

1 **Abstract**

2 The presence of supportive relationships is crucial in health and sporting contexts.
3 However, the actual receipt of supportive behaviors from these relationships is sometimes
4 ineffective or even detrimental. One explanation for this inconsistency is that the amount of
5 support individuals receive might not be congruent with what they want. Using the support
6 adequacy model as a framework, the current article was the first to examine whether the
7 interaction of wanted and received support influences self-confidence and performance. In
8 two experiments, participants ($n_s = 88, 91$) performed a golf-putting task in one of the
9 following conditions: low wanted - control (null support), low wanted – received support
10 (overprovision), high wanted - control (underprovision), and high wanted – received support
11 (adequacy). There were significant interactions of wanted and received support on self-
12 confidence (Study 1 and 2) and performance (Study 2 only). More specifically, compared to
13 participants in both the underprovision and overprovision conditions, those in the adequate
14 condition had better self-confidence and performance. The findings provide important
15 experimental evidence for the support adequacy model, highlight that it is a useful framework
16 to explain the effects of received support on self-confidence and performance, and suggest
17 that an individual's support network should tailor actions to the support that the individual
18 wants.

19 *Keywords:* Support adequacy model, wanted support, received support, self-
20 confidence, motor task performance.

21 The Effects of Support (In)Adequacy on Self-Confidence and Performance: Two
22 Experimental Studies

23 Social support is a key factor for success across diverse professions (e.g., sport,
24 business, medical services, politics), enabling individuals to thrive and perform at
25 extraordinary levels (Sarkar & Fletcher, 2014). Indeed, a supportive environment provided
26 by family, friend, and coaches is crucial for the development of super-elite athletes (Rees et
27 al., 2016). Social support has also been associated with numerous beneficial effects in youth
28 sport (for a review, see Sheridan, Coffee, & Lavallee, 2014). Evidence, however, suggests
29 that not all supportive attempts are beneficial, and some can even have detrimental effects,
30 such as contributing to burnout and maladaptive responses to injury (Abgarov, Jeffery-
31 Tosoni, Baker, & Fraser-Thomas, 2012; Udry, Gould, Bridges, & Tuffey, 1997). To develop a
32 more comprehensive understanding of social support, the current article reports two
33 experiments that are the first to examine whether the amount of support that individuals want
34 influences the impact of received support on self-confidence and motor task performance.

35 Social support is a multi-faceted construct, including both perceived support and
36 received support. *Perceived support* is an individual's perception that support is available if
37 needed (Gottlieb & Bergen, 2010). *Received support* refers to the amount of supportive
38 behaviors and messages an individual has received from other people during a specific time
39 period (Gottlieb & Bergen, 2010). Perceived and received support are only moderately
40 correlated (Haber, Cohen, Lucas, & Baltes, 2007), and can have different effects on
41 outcomes. Perceived support has been widely linked with favorable outcomes, including
42 higher self-confidence in athletes (Freeman, Coffee, & Rees, 2011), stronger motivational
43 beliefs in school children (Hsieh, Liu, & Simpkins, 2019), and improved quality of life in
44 cancer patients (Ng et al., 2015). In contrast to the consistent positive effects of perceived
45 support in sport and social psychology, received support has been found to have mixed effects

46 on physical and mental health (Uchino, 2009). In sport psychology, received support has
47 been associated with higher self-confidence (Freeman, Coffee, Moll, Rees, & Sammy, 2014)
48 and improved mental well-being (Katagami & Tsuchiya, 2016). Despite this evidence,
49 received support was found to not significantly predict a range of outcomes in athletic
50 populations, including depression, anxiety, burnout and motivation (DeFreese & Smith, 2013;
51 Yang et al., 2014). Received support has even been negatively related to life satisfaction (Lu
52 & Hsu, 2013), self-confidence and self-esteem (Katagami & Tsuchiya, 2017).

53 One explanation for the inconsistent effects of received support that has yet to be
54 tested in sport is provided by the support adequacy model (Dehle, Larsen, & Landers, 2001).
55 The model proposes that the effectiveness of received support is contingent on whether it is
56 congruent with the amount of support that an individual wants. Specifically, the support
57 adequacy model classifies the (in)congruence between wanted and received support into three
58 concepts: *underprovision* (i.e., an individual received less support than wanted), *adequate*
59 *support* (i.e., an individual received the same amount of support as wanted), and
60 *overprovision* (i.e., an individual received more support than wanted). Receiving adequate
61 support has been associated with better well-being (e.g., Barden, Barry, Khalifian, & Bates,
62 2016), whereas a discrepancy between wanted and received support has been associated with
63 worse well-being (e.g., Joseph, Afifi, & Denes, 2016). More specifically, underprovision of
64 support has typically been found to be harmful to well-being, such as poorer mood and
65 relationship outcomes (Bar-Kalifa & Rafaeli, 2013), more negative affect and stress (Siewert,
66 Antoniow, Kubiak, & Weber, 2011), and worse cardiovascular health (Wolff, Schmiedek,
67 Brose, & Lindenberger, 2013). Evidence for the effects of overprovision of support is less
68 consistent, with overprovision related to beneficial effects (e.g., Siewert et al., 2011), null
69 effects (e.g., Bar-Kalifa & Rafaeli, 2013), or even detrimental effects (e.g., Brock &
70 Lawrence, 2009).

71 Despite the promising findings of the support adequacy model outside of sport,
72 experimental tests of its predictions remain rare. Searle, Bright, and Bochner (1999)
73 manipulated a work environment and found that individuals who wanted but did not receive
74 high levels of support (i.e., underprovision) reported more pressure and assessed their work
75 performance more negatively. However, evidence of the effects of (in)adequate support on
76 objective performance has been inconsistent. Searle et al. (1999) found that the interaction
77 between wanted and received support did not influence individuals' actual work performance
78 (i.e., accuracy and response time on a mail-sorting task). Searle, Bright, and Bochner (2001)
79 replicated the experiment and found that although performance on the mail-sorting task did
80 not improve when individuals received adequate informational support, they did perform
81 more accurately if they received adequate emotional support. The inconsistent findings
82 highlight that more experimental research is needed, and research has yet to experimentally
83 examine the effects of (in)adequate support on other performance tasks (e.g., motor tasks).

