decrease its emotional impact, whereas expressive suppression is a type of response
24 modulation strategy which involves inhibiting emotional expression (Gross & John, 2003). Studies
25 have shown that reappraisal is an adaptive strategy, whereas expressive suppression is maladaptive
26 (e.g., Dryman & Heimberg, 2018; Pepping et al., 2016). However, in Gross's process model (1998),
27 little attention was paid to what leads individuals to use one strategy rather than another, and how
28 these strategies are actually started or stopped. These limitations have been addressed by the author
29 in his extended process model (Gross, 2015), with an emphasis on valuation systems that take into
30 account the contextual aspects of ER.

31 In contrast with the idea of a general adaptiveness of ER strategies, recent models stress the
32 need to consider the context when determining the adaptiveness of such strategies (Aldao, 2013). For
33 instance, expressive suppression can sometimes be adaptive, especially when multiple strategies are
34 used to deal with an event (e.g., suppressing anger expression when receiving a bad grade from a
35 teacher and reappraising the event later) (Ford et al., 2019). The adaptiveness of ER can be related to
36 ER flexibility (Aldao et al., 2015), defined as the ability to effectively regulate emotions by selecting
37 different ER strategies from a broader repertoire, depending on the characteristics of a particular
38 situation (Bonanno & Burton, 2013; Kobylńska & Kusev, 2019). ER flexibility relies on
39 individuals' ability to understand, regard, and respond to their emotional experience (Tull & Aldao,
40 2015). Thus, when examining the use of ER strategies in a given situation, ER abilities - which refer
41 to one's beliefs about one's effectiveness at regulating emotions - should be taken into account.
42 Despite the dearth of studies on these abilities in adolescence, there is evidence of a link between
43 difficulties in ER abilities and mental health problems such as anxiety, depression or aggressive
44 behaviours (Herts et al., 2012; McLaughlin et al., 2011). Even though ER abilities and strategies are

45 distinguishable processes, theoretical frameworks suggest that they share bidirectional relationships
46 (e.g., Tull & Aldao, 2015).

47 **Development of ER in adolescence and gender differences**

48 Few studies have been conducted on ER in adolescence, and even fewer within the
49 framework of recent theories. Developmental studies reveal changes in the use of several ER
50 strategies during adolescence, with an overall increase during late adolescence in strategies that were
51 considered as adaptive in previous studies, such as distraction or reappraisal (e.g., McRae, Gross, et
52 al., 2012). In addition, gender-specific preferences in the use of ER strategies seem to emerge from
53 this period (Chaplin & Aldao, 2013). For instance, rumination (i.e., repetitive focusing on one's
54 emotions and their causes and consequences) and support seeking (i.e., looking for support when
55 experiencing emotions to regulate them) have been shown to be mostly used by girls (Nolen-
56 Hoeksema et al., 2008; Williams et al., 2018), whereas distraction (diverting one's attention away
57 from an emotional stimulus and towards other content) is mostly used by boys (Sheppes & Gross,
58 2011). Less clear is the evidence for gender differences in the use of reappraisal and expressive
59 suppression which may be linked to the different methodologies and age ranges used: while some
60 studies fail to demonstrate gender differences in the use of these strategies, others reveal a greater
61 use of expressive suppression in boys and of reappraisal in girls (Gullone et al., 2010; Nolen-
62 Hoeksema & Aldao, 2011).

63 Regulatory abilities are thought to increase with age, due to a greater awareness of
64 motivation, emotion-type or contextual factors (Zeman et al., 2006). As with ER strategies, gender
65 differences in ER abilities exist: while girls report difficulties controlling the behavioural
66 manifestation of their emotions (i.e., more dysregulated expression of their emotions), boys are more

67 likely to feel in control of their emotional experience (Bender et al., 2012; Zimmermann & Iwanski,
68 2014).

69 **Current limitations of existing self-report measures of ER in adolescence**

70 ER in childhood and adolescence is generally measured using strategy-based or ability-based
71 questionnaires in general negative contexts. However, most of these questionnaires were constructed
72 within the framework of early models of ER, and thus suffer from several limitations. Regarding
73 ability-based questionnaires, the Difficulties in Emotion Regulation Scale (DERS, Gratz & Roemer,
74 2004) comprises six subscales (strategies, goals, impulse, non-acceptance, awareness and clarity)
75 that can be summed to obtain a general marker of ER difficulties. However, as some authors have
76 pointed out (e.g., Preece et al., 2018), the awareness and clarity subscales do not fit with recent
77 definitions of ER but rather refer to components of alexithymia. Regarding strategy-based
78 questionnaires, most have focused on a small number of strategies. For example, the Emotion
79 Regulation Questionnaire for Children and Adolescents (ERQ-CA, Gullone & Taffe, 2012) is only
80 focused on two strategies, reappraisal and expressive suppression. Yet a broad repertoire of strategies
81 appears to be mobilised by adolescents (Lougheed & Hollenstein, 2012). Few other questionnaires
82 were constructed in order to measure a larger number of strategies. For instance, the Cognitive
83 Emotion Regulation Questionnaire (CERQ, Garnefski et al., 2001) enables to measure 9 strategies.
84 Nevertheless, because most of these strategies belong to the same family, namely cognitive change,
85 and are highly correlated, they classically fall into two broad categories (i.e., adapted and
86 maladaptive strategies). Therefore, the adaptiveness of ER should be measured by evaluating
87 multiple and distinct ER strategies in a given situation.

88 The development of ER strategies may also be emotion-specific (e.g., Brenning & Braet,
89 2013). Indeed, specific emotions may activate different strategies to be regulated. In that sense,

90 adolescents' use of specific ER strategies and their effectiveness vary in response to anger, fear and
91 sadness (e.g., Silk et al., 2003). Within this approach, the Children's Emotion Management Scale
92 (CEMS) is often referred to as a strategy-based questionnaire for evaluating sadness and anger
93 regulation in children (Zeman et al., 2002). Given the theoretical advances since the CEMS was
94 published, we consider this questionnaire as a mix between ER strategies and abilities (i.e., with the
95 dysregulated-expression subscale considered as an ability and inhibition as a strategy).

96 As regards the definition of ER flexibility, differentiating specific emotions and concluding
97 upon the adaptiveness of strategies without contextualisation can be misleading. For instance, a
98 negative emotion like sadness may stem from thinking about the death of a close relative or from an
99 argument with one's parents. These different situations may not trigger the use of the same ER
100 strategies, some of them being more or less adapted to the specific context (e.g., using expressive
101 suppression might be more helpful in the case of an argument than the death of a relative). In this
102 respect, the Negative Emotion Regulation Inventory (NERI, Zimmermann & Iwanski, 2014) is one
103 of the few contextualised questionnaires of ER, with seven strategies (adaptive ER, social support
104 seeking, avoidance, passivity, expressive suppression, dysfunctional rumination and dysregulation)
105 in six situations, each one evoking a specific negative emotion of sadness, fear or anger (i.e., two
106 situations per emotion). However, some subscales described as strategies comprise items which
107 could be viewed as abilities. For example, dysregulation can be described as being part of an ER
108 ability, but also comprises items that refer to the strategies of blaming others (e.g., "I blame others,
109 even if they are not responsible"). Besides, the situations proposed in this questionnaire address
110 highly diverse contexts (e.g., interpersonal relations with "renege on a promise" for anger, threatful
111 to the individual with "being alone in a dark place" for fear), making interpretation of the results
112 difficult. This issue is raised by studies that focus on ER repertoires in specific contexts, such as that

113 of Dixon-Gordon et al. (2015). In this study, participants reported their use of ER strategies across
114 achievement-related (e.g., failing a class) or social-related situations (e.g., arguing with a friend) for
115 the emotions of sadness, anxiety and anger. Interestingly, interpersonal variability in ER was higher
116 for social-related stressors than for achievement-related stressors. This finding highlights the need
117 for contextualised measures of ER, especially in adolescence, which is characterised by changes in
118 social relations, with instability in peer relations and decreased perceived support from parents
119 (Furman & Buhrmester, 2009).

