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1 **Investigation of Attachment Orientation, and Affect Regulation: Use of a Novel Affect**
2 **Regulation Mapping Tool in Japanese Athletes**

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13

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18 Investigation of Attachment Orientation, and Affect Regulation: Use of a Novel Distance Affect
19 Regulation Mapping Tool in Japanese Athletes

20

21 **Introduction**

22 **Emotions in sport**

23 Emotions are important as they have physiological, motivational, and cognitive
24 consequences for performance and wellbeing in sport (Babkes Stellino, Partridge, & Moore,
25 2012; Chen et al, 2019; Uphill & Jones, 2012). Whether it is anxiety about returning after an
26 injury, embarrassment about making a mistake, anger at a contentious decision by a referee, or
27 excitement at the prospect of winning, athletes experience a range of emotions prior to, during,

28 and after competitive sports events (Hanin, 2000; Lewis, Knight & Mellalieu, 2017; Uphill &
29 Jones, 2007). Cerin (2003) showed that emotions such as interest/excitement, enjoyment,
30 sadness, guilt, and self-hostility are important for athletes' sport performance. For example,
31 Woodman et al (2009) found that anger was associated with enhanced gross muscular peak
32 force performance and that hope yielded faster football-related reaction times in football
33 players. In addition, Uphill et al (2014) showed that basketballers' happiness can predict
34 successful game involvement, while anger and embarrassment were significant predictors of
35 unsuccessful game involvement.

36 Researchers have shown that athletes also report fluctuations in the intensity and
37 frequency of different positive and negative emotions prior to, during, and after competitions
38 (Cerin & Barnett, 2006; Robazza et al., 2012). Emotions are not only an intrinsic part of
39 competitive sports, they are also widely believed to influence sport performance. There is a
40 large literature that considers the antecedents and outcomes of various emotions in sport and
41 athletes' perceptions of the functionality of emotions for performance outcomes (e.g., Martinent,
42 Campo, & Ferrand, 2012; Uphill & Jones, 2007). Thus, successful regulation of emotion is
43 considered to be an important psychological skill (Gould & Maynard, 2009; Jones, 2003;
44 Robazza, Pellizzari, & Hanin, 2004).

45

46 **Affect regulations and its relationship to attachment orientation**

47 Affect regulation refers to "processes by which individuals influence which emotions
48 they have, when they have them, and how they experience and express these emotions" (Gross,
49 1998, p. 275). An organizing framework of affect regulation considers processes aimed at
50 decreasing, maintaining, or increasing the intensity and duration of one's own emotional
51 experiences (i.e., affect and its regulation are a response to emotion and its regulation). Athletes
52 are believed to use a number of strategies to regulate their emotions and affect, including
53 distraction, redirection of attention, cognitive reappraisal, goal setting, self-talk, imagery,

54 relaxation, and suppression, and further, athletes' ability to regulate their emotions is
55 associated with successful performance (for a review, see Jones, 2012).

56 A framework often used for understanding emotion regulation and affect regulation is
57 attachment theory (Kobak, Holland, Ferenz-Gillies, Fleming, & Gamble, 1993; Mikulincer,
58 Florian, & Tolmacz, 1990). The attachment framework models cognitive representations of
59 close relationships (benefits and reciprocal expectations) that we all possess, and which tend to
60 be abstracted from experiences in early relationships (Bowlby, 1969). Adult attachment
61 orientation is conceptualized in terms of two dimensions: attachment anxiety (characterized by
62 a fear of abandonment) and attachment avoidance (fear of intimacy). Low attachment anxiety
63 and avoidance indicates attachment security, whereas high attachment anxiety and/or
64 avoidance are associated with attachment insecurity (Brennan, Clark, & Shaver, 1998).
65 Importantly, attachment orientation remains relatively stable across the lifespan, with any
66 shifts occurring in response to major attachment-related events (Waters et al., 2000).

