Confidently at Your Service: Advisors Alter Their Stated Confidence to Be Helpful

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Abstract

When giving advice, people seek to inform others, but also help them reach a decision. We investigate how the motivation to help affects the confidence people express when advising others. We propose that assuming the role of advisor instigates a desire to help the advisee decide more easily. This desire in turn leads advisors to communicate higher confidence than they actually feel, provided that the environment is sufficiently certain, and thus the risk of misleading the advisee is low. We test our predictions in five studies, using experimental tasks (Studies 1-3), a survey of experienced professionals (Study 4) and an organizational scenario (Study 5). We find that in high-certainty environments, people convey higher confidence when providing advice than private judgments. This effect is driven by the motivation of advisors to facilitate advisees' decision making: the higher advisors' desire to help, the more pronounced the effect on their stated confidence.

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Judgments, predictions and decisions are typically made in uncertain environments. To increase their knowledge and minimize uncertainty, decision makers often seek advice from external sources, such as experts and trustworthy acquaintances. Unlike voicing an opinion, people who give advice wish not only to inform their audience, but also help their advisees reach a decision. Such social motivations can influence how judgments are expressed: Although judgment is an intrapsychic process, factors such as the goal of helping an advisee may affect the confidence that advisors attach to their judgments.

People often devote a great deal of effort and resources to obtain advice. Investors are willing to pay extremely high fees for advice from money managers (Bogle, 1999; Moore et al., 1999); companies pay management consultants significant amounts of money for advice (Micklethwait & Wooldridge, 1996). Yet, seeking advice does not guarantee that the advisee will follow it. A key determinant of the likelihood that a decision maker will follow advice is the confidence that advisors convey in it (Rader et al., 2017; Van Swol & Sniezek, 2005). Therefore, understanding how advisors determine and express their confidence is important for predicting and optimizing the way advice shapes decisions. The present research investigates whether and how taking on the role of advisor affects the confidence people express when providing their judgements.

Advisors Are Motivated to Be Helpful

Advice giving is a social situation involving two actors: a decision maker and an advisor. Both roles shape the expectations and behavior of those who enact them. Decision makers seek advice that helps them maximize decision accuracy, but they may also expect the advice to fulfill other needs, such as guidance in the decision process, minimizing negative decision-related emotions and social support (Dalal & Bonaccio, 2010; Goldsmith & Fitch, 1997; White, 2005). While decision makers are generally open to advice, and place greater weight on information given as advice than as mere opinion (Milyavsky & Gvily, 2022), the degree to which they will follow the advice depends on the extent to which it satisfies their various needs. For example, decision makers are more willing to follow advice from an advisor with high integrity, compared with a more knowledgeable (but possibly duplicitous) one (Haran & Shalvi, 2020). Similarly, people are sometimes willing to forgo a recommendation from an expert in favor of a more benevolent

advisor (White, 2005). Advisors, on their part, are similarly driven by a variety of motivations. They may want to provide help and guidance to their advisees (Blunden & Gino, 2018; Brooks et al., 2015), or use advice as a means to gain social benefits, status or influence (Blunden & Gino, 2018; Bolino, 1999).

Advice-giving is shaped by various processes, in addition to those known to affect individual judgment. Previous research has found differences in the way advisors and individual decision makers form their judgments. When advisors are aware of the potential discrepancy between their own preferences and beliefs and those of their advisees, they may conduct an even more thorough information search and generate more considerations than do people confronting their own problems (Jonas et al., 2005; Kray, 2000). Other studies compared advisors' recommendations to decision makers' own independent choices. These studies find that when advising others or deciding on their behalf, people gravitate toward making decisions that are more conservative (Dana & Cain, 2015; Garcia-Retamero & Galesic, 2012), more idealistic (Danziger et al., 2012), easier to justify (Slovic, 1975), and more consistent with what they believe most people, or the advisee specifically, prefer (Kastenmüller et al., 2013; Kray, 2000). Together, these findings suggest that advice takes into account more than merely the advisor's own independent judgment.

In this paper, we examine how assuming the role of an advisor, which entails an objective of helping the advisee, affects the way judgment is expressed. Specifically, we examine the effect of giving advice on the confidence with which advisors communicate their judgments. Prior research has found that the confidence people express in their judgments is not a pure representation of their experienced uncertainty; rather, it is influenced by additional motivations and goals. For example, because highly confident individuals are perceived as more competent, credible, and even likeable (Anderson et al., 2012; Carli et al., 1995; Erickson et al., 1978; Gibbons et al., 1991), people sometimes express high confidence to gain a favorable impression or influence over others (Hinsz, 1990; Petty et al., 2002; Radzevick & Moore, 2011; Rudman, 1998; Van Zant, 2021). Whereas these findings highlight the self-interested use of stated confidence, in the present research, we test whether acting as advisor affects stated confidence by activating prosocial concerns.