84 Given the limited experimental research into the support adequacy model, two studies
85 were conducted to examine its predictions using a golf-putting task. Specifically, the aim of
86 the current article was to examine whether the amount of support that individuals want
87 influences the effects of received support on self-confidence and performance. It was
88 hypothesized that adequate support would lead to greater self-confidence and better
89 performance than underprovision. Due to the mixed effects in the literature, we did not
90 propose a specific hypothesis for the effects of adequate support compared to overprovision.

91 **Study 1**

92 **Method**

93 **Participants and design.** A minimum sample size of 82 was determined with a
94 power calculation for a two-way between-subjects ANOVA in G*Power 3.1.9.4. As no
95 research has examined the effect of a wanted support*received support interaction on golf-

96 putting performance, the effect size found by Rees and Freeman (2010) for a
97 perceived*received support interaction on a similar golf-putting task was used ($\eta_p^2 = .09$),
98 along with $\alpha = 0.05$ and 80% power. Participants were 88 (35 female, 53 male; $M_{age} = 22$, SD
99 = 4 years) students in a British university. The majority of the sample was White (68.2%).
100 All participants reported having either very little or no experience with golf putting. The
101 participants were drawn from an initial convenience sample of 226 (83 female, 143 male;
102 $M_{age} = 21$, $SD = 3$ years) individuals who were shown a 245 word written description of the
103 putting task including two photos (one of the putting mat, one of the putter) and then asked to
104 rate the support that they would want to receive prior to attempting the task (see Wanted
105 support measure below). The 44 participants who wanted the highest amount of support
106 (scores range: 12-16) and the 44 participants who wanted the lowest amount of support
107 (scores range: 0-8) were recruited to the main experiment. The experiment had a two-factor
108 between-subjects design, with two levels to each factor (wanted support: high, low;
109 manipulation: support, control [no support]).

110 **Materials and measures. Golf putting.** The experiment involved a golf-putting task
111 completed in a laboratory. The equipment consisted of: an artificial indoor putting green
112 (Huxley Golf, Hampshire, United Kingdom); a Rythmiser golf putter (Harold Swash Putting,
113 Merseyside, United Kingdom), which has a highly flexible shaft that increases the putting
114 difficulty; a standard white golf ball (diameter = 4.27 cm); and a digital camera (Canon
115 LEGRIA HF R16) to record the task.

116 **Wanted support.** Wanted support was assessed using an adapted version of the
117 Athletes' Received Support Questionnaire (ARSQ; Freeman et al., 2014). Freeman et al.
118 (2014) reported that the ARSQ can be applied in a four-dimensional or unidimensional
119 structure to collect data with good reliability and validity, and that support predicts self-
120 confidence, positive affect, and negative affect. The original ARSQ comprises 22 items that

121 measure four dimensions of support: emotional, esteem, informational, and tangible support.
122 The tangible support subscale (e.g., help with transport to training and competition/matches)
123 was not used in the current study as the items were not appropriate for an experimental
124 setting. The generic stem was modified to “Prior to attempting the golf-putting task, would
125 you want someone to ...”. One informational support item from the original ARSQ was
126 reworded from “give you advice about performing in a competitive situation” to “give you
127 advice about performing the task”. The other items were identical to those of the ARSQ (e.g.,
128 emotional support: “show concern for you”; esteem support: “encourage you”). In the
129 present study, the 16 items were rated on a dichotomous scale: *no* (0) and *yes* (1). The
130 correlations between the dimensions of wanted support were moderate to high ($r = .47-.69$, ps
131 $< .05$), and a total wanted support score was calculated to classify participants into high and
132 low support groups. Overall scores could range from 0 to 16, and higher scores indicate
133 higher levels of wanted support. The coefficient alpha reliability of the 16-item wanted
134 support scale in Study 1 was .87.

135 **Manipulation check.** To assess whether participants felt they received support from
136 the expert golfer, they were asked: “Please indicate, by ticking yes or no, whether the expert
137 did offer you support”. Participants responded on a dichotomous scale: *no* (0) and *yes* (1).

138 **Self-confidence.** Self-confidence was assessed by the five-item scale from the
139 Revised Competitive State Anxiety Inventory-2 (CSAI-2R), which can be used to collect data
140 with good reliability and validity (Cox, Martens, & Russell, 2003). Participants reported how
141 confident they felt about the upcoming golf-putting task on a 4-point scale ranging from 1
142 (*not at all*) to 4 (*very much so*). Example items include “I feel self-confident” and “I’m
143 confident because I can mentally picture myself reaching my goal.” The mean of the five
144 items was calculated with higher scores indicating greater self-confidence. The coefficient
145 alpha reliability of the scale in Study 1 was .89.

146 **Performance.** Task performance was assessed as the mean distance the ball finished
147 from the hole in centimeters, with lower scores indicating better performance. Zero was
148 recorded for each putt that was holed.

149 **Procedure.** A university ethics committee approved the study and participants
150 provided informed consent. The experimenters were two male postgraduate students. The
151 first experimenter delivered the general instructions and scored the putting task; the second
152 experimenter was introduced as a golf expert to the participants, and delivered the support
153 manipulation. A third researcher, who took no further part in the data collection, established
154 the high and low wanted support groups so that the first and second experimenter were both
155 blind to whether the participants had scored high or low on wanted support. These groups
156 were then provided to the second experiment in lists labelled group A and B.

157 Before entering the laboratory, participants in the high wanted support group (A: $n =$
158 44) or the low wanted support group (B: $n = 44$) were randomly assigned by the second
159 experimenter to the experimental (received) support condition or control condition. The first
160 experimenter was blind to whether participants were assigned to the support or control
161 condition, and the participants were blind to the purpose of the study. There were 22
162 participants in each condition: a) overprovision condition - low wanted support/received
163 support condition, b) null support condition - low wanted support/control condition,¹ c)
164 adequate support condition - high wanted support/received support condition, and d)
165 underprovision condition - high wanted support/control condition.

166 On entering the laboratory, participants were instructed via a standardized script that
167 the aim of the study was to understand task performance using a modified putter, followed by
168 an explanation of the task and its scoring system. To enhance task engagement, all
169 participants received instructions highlighting the importance of the task, that a leaderboard
170 would be emailed to all participants and displayed on a noticeboard, that the task would be

171 recorded on a digital camera and the video shown in teaching and presentations, that the three
172 worst performers would be interviewed, and that cash prizes would be awarded for the top
173 three performers (£30, £20, £10, respectively).