67 In terms of affect regulation, attachment orientation predicts the extent to which
68 individuals rely on internal and/or external strategies to help them manage emotion (for a
69 review, see Mikulincer, 1998). For example, when distressed, securely attached individuals will
70 seek proximity to or activate symbolic representations of an attachment figure in order to self-
71 soothe (notably, they are also likely to engage in reappraisal in the first place; Karreman &
72 Vingerhoets, 2012). By contrast, individuals who are high in avoidant attachment respond to
73 distress by detaching themselves from its source (Bowlby, 1988; Faber, Dube, & Knauper,
74 2018). The attachment system deactivates, distress is not acknowledged, and there is no
75 emotional response to manage (i.e., affect regulation). Individuals high in attachment anxiety
76 are relatively poor at managing their emotions. The attachment system in high attachment
77 anxious individuals is hyperactivated, which means they become hypervigilant to distressing
78 cues in their environment (Mikulincer & Florian, 1998), and they will seek an external source of
79 comfort such as food (e.g., Faber et al, 2018; Wilkinson, Rowe, Bishop & Brunstrom, 2010;

80 Wilkinson, Rowe & Heath, 2013; Wilkinson, Rowe & Millings, 2019; Wilkinson et al, 2018) to
81 soothe, distract, or excite (Maunder & Hunter, 2001).

82

83 **Measurement of affect regulation**

84 A number of measures have been used to assess emotion regulation and affect
85 regulation in athletes, but two of the most commonly used are The Emotion Regulation
86 Questionnaire (ERQ; Gross & John 2003) which, as its name suggests, focuses on emotion
87 regulation and the COPE (Carver, Scheier, & Weintraub, 1989) which contains items relating to
88 both emotion regulation and affect regulation. The ERQ is the most frequently used tool to
89 measure individual differences in the use of cognitive reappraisal and expressive suppression to
90 regulate emotion. While it is short, easy to administer, and frequently used in sport psychology,
91 it is also limited; it quantifies emotion regulation on two 'high-level' abstract dimensions
92 (reappraisal and suppression) only. The COPE inventory is a long questionnaire with 13 factors
93 assessed by four items each. These factors include (a) active coping, (b) planning, (c)
94 suppression of competing activities, (d) restraint coping, (e) seeking social support for
95 instrumental reasons, (f) seeking social support for emotional reasons, (g) focusing on and
96 venting of emotions, (h) behavioural disengagement, (i) mental disengagement, (j) positive
97 reinterpretation and growth, (k) denial, (l) acceptance, and (m) turning to religion. It has
98 generally good psychometric properties (Carver et al., 1989) but is lengthy and time-consuming
99 to administer and complete. Furthermore, findings resulting from the administration of the ERQ
100 and COPE are limited in terms of fully capturing the intra- and inter-individual variability in
101 strategies used by athletes. For example, activities that are central to a person's coping strategy
102 may not be included in these questionnaires because they are, for example, relatively new (e.g.,
103 specific apps) and/ or were previously more taboo (e.g., changes in attitude towards sexual
104 activities).

105 A novel tool has been developed, underpinned by attachment theory, to capture the
106 breadth of information associated with *affect regulation*, this is the 'distance affect regulation

107 mapping' (DARM) tool (Wilkinson & Rowe, 2016). The DARM is based on the pictorial
108 hierarchical mapping tool (HMT; Rowe & Carnelley, 2005), which is a validated way to assess
109 the content and structure of attachment networks. However, rather than quantifying
110 attachment networks alone, the DARM also allows for the mapping of a range of internal and
111 external affect regulation strategies including seeking proximity to people (e.g., romantic
112 partner), practices (e.g., meditation), substances (e.g., food), or anything else used to manage
113 affect in times of stress. The DARM could have advantages over other measurement tools such
114 as ERQ and COPE. First, the DARM allows participants to specify their own regulation strategies,
115 in other words, the strategies are not limited to those proposed by the measure, as is the case
116 with other tools. This is especially important when researchers investigate *a specific group of*
117 people such as athletes, because people who belong to the group may employ strategies that
118 other people outside the group may not. Second, similar diagrammatic measures are recognized
119 as quick and easy to use and intuitive to complete (Kahn & Antonucci, 1980; Rowe & Carnelley,
120 2005). Moreover, the pictorial hierarchical mapping tool can provide participants with the
121 opportunity to reflect on what is assessed; items of the questionnaires such as the ERQ and
122 COPE can be abstract and hard to apply to participants' own lives, whereas the DARM is more
123 likely to engender self-reflection because participants complete it in a way that is meaningful to
124 them. For example, after they specify their own regulation strategies, participants are asked to
125 place the stickers representing each of affect regulation strategies into in the diagram, in
126 relation to the centre (labelled 'stressed me'), where closeness to the centre represents the
127 likelihood of they use the strategy when stressed. This may facilitate their self-reflection on
128 what strategies they use and how often.