120 **Aims of the present study**

121 ER in adolescence has been insufficiently investigated, especially regarding how it develops
122 and whether gender differences exist. Moreover, the few self-reported measures assessing ER in
123 adolescence such as the ERQ-CA or the CERQ do not include recent advances in the ER field (e.g.,
124 distinction between strategies and abilities, the influence of context in ER, measuring different
125 families of strategies). There is thus a need to create new measures that can assess a diversity of
126 situations eliciting different emotions and demands to capture ER flexibility. In order to address the
127 limitations existing in the literature, we developed the CERSA. This questionnaire has been
128 constructed in response to contemporary challenges in ER self-report measurement in adolescence.
129 To this end, it assesses five ER strategies (reappraisal, expressive suppression, distraction, support
130 seeking and rumination) and two abilities (controlling experience and dysregulation) in three
131 interpersonal situations that elicit specific negative emotions (sadness, fear and anger).

132 The present study had four main objectives. First, we aimed to examine the factor structure,
133 the internal consistency, as well as the construct and external validity of the CERSA. In line with the
134 number of dimensions in this questionnaire (i.e., five strategies and two abilities), a seven-factor
135 structure was expected for the three situations. To evaluate the construct validity of the CERSA, we

136 investigated its relation with the Cognitive Emotion Regulation Questionnaire (CERQ, Garnefski et
137 al., 2001). We expected that ER strategies and abilities evaluated in the CERSA would be related to
138 ER strategies measured in the CERQ (e.g., rumination subscales of questionnaires, reappraisal of the
139 CERSA with positive reappraisal of the CERQ). To evaluate the external validity of the CERSA, we
140 investigated its relation with the Satisfaction With Life Scale (SWLS, Diener et al., 1985) as one of
141 the components of the construct of well-being. Second, as we were attempting to clearly distinguish
142 ER strategies and abilities, we wanted to explore the links between them. Third, we assessed gender
143 differences for both ER strategies and abilities. For ER strategies, we expected boys to report a
144 greater use of distraction and expressive suppression, and girls to use more support seeking and
145 rumination. For ER abilities, we expected boys to report higher levels of control of emotional
146 experiences (Lougheed & Hollenstein, 2012) and girls to report higher levels of dysregulation.
147 However, we wanted to check whether these assumptions based on results obtained in a general
148 context, would be confirmed or balanced using a contextualised measure. In other words, we tested
149 the variability of gender differences between situations. Finally, we studied the variability of strategy
150 uses and of the abilities reported by adolescents, depending on the situation. Based on the recent
151 theoretical models on ER flexibility (e.g., Aldao et al., 2015), we expected the levels of all strategies
152 and abilities to vary according to situations.

153

Method

154

Participants

155

156

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158

This study consisted of two samples. The first sample was composed of 852 middle and high schoolers who only completed the CERSA. Twelve participants were excluded because at least 10% of their questionnaire data were missing or because they did not follow the instructions given in the questionnaire (e.g., straight liners). This resulted in a dataset of 840 adolescents ($M_{\text{age}} = 14.75$; SD_{age}

159 = 1.61, range_{age} = 12-19 years, 431 males, 406 females, 3 not reported). Participants were
160 representative of the French population, with most of them Caucasian and from a middle-class
161 socioeconomic background. All participants were recruited in five French public middle and high
162 schools (63.7% middle schoolers). Data collected within this sample were used to test all hypotheses
163 except those on construct and external validity, which were tested using data collected from the
164 second sample of 318 middle schoolers who completed the CERSA, the CERQ and the SWLS. Five
165 adolescents were excluded for the same reasons stated above. This resulted in a dataset of 313
166 adolescents from two French middle schools ($M_{\text{age}} = 13.63$; $SD_{\text{age}} = 0.85$, range_{age} = 12-15 years, 156
167 males, 156 females, 1 not reported).

168 **Measures and Procedure**

169 The CERSA is an 84-item French self-report measurement of both ER strategies and abilities
170 in different negative situations that may occur in adolescence. Each of the situations was created to
171 evoke a particular negative emotion (sadness, fear and anger). Compared to other questionnaires that
172 specify an emotion to adolescents, we chose to use scenarios because they (1) better reflect what
173 happens in daily life (i.e., ecological validity), (2) are widely used to activate emotions (Siedlecka &
174 Denson, 2019), and (3) allow for better comparability of adolescents' responses (i.e., participants can
175 remember very different situations when asked about a specific emotion). We focused on negative
176 emotional situations because there is a perceived increase in negative emotions in adolescence and
177 thus a higher need to regulate them (Silk et al., 2003). These situations were generated based on
178 existing contextualized measures such as the NERI (Zimmermann & Iwanski, 2014). We also asked
179 adolescents (N= 37) to describe situations inducing emotions of sadness, fear and anger. Due to
180 heterogeneity in responses, we selected the situations that (1) were the most frequently experienced
181 by the adolescents and (2) induced the intended negative emotions. These situations were written in a

182 person-directed manner and were designed to assess ER in an interpersonal context at school. We
183 focused on this context because adolescents spend most of their lives in schools where they have to
184 face negative emotions (26 hours on average in France). The sadness situation refers to the departure
185 of a close friend who will not be in the adolescent's class or school next year. The fear situation
186 concerns an important talk in front of comrades when the adolescent has forgotten everything they
187 wanted to say. Finally, the anger situation is the divulgation of a secret by a close friend to peers.
188 After the presentation of a situation, the adolescents were asked whether they had already
189 experienced it on a three-point Likert scale (i.e., with the answers being never, once and multiple
190 times). The validity of the situations to elicit the expected emotion was measured by asking them for
191 the intensity rating of experienced sadness, fear and anger for each situation presented on a seven-
192 point Likert-type scale (from 1 "not at all" to 7 "really intense"). In the questionnaire and during its
193 presentation, the adolescents were asked to respond according to their emotions and reactions to the
194 situation presented, as soon as this situation occurs.

195 For every situation, five strategies (i.e., distraction, reappraisal, expressive suppression,
196 support seeking and rumination) and two abilities (i.e., controlling experience and dysregulation)
197 were measured with four items each, specifically designed for adolescents. According to the
198 extended process model (Gross, 2015), these strategies refer to different families of strategies (i.e.,
199 attentional deployment, cognitive change and response modulation). In their study, Lennarz et al.,
200 (2019) highlighted that these strategies are among the most used by adolescents when facing
201 negative emotions. Furthermore, two of these strategies are usually considered as adaptive
202 (reappraisal, distraction), two as maladaptive (expressive suppression, rumination) and the last one is
203 usually not classified (support seeking). The strategies and abilities were measured with different
204 instructions but the formulation of the items was similar in each situation. The questionnaire asked

205 how adolescents would react in order to measure the strategies, whereas for the abilities it asked how
206 they would describe themselves in the situation. The five strategies were reappraisal (e.g., “I change
207 the way I think about this situation”), expressive suppression (e.g., “I don’t show how I feel”),
208 distraction (e.g., “I do something else to distract myself”), support seeking (e.g., “I look for someone
209 who makes me feel good”) and rumination (e.g., “I can’t stop myself thinking about this situation”).
210 Each item was measured on a 7-point Likert-type scale (from 1 “Not at all like that” to 7 “Totally
211 like that”). The two abilities were controlling experience (e.g., “I’m able to control my feelings”) and
212 dysregulation (e.g., “I can’t control what I say or do because of my feelings”). Each item was
213 measured on a 7-point Likert-type scale (from 1 “Not like me at all” to 7 “Totally like me”).