174 In addition to the general instructions, participants in the support condition were
175 provided the following scripted message, adapted from Rees and Freeman (2010):

176 I fully believe that you will be able to execute this task successfully. I
177 would view the task as a positive and enjoyable experience. Just relax, take
178 your time, and focus on the target each time you putt. I will be here
179 throughout the task and understand how you might be feeling before this task,
180 so please feel free to ask for my help at any time.

181 Participants in the control condition received no supportive message. After the
182 support manipulation (supportive message or no message), participants completed a
183 manipulation check and measure of self-confidence.² The task (10 golf-putts) was then
184 performed from 2m to a regular-size hole. Once participants had completed the task, they
185 were thanked and debriefed about the aim of the study.

186 **Statistical analyses.** Two 2 (wanted support: high, low) * 2 (manipulation: support,
187 control) between-subjects analyses of variance (ANOVAs) were conducted to examine the
188 interaction between the support that individuals wanted and received upon their self-
189 confidence and performance respectively, using SPSS Version 25.0. To explore a significant
190 interaction, two sets of simple effects were conducted to analyze the effects of adequate
191 support compared to underprovision and overprovision, respectively. A significance level
192 of .05 was used throughout.

193 **Results**

194 **Descriptive statistics.** Means and standard deviations of self-confidence and mean
195 distance as a function of wanted support and experimental condition are in Table 1. The

196 assumptions of normality and homogeneity of variance were met across the different
197 conditions (Field, 2009). There were no missing data.

198 **Manipulation check.** Participants generally correctly recognized whether the expert
199 golfer provided them with support. In the null support and underprovision conditions, 1/22
200 and 2/22 participants respectively reported receiving support. In the overprovision and
201 adequate support conditions, 22/22 and 20/22 participants respectively reported receiving
202 support.

203 **Self-confidence.** There was no significant main effect for wanted support on self-
204 confidence, $F(1, 84) = 3.14, p = .08, \eta_p^2 = .04$, but there was a significant main effect for the
205 experimental condition, $F(1, 84) = 31.85, p < .001, \eta_p^2 = .28$. There was a significant
206 interaction (see Figure 1) between wanted support and the experimental condition on self-
207 confidence, $F(1, 84) = 38.69, p < .001, \eta_p^2 = .32$. The significant interaction was analyzed
208 using simple effects . Participants in the underprovision condition had significantly lower
209 self-confidence than those in the adequate support condition, $M_{\text{diff}} = -1.31, SE = 0.16, p$
210 $< .001, 95\% \text{ CI } [-1.62, -1.00]$. Participants in the overprovision condition had significantly
211 lower self-confidence than those in the adequate support condition, $M_{\text{diff}} = -0.88, SE = 0.16, p$
212 $< .001, 95\% \text{ CI } [-1.19, -0.57]$.

213 **Performance.** There were no significant main effects for wanted support or
214 experimental condition on performance, $F_s(1, 84) = 0.00-0.24, p_s = .62-.96, \eta_p^2_s = .00$, and
215 no significant interaction, $F(1, 84) = 0.85, p = .36, \eta_p^2 = .01$.

216 Discussion

217 Overall, the findings of Study 1 offer partial support for the support adequacy model.
218 Participants who were in the adequate support condition experienced better self-confidence
219 than those in the underprovision and overprovision conditions. Despite these findings, which
220 are in line with the support adequacy model and previous research (e.g., Bar-Kalifa &

221 Rafaeli, 2013), no significant effects were found on performance. One limitation of Study 1
222 was that participants did not attempt the golf-putting task before rating the support that they
223 wanted. As such, participants may not have been able to accurately evaluate the amount of
224 support that they really wanted. Further, this meant that no baseline level of performance was
225 established. These issues were addressed in Study 2, in which participants were asked to
226 perform a baseline trial of the golf-putting task before assessing the amount of support that
227 they wanted to receive prior to a second trial.

228 **Study 2**

229 **Method**

230 **Pilot study.** Thirty students (13 female, 17 male; $M_{age} = 25$, $SD = 8$ years) from a
231 British university participated in a pilot study. This was to establish that the task did elicit a
232 range of wanted support levels across participants and to identify a cut-off score for
233 determining high and low wanted support in the main study. The majority of the sample was
234 White (73.3%). All participants had either very little or no experience with golf putting.

235 In the pilot study, all participants performed a golf-putting task comprising 10 putts
236 from a distance of 2m using a putter with a flexible shaft and then rated the support that they
237 would want to receive from a golf coach if they were to perform the task again. The 16-item
238 wanted support questionnaire from Study 1 was used. The mean wanted support in the pilot
239 study was 11 ($SD = 3$). Low wanted support was categorized as scores less than 10 ($n = 6$ in
240 pilot study), moderate wanted support was categorized as 10 or 11 ($n = 13$), and high wanted
241 support was categorized as scores greater than 11 ($n = 11$).

242 **Participants and design.** In the main study, participants were a sample of 91 (25
243 female, 66 male; $M_{age} = 23$, $SD = 6$ years) students in a British university. The majority of
244 the sample were White (75.8%). All participants reported having either very little experience
245 or no experience of golf putting. The 91 participants were drawn from an initial convenience

246 sample of 120 (34 female, 86 male; mean age = 23, $SD = 5$ years) participants who were
247 asked to perform the golf-putting task, and then rate the support that they would want if they
248 performed the task again. The 29 participants who wanted a moderate level of support (range
249 10 – 11) were excluded from the analysis in Study 2. The study had two between-subjects
250 factors, with two levels to each factor (wanted support: high, low; manipulation: support,
251 control), with the baseline outcome (self-confidence or performance) used as a covariate.

252 **Materials and measures.** The experiment used the same golf-putting task and
253 equipment as Study 1. Wanted support, the manipulation check, self-confidence, and
254 performance were all assessed using the measures from Study 1. In Study 2, the correlation
255 between the dimensions of wanted support were $r = .30-.50$ ($ps < .05$). The coefficient alpha
256 reliabilities for wanted support, self-confidence at baseline, and self-confidence at post-
257 manipulation were .84, .86, and .90, respectively.