129

130 **The purpose of this study**

131 The first aim of this study was to quantify the full complement of athletes' existing affect
132 regulation strategies using the DARM in order to better understand the strategies college
133 athletes use and how often they are employed. In addition to the description of the affect

134 regulation strategies, this study explored whether completing the tool could be of some
135 practical benefit by helping athletes reflect on and identify ways to develop and improve their
136 affect regulation strategies. As the DARM allows participants to write down their own
137 regulation strategies, which other tools may not include, we hypothesised that:

138 1) Participants would report a range of affect regulation strategies, some of which may not
139 be captured by existing scales (ERQ and COPE).

140 Additionally, as diagrammatic measures are recognized as easy to use and intuitive to complete
141 (Kahn & Antonucci, 1980; Rowe & Carnelley, 2005), we also hypothesised that:

142 2) Participants would have positive views about the DARM.

143 As discussed above, attachment orientation predicts the extent to which individuals rely
144 on internal and/or external strategies to help them manage affect. When distressed, securely
145 attached individuals will seek proximity to or activate symbolic representations of an
146 attachment figure in order to self-soothe (Karreman & Vingerhoets, 2012), while individuals
147 high in attachment anxiety become hypervigilant to distressing cues in their environment
148 (Mikulincer & Florian, 1998), and they will seek an external source of comfort such as food (e.g.,
149 Faber et al, 2018; Wilkinson, Rowe, Bishop & Brunstrom, 2010; Wilkinson, Rowe & Heath, 2013;
150 Wilkinson, Rowe & Millings, 2019; Wilkinson et al, 2018). Based on this, a secondary aim was to
151 offer some evidence of construct validity associated with the use of the DARM. Considering the
152 theoretical antecedents of the DARM tool (attachment orientation) and the subject being
153 assessed (affect regulation), we reasoned that establishing construct validity using published
154 measures of attachment orientation would be of value. As individuals who have secure
155 attachment orientations would seek proximity to someone, we first hypothesised:

156 3) Participants who included affect regulators to seek proximity to someone in the DARM
157 (i.e., interpersonal relationships relied on for affect regulation), as opposed to external
158 affect regulators (such as food or drink), would be more attachment secure than those
159 who did not.

160 Finally, as the distance between the centre of the DARM (labelled 'stressed me') and the strategy
161 placed on the diagram represents how frequently the participants use the affect regulation
162 strategy, we also hypothesised that:

163 4) Among those who included affect regulators involving proximity to someone, the
164 distance of the strategy to the centre of the DARM would be related to higher secure
165 attachment orientation.

166

167 **Method**

168 **Participants**

169 A total of 96 college athletes were recruited to participate in this study. The sample
170 consisted of 36 female athletes and 59 male athletes with a mean age of 18.93 years old (SD
171 = .46), and 91% of them identified as Japanese. The remaining 9% were Asian, White, or Mixed.
172 Their average practice hours per week was 14.18 hours ($SD = 7.74$), and the average career
173 history as an athlete was 9.78 years ($SD = 3.8$). They competed in different sports, including
174 football, tennis, dancing, swimming, basketball, badminton, volleyball, handball, lacrosse,
175 gymnastics, kendo, table tennis, judo, dive, baseball, and track and field.

176 **Standardized Measures**

177 **Experiences in Close Relationships Scale – Short version (ECR-S; Wei, Russell,**
178 **Mallinckrodt, & Vogel, 2007).** The ECR-S is a 12-item self-report questionnaire used to
179 measure an athlete's attachment orientation by assessing how they generally experience close
180 relationships. The ECR-S possesses the psychometric properties of the long version of the ECR
181 (Brennan, Clark, & Shaver, 1998). The ECR-S is composed of two 6-item sub-scales, the anxious
182 subscale (e.g., "I worry that others won't care about me as much as I care about them") and the
183 avoidant subscale (e.g., "I want to get close to my partners, but I keep pulling back"). The items
184 were rated on a 7-point scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Several
185 items were reverse scored before scores for anxious and avoidant attachment were computed.
186 Because the Japanese version of ECR-S was not available, we translated the items into Japanese

187 using standard back-translation procedures recommended by Brislin (1970, 1986). Cronbach's
188 alphas for the current study were .70 for the avoidant items and .72 for the anxious items.