214 The CERQ is a 36-item questionnaire measuring cognitive ER strategies used by adolescents
215 in a general negative context (Garnefski et al., 2001). Even if this questionnaire mainly refers to one
216 family of strategies (cognitive change), we used it because it is one of the few to measure multiple
217 ER strategies, it has been proven to be valid with an adolescent sample, and it is available in French
218 (d’Acremont & Van der Linden, 2007). The nine strategies measured in the CERQ are usually
219 classified as either adaptive with Acceptance (e.g., “I think that I have to accept the situation”),
220 Putting into Perspective (e.g., “I think that it hasn’t been too bad compared to other things”), Positive
221 Reappraisal (e.g., “I think that the situation also has its positive sides”), Refocus on Planning (e.g., “I
222 think of what I can do best”), and Positive Refocusing (e.g., “I think of nicer things than what I have
223 experienced”); or non-adaptive with Catastrophizing (e.g., “I keep thinking about how terrible it is
224 what I have experienced”), Rumination (e.g., “I often think about how I feel about what I have
225 experienced”), Self-Blame (e.g., “I feel that I am the one to blame for it”), and Blaming Others
226 strategies (e.g., “I feel that others are to blame for it”). Participants were asked what they usually

227 think when experiencing negative or unpleasant events, with each item being evaluated on a 5-point
228 Likert-type scale (from 1 “almost never” to 5 “almost always”).

229 The SLSW is a short 5-item questionnaire that measures satisfaction with life (Diener et al.,
230 1985). This questionnaire is available in French and has been validated with adolescent samples
231 (Blais et al., 1989; Neto, 1993). Participants were asked whether they agreed or disagreed with the
232 items (e.g., “I am satisfied with my life”, “In most ways my life is close to my ideal”) and responded
233 on a 7-point Likert-type scale (from 1 “strongly disagree” to 7 “strongly agree”).

234 The participants from the two samples filled out the CERSA or all questionnaires during
235 school time. Written informed consent was obtained from all adolescents and their parents.
236 Participation was voluntary, not rewarded, and the adolescents were informed that they could stop
237 participating in the study at any time. Participants were told that there were no right or wrong
238 answers, and that they had to give the answer that was truest for them.

239 **Data analysis**

240 All analyses were performed using R 4.0.3 (R Core Team, 2020). The proportion of missing
241 data for the 84 items of the questionnaire in the first sample was 0.582%. In order to deal with the
242 missing data, we performed multiple imputations using the missMDA package which have the
243 advantage of having little to no weight in factor analyses (Josse & Husson, 2016). Power analyses
244 were conducted separately to estimate both samples required for (1) factor analyses (structural
245 equation models being the most demanding of our analyses in terms of number of participants) and
246 (2) correlations between the dimensions of the CERSA, the CERQ and the SLWS.

247 For the internal validity of the CERSA, linear mixed models were performed for the emotions
248 induced by each situation using the lme4 package (Bates et al., 2015). Confirmatory factor analyses

249 (CFA) were performed to assess the 7-factor structure of five strategies and two abilities, for each
250 emotion scenario, using the lavaan package (Rosseel, 2012). The goodness-of-fit of these models
251 was judged based on several fit indices: the robust χ^2/df , robust comparative fit index (robust CFI),
252 robust Tucker Lewis index (robust TLI), robust root mean square error of approximation (robust
253 RMSEA) and standardised root mean residual (SRMR). Robust χ^2/df values < 3 were judged as an
254 acceptable parsimonious fit, robust CFI and TLI values $>.90$ were judged to indicate an acceptable
255 incremental fit and robust RMSEA and SRMR values $<.08$ were judged as an acceptable absolute fit
256 (Bentler & Bonnet, 1980; Browne & Cudeck, 1993; Marsh et al., 2004). To calculate the number of
257 participants for these analyses, we followed two rules of thumbs: (1) N:q ratio being superior to 5,
258 where N is the number of cases and q the number of estimates parameters, and (2) obtaining 20
259 participants per measured variable (Bentler & Chou, 1987; Shumacker & Lomax, 2016). According
260 to our models, with 105 parameters and 28 items for 7 factors each, 525 participants were required
261 for the N:q ratio and 480 for the 20 per measured variable ratio. Data collection resulted in a higher
262 number of 840 participants which was sufficient to test our hypotheses.

263 For the construct and external validity, Pearson's correlations were performed on the manifest
264 dimensions of the CERSA, CERQ and SLWS using Hmisc package (Harrell Jr, 2019). Using
265 G*Power 3.1.9.7 (Faul et al., 2009), detecting small effects $> .15$ with a statistical power of .80 and α
266 $= .05$ required 301 participants. Thus, the obtained sample size of $N = 313$ is more than adequate to
267 test the study hypothesis.

268 For the links between ER strategies and abilities, latent correlations between factors were
269 calculated through the CFA step. However, because meaningless correlations can become significant
270 in large samples, only significant correlations with a coefficient ≥ 0.10 were interpreted.

271 Multigroup comparisons for measurement invariance across gender were conducted using the
272 semTools and lavaan packages (Jorgensen et al., 2021; Rosseel, 2012). Given the large number of
273 parameters in our models, the approach selected to reject a more constrained solution was to check
274 differences in alternative fit indices (Δ AFIs). Specifically, a model was rejected when the decrease in
275 the comparative fit index criterion (Δ CFI) was higher than .01, or when an increase in the root mean
276 square error of approximation (Δ RMSEA) was higher than .015, indicating non-invariant loadings,
277 intercepts or residuals (Chen, 2007). In order to test gender differences in the three situations, latent
278 means comparisons were performed.

279 Finally, linear mixed models and Tukey post-hoc tests were performed on the manifest
280 dimensions to compare the levels of ER strategies and abilities between the three situations, using the
281 lme4 and multcomp packages (Bates et al., 2015; Hothorn et al., 2008).

282 **Results**

283 **Internal validity of the CERSA**

284 Descriptive statistics for the reported intensity of sadness, fear and anger for each situation as
285 well as the percentage of adolescents who had experienced them at least once are presented in Table
286 1. Orthogonal contrasts were used in linear mixed models in order to test whether each situation
287 correctly induced the expected emotion (coded as 2 and the other two emotions as -1). Intercepts of
288 the participants were set as random factors to control the variance due to individual differences. The
289 hypothesis contrast was significant for the situation of sadness, $t(1658) = 38.99, p < .001, d = 1.92,$
290 fear, $t(1658) = 42.24, p < .001, d = 2.07$ and anger, $t(1658) = 51.06, p < .001, d = 2.51.$

291 <Insert Table 1 about here>

292 Confirmatory factor analyses (CFA) were performed on each situation in order to test the
293 expected seven factor structure, using maximum likelihood robust (MLR) estimator. The first 7-
294 factor model tested for the sadness situation showed an acceptable fit: $\chi^2(329) = 861.330, p < .001,$
295 $\chi^2/df = 2.618, CFI = .949, RMSEA = .048[.044-.052], TLI = .941,$ and SRMR = .056. However, one
296 item of the distraction factor showed low standardized factor loading (i.e., .367) (Matsunaga, 2010)
297 and was then removed from further analyses. The 7-factor models tested without this item provided a
298 good fit for the three situations; sadness: $\chi^2(303) = 764.865, p < .001, \chi^2/df = 2.524, CFI = .955,$
299 $RMSEA = .047[.042-.051], TLI = .950,$ and SRMR = .049; fear: $\chi^2(303) = 778.494, p < .001, \chi^2/df =$
300 $2.569, CFI = .952, RMSEA = .048[.044-.052], TLI = .947,$ and SRMR = .049; and anger: $\chi^2(303) =$
301 $684.902, p < .001, \chi^2/df = 2.260, CFI = .962, RMSEA = .044[.040-.048], TLI = .957,$ and SRMR =
302 .046. Standardised factor loadings are reported in Table 2.