258 The only additional measure in Study 2 was a modified section of the Stress Audit
259 Questionnaire (Miller & Smith, 1982), which was used to evaluate general coping skills.
260 This modified 12-item scale has been used to evaluate coping skills in sport psychology
261 research (Raedeke & Smith, 2004). Participants rated how often they used the 12 strategies
262 (e.g., “I am able to organize my time effectively”) on a 5-point scale from 1 (*Always*) to 5
263 (*Never*). The mean of the 12 items was calculated with lower scores indicating superior
264 coping skills. The coefficient alpha reliability of the scale in Study 2 was .76.

265 **Procedure.** The study was approved by a university ethics committee and
266 participants provided informed consent. The experimenters were one postgraduate and two
267 undergraduate students (3 males). The first experimenter (postgraduate) delivered the general
268 instructions and scored the putting task; the second experimenter (a mature undergraduate
269 student) was introduced as a golf coach to the participants, and delivered the support
270 manipulation; and the third experimenter calculated the wanted support scores and managed

271 the allocation of participants into different conditions. The first and second experimenters
272 were blind to whether the participants had scored high or low on wanted support. The first
273 experimenter was also blind to whether participants would receive the support manipulation
274 or be in the control condition, and the participants were blind to the true aim of the study.

275 Initially, all participants provided demographic information before being given task
276 instructions by the first experimenter. Participants were instructed from a standardized script
277 that the aim of the study was to understand task performance using a modified putter (shown
278 to participants) under experimental conditions, followed by an explanation of the task and its
279 scoring system. Following these instructions, participants completed a measure of self-
280 confidence and then performed the task. After this baseline task, participants completed a
281 measure of how much support they wanted from the golf coach if they were to perform the
282 golf-putting task again as well as a measure of their coping skills.³

283 Before performing the golf-putting task again, participants in the high wanted support
284 group ($n = 40$) and low wanted support group ($n = 51$) were randomly assigned to an
285 experimental support condition or a control condition by the third experimenter who covertly
286 signaled this assignment to the second experimenter. There were 26 participants in the low
287 wanted support/control condition, 25 in the low wanted support/received support condition,
288 19 in the high wanted support/control condition, and 21 in the high wanted support/received
289 support condition. Prior to attempting the task, all participants received further instructions
290 highlighting the importance of the task (see Study 1). In addition, participants in the
291 experimental support condition were provided the same scripted support message as in Study
292 1. After the support manipulation, participants completed a manipulation check and measure
293 of self-confidence. The task (10 putts) was then performed. Once the participants completed
294 the task, they were thanked and debriefed about the aim of the study.

295 **Statistical analyses.** Two 2 (wanted support: high, low) * 2 (manipulation: support,

296 control) between-subjects analyses of covariance (ANCOVAs) were conducted on self-
297 confidence and performance (controlling for the baseline outcomes) respectively, using SPSS
298 Version 25.0. To explore a significant interaction, two sets of simple effects were conducted
299 that controlled for baseline and analyzed the effects of adequate support compared to
300 underprovision and overprovision, respectively. A significance level of .05 was used
301 throughout.

302 **Results**

303 **Descriptive statistics.** Means and standard deviations of self-confidence and mean
304 distance as a function of wanted support and experimental condition at baseline and post-
305 manipulation are displayed in Table 1. The assumptions of normality and homogeneity of
306 variance were satisfied across the different groups (Field, 2009). There were no missing data.

307 **Manipulation check.** Participants generally correctly recognized whether the golf
308 coach provided them with support. In the null support and underprovision conditions, only
309 3/26 and 0/19 participants respectively reported receiving support. In the overprovision and
310 adequate support conditions, all participants (25/25 and 21/21 respectively) reported
311 receiving support.

312 **Self-confidence.** There was a significant effect for baseline self-confidence, $F(1, 86)$
313 $= 20.65, p < .001, \eta_p^2 = .19$. There was no significant main effect for wanted support on self-
314 confidence, $F(1, 86) = 0.62, p = .44, \eta_p^2 = .01$, but there was a significant main effect for the
315 experimental condition, $F(1, 86) = 44.35, p < .001, \eta_p^2 = .34$. There was a significant
316 interaction (see Figure 2) between wanted support and the experimental condition on self-
317 confidence, $F(1, 86) = 15.03, p < .001, \eta_p^2 = .15$. The significant interaction was analyzed
318 using simple effects, controlling for baseline self-confidence. Participants in the
319 underprovision condition had significantly lower self-confidence than those in the adequate
320 support condition, $M_{diff} = -1.22, SE = 0.17, p < .001, 95\% CI [-1.56, -0.87]$. Participants in

321 the overprovision condition had significantly lower self-confidence than those in the adequate
322 support condition, $M_{\text{diff}} = -0.54$, $SE = 0.16$, $p = .001$, 95% CI [-0.86, -0.22].

323 **Performance.** There was a significant effect for baseline performance, $F(1, 86) =$
324 25.90 , $p < .001$, $\eta_p^2 = .23$. There was no significant main effect for wanted support on
325 performance, $F(1, 86) = 0.19$, $p = .67$, $\eta_p^2 = .002$, but there was a significant main effect for
326 the experimental condition, $F(1, 86) = 10.11$, $p = .002$, $\eta_p^2 = .11$. There was a significant
327 interaction (see Figure 3) between wanted support and the experimental condition on
328 performance, $F(1, 86) = 12.45$, $p = .001$, $\eta_p^2 = .13$. The significant interaction was analyzed
329 using simple effects, controlling for baseline performance. Participants in the underprovision
330 condition performed significantly worse (i.e., longer mean distance) than those in the
331 adequate support condition, $M_{\text{diff}} = 19.65$, $SE = 4.39$, $p < .001$, 95% CI [10.93, 28.37].
332 Participants in the overprovision condition performed significantly worse (i.e., longer mean
333 distance) than those in the adequate support condition, $M_{\text{diff}} = 11.64$, $SE = 4.17$, $p = .006$,
334 95% CI [3.36, 19.92].

335 **Discussion**

336 Overall, the findings of Study 2 provide more evidence for the support adequacy
337 model, and are the first to demonstrate the effects of support (in)adequacy on motor task
338 performance. After controlling for baseline, participants in the adequate support condition
339 had better self-confidence and performance compared to those in both the underprovision and
340 overprovision conditions. Study 2 generally supports the findings from Study 1 and previous
341 research that examined the support adequacy model (e.g., Bar-Kalifa & Rafaeli, 2013, Searle
342 et al., 2001).