189 **DARM tool (Wilkinson and Rowe, 2016).** The Japanese version of the DARM was
190 developed using standard back-translation procedures recommended by Brislin (1970, 1986).
191 Participants were asked to think about the different ways that they might cope with stress. A list
192 of examples was provided that included items that might be considered embarrassing or illegal.
193 However, they were told that coping strategies they might use might not be on that list but could
194 still be used as part of the task. Participants were then provided with round, blank, sticky labels
195 on which to write their chosen coping strategies (unlimited number). Participants are instructed
196 in the following ways.

197 *Below is a diagram, the centre of which represents 'stressed you'. Different people engage in*
198 *various activities to cope with stress. We represent some but not all of these in the list below.*
199 *Please recall times when you have been stressed. It may be that you engage in some of the*
200 *activities from the list to cope with stress or you may engage in activities that are not on the*
201 *list".*

202 1) *Please write the behaviours YOU turn to when stressed on the stickers provided (YOU*
203 *SHOULD HAVE ONE BEHAVIOUR PER STICKER).*

204 2) *Place the stickers representing each of these activities you chose into in the diagram*
205 *below in relation to the centre, where closeness to the centre represents the likelihood of*
206 *you engaging in this activity when stressed.*

207 3) *Once you are happy with the arrangement of your stickers, please stick them in this*
208 *arrangement onto the diagram.*

209

210 Procedure

211 **The questionnaire was administrated only in the Japanese language.** At the end of a
212 psychology lecture, college athletes were asked to complete a questionnaire that included the
213 ECR-S, and DARM. The DARM was analyzed using the following steps. First, the number of

214 stickers each participant used was recorded. Second, the distance between the centre of the
215 diagram (i.e., bull's eye) and each sticker (i.e., centre of the round sticker) was measured in
216 millimeters and recorded. Finally, participants were asked to briefly write down their comments
217 on the DARM.

218 Using content analysis (Krippendorff, 2004), affect regulation strategies written on the
219 stickers were grouped into categories according to their similarities, and each category was
220 assigned a name by the first author. The audit was conducted by consulting the third author
221 about the accuracy of the name of the strategy categories and comments that did not fit in any
222 category or that could belong to more than one category. Differences in opinions were resolved
223 via discussion. Finally, the inter-rater reliability (Cohen's kappa coefficient) between the first
224 and second authors was calculated with 10% of the all items (Lombard, Snyder-Duch & Bracken,
225 2005). The same procedure was employed for the analysis of participants' brief comments on
226 DARM.

227

228 **Results**

229 In total, 1135 stickers were used (on average 11.81 per person), and one-hundred
230 twenty regulators were excluded from the analysis either because (1) they were not specific
231 enough (e.g., "Mobile," "Play," "Grumble") or (2) the category consisted of less than five stickers
232 and could not be collated to any other categories (e.g., "Save money," "Stargazing," "Haircut"). As
233 a result of content analysis, the regulators written on the stickers were classified into 23 groups.
234 The inter-rater reliability suggests almost perfect agreement (kappa coefficient =.907) between
235 the two independent raters. Table 1 illustrates the names of the categories, the number of
236 stickers that belong to the category, and the mean distance (in cm) between the centre of the
237 diagram and stickers.

238 [Insert Table 1 about here]

239 Almost all participants ($N = 95$) provided their feedback on the DARM, and comments
240 were classified into six categories (Table 2). The inter-rater reliability suggests substantial

241 agreement (kappa coefficient =.744) between the two independent raters. The results suggest
242 that the majority of participants found the DARM to be a helpful way to understand the
243 strategies that were effective for them in coping with stress, to identify more strategies, to
244 understand themselves, and to discover the need to increase or change their existing strategies.
245 Some participants found it to be fun and interesting to map their strategies on the diagram.

246 [Insert Table 2 about here]

247 For the validation of DARM, we first compared the scores between participants who
248 included seeking proximity to someone in the affect regulation strategies such as “Call my
249 boyfriend” or “Talk to my mother” and participants who did not include such strategies, but
250 included strategies that they can do on their own, such as “Listen to music” or “Take a bath”
251 (Table 3). Relative to participants who did not include seeking proximity to someone in the
252 DARM, those who did scored significantly lower on the total scores of ECR-S, and ECR-S Anxiety,
253 suggesting they were more secure. They also included a higher number of stickers on the DARM,
254 reflecting a broader range of affect regulation strategies.