303 <Insert Table 2 about here>

304 **Internal consistency of the CERSA and latent correlations between strategies and abilities** 305 **factors**

306 The internal consistency of the seven factors and latent correlations between them are
307 reported in Table 3. The internal consistency was good to excellent for the sadness (ω from .827 to
308 .916), fear (ω from .830 to .892) and anger situations (ω from .830 to .908). Significant factor
309 correlations had little to high effect sizes, with notable variations between situations. While some
310 strategy factors were positively associated in all situations like *support seeking* with *ruminaton* or
311 *distraction* with *reappraisal*, other strategies factors were only associated in certain situations (i.e.,
312 *expressive suppression* was positively linked to *reappraisal* only in the fear and anger situations).
313 Similarly, for the links between strategies and abilities, while *dysregulation* was positively linked to
314 *ruminaton* in all situations, it was negatively linked to *reappraisal* in the sadness and anger

315 situations, and to *distraction* and *expressive suppression* in the anger situation. Nevertheless,
316 *controlling of emotional experience* was positively or negatively linked to each strategy in all
317 situations, with one exception, namely *support seeking* in the anger situation. Finally, the links
318 between the ability factors *controlling of emotional experience* and *dysregulation* were negative in
319 all situations.

320 <Insert Table 3 about here>

321 **Construct and external validity of the CERSA**

322 CERSA strategies and abilities were related CERQ strategies in all situations with some
323 variations, especially in the effect sizes. As expected, the CERSA *reappraisal* subscale was
324 positively correlated with the CERQ positive refocusing, refocusing on planning, positive reappraisal
325 and putting into perspective subscales in all situations. The CERSA *rumination* subscale was
326 positively associated with the CERQ rumination, self-blame and catastrophising subscales in all
327 situations, as well as with the blaming others subscale in the sadness and anger situations. The
328 CERSA *controlling experience* subscale was positively associated with the CERQ acceptance
329 subscale in the sadness and anger situations.

330 Similarly, most dimensions of the CERSA were related to the SLWS dimension in all
331 situations. As expected, while *distraction*, *reappraisal* and *controlling experience* were positively
332 correlated with satisfaction with life, *rumination* and *dysregulation* were negatively correlated.
333 Expressive suppression was negatively associated with satisfaction with life in the sadness and fear
334 situations. Detailed results as well as the internal consistency of the CERQ and SLWS dimensions
335 are reported in Table 4.

336 <Insert Table 4 about here>

337 Measurement invariance and latent means comparisons for gender

338 Multigroup analyses were performed to examine measurement invariance across gender. We
339 did so through comparisons of multigroup models with progressively more constraints. First,
340 configural invariance was tested to examine whether the same items measured the same dimensions
341 across groups. Then, in the metric invariance step, the factor loadings were constrained to be equal
342 across groups. Next, scalar invariance was examined by specifying factor loadings and intercepts to
343 be equal across groups. Finally, strict invariance was assessed with constraining factor loadings,
344 intercepts and residuals to be equivalent across groups. The results are reported in Table 5.
345 Configural invariance models showed a good fit and were used as baseline models in each situation.
346 Metric, scalar and strict invariance models showed acceptable criteria in each situation. Thus,
347 loadings, intercepts, and residuals proved to be invariant across gender.

348 <Insert Table 5 about here>

349 Latent means comparisons were used to assess gender differences for each factor of each
350 situation in the CERSA. The latent mean values for boys were always constrained to zero, while they
351 were freely estimated for girls. The results are reported in Table 6. Gender differences in strategy and
352 ability factors showed some stability and variability across the presented situations. For the strategy
353 factors, girls reported more *support seeking* and *ruminatation* than boys in all situations. In contrast,
354 boys reported more *distraction* for the sadness and anger situations, as well as *reappraisal* for fear
355 and anger situations. For the ability factors, girls reported higher levels of *dysregulation* in all
356 situations. Boys demonstrated a higher level of *controlling emotional* experience than girls in all
357 situations. There was no gender difference in the use of *expressive suppression* whatever the
358 situation presented.

359 <Insert Table 6 about here>

360 **Variability in ER strategies and abilities across situations**

361 We conducted linear mixed models to check whether the mean levels of these dimensions
362 varied across the three situations. Intercepts of the participants were set as random factors to control
363 the variance due to individual differences. Tukey post-hoc tests were run to test differences between
364 each situation. Descriptive statistics (means and standard deviations) for the dimensions of the
365 CERSA, the fixed effects of the linear mixed models and the order of the situations determined by
366 Tukey post-hoc tests are reported in Table 7. All mean levels of strategies and abilities varied
367 according to the situations. For example, adolescents reported that they looked more for *social*
368 *support* and demonstrated higher *dysregulation* in the anger situation while they reported a higher
369 use of *reappraisal* and presented a higher *control of emotional experience* for the sadness situation.

370 <Insert Table 7 about here>

371 **Discussion**

372 Adolescence is a period characterised by the exploration of new contexts or roles. The
373 numerous changes that occur in this period are often accompanied by negative emotions that
374 adolescents have to regulate. Although investigation into ER in adolescence is growing, there is a
375 need to develop reliable tools for research on both ER strategies and abilities in context, based on
376 situations that are meaningful to adolescents. In this article, we documented a new French self-report
377 measure of ER for adolescents, the Contextualised Emotion Regulation Survey for Adolescents
378 (CERSA), developed within the framework of the latest theoretical models on ER. All situations
379 presented in this questionnaire were written in an interpersonal context and induced the intended
380 emotions of sadness, fear or anger. We evaluated its internal structure, its construct and its external

381 validity, and we investigated relationships between strategies and abilities, gender differences as well
382 as differences in the mean levels of strategies and abilities between situations, across two samples of
383 adolescents. The CERSA demonstrated an excellent factorial structure, confirming the theoretical
384 construction of a seven-factor structure composed of five strategies and two abilities that were
385 replicated in the three situations presented. Furthermore, the dimensions evaluated in the CERSA
386 were related to the dimensions of another measure of ER, the CERQ, as well as to a measure of
387 satisfaction with life, thereby demonstrating the validity of this new questionnaire. ER strategies and
388 abilities, as well as their links showed stability and variability in the three tested situations, as did
389 gender effects. These are promising results for the study of ER flexibility in adolescence and
390 highlight the need to construct measures that take into account the contextual aspect of ER.

391 This study provides support for the hypothesis that ER strategies and abilities are
392 distinguishable processes (i.e., they did not overlap in the factor analysis) that can be assessed in the
393 same questionnaire. Furthermore, ER strategies were also associated with ER abilities, demonstrating
394 that these two aspects of ER are interrelated, as theoretically assumed (Tull & Aldao, 2015). As
395 studies on both ER strategies and abilities are scarce, this article provides new insights for further
396 studies that aim to better understand the nature of these links (i.e., with both shared and separable
397 mechanisms) and their evolution during adolescence.

398 Moreover, adolescents' use of more than one strategy to regulate the emotions driven by a
399 single event and the level of use of each strategy they mobilise depending on the situation provide
400 empirical support for studying adolescents' emotion regulation in context. Indeed, the links between
401 ER strategies varied according to the situation, indicating that the combination of strategies used by
402 adolescents may be different depending on the context they are in. These findings reinforce the
403 recent theoretical proposition of polyregulation (Ford et al., 2019). In addition, the mean level of ER

404 strategies and abilities varied according to the situation, showing that adolescents regulate their
405 emotions differently and feel more or less effective at doing so depending on the characteristics of a
406 given situation. Together, these findings highlight the need to capture ER flexibility by focusing on
407 the repertoires of strategies that adolescents can mobilise in different contexts, rather than studying
408 the separate outcomes of each strategy (Bonanno & Burton, 2013; Loughheed & Hollenstein, 2012).
409 Thus, the CERSA seems particularly adapted to implementation of the recent emerging hypotheses
410 in the ER research field.