Effects on Stated Confidence

Most prior research on confidence compared people's confidence in their judgments with the objective likelihood of their judgments being accurate. One central finding in that line of research is that people's confidence in the accuracy of their judgments is typically higher than their true likelihood of accuracy, but this pattern is attenuated and may even reverse when certainty is high enough (Lichtenstein & Fischhoff, 1977; Moore & Healy, 2008). The reversal is known as the hard/easy effect (Klayman et al., 1999; Soll, 1996). Similar to these studies, the present research also examines confidence in high-certainty and low-certainty environments. However, rather than compare people's confidence reports to a normative benchmark of accuracy, we focus on communicated expressions of confidence, specifically when giving advice to others, compared to the confidence people experience or state privately (which may or may not be calibrated with actual probabilities). Expressing a different level of confidence in advice than one feels does not necessarily reflect a bias in judgement, although it may affect the outcomes of both advisors and advisees just like judgment biases.

Whereas forecasting and decision-making take place at all levels of uncertainty, advisors typically operate in environments of high certainty, at least relative to their audience. People are sought as advisors in part because of their high domain expertise or unique knowledge (Dalal & Bonaccio, 2010; Goldsmith & Fitch, 1997). Having such unique knowledge is associated with expressing higher confidence (Pulford et al., 2018). Past findings further suggest that advisees prefer confident advisors (Gaertig & Simmons, 2018; Price & Stone, 2004; Sniezek & Van Swol, 2001; Van Swol & Sniezek, 2005) and are more likely to be persuaded by them (Pulford et al., 2018). For example, people follow stock recommendations made by highly confident financial consultants more often than recommendations associated with more moderate confidence (Price & Stone, 2004). Although correlations between confidence and accuracy are typically weak (e.g., Koriat, Lichtenstein, & Fischhoff, 1980), when an advisor displays high confidence, advisees infer that the advice is highly likely to be accurate and are more willing to incorporate it in their decisions (Price & Stone, 2004). These findings suggest that expressing high confidence is beneficial for advisors. Consequently, advisors competing for an audience for their advice tend to display higher confidence than they do in a non-competitive situation (Radzevick & Moore, 2011).

Whereas expressing high confidence in advice has benefits for the advisor, it can be helpful to the seeker of the advice as well. By giving advice to another person, the advisor not only provides relevant knowledge, but also helps the advisee reach a decision. According to the principle of the *search for definitive predictions* (Keren & Teigen, 2001), people perceive higher, or more extreme probabilities as more predictive of the occurrence of an outcome. Indeed, research finds that people prefer forecasts with extreme probabilities (i.e., closer to either 0% or 100%), which they perceive as more useful and as more likely to be based on sufficient information forecasts in which confidence is closer to 50% (Keren & Teigen, 2001; Yates et al., 1996).

Keren and Teigen's (2001) finding suggests that decision makers find advice associated with high confidence as more helpful than advice that accurately represents the advisor's true sense of uncertainty. Therefore, to the extent that advisors want to help their advisees, they should express higher confidence in their judgments when providing them as advice than when making judgments privately. Note, however, that high confidence is not always helpful. When certainty is low, the risk of providing incorrect advice is high, so that expressing high confidence might exacerbate the risk of misleading the advisee. Therefore, we propose that when certainty is high, people should express higher confidence in their advice to others than they would when making judgments independently. In contrast, advisors might not display this tendency in low-certainty environments

Hypothesis and Overview of Studies

In this paper we test the proposition that assuming the role of advisor affects the confidence people express in their judgments. Advisors wish to help their advisees reach a decision. In high certainty environments, expressing higher confidence makes the advice more helpful by guiding the advisee more strongly in the recommended direction, with little risk of leading the advisee astray. Uncertain environments, however, do not offer such low-risk opportunities for strong recommendations (Ache et al., 2020). Therefore, we suggest that people express higher confidence in their advice than they do in private judgment when there is sufficient certainty about their estimates, but may exercise caution when certainty is low. Further, we propose that the underlying mechanism of this phenomenon is advisors' desire to help advisees reach a decision. Therefore, the effect should emerge more strongly the more the advisor wants to help the advisee.