255 [Insert Table 3 about here]

256 The correlations between attachment orientations and DARM are presented in Table 4.
257 The total score of ECR-S was negatively correlated with the average number of stickers they
258 used for DARM. In addition, the total scores of ECR-S and ECR-S Anxiety were positively
259 correlated with DARM Proximity.

260 [Insert Table 4 about here]

261

262 **Discussion**

263 The first aim of this study was to investigate the strategies that college athletes use to
264 regulate their affect (specifically stress) and how these relate to attachment orientation. We
265 were also interested in how the DARM was received by athletes, and particularly, whether they
266 thought the DARM was helpful in improving affect regulation. The mapping of the common
267 regulation strategies (Table 1) suggests that athletes utilize a range of strategies, some of which

268 may not be captured by existing scales. Moreover, college athletes use both exercise, activities
269 not related to their sport (e.g., “Cycling,” “Bowling,” “Walking”) and training, activities related to
270 their sport (e.g., “Running,” “Weight training,” “Throwing”), which may be an athlete-specific
271 division in strategies. In addition, some strategies are associated with Japanese culture, such as
272 Karaoke. These results suggest that the DARM is able to obtain rich data regarding affect
273 regulation strategies that are specific to the target group and culture, how popular each strategy
274 is, and how often each strategy is used.

275 The second aim of this study was to validate the DARM with athletes. The results suggest
276 that those who included seeking proximity to someone in their affect regulation strategies have
277 more secure attachment orientations, and they have more options to relieve stress. This is
278 consistent with the literature on attachment and affect regulation, confirming the validity of the
279 DARM. Security of attachment is associated with the ability to trust and depend on others to
280 help the self in times of stress, whereas attachment insecurity is associated with problems
281 relying on others (Mikulincer, 1998). Moreover, athletes with secure attachment orientations
282 had a more comprehensive plan for coping with stress; they had strategies that included
283 somebody *in addition to* strategies that they can do on their own. The result of correlations,
284 among those who included seeking proximity to someone in their responses, revealed that the
285 more secure attachment orientation they had, the closer the sticker (strategy) was placed to the
286 centre of the diagram. This suggests that athletes with secure attachment orientations are more
287 likely to utilize strategies that include someone.

288 The comments suggest that the majority of participants had positive views about the
289 DARM, suggesting the preliminary acceptability of the use of the tool with this participant
290 group. Moreover, their feedback suggests that the DARM may help the athletes to identify,
291 reflect on, and further develop their affect regulation techniques. Participants found it helped
292 them identify the effective strategies they used to cope with stress, to discover more strategies,
293 to understand themselves, and to discover the need to increase usage of or change their existing
294 strategies. As athletes train 14.18 hours per week on average, their time for reflecting on stress

295 coping is limited compared to other college students. Thus, it can be a good opportunity for
296 college athletes to reflect on the effective activities they use to cope with stress by using a tool
297 such as the DARM.

298

299 **Limitations, future directions, and practical implications**

300 The present study has a couple of limitations. First, the study investigated college
301 athletes. Consequently, future studies need to explore if the present findings generalize to
302 professional athletes and youth athletes who may face different stress and pressure as
303 compared to college athletes. Further, this study asked what athletes *generally* do when they are
304 stressed. Future studies may need to assess what athletes do when they are stressed *during the*
305 *competition* such as briefly talking to coaches, shouting, smashing their racket, and so on, as this
306 may have an effect on their performance as well as their well-being. Hence, the results of the
307 correlation analyses cannot be interpreted in a causal sense. Following that, the study employed
308 a cross-sectional design, and it was administered only in the Japanese language. Hence, the
309 results of the correlation analyses cannot be interpreted in a causal sense, and some
310 participants might have struggled to read and write in the Japanese language. Future studies
311 need to address such language barriers, and employ longitudinal designs such as week-to-week
312 assessments (e.g., Sherry et al., 2012) to examine whether attachment orientation predicts
313 affect regulation strategies and well-being. Most importantly, although the participants of this
314 study had positive views about the DARM, we need to investigate whether administration of the
315 DARM can actually improve athletes' affect regulation strategies.

316 Second, the DARM has its own limitations. For example, the reliance on self-report
317 makes more readily accessible strategies that athletes are consciously aware of attempting and
318 may be less adept in "tapping into" strategies that can be more automatic. Moreover, the DARM
319 aims to assess how individuals cope with stress, which is only one example of affect regulation,
320 and it does not include other attempts such as ones to enhance positive emotions. Despite our
321 efforts to reassure participants that they may be honest when completing the DARM,

322 participants might hesitate to report maladaptive strategies because such a strategy may be
323 illegal or embarrassing.