343 **General Discussion**

344 The aim of the current article was to explore whether the amount of support that
345 individuals want moderates the effects of received support on self-confidence and

346 performance. Overall, the current findings provided consistent evidence that the receipt of
347 support can benefit self-confidence, and some evidence for its impact upon performance. The
348 potential for received support to exert beneficial effects on self-confidence and performance
349 is congruent with previous evidence in sport psychology (e.g., Moll, Rees, & Freeman, 2017).
350 These experiments are unique in a sport context, however, in demonstrating that received
351 support is particularly beneficial for those individuals who want high levels of support and is
352 less effective for individuals who do not want support.⁴ Further, the findings highlight the
353 negative impact upon self-confidence and performance of individuals not receiving as much
354 support as they want. The article is the first to provide direct evidence for predictions of the
355 support adequacy model in sport and on motor task performance.

356 The current findings are broadly consistent with evidence for the support adequacy
357 model on health outcomes in organizational settings (e.g., Seiger & Wiese, 2011), in patients
358 (e.g., Linden & Vodermaier, 2012), in couples (e.g., Bar-Kalifa & Rafaeli, 2013), and in
359 different cultures (e.g., Barden et al., 2016). Very few studies, however, have examined the
360 effects of (in)adequate support on performance. Similar to the present experiments, Searle et
361 al. (1999; 2001) found that the effects of adequate support were inconsistent across two
362 studies. Using a mail sorting task, only Searle et al. (2001) found that individuals performed
363 better when they received adequate (emotional) support. In the present research, adequate
364 support aided putting performance but only in Study 2, in which wanted support was assessed
365 after a baseline trial. It may be that it is important to control for baseline performance or that
366 this baseline attempt allows individuals to more accurately assess their support needs. The
367 inconsistent findings of support (in)adequacy on performance indicates more research is
368 needed on this outcome, particularly using within-subject experimental designs.

369 Despite the potential for received support to exert beneficial effects, previous
370 evidence regarding the impact of the overprovision of support has been mixed. For example,

371 studies have found that overprovision is beneficial (e.g., Siewert et al., 2011), ineffective
372 (e.g., Bar-Kalifa & Rafaeli, 2013) or even detrimental (e.g., Brock & Lawrence, 2009). The
373 present research found that overprovision of support was associated with unfavorable
374 outcomes. Bolger and Amarel (2007) highlighted a number of reasons why received support
375 might be detrimental, including that it could result in feelings of distress, threats to self-
376 esteem or competency, and feeling indebted to the provider. These offer potential
377 explanations for why overprovision of support led unfavorable outcomes on a motor task, but
378 further research into the specific mechanisms is warranted. The findings, however, suggest
379 that providers should be cautious over when support is given. They may expend unnecessary
380 time and effort offering support that does not help or is even detrimental. Members of
381 athletes' support networks, therefore, could be educated to recognize when it is important to
382 provide support (i.e., only when individuals want support).

383 Congruent with the predictions of the support adequacy model and evidence outside
384 of sport psychology (e.g., Wolff et al., 2013), the current studies consistently found that
385 underprovision of support had detrimental effects. Wanting but not receiving support may be
386 viewed as a negative form of social interaction, which has been found to have generally
387 stronger effects on well-being than positive interactions (Lincoln, 2000). Indeed, researchers
388 have argued that individuals are particularly sensitive to the negative experience of not
389 receiving something that they actually wanted (Rafaeli, Cranford, Green, Shrout, & Bolger,
390 2008).

391 There are some limitations of the present research. First, all of the participants were
392 novice golfers and therefore it is unclear if the findings would generalize to more experienced
393 golfers, or to other performance tasks. Second, participants were instructed that the support
394 provider was an expert/coach, and it is unclear whether their knowledge and credibility
395 influenced the impact of (in)adequate support. Third, the support providers were from

396 outside of the participants' social networks. In contrast, in athletes' daily support exchanges,
397 support is likely to be provided within established relationships. Phillips and colleagues
398 found individuals had lower blood pressure when they received support from a friend rather
399 than a stranger in the laboratory (Phillips, Gallagher, & Carroll, 2009). Future studies should
400 examine the effects of support (in)adequacy within athletes' existing support network and
401 outside of the laboratory. A final limitation is that the sample sizes in the current studies may
402 be considered small, given recent calls in the literature for large sample sizes to be used in
403 psychological research (Schäfer & Schwarz, 2019).

404 Despite the limitations, the findings have important applied implications. The
405 findings suggest that received support may only be beneficial when it meets support that the
406 recipient actually wants. These findings may explain why support-related interventions to
407 enhance individuals' health and well-being have had mixed effects (Embuldeniya et al.,
408 2013). That is, interventions that provide similar supportive messages to all recipients do not
409 necessarily account for the levels of support those individuals wanted. Future interventions
410 should therefore be tailored towards the amount of support wanted by recipients. Further,
411 individuals should be encouraged to recognize that wanting support is not a sign of weakness
412 (Pensgaard & Roberts, 2003), and that it can actually benefit self-confidence and motor task
413 performance provided that the support is forthcoming. Equally, existing athlete support
414 personnel, such as parents and coaches, should be educated that the effects of received
415 support are contingent on the support that athletes actually want, and helped to recognize and
416 respond to these needs.

417 In conclusion, the findings advance understanding of the interactive effects of wanted
418 and received support in achievement contexts. Received support was beneficial, but
419 generally for individuals who wanted high levels of support and not those who did not want
420 support. The findings also demonstrated that underprovision of support can be detrimental,

421 which further emphasizes the importance of providing adequate levels of support. These
422 studies therefore provide important experimental evidence for the support adequacy model,
423 highlight that it is a useful framework to explain the effects of received support on self-
424 confidence and motor task performance, and suggest that an athlete's support network should
425 tailor their actions to the support that the athlete wants.

426

Footnotes

427 ¹ A condition comprising low wanted support with no received support (control) could
428 be considered a variation of adequate support because it does reflect congruency between
429 how much support was wanted and how much support was received (i.e., low levels of both
430 wanted and received support). To distinguish this low wanted support/control condition from
431 the high wanted support/received support condition, we use the term null support, which has
432 been used previously (Reynolds & Perrin, 2004; Yragui, Mankowski, Perrin, & Glass, 2012)
433 to describe equivalent low wanted and low received support conditions.