411 Variability in the use of ER strategies was also observed in the results on gender differences.
412 In line with previous studies, some strategies were used more by boys, such as distraction or
413 reappraisal, while others, such as support seeking or rumination, were used more by girls
414 (Eschenbeck et al., 2007; Hampel & Petermann, 2005; Zimmermann & Iwanski, 2014). Surprisingly,
415 there was no gender difference in the use of expressive suppression. However, it is important to note
416 that most gender differences found in this study were dependent on the situation, indicating that
417 gender roles in ER may or may not be activated according to the situation. These results also
418 highlight the importance of measuring ER in a contextualised way to gain a better understanding of
419 how gender socialisation can lead adolescents to regulate their emotions differently. Consistent with
420 gender role theories that men's role involves being active and agentic (Tamres et al., 2002), greater
421 use of reappraisal may be made in attempts to control or change certain situations. Our results are
422 also congruent with studies showing that girls share their emotions more but ruminate more
423 (Garnefski et al., 2005; Nolen-Hoeksema, 2012), although this is not verified in every situation. This
424 point should be further investigated across different situations, for example by referring to
425 achievement-related and social-related situations (Dixon-Gordon et al., 2015). Finally, our results
426 also indicate that gender differences in ER abilities are more stable than in strategies across the

427 situations presented, further highlighting the need to differentiate and evaluate these two aspects of
428 ER in adolescence.

429 This study has some limitations that must be recognized. The CERSA was designed to assess
430 ER strategies and abilities in different negative emotional situations. Thus, it does not take into
431 account the regulation of positive emotions that are part of the development of ER (Gilbert, 2012).
432 While ER strategies and abilities assessed in the CERSA were related to the CERQ dimensions and
433 to satisfaction with life, further studies with larger samples and other measures classically associated
434 with ER, such as different aspects of well-being, could strengthen these results. The CERSA
435 comprises one scenario per emotion in order to evaluate adolescents' ER. A potential risk of using a
436 limited number of scenarios is to confuse the effects related to the situation itself and the emotion felt
437 by the adolescents. Moreover, as might be expected in everyday situations, some adolescents
438 reported feeling mixed emotions. Thus, further studies using multiple situations per emotion are
439 required to understand how adolescents regulate a specific emotion. Furthermore, the situations
440 presented have focused on interpersonal contexts in school which are important in the development
441 of ER. Further studies should be conducted by transposing CERSA situations in other contexts that
442 are relevant to adolescents' emotional life (e.g., adolescent-family interactions at home, academic
443 achievements) in order to get a better understanding of their ER flexibility.

444 **Conclusion**

445 This study focused on the construction and the validity of the CERSA. This new tool has
446 proven to be valid and its use should provide promising insights for studying ER in a more
447 contextualised way in adolescence. Our results demonstrate that ER strategies and abilities are both
448 distinguishable and interconnected, as was theoretically assumed by Tull and Aldao (2015).
449 Furthermore, the mean levels of strategies and abilities reported by adolescents varied according to

450 the situations. Similarly, some gender differences in ER strategies and abilities were situation-
451 dependent. Further research is needed to replicate our results in other samples of adolescents using
452 the CERSA. Given the importance of ER flexibility development in adolescence, studies should also
453 focus on its links with psychological outcomes.

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Tables**Table 1**

Descriptive statistics on the reported emotions for each situation and percentage of adolescents who have experienced them at least one time

	Sadness	Fear	Anger	% of occurring
<i>Situations</i>	<i>M (ET)</i>	<i>M (ET)</i>	<i>M (ET)</i>	
Sadness situation	5.25 (1.50)	2.45 (1.66)	2.38 (1.70)	62.38
Fear situation	1.82 (1.45)	5.26 (1.66)	3.13 (2.05)	77.62
Anger situation	3.50 (2.11)	3.11 (2.06)	6.08 (1.35)	69.29

Table 2

Standardised factor loadings from Confirmatory Factor Analysis with maximum likelihood robust (MLR) estimator for the 81 remaining items of the CERSA

Factor/Items	Standardised Factor Loadings		
	Situations		
	Sadness	Fear	Anger
Distraction			
S1 – F19 – A19	.785	.934	.924
S8 – F20 – A18	.840	.896	.942
S13 – F3 – A7	.860	.650	.755
Reappraisal			
S2 – F10 – A16	.689	.794	.867
S7 – F18 – A6	.735	.848	.753
S15 – F13 – A20	.843	.829	.895
S19 – F16 – A2	.853	.808	.653
Expressive suppression			
S10 – F4 – A13	.828	.704	.802
S11 – F6 – A12	.881	.819	.873
S12 – F8 – A10	.819	.765	.789
S14 – F11 – A3	.888	.850	.605
Support seeking			
S4 – F14 – A8	.613	.681	.743
S6 – F17 – A14	.709	.704	.804
S16 – F9 – A17	.895	.889	.854
S20 – F5 – A1	.799	.803	.655
Rumination			
S3 – F1 – A11	.794	.797	.795
S5 – F12 – A9	.686	.583	.717
S9 – F7 – A15	.811	.807	.803
S17 – F2 – A5	.774	.771	.643
Controlling experience			
S21 – F27 – A26	.721	.899	.825
S23 – F25 – A21	.724	.609	.554
S26 – F21 – A24	.654	.643	.683
S28 – F28 – A28	.835	.888	.889
Dysregulation			
S22 – F22 – A25	.609	.717	.859
S24 – F26 – A27	.826	.831	.828
S25 – F24 – A23	.831	.815	.891
S27 – F23 – A22	.790	.798	.788

Note. Items numbers with S for sadness, F for fear and A for anger situations of the CERSA

Table 3*Factor correlations and McDonald's ω for CERSA situations*

Sadness situation							
Factors	S1	S2	S3	S4	S5	A1	A2
S1 Distraction	-						
S2 Reappraisal	.250***	-					
S3 Expressive suppression	.109**	.012	-				
S4 Support seeking	.162***	.165***	-.253***	-			
S5 Rumination	.003	-.161***	.058	.432***	-		
A1 Controlling experience	.119**	.364***	.222***	-.294***	-.537***	-	
A2 Dysregulation	.086*	-.170***	-.009	.326***	.662***	-.681***	-
McDonald's ω	.866	.864	.916	.846	.852	.827	.854
Fear situation							
Factors	S1	S2	S3	S4	S5	A1	A2
S1 Distraction	-						
S2 Reappraisal	.396***	-					
S3 Expressive suppression	.253***	.153***	-				
S4 Support seeking	.029	.222***	-.213***	-			
S5 Rumination	.011	.008	.028	.306***	-		
A1 Controlling experience	.232***	.297***	.263***	-.113**	-.340***	-	
A2 Dysregulation	.072	.004	.003	.272***	.521***	-.530***	-
McDonald's ω	.873	.892	.867	.854	.830	.857	.869
Anger situation							
Factors	S1	S2	S3	S4	S5	A1	A2
S1 Distraction	-						
S2 Reappraisal	.462***	-					
S3 Expressive suppression	.268***	.188***	-				
S4 Support seeking	.197***	.105*	-.089*	-			
S5 Rumination	-.120**	-.210***	-.017	.352***	-		
A1 Controlling experience	.344***	.400***	.362***	-.084	-.426***	-	
A2 Dysregulation	-.177***	-.205***	-.132**	.209***	.624***	-.710***	-
McDonald's ω	.908	.873	.854	.851	.830	.834	.906

Note. $p < .05$ ***, $p < .01$ **, $p < .001$ ***. S for strategy and A for ability factors

Table 4*Correlations between CERSA, CERQ and SWLS dimensions with McDonald's ω for CERQ and SWLS dimensions*