324 Also notable is that the number of stickers, rather than the number of categories, were
325 analysed in relation to attachment orientation. Clinically speaking, the numbers of regulation
326 strategies, even in the same category, may be more important than the number of categories. If a
327 person can talk to his or her father as well as mother to relieve stress, s/he has more options
328 when one of them is not available or when the relationship with one of them becomes bad.
329 Therapists usually try to help the client to discover similar but slightly different strategy to the
330 ones s/he already uses, or help the client to modify and improve the ones they already use. This
331 can be more cost-effective and achievable than suggesting completely different strategies.

332 In future studies, the instructions to the participants and the coding of the strategies
333 could be more specific, in order to better reflect complex behaviours and their contribution to
334 affect regulation. For example, our understanding and interpretation of 'seeking proximity to
335 someone' was that this intention is clearly reflected in the reported behaviour, i.e., calling,
336 meeting or talking to someone in order to relieve stress. However, this may be overly simplistic
337 as proximity seeking may underly other activities too (e.g., to sing, drink, travel). In other words,
338 many activities that people use to cope with stress may involve a social component that
339 constitutes proximity seeking (e.g., 'drinking' may actually mean 'drinking with a friend'). In
340 these cases it can be difficult to disentangle stress relieving components. Importantly, due to the
341 tools' inherent flexibility, the DARM may be uniquely placed to reflect such complexity – indeed,
342 more conventional questionnaires often include broad categories and fail to reflect 'compound'
343 behaviours. One way that the DARM tool could be delivered to capture this kind of nuanced
344 information is to explicitly instruct participants to split compound activities or to indicate
345 whether they involve a social element (if it is not obvious) and indicate the importance of each
346 element (e.g. 'for me, it would be meeting a friend and it is unimportant to me whether it is over
347 an alcoholic drink or a coffee as long as it helps me to cope by talking to my friend" or 'for me it
348 might be very important that alcohol is a part of an interaction').

349 This study has some more practical and clinical implications. For example, by keeping a
350 copy of their completed DARM for future reference, and sharing it with friends, family,
351 teammates and their coach, they could potentially develop better strategies and better ways of
352 attaining the interpersonal support they need. Such sharing can be done as a team-building
353 activity in which junior athletes may discover and learn new affect regulation strategies from
354 senior athletes and replace ineffective strategies with more effective ones. This could enhance
355 their expectancy that they can regulate their own negative moods, which may in turn improve
356 their athletic performance (Totterdell & Leach, 2001). As discussed above, the DARM can be
357 used in clinical settings in which clients are sometimes stressed by filling a lot of “conventional”
358 forms. Moreover, working on the DARM with the therapist can contribute to building a
359 collaborative relationship between therapist and client. The therapist then will have a better
360 understanding of the client, as the diagram informs not only a potential attachment orientation
361 of the client, but also protective factors such as who is close to the client and what the client
362 likes to do. In addition, the therapist could ask what the client has stopped doing since the onset
363 of the psychological problem (e.g., depression), which may give them a short-term goal of re-
364 activating such behaviour.

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473 Table 1
 474 *Category Name, Examples, Number of Stickers and Percentage, and the Mean Distance (in centimeter) from the centre.*
 475