434 ² Alongside self-confidence, participants also completed the Positive and Negative
435 Affect Schedule (Watson, Clark, & Tellegen, 1988) in Study 1. Similar to self-confidence,
436 there was a significant interaction effect between wanted support and the experimental
437 condition on negative affect and positive affect, $F_s(1, 84) = 10.61-42.73, p_s = .001-.002, \eta_p^2_s$
438 $= .11-.34$. Simple effects found a similar pattern to the self-confidence data reported in the
439 Study 1.

440 ³ The third experimenter calculated the wanted support scores when participants
441 completed a coping skills questionnaire. We also reran the reported analysis controlling for
442 coping skills as an additional covariate, and a similar pattern of results was found.

443 ⁴ Theoretically, gender, age, ethnicity, competitive level, and years of playing sport
444 might influence the effectiveness of received support upon task performance. However, when
445 we controlled those variables, a similar pattern of effects of wanted and received support on
446 psychological and performance outcomes was found to those reported in the manuscript.

References

- 447
448 Abgarov, A., Jeffery-Tosoni, S., Baker, J., & Fraser-Thomas, J. (2012). Understanding social
449 support throughout the injury process among interuniversity swimmers. *Journal of*
450 *Intercollegiate Sport*, 5, 213–229. doi:10.1123/jis.5.2.213
- 451 Bar-Kalifa, E., & Rafaeli, E. (2013). Disappointment's sting is greater than help's balm:
452 Quasi-signal detection of daily support matching. *Journal of Family Psychology*, 27,
453 956–967. doi:10.1037/a0034905
- 454 Barden, E. P., Barry, R. A., Khalifian, C. E., & Bates, J. M. (2016). Sociocultural influences
455 on positive affect: Social support adequacy from one's spouse and the intersections of
456 race and SES. *Journal of Social & Clinical Psychology*, 35, 455–470.
457 doi:10.1521/jscp.2016.35.6.455
- 458 Bolger, N., & Amarel, D. (2007). Effects of social support visibility on adjustment to stress:
459 Experimental evidence. *Journal of Personality & Social Psychology*, 92, 458–475.
460 doi:10.1037/0022-3514.92.3.458
- 461 Brock, R. L., & Lawrence, E. (2009). Too much of a good thing: Underprovision versus
462 overprovision of partner support. *Journal of Family Psychology*, 23, 181–192.
463 doi:10.1037/a0015402
- 464 Cox, R. H., Martens, M. P., & Russell, W. D. (2003). Measuring anxiety in athletics: The
465 revised competitive state anxiety inventory–2. *Journal of Sport & Exercise Psychology*,
466 25, 519–533. doi:10.1123/jsep.25.4.519
- 467 DeFreese, J. D., & Smith, A. L. (2013). Teammate social support, burnout, and self-
468 determined motivation in collegiate athletes. *Psychology of Sport & Exercise*, 14, 258–
469 265. doi:10.1016/j.psychsport.2012.10.009
- 470 Dehle, C., Larsen, D., & Landers, J. E. (2001). Social support in marriage. *American Journal*
471 *of Family Therapy*, 29, 307–324. doi:10.1080/01926180126500

- 472 Embuldeniya, G., Veinot, P., Bell, E., Bell, M., Nyhof-Young, J., Sale, J. E. M., & Britten, N.
473 (2013). The experience and impact of chronic disease peer support interventions: A
474 qualitative synthesis. *Patient Education & Counseling*, *92*, 3–12.
475 doi:10.1016/j.pec.2013.02.002
- 476 Field, A. (2009). *Discovering statistics using SPSS (third edition)*. London, England: Sage.
- 477 Freeman, P., Coffee, P., Moll, T., Rees, T., & Sammy, N. (2014). The ARSQ: The athletes'
478 received support questionnaire. *Journal of Sport & Exercise Psychology*, *36*, 189–202.
479 doi:10.1123/jsep.2013-0080
- 480 Freeman, P., Coffee, P., & Rees, T. (2011). The PASS-Q: The perceived available support in
481 sport questionnaire. *Journal of Sport & Exercise Psychology*, *33*, 54–74.
482 doi:10.1123/jsep.33.1.54
- 483 Gottlieb, B. H., & Bergen, A. E. (2010). Social support concepts and measures. *Journal of*
484 *Psychosomatic Research*, *69*, 511–520. doi:10.1016/j.jpsychores.2009.10.001
- 485 Haber, M. G., Cohen, J. L., Lucas, T., & Baltes, B. B. (2007). The relationship between self-
486 reported received and perceived social support: A meta-analytic review. *American*
487 *Journal of Community Psychology*, *39*, 133–144. doi:10.1007/s10464-007-9100-9
- 488 Hsieh, T., Liu, Y., & Simpkins, S. D. (2019). Changes in United States Latino/a high school
489 students' science motivational beliefs: Within group differences across science subjects,
490 gender, immigrant status, and perceived support. *Frontiers in Psychology*, *10*, 380.
491 doi:10.3389/fpsyg.2019.00380
- 492 Joseph, A., Afifi, T. D., & Denes, A. (2016). (Unmet) Standards for emotional support and
493 their short- and medium-term consequences. *Communication Monographs*, *83*, 163–193.
494 doi:10.1080/03637751.2015.1068432
- 495 Katagami, E., & Tsuchiya, H. (2016). Effects of social support on athletes' psychological
496 well-being: The correlations among received support, perceived support, and