This paper contributes to the literature on confidence and advice in several ways. First, the vast literature on advice mostly focuses on advice *taking*, leaving a substantial knowledge gap regarding the processes underlying the behavior of advisors (Blunden & Gino, 2018; Bonaccio & Dalal, 2006). The studies presented here, all focusing on advice *giving*, help reduce this gap. Second, most prior studies on confidence measured confidence either exclusively within the context of making a decision or private judgment or exclusively within the context of advising others (e.g., Koehler & Harvey, 1997; Petty et al., 2002; Radzevick & Moore, 2011; Sniezek & Van Swol, 2001). The present research compares confidence statements in the context of providing advice versus privately. Third, whereas past research of stated confidence primarily examined the *consequences* of expressing high or low confidence, we investigate the *antecedents* of these behaviors. Finally, prior research on advice giving suggests that advisors are guided by a motivation to help (Blunden & Gino, 2018), but the exact effects of this motivation on the advice provided—in particular on the way it may shape advisors' stated confidence—have yet to be explored. In the present research, we both manipulate and measure these motives, and test their role in determining advisors' stated confidence.

This paper includes five studies that tested our predictions. Study 1 compared participants' stated confidence when providing advice with their stated confidence when making private judgment under high and low certainty. Study 2 varied multiple levels of certainty, and elicited both advice and independent judgments in a social exchange, so that both advisors and non-advisors were communicating their predictions to specific recipients. Study 3 sought to gain insight into the underlying mechanism affecting advisors' stated confidence. We experimentally manipulated advisors' motivation to help their advisees to test its mediating role in the relationship between the role of advisor and stated confidence under high vs. low certainty.

The final two studies tested this phenomenon in organizational settings. Study 4 surveyed experienced professionals who give advice as part of their work. We asked respondents about their underlying motivations and the behaviors they typically employ when giving advice and tested the relation between the motivation to help advice seekers decide and expressing high confidence. Finally in Study 5 we tested people's expectations regarding advisors' behavior. The study revolved around a management scenario in which a senior executive was either motivated or unmotivated to give helpful advice to a junior

manager. Participants, in the role of external observers, estimated both the executive's actual confidence about the decision and the confidence that the executive would communicate to the junior manager. We report all data exclusions, manipulations, and measures. All data and analysis code files are publicly available at https://osf.io/qt24c/?view_only=c56fe9ce107f40d7b8ae38a98421f9f8.

Study 1

Study 1 tested whether assuming the role of advisor affects the confidence that people express in their predictions. Participants completed a series of predictions which they either made privately or communicated as advice to other participants, who were about to undertake the same prediction task. In both cases, participants were incentivized for accuracy, regardless of the potential use of their answers by others. We hypothesized that advisors would express higher confidence than would providers of independent judgment, but only in high-certainty environments, where increased confidence can be of help to advisees without an excessive risk of misleading. To test our hypothesis, we manipulated participants' roles (advisor vs. judgment provider) and the certainty surrounding their predictions (high vs. low).

Method

Participants and Design

One hundred eighty-five undergraduate students of Management at an Israeli university (145 women, 39 men, one did not declare; Mage = 24.30) participated in the study in exchange for course credit and a chance to win a bonus of 20 NIS (~$5.60). A power analysis of a 2×2 ANOVA with an effect size of $f^2 = 0.06$ and 90% power suggested a minimum sample size of 171 participants. We sought to reach 200 participants or the largest number possible until the end of the semester put an end to data collection.

The experimental task consisted of four rounds. In each round, participants observed one of four matrices, consisting of 10×10, 11×11, 12×12, and 13×13 cells. The order of rounds in which each matrix was presented was randomized for every participant. In all matrices, each cell was in one of two colors. Below the matrix, we indicated the number of cells in each color. Participants were informed that the computer would randomly select one of the cells in the matrix, and that their task was to provide: (a) their prediction of the color of the selected cell, and (b) their confidence that the cell randomly selected by the computer will be in the color they predicted.

We employed a 2 (certainty: high vs. low) × 2 (role: advisor vs. judgment provider) between-subjects design. We randomly assigned each participant to one of the four experimental groups (see a sample of the experimental task in section 1.1 of the Online Appendix).

Manipulations

Certainty. We manipulated certainty by varying the color composition of the matrices between groups. In the high-certainty condition, approximately 80% of the cells in the matrix were in one color and 20% in the other, so that one color was clearly more prevalent. The color ratios in the four matrices in this condition were 80:20 for the 10 × 10 matