Abstract

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

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

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

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

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

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

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

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

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

Study 1

Method

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Results

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

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

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

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

Performance. There were no significant main effects for wanted support or experimental condition on performance, Fs(1, 84) = 0.00-0.24, ps = .62-.96, η_p^2s = .00, and no significant interaction, $F(1, 84) = 0.85$, $p = .36$, $\eta_p^2 = .01$.

Discussion

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

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

Study 2

Method

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

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

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

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

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

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

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

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

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

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

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

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

Results

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

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

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

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

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

Discussion

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

General Discussion

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

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

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

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

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

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

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

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

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

In conclusion, the findings advance understanding of the interactive effects of wanted and received support in achievement contexts. Received support was beneficial, but generally for individuals who wanted high levels of support and not those who did not want 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.

Footnotes

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

[2] Alongside self-confidence, participants also completed the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988) in Study 1. Similar to self-confidence, there was a significant interaction effect between wanted support and the experimental condition on negative affect and positive affect, Fs(1, 84) = 10.61-42.73, ps = .001-.002, η_p^2s = .11-.34. Simple effects found a similar pattern to the self-confidence data reported in the Study 1.

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

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

References

Abgarov, A., Jeffery-Tosoni, S., Baker, J., & Fraser-Thomas, J. (2012). Understanding social support throughout the injury process among interuniversity swimmers. *Journal of Intercollegiate Sport*, *5*, 213–229. doi:10.1123/jis.5.2.213

Bar-Kalifa, E., & Rafaeli, E. (2013). Disappointment's sting is greater than help's balm: Quasi-signal detection of daily support matching. *Journal of Family Psychology*, *27*, 956–967. doi:10.1037/a0034905

Barden, E. P., Barry, R. A., Khalifian, C. E., & Bates, J. M. (2016). Sociocultural influences on positive affect: Social support adequacy from one's spouse and the intersections of race and SES. *Journal of Social & Clinical Psychology*, *35*, 455–470. doi:10.1521/jscp.2016.35.6.455

Bolger, N., & Amarel, D. (2007). Effects of social support visibility on adjustment to stress: Experimental evidence. *Journal of Personality & Social Psychology*, *92*, 458–475. doi:10.1037/0022-3514.92.3.458

Brock, R. L., & Lawrence, E. (2009). Too much of a good thing: Underprovision versus overprovision of partner support. *Journal of Family Psychology*, *23*, 181–192. doi:10.1037/a0015402

Cox, R. H., Martens, M. P., & Russell, W. D. (2003). Measuring anxiety in athletics: The revised competitive state anxiety inventory–2. *Journal of Sport & Exercise Psychology*, *25*, 519–533. doi:10.1123/jsep.25.4.519

DeFreese, J. D., & Smith, A. L. (2013). Teammate social support, burnout, and self-determined motivation in collegiate athletes. *Psychology of Sport & Exercise*, *14*, 258–265. doi:10.1016/j.psychsport.2012.10.009

Dehle, C., Larsen, D., & Landers, J. E. (2001). Social support in marriage. *American Journal of Family Therapy*, *29*, 307–324. doi:10.1080/01926180126500

Embuldeniya, G., Veinot, P., Bell, E., Bell, M., Nyhof-Young, J., Sale, J. E. M., & Britten, N. (2013). The experience and impact of chronic disease peer support interventions: A qualitative synthesis. *Patient Education & Counseling*, *92*, 3–12. doi:10.1016/j.pec.2013.02.002

Field, A. (2009). *Discovering statistics using SPSS (third edition)*. London, England: Sage.

Freeman, P., Coffee, P., Moll, T., Rees, T., & Sammy, N. (2014). The ARSQ: The athletes' received support questionnaire. *Journal of Sport & Exercise Psychology*, *36*, 189–202. doi:10.1123/jsep.2013-0080

Freeman, P., Coffee, P., & Rees, T. (2011). The PASS-Q: The perceived available support in sport questionnaire. *Journal of Sport & Exercise Psychology*, *33*, 54–74. doi:10.1123/jsep.33.1.54

Gottlieb, B. H., & Bergen, A. E. (2010). Social support concepts and measures. *Journal of Psychosomatic Research*, *69*, 511–520. doi:10.1016/j.jpsychores.2009.10.001

Haber, M. G., Cohen, J. L., Lucas, T., & Baltes, B. B. (2007). The relationship between self-reported received and perceived social support: A meta-analytic review. *American Journal of Community Psychology*, *39*, 133–144. doi:10.1007/s10464-007-9100-9

Hsieh, T., Liu, Y., & Simpkins, S. D. (2019). Changes in United States Latino/a high school students' science motivational beliefs: Within group differences across science subjects, gender, immigrant status, and perceived support. *Frontiers in Psychology*, *10*, 380. doi:10.3389/fpsyg.2019.00380

Joseph, A., Afifi, T. D., & Denes, A. (2016). (Unmet) Standards for emotional support and their short- and medium-term consequences. *Communication Monographs*, *83*, 163–193. doi:10.1080/03637751.2015.1068432

Katagami, E., & Tsuchiya, H. (2016). Effects of social support on athletes' psychological 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*,

37, 38–45. doi:10.1007/s12160-008-9077-0

Raedeke, T., & Smith, A. (2004). Coping resources and athlete burnout: An examination of stress mediated and moderation hypotheses. *Journal of Sport & Exercise Psychology*, *26*, 525–541.

Rafaeli, E., Cranford, J. A., Green, A. S., Shrout, P. E., & Bolger, N. (2008). The good and bad of relationships: How social hindrance and social support affect relationship feelings in daily life. *Personality & Social Psychology Bulletin*, *34*, 1703–1718. doi:10.1177/0146167208323742

Rees, T, & Freeman, P. (2010). Social support and performance in a golf-putting experiment. *Sport Psychologist*, *24*, 333–348. doi:10.1123/tsp.24.3.333

Rees, Tim, Hardy, L., Güllich, A., Abernethy, B., Côté, J., Woodman, T., … Warr, C. (2016). The Great British medalists project: A review of current knowledge on the development of the world's best sporting talent. *Sports Medicine*, *46*, 1041–1058. doi:10.1007/s40279-016-0476-2

Reynolds, J. S., & Perrin, N. A. (2004). Mismatches in social support and psychosocial adjustment to breast cancer. *Health Psychology*, *23*, 425–430. doi:10.1037/0278-6133.23.4.425

Sarkar, M., & Fletcher, D. (2014). Ordinary magic, extraordinary performance: Psychological resilience and thriving in high achievers. *Sport, Exercise, & Performance Psychology*, *3*, 46–60. doi:10.1037/spy0000003

Schäfer, T., & Schwarz, M. A. (2019). The meaningfulness of effect sizes in psychological research: Differences between sub-disciplines and the impact of potential biases. *Frontiers in Psychology*, *10*, 1–13. doi:10.3389/fpsyg.2019.00813

Searle, B. J., Bright, J. E. H., & Bochner, S. (1999). Testing the 3-factor model of 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., & Lavallee, 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., Antoniw, 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 athlets 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	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
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)
Study 2	<u>Self-confidence</u>				
	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. $N_{study1} = 88$, $N_{study2} = 91$.

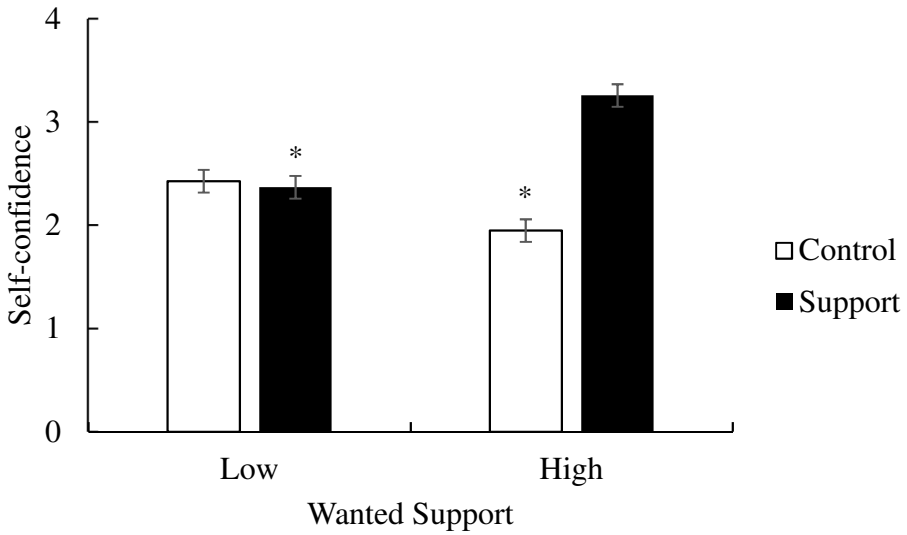

Figure 1. The interaction of wanted support and the experimental condition on self-confidence in Study 1. * indicates a significant mean difference from the adequate support condition. The error bars display standard errors.