- 497 personality. *Psychology*, 7, 1741–1752. doi:10.4236/psych.2016.713163
- 498 Katagami, E., & Tsuchiya, H. (2017). Effects of received social support on athletes' '
499 psychological well-being. *International Journal of Sport & Health Science*, 15, 72–80.
500 doi:10.5432/ijshs.201612
- 501 Lincoln, K. D. (2000). Social support, negative social interactions, and psychological well-
502 being. *Social Service Review*, 74, 231–252. doi:10.1086/514478
- 503 Linden, W., & Vodermaier, A. (2012). Mismatch of desired versus perceived social support
504 and associated levels of anxiety and depression in newly diagnosed cancer patients.
505 *Supportive Care in Cancer*, 20, 1449–1456. doi:10.1007/s00520-011-1228-3
- 506 Lu, F. J. H., & Hsu, Y. (2013). Injured athletes' rehabilitation beliefs and subjective well-
507 being: The contribution of hope and social support. *Journal of Athletic Training*, 48, 92–
508 98. doi:10.4085/1062-6050-48.1.03
- 509 Miller, L. H., & Smith, A. D. (1982). Stress audit questionnaire. *Bostonia: In-Depth*, 39–54.
- 510 Moll, T., Rees, T., & Freeman, P. (2017). Enacted support and golf-putting performance: The
511 role of support type and support visibility. *Psychology of Sport & Exercise*, 30, 30–37.
512 doi:10.1016/j.psychsport.2017.01.007
- 513 Ng, C. G., Mohamed, S., See, M. H., Harun, F., Dahlui, M., Sulaiman, A. H., ... on behalf of
514 the MyBCC Study group. (2015). Anxiety, depression, perceived social support and
515 quality of life in Malaysian breast cancer patients: a 1-year prospective study. *Health &
516 Quality of Life Outcomes*, 13, 205. doi:10.1186/s12955-015-0401-7
- 517 Pensgaard, A. M., & Roberts, G. C. (2003). Achievement goal orientations and the use of
518 coping strategies among Winter Olympians. *Psychology of Sport & Exercise*, 4, 101–
519 116. doi:10.1016/S1469-0292(01)00031-0
- 520 Phillips, A. C., Gallagher, S., & Carroll, D. (2009). Social support, social intimacy, and
521 cardiovascular reactions to acute psychological stress. *Annals of Behavioral Medicine*,

- 522 37, 38–45. doi:10.1007/s12160-008-9077-0
- 523 Raedeke, T., & Smith, A. (2004). Coping resources and athlete burnout: An examination of
524 stress mediated and moderation hypotheses. *Journal of Sport & Exercise Psychology*,
525 26, 525–541.
- 526 Rafaeli, E., Cranford, J. A., Green, A. S., Shrout, P. E., & Bolger, N. (2008). The good and
527 bad of relationships: How social hindrance and social support affect relationship feelings
528 in daily life. *Personality & Social Psychology Bulletin*, 34, 1703–1718.
529 doi:10.1177/0146167208323742
- 530 Rees, T., & Freeman, P. (2010). Social support and performance in a golf-putting experiment.
531 *Sport Psychologist*, 24, 333–348. doi:10.1123/tsp.24.3.333
- 532 Rees, Tim, Hardy, L., Güllich, A., Abernethy, B., Côté, J., Woodman, T., ... Warr, C. (2016).
533 The Great British medalists project: A review of current knowledge on the development
534 of the world's best sporting talent. *Sports Medicine*, 46, 1041–1058.
535 doi:10.1007/s40279-016-0476-2
- 536 Reynolds, J. S., & Perrin, N. A. (2004). Mismatches in social support and psychosocial
537 adjustment to breast cancer. *Health Psychology*, 23, 425–430. doi:10.1037/0278-
538 6133.23.4.425
- 539 Sarkar, M., & Fletcher, D. (2014). Ordinary magic, extraordinary performance: Psychological
540 resilience and thriving in high achievers. *Sport, Exercise, & Performance Psychology*, 3,
541 46–60. doi:10.1037/spy0000003
- 542 Schäfer, T., & Schwarz, M. A. (2019). The meaningfulness of effect sizes in psychological
543 research: Differences between sub-disciplines and the impact of potential biases.
544 *Frontiers in Psychology*, 10, 1–13. doi:10.3389/fpsyg.2019.00813
- 545 Searle, B. J., Bright, J. E. H., & Bochner, S. (1999). Testing the 3-factor model of
546 occupational stress: The impact of demands, control and social support on a mail sorting

- 547 task. *Work & Stress*, *13*, 268–279. doi:10.1080/026783799296066
- 548 Searle, B. J., Bright, J. E. H., & Bochner, S. (2001). Helping people to sort it out: The role of
549 social support in the job strain model. *Work & Stress*, *15*, 328–346.
550 doi:10.1080/02678370110086768
- 551 Seiger, C. P., & Wiese, B. S. (2011). Social support, unfulfilled expectations, and affective
552 well-being on return to employment. *Journal of Marriage & Family*, *73*, 446–458.
553 doi:10.1111/j.1741-3737.2010.00817.x
- 554 Sheridan, D., Coffee, P., & Lavalley, D. (2014). A systematic review of social support in
555 youth sport. *International Review of Sport & Exercise Psychology*, *7*, 198–228.
556 doi:10.1080/1750984X.2014.931999
- 557 Siewert, K., Antoniow, K., Kubiak, T., & Weber, H. (2011). The more the better? The
558 relationship between mismatches in social support and subjective well-being in daily
559 life. *Journal of Health Psychology*, *16*, 621–631. doi:10.1177/1359105310385366
- 560 Uchino, B. N. (2009). Understanding the links between social support and physical health: A
561 life-span perspective with emphasis on the separability of perceived and received
562 support. *Perspectives on Psychological Science*, *4*, 236–255. doi:10.1111/j.1745-
563 6924.2009.01122.x
- 564 Udry, E., Gould, D., Bridges, D., & Tuffey, S. (1997). People helping people? Examining the
565 social ties of athletes coping with burnout and injury stress. *Journal of Sport & Exercise*
566 *Psychology*, *19*, 368–395. doi:10.1123/jsep.19.4.368
- 567 Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief
568 measures of positive and negative affect: The PANAS scales. *Journal of Personality &*
569 *Social Psychology*, *54*, 1063–1070. doi:10.1037/0022-3514.54.6.1063
- 570 Wolff, J. K., Schmiedek, F., Brose, A., & Lindenberger, U. (2013). Physical and emotional
571 well-being and the balance of needed and received emotional support: Age differences in

- 572 a daily diary study. *Social Science & Medicine*, 91, 67–75.
573 doi:10.1016/j.socscimed.2013.04.033
- 574 Yragui, N. L., Mankowski, E. S., Perrin, N. A., & Glass, N. E. (2012). Dimensions of support
575 among abused women in the workplace. *American Journal of Community Psychology*,
576 49, 31–42. doi:10.1007/s10464-011-9433-2
- 577

Table 1

Means and standard deviations of each condition for self-confidence and mean distance (cm) in Study 1 and Study 2.