Sadness situation										
Dimensions	Self-B	Accept	Rumin	Pos Refoc	Refoc Plan	Pos Reap	Put Persp	Catas	B-Others	Satis L
Distraction	-.123*	.173**	-.087	.379***	.188***	.251***	.187***	-.045	.016	.226***
Reappraisal	.032	.355***	-.007	.288***	.437***	.466***	.346***	.055	.008	.275***
Expressive suppression	.271***	.116*	.272***	-.043	.066	-.015	.006	.176**	.065	-.232***
Support seeking	.092	.093	.173***	.237***	.163**	.185**	.117*	.057	.051	.052
Rumination	.373***	.039	.581***	-.129*	-.110	-.148**	-.065	.448***	.150*	-.413***
Controlling experience	-.235***	.118*	-.305***	.253***	.339***	.317***	.166**	-.169**	-.004	.392***
Dysregulation	.278***	.032	.396***	-.048	-.083	-.165**	-.046	.366***	.205***	-.385***
Fear situation										
Dimensions	Self-B	Accept	Rumin	Pos Refoc	Refoc Plan	Pos Reap	Put Persp	Catas	B-Others	Satis L
Distraction	.000	.100	-.050	.298***	.113*	.134*	.110	.064	.105	.389***
Reappraisal	-.060	.221***	-.061	.323***	.428***	.407***	.262***	.038	.065	.159**
Expressive suppression	.177**	.173**	.173**	.008	.096	.058	.103	.103	.016	-.126*
Support seeking	.019	.112*	.144*	.218***	.236***	.210***	.123*	.134*	.095	.065
Rumination	.269***	.111*	.417***	-.048	-.079	-.080	.011	.357***	.108	-.230***
Controlling experience	-.265***	.016	-.295***	.257***	.298***	.266***	.115*	-.182**	.054	.339***
Dysregulation	.310***	.084	.382***	-.098	-.114*	-.129*	-.077	.382***	.189***	-.335***
Anger situation										
Dimensions	Self-B	Accept	Rumin	Pos Refoc	Refoc Plan	Pos Reap	Put Persp	Catas	B-Others	Satis L
Distraction	-.122*	.104	-.196***	.330***	.152**	.194***	.143*	-.056	.021	.247***

Table 4*Correlations between CERSA, CERQ and SWLS dimensions with McDonald's ω for CERQ and SWLS dimensions*

Reappraisal	-.016	.187***	-.115*	.256***	.348***	.402***	.227***	-.028	-.055	.214***
Expressive suppression	.219***	.245***	.144*	.037	.137*	.144*	.101	.148**	.026	-.024
Support seeking	.036	.126*	.114*	.247***	.225***	.229***	.147**	.103	.121*	.036
Rumination	.429***	.111*	.566***	-.121*	-.102	-.151**	-.052	.407***	.246***	-.414***
Controlling experience	-.262***	.110*	-.342***	.268***	.362***	.345***	.197***	-.199***	-.030	.428***
Dysregulation	.278***	-.007	.459***	-.048	-.159**	-.230***	-.121*	.358***	.256***	-.426***
McDonald's ω	.826	.705	.876	.837	.781	.719	.709	.705	.787	.929

Note. $p < .05$ ***, $p < .01$ ***, $p < .001$ ***. CERQ dimensions: Self B for Self-Blame, Accept for Acceptation, Rumin for Rumination, Pos Refoc for Positive Refocusing, Refoc Plan for Refocus on Planning, Put Persp for Putting into Perspective, Catas for Catastrophising, B Others for Blaming Others. SWLS dimension: Satis L for Satisfaction with Life.

Table 5*Summary of Multi-group Comparisons for Invariance across gender of CERSA situations*

Model	χ^2 Robust (<i>df</i>)	CFI Robust	RMSEA Robust (90% CI)	SRMR	S-B $\Delta\chi^2$ (Δdf)	Δ CFI Robust	Δ RMSEA Robust	Δ SRMR
Sadness situation								
Configural Model	1150.291*** (606)	.947	.050 (.046-.054)	.053	--	--	--	--
Metric Model	1185.863*** (626)	.946	.050 (.045-.054)	.056	35.205* (20)	-.001	.000	.003
Scalar Model	1207.150*** (646)	.946	.049 (.045-.053)	.056	18.790 (20)	.000	-.001	.000
Residual Model	1248.084*** (673)	.944	.049 (.045-.053)	.056	43.769* (27)	-.002	.000	.000
Fear situation								
Configural Model	1090.498*** (606)	.951	.048 (.043-.053)	.054	--	--	--	--
Metric Model	1117.536*** (626)	.951	.048 (.043-.052)	.054	25.322 (20)	.000	-.001	.001
Scalar Model	1174.948*** (646)	.947	.048 (.043-.053)	.055	61.683*** (20)	-.003	.001	.001
Residual Model	1198.254*** (673)	.947	.048 (.043-.052)	.055	31.565 (27)	-.001	-.001	.000
Anger situation								
Configural Model	1006.056*** (606)	.960	.044 (.037-.047)	.052	--	--	--	--
Metric Model	1026.688*** (626)	.961	.044 (.036-.046)	.053	17.752 (20)	.000	-.001	.001
Scalar Model	1063.689*** (646)	.959	.044 (.036-.046)	.053	34.845** (20)	-.002	.000	.000
Residual Model	1126.999*** (673)	.954	.045 (.039-.048)	.053	56.238*** (27)	-.005	.002	.001

Note. $p < .05$ *, $p < .01$ **, $p < .001$ ***. CFI = comparative fit index, TLI = Tucker Lewis index, RMSEA = root mean square error of approximation, CI = confidence interval, SRMR = Standardized Root Mean Square Residual

Table 6*Latent mean comparisons between gender groups for each factor of the CERSA*

Factors/Situations	Latent ΔM	Latent SD	Z	p	d
Sadness situation					
S1 Distraction	- 0.309	1.597	2.672	.008	0.193
S2 Reappraisal	- 0.100	1.341	1.005	.315	0.075
S3 Expressive suppression	- 0.009	1.881	0.066	.948	0.005
S4 Support seeking	0.659	1.315	6.455	<.001	0.501
S5 Rumination	0.838	1.699	6.234	<.001	0.493
C1 Controlling experience	- 0.681	1.434	5.987	<.001	0.475
C2 Dysregulation	0.335	1.313	3.675	<.001	0.255
Fear situation					
S1 Distraction	- 0.175	1.916	1.216	.224	0.091
S2 Reappraisal	- 0.244	1.623	2.034	.042	0.150
S3 Expressive suppression	- 0.153	1.569	1.354	.176	0.098
S4 Support seeking	0.520	1.504	4.355	<.001	0.346
S5 Rumination	0.291	1.664	2.341	.019	0.175
C1 Controlling experience	- 0.700	1.854	5.380	<.001	0.377
C2 Dysregulation	0.216	1.352	2.248	.025	0.160
Anger situation					
S1 Distraction	- 0.325	1.995	2.318	.020	0.163
S2 Reappraisal	- 0.565	1.499	4.844	<.001	0.361
S3 Expressive suppression	- 0.060	1.857	0.457	.648	0.032
S4 Support seeking	0.938	1.657	7.232	<.001	0.566
S5 Rumination	0.720	1.648	5.504	<.001	0.437
C1 Controlling experience	- 0.438	1.646	3.584	<.001	0.266
C2 Dysregulation	0.439	1.913	3.240	.001	0.230

Note. S for strategy and A for ability factors

Table 7*Fixed effects from mixed linear models with situations as predictors for emotion regulation strategies and abilities*

	Sadness situation	Fear situation	Anger situation					
<i>Strategies</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>	<i>Marginal R²</i>	<i>Conditional R²</i>	<i>Order</i>
Distraction	3.94 (1.82)	3.48 (1.93)	3.50 (1.95)	25.51	< .001	.012	.392	S > F, A
Reappraisal	3.67 (1.67)	3.43 (1.77)	2.85 (1.61)	90.98	< .001	.040	.449	S > F > A
Expressive suppression	4.17 (1.97)	3.83 (1.84)	3.88 (1.82)	13.67	< .001	.006	.430	S > F, A
Support seeking	3.49 (1.77)	3.64 (1.82)	3.72 (1.85)	8.57	< .001	.003	.592	A, F > S
Rumination	3.56 (1.81)	3.16 (1.70)	4.07 (1.79)	106.06	< .001	.043	.492	S, A > F
<i>Abilities</i>								
Controlling experience	4.26 (1.59)	4.33 (1.64)	3.82 (1.61)	47.76	< .001	.020	.496	S, F > A
Dysregulation	2.87 (1.65)	2.57 (1.61)	3.57 (1.91)	151.05	< .001	.056	.535	A > S > F

Note. S for sadness, F for fear and A for anger situations of the CERSA

Appendices

Table A.1

Summary of the results of linear mixed models with orthogonal contrasts for the three emotions (hypothesis contrast and residual contrast) for each situation