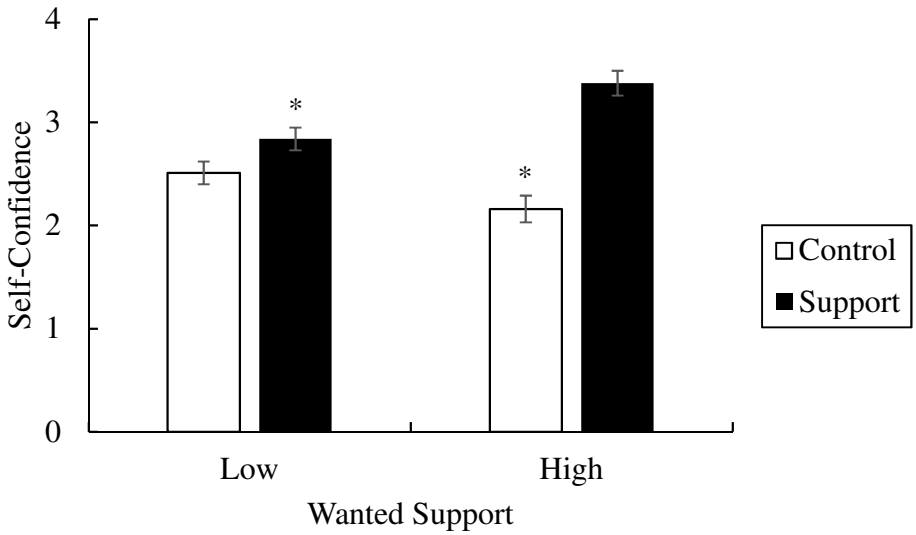

Figure 2. The interaction of wanted support and the experimental condition on self-confidence after controlling for baseline self-confidence in Study 2. * indicates a significant mean difference from the adequate support condition. The error bars display standard errors.

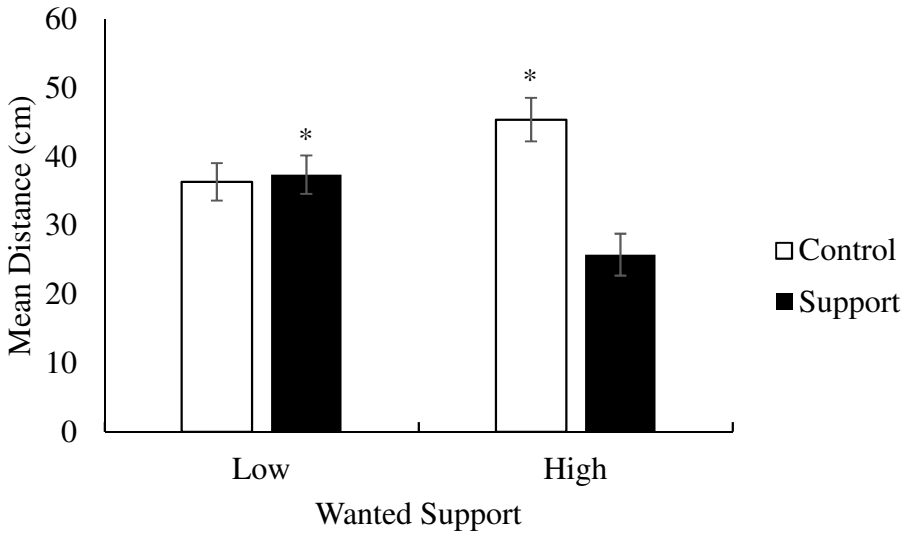

Figure 3. The interaction of wanted support and the experimental condition on mean distance after controlling for baseline mean distance in Study 2. * indicates a significant mean difference from the adequate support condition. The error bars display standard errors.