Category name	Definition	Examples	Number of stickers	%	Mean distance
People	Seeking proximity to someone by meeting, calling, or talking to them	"Call my boyfriend", "Talk to my mother"	117.00	11.82	39.21
Exercise	Physical activities not related to their sport	"Take a walk", "Bowling"	57.00	5.76	49.46
Training	Physical activities related to their sport	"Running", "Muscular workout"	56.00	5.66	45.71
Internet Browsing	Going online to read something or to do some search	"Web surfing", "Googling"	14.00	1.41	38.50
SNS	Engagement in social networking services	"Twitter", "LINE"	14.00	1.41	39.93
Music	Listening to music	"Listen to music", "Listen to songs"	68.00	6.87	33.00
Watching video/TV	Watching videos online or watching TV	"Watch films", "Watch TV"	99.00	10.00	41.28
Gaming	Playing video games or mobile games	"Gaming", "Mobile games"	33.00	3.33	38.36
Housekeeping	Activities to keep the house clean and tidy	"Cleaning", "Washing"	31.00	3.13	46.35
Releasing Emotions	Behaviours to release and reduce the intensity of the emotions	"Cry", "Shout"	35.00	3.54	42.03
Reading	Reading books, magazines, or mangas	"Read books", "Read manga"	38.00	3.84	47.97
Alcohol	Drinking alcoholic drinks	"Drink alcohol", "Sake"	12.00	1.21	57.25
Non-alcohol drink	Drinking non-alcoholic drinks	"Coffee", "Drink something cold"	14.00	1.41	38.14
Eating	Eating food without cooking	"Eat something sweet", "Eat out"	94.00	9.49	32.40
Cooking	Cooking food to eat or to serve	"Cooking", "Baking"	20.00	2.02	52.15
Shopping	Going shopping to buy something	"Shopping", "Buy cloths"	52.00	5.25	47.56
Bath	Taking a bath or going to hot springs	"Take bath", "Onsen"	41.00	4.14	46.20
Sleep	Going to sleep or sleeping longer than usual	"Sleep", "Sleep a lot"	85.00	8.59	25.66
Singing/Karaoke	Singing a song or going to Karaoke shop	"Sing a song", "Go to Karaoke"	41.00	4.14	43.24
Sex	Having a sexual intercourse or masturbating	"Have a sex", "Masturbating"	7.00	0.71	42.57
Destructive behaviour	Venting negative emotions in socially unacceptable manners	"Becoming violent", "Smashing stuff"	28.00	2.83	52.86
Being lazy	Stopping activities or engaging activities that need little effort	"Do nothing", "Daydreaming"	29.00	2.93	26.70
Traveling	Traversing or going somewhere far from the current location	"Go back to hometown", "Go on a trip"	31.00	3.13	54.13

476

477 Table 2

478 *Category Name, Definition, Number of Comments, and Examples*

Name	Definition	N	Examples of comments
Understanding my strategies	Participants found the DARM to be helpful to understand what strategies are effective for them	46	<i>"I re-discovered that my best strategy is to talk to my friends. I think I like to interact with people."</i>
More strategies	Participants found the DARM to be helpful to discover more strategies	11	<i>"After writing them down I was surprised to discover many strategies."</i>
Understanding myself	Participants found the DARM to be helpful to understand themselves	8	<i>"I felt that I understood myself better."</i>
Interesting tool	Participants found the DARM to be interesting to map the strategies	15	<i>"It was interesting to visualize how I behave by writing them down and put stickers."</i>
Understanding the need to change	Participants found the DARM to be helpful to discover the need to change or increase my strategies	12	<i>"I discovered that I have only a few things to do when I'm stressed. I'd like to try something different from now on."</i>
Not helpful	Participants found the DARM not to be helpful	3	<i>"Nothing special."</i>

479

480 Table 3
 481 *Descriptive Statistics for Each Scale between Groups*

	Total		Participants with seeking proximity to someone to cope with stress (<i>N</i> = 60)		Participants without seeking proximity to someone to cope with stress (<i>N</i> = 35)		One-way ANOVA	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	<i>F</i> (1, 94)	<i>p</i>
ECR-S Total	6.08	1.87	5.59	1.60	6.91	2.02	12.392	.001
ECR-S Avoidance	2.88	1.13	2.72	1.11	3.15	1.12	3.389	.069
ECR-S Anxiety	3.18	1.31	2.88	1.01	3.69	1.53	9.485	.003
DARM Number of Stickers	11.81	4.99	13.00	5.30	9.83	3.71	9.897	.002
DARM Proximity (in millimeters)			32.07	16.17				

482 *Note.* ECR-S = Experiences in Close Relationships Scale–Short version.

483

484 Table 4
 485 *Correlations between Attachment Orientations, and DARM*

	ECR-S Avoidance	ECR-S Anxiety	DARM Number of Stickers	DARM Proximity (<i>N</i> = 60)
ECR-S Total	.730**	.806**	-.205*	.333**
ECR-S Avoidance		.184	-.193	.223
ECR-S Anxiety			-.130	.269*
DARM Number of Stickers				.187

486 *Note.* ECR-S = Experiences in Close Relationships Scale–Short version.
 487 *N* = 90, except for the DARM Proximity column.
 488 **p* < .05, ***p* < .01.