		Conditions				
		Low Wanted, Control	Low Wanted, Support	High Wanted, Control	High Wanted, Support	
Dependent Variables		<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
Study 1	Self-confidence	2.44 (0.51)	2.37 (0.64)	1.95 (0.47)	3.25 (0.43)	
	Mean distance	46.52 (16.23)	43.21 (18.01)	41.70 (14.26)	44.67 (15.07)	
<u>Self-confidence</u>						
Study 2	Baseline	2.27 (0.62)	2.37 (0.75)	2.36 (0.84)	2.57 (0.54)	
	Post-manipulation	2.47 (0.69)	2.83 (0.72)	2.15 (0.45)	3.45 (0.42)	
	<u>Mean distance</u>					
	Baseline	41.40 (15.12)	38.68 (16.26)	44.79 (13.77)	46.65 (16.36)	
	Post-manipulation	35.77 (15.36)	35.49 (15.65)	46.48 (20.46)	27.74 (10.27)	

Note. $N_{study1} = 88$, $N_{study2} = 91$.

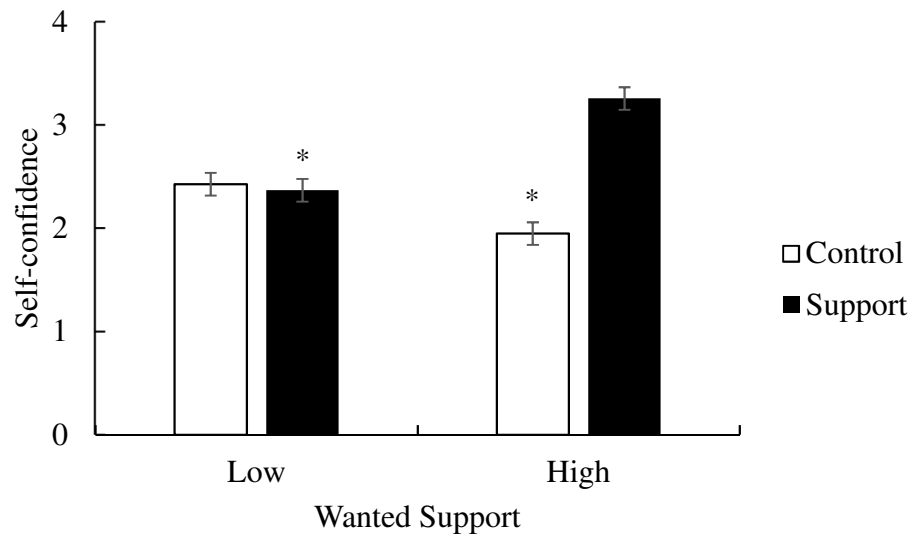


Figure 1. The interaction of wanted support and the experimental condition on self-confidence in Study 1. * indicates a significant mean difference from the adequate support condition. The error bars display standard errors.

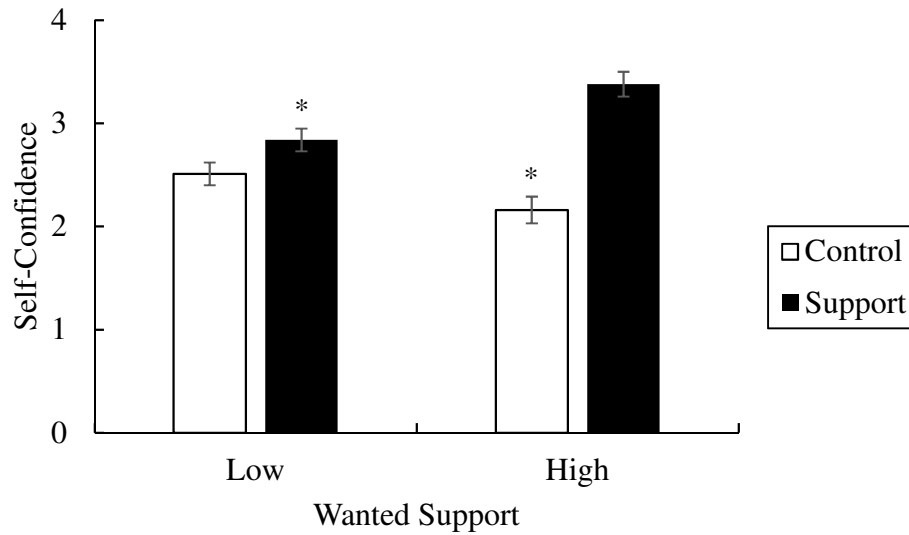


Figure 2. The interaction of wanted support and the experimental condition on self-confidence after controlling for baseline self-confidence in Study 2. * indicates a significant mean difference from the adequate support condition. The error bars display standard errors.

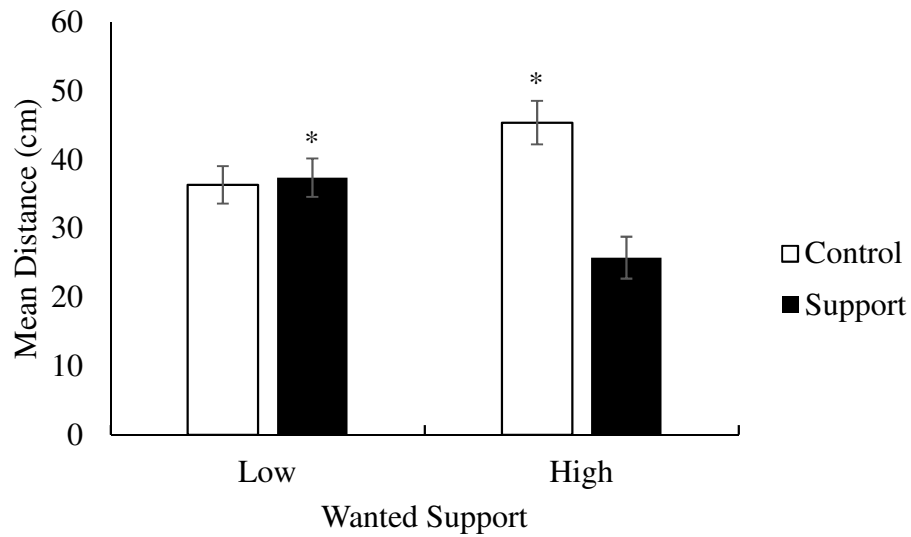


Figure 3. The interaction of wanted support and the experimental condition on mean distance after controlling for baseline mean distance in Study 2. * indicates a significant mean difference from the adequate support condition. The error bars display standard errors.