Contrasts/Situation	<i>Estimate</i>	<i>SD</i>	<i>df</i>	<i>T</i>	<i>p</i>	<i>d</i>
Sadness situation						
Hypothesis contrast	4.940	0.127	1658	38.99	< .001	1.92
Residual contrast	0.657	0.073	1658	8.98	< .001	0.44
Fear situation						
Hypothesis contrast	5.195	0.123	1658	42.24	< .001	2.07
Residual contrast	1.680	0.071	1658	23.66	< .001	1.16
Anger situation						
Hypothesis contrast	6.661	0.131	1658	51.06	< .001	2.51
Residual contrast	0.757	0.075	1658	10.05	< .001	0.49

Note. *SD* = Standard deviation, *df* = degrees of freedom, *d* = Cohen's *d*

Table A.2

Summary of Exploratory Factor Analysis results for the CERSA sadness situation using ordinary least square extraction method and promax rotation

Items	Factor Loadings							h ²
	Dist	Rea	Suppr	Support	Rum	Control	Dys	
Strategies items								
SQ1	.82							0.61
SQ8	.88							0.72
SQ13	.87							0.74
SQ18								0.24
SQ2		.67						0.48
SQ7		.73						0.54
SQ15		.84						0.71
SQ19		.88						0.75
SQ10			.83					0.69
SQ11			.89					0.79
SQ12			.82					0.66
SQ14			.89					0.79
SQ4				.59				0.41
SQ6				.75				0.52
SQ16				.92				0.80
SQ20				.81				0.64
SQ3					.91			0.69
SQ5								0.48
SQ9					.98			0.76
SQ17					.54			0.60
Abilities items								
SQ21						.72		0.54
SQ23						.74		0.54
SQ26						.75		0.54
SQ28						.76		0.68
SQ22							.69	0.42
SQ24							.71	0.66
SQ25							.87	0.70
SQ27							.78	0.64
Eigen values	2.21	2.52	2.97	2.41	2.18	2.36	2.69	
% of variance	0.08	0.09	0.11	0.09	0.08	0.08	0.10	
Cum. % of variance	0.08	0.17	0.28	0.37	0.45	0.53	0.62	

Note. Dist = distraction, Rea = reappraisal, Suppr = expressive suppression, Support = support seeking, Control = controlling experience, Dys = dysregulation, Cum. = Cumulative. Only factor loadings > .40 are reported here

Table A.3

Summary of Exploratory Factor Analysis results for the CERSA fear situation using ordinary least square extraction method and promax rotation

Items	Factor Loadings							h ²
	Dist	Rea	Suppr	Support	Rum	Control	Dys	
Strategies items								
FQ19	.95							0.84
FQ20	.94							0.81
FQ3	.66							0.44
FQ15	.58							0.44
FQ10		.78						0.64
FQ18		.85						0.72
FQ13		.81						0.69
FQ16		.83						0.66
FQ4			.72					0.50
FQ6			.84					0.69
FQ8			.72					0.58
FQ11			.85					0.72
FQ14				.74				0.53
FQ17				.71				0.53
FQ9				.91				0.77
FQ5				.78				0.60
FQ1					.87			0.67
FQ12					.41			0.43
FQ7					.84			0.66
FQ2					.79			0.60
Abilities items								
FQ27						.90		0.76
FQ25						.69		0.46
FQ21						.68		0.52
FQ28						.88		0.74
FQ22							.81	0.57
FQ26							.69	0.68
FQ24							.86	0.69
FQ23							.77	0.65
Eigen values	2.57	2.72	2.48	2.50	2.22	2.56	2.54	
% of variance	0.09	0.10	0.09	0.09	0.08	0.09	0.09	
Cum. % of variance	0.09	0.19	0.28	0.37	0.45	0.54	0.63	

Note. Dist = distraction, Rea = reappraisal, Suppr = expressive suppression, Support = support seeking, Control = controlling experience, Dys = dysregulation, Cum. = Cumulative. Only factor loadings > .40 are reported here

Table A.4

Summary of Exploratory Factor Analysis results for the CERSA's anger situation using ordinary least square extraction method and promax rotation

Items	Factor Loadings							h ²
	Dist	Rea	Suppr	Support	Rum	Control	Dys	
Strategies items								
AQ19	1.01							0.85
AQ18	1.01							0.87
AQ7	.74							0.61
AQ4								0.36
AQ16		.88						0.72
AQ6		.83						0.61
AQ20		.92						0.78
AQ2		.65						0.45
AQ13			.84					0.67
AQ12			.91					0.77
AQ10			.78					0.60
AQ3			.59					0.38
AQ8				.72				0.55
AQ14				.83				0.67
AQ17				.84				0.73
AQ1				.67				0.44
AQ11					.91			0.70
AQ9					.53			0.54
AQ15					.85			0.66
AQ5					.53			0.45
Abilities items								
AQ26						.49		0.60
AQ21						.60		0.44
AQ24						.81		0.63
AQ28						.57		0.72
AQ25							.96	0.76
AQ27							.79	0.68
AQ23							.96	0.80
AQ22							.72	0.61
Eigen values	2.55	2.73	2.47	2.40	2.16	1.85	3.47	
% of variance	0.09	0.10	0.09	0.09	0.08	0.07	0.12	
Cum. % of variance	0.09	0.19	0.28	0.37	0.44	0.51	0.63	

Note. Dist = distraction, Rea = reappraisal, Suppr = expressive suppression, Support = support seeking, Control = controlling experience, Dys = dysregulation, Cum. = Cumulative. Only factor loadings > .40 are reported here

A.5. Contextualised Emotion Regulation Survey for Adolescents (CERSA)

Situation 1 : Pendant la récréation, tu apprends que ton/ta meilleur(e) ami(e) va déménager et ne sera plus dans ta classe ni dans ton établissement scolaire l'année prochaine.

Est-ce que tu as déjà vécu cette situation ? Jamais Une fois Plusieurs fois

Indique les émotions que cette situation te ferait ressentir. Pour cela,

Entoure pour chaque émotion proposée le nombre qui correspond à ce que tu ressentirais de 1 « pas du tout » à 7 « Très fortement ».

	Pas du tout						Très fortement
Peur	1	2	3	4	5	6	7
Tristesse	1	2	3	4	5	6	7
Colère	1	2	3	4	5	6	7

Face à cette situation, comment réagiras-tu ? Pour chacune des réactions proposées, entoure le chiffre qui te correspond le plus de : 1 « Pas du tout comme ça » à 7 « Tout à fait comme ça ».

	Pas du tout comme ça						Tout à fait comme ça
Je m'occupe l'esprit en faisant quelque chose d'autre.	1	2	3	4	5	6	7
J'essaie de voir la situation sous un autre angle.	1	2	3	4	5	6	7
Je n'arrête pas de penser à ce que j'ai ressenti dans cette situation.	1	2	3	4	5	6	7
Je cherche quelqu'un qui me calme.	1	2	3	4	5	6	7
Cette situation me met dans un tel état que je ne peux pas me concentrer sur autre chose.	1	2	3	4	5	6	7
J'en parle à quelqu'un en qui j'ai confiance.	1	2	3	4	5	6	7
Je change ma façon de penser la situation.	1	2	3	4	5	6	7
Je fais autre chose pour me distraire.	1	2	3	4	5	6	7
Je pense sans cesse aux émotions que cette situation a provoquées en moi.	1	2	3	4	5	6	7
Je ne montre pas mes sentiments.	1	2	3	4	5	6	7
Je fais attention à ne pas montrer ce que je ressens.	1	2	3	4	5	6	7
Je fais comme si de rien n'était devant les autres.	1	2	3	4	5	6	7

Rappel de la situation 1 : Pendant la récréation, tu apprends que ton/ta meilleur(e) ami(e) va déménager et ne sera plus dans ta classe ni dans ton établissement scolaire l'année prochaine.

	Pas du tout comme ça							Tout à fait comme ça						
J'essaie de me changer les idées en faisant autre chose.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je ne laisse rien voir de ce que je ressens.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je pense à d'autres façons d'interpréter la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je cherche du soutien autour de moi.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je reste bloqué(e) sur ce qu'il s'est passé.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je n'y pense pas et j'essaie d'oublier.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'essaie de changer ma manière de voir la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je demande de l'aide ou des conseils dans mon entourage.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Face à cette même situation, comment te décrirais-tu ? Pour chacune des propositions, entoure le chiffre qui te correspond le plus de : 1 « Pas du tout comme moi » à 7 « Tout à fait comme moi ».

	Pas du tout comme moi							Tout à fait comme moi						
J'arrive à maîtriser mes émotions.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je dis ou je fais des choses qui dépassent ma pensée.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'arrive à trouver des solutions pour gérer la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je me laisse déborder par mes émotions au point de ne plus savoir ce que je fais.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Mes émotions me font dire et faire n'importe quoi.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je pense pouvoir gérer la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je n'arrive pas à contenir mes réactions même si elles ne sont pas adaptées.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je suis capable de contrôler mes émotions.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Situation 2 : Tu dois faire un exposé oral très important devant ta classe. Pendant la récréation, juste avant de le passer, tu as l'impression d'avoir oublié tout ce que tu avais préparé.

Est-ce que tu as déjà vécu cette situation ? Jamais Une fois Plusieurs fois

Indique les émotions que cette situation te ferait ressentir. Pour cela,

Entoure pour chaque émotion proposée le nombre qui correspond à ce que tu ressentirais de 1 « pas du tout » à 7 « Très fortement ».

	Pas du tout			Très fortement			
Peur	1	2	3	4	5	6	7
Tristesse	1	2	3	4	5	6	7
Colère	1	2	3	4	5	6	7

Face à cette situation, comment réagiras-tu ? Pour chacune des réactions proposées, entoure le chiffre qui te correspond le plus de : 1 « Pas du tout comme ça » à 7 « Tout à fait comme ça ».

	Pas du tout comme ça			Tout à fait comme ça			
Je n'arrête pas de penser à ce que j'ai ressenti dans cette situation.	1	2	3	4	5	6	7
Je reste bloqué(e) sur ce qu'il s'est passé.	1	2	3	4	5	6	7
J'essaie de me changer les idées en faisant autre chose.	1	2	3	4	5	6	7
Je ne montre pas mes sentiments.	1	2	3	4	5	6	7
Je demande de l'aide ou des conseils dans mon entourage.	1	2	3	4	5	6	7
Je fais attention à ne pas montrer ce que je ressens.	1	2	3	4	5	6	7
Je pense sans cesse aux émotions que cette situation a provoquées en moi.	1	2	3	4	5	6	7
Je fais comme si de rien n'était devant les autres.	1	2	3	4	5	6	7
Je cherche du soutien autour de moi.	1	2	3	4	5	6	7
J'essaie de voir la situation sous un autre angle.	1	2	3	4	5	6	7
Je ne laisse rien voir de ce que je ressens.	1	2	3	4	5	6	7
Cette situation me met dans un tel état que je ne peux pas me concentrer sur autre chose.	1	2	3	4	5	6	7

Rappel de la situation 2 : Tu dois faire un exposé oral très important devant ta classe. Pendant la récréation, juste avant de le passer, tu as l'impression d'avoir oublié tout ce que tu avais préparé.

	Pas du tout comme ça							Tout à fait comme ça						
J'essaie de changer ma manière de voir la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je cherche quelqu'un qui me calme.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je n'y pense pas et j'essaie d'oublier.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je pense à d'autres façons d'interpréter la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'en parle à quelqu'un en qui j'ai confiance.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je change ma façon de penser la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je m'occupe l'esprit en faisant quelque chose d'autre.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je fais autre chose pour me distraire.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Face à cette même situation, comment te décrirais-tu ? Pour chacune des propositions, entoure le chiffre qui te correspond le plus de : 1 « Pas du tout comme moi » à 7 « Tout à fait comme moi ».

	Pas du tout comme moi							Tout à fait comme moi						
Je pense pouvoir gérer la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je dis ou je fais des choses qui dépassent ma pensée.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je n'arrive pas à contenir mes réactions même si elles ne sont pas adaptées.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Mes émotions me font dire et faire n'importe quoi.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'arrive à trouver des solutions pour gérer la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je me laisse déborder par mes émotions au point de ne plus savoir ce que je fais.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'arrive à maîtriser mes émotions.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je suis capable de contrôler mes émotions.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Situation 3 : Pendant la récréation, tu entends qu'un(e) ami(e) discute avec d'autres personnes de quelque chose que tu lui avais demandé de garder secret.

Est-ce que tu as déjà vécu cette situation ? Jamais Une fois Plusieurs fois

Indique les émotions que cette situation te ferait ressentir. Pour cela,

Entoure pour chaque émotion proposée le nombre qui correspond à ce que tu ressentirais de 1 « pas du tout » à 7 « Très fortement ».

	Pas du tout			Très fortement			
Peur	1	2	3	4	5	6	7
Tristesse	1	2	3	4	5	6	7
Colère	1	2	3	4	5	6	7

Face à cette situation, comment réagiras-tu ? Pour chacune des réactions proposées, entoure le chiffre qui te correspond le plus de : 1 « Pas du tout comme ça » à 7 « Tout à fait comme ça ».

	Pas du tout comme ça			Tout à fait comme ça			
Je demande de l'aide ou des conseils dans mon entourage.	1	2	3	4	5	6	7
Je pense à d'autres façons d'interpréter la situation.	1	2	3	4	5	6	7
Je ne laisse rien voir de ce que je ressens.	1	2	3	4	5	6	7
Je n'y pense pas et j'essaie d'oublier.	1	2	3	4	5	6	7
Je reste bloqué(e) sur ce qu'il s'est passé.	1	2	3	4	5	6	7
Je change ma façon de penser la situation.	1	2	3	4	5	6	7
J'essaie de me changer les idées en faisant autre chose.	1	2	3	4	5	6	7
Je cherche quelqu'un qui me calme.	1	2	3	4	5	6	7
Cette situation me met dans un tel état que je ne peux pas me concentrer sur autre chose.	1	2	3	4	5	6	7
Je fais comme si de rien n'était devant les autres.	1	2	3	4	5	6	7
Je n'arrête pas de penser à ce que j'ai ressenti dans cette situation	1	2	3	4	5	6	7
Je fais attention à ne pas montrer ce que je ressens.	1	2	3	4	5	6	7

Rappel de la situation 3 : Pendant la récréation, tu entends qu'un(e) ami(e) discute avec d'autres personnes de quelque chose que tu lui avais demandé de garder secret.

	Pas du tout comme ça							Tout à fait comme ça						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je ne montre pas mes sentiments.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'en parle à quelqu'un en qui j'ai confiance.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je pense sans cesse aux émotions que cette situation a provoquées en moi.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'essaie de voir la situation sous un autre angle.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je cherche du soutien autour de moi.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je fais autre chose pour me distraire.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je m'occupe l'esprit en faisant quelque chose d'autre.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'essaie de changer ma manière de voir la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Face à cette même situation, comment te décrirais-tu ? Pour chacune des propositions, entoure le chiffre qui te correspond le plus de : 1 « Pas du tout comme moi » à 7 « Tout à fait comme moi ».

	Pas du tout comme moi							Tout à fait comme moi						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'arrive à trouver des solutions pour gérer la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je n'arrive pas à contenir mes réactions même si elles ne sont pas adaptées.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Mes émotions me font dire et faire n'importe quoi.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je pense pouvoir gérer la situation.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je dis ou je fais des choses qui dépassent ma pensée.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
J'arrive à maîtriser mes émotions.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je me laisse déborder par mes émotions au point de ne plus savoir ce que je fais.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Je suis capable de contrôler mes émotions.	1	2	3	4	5	6	7	1	2	3	4	5	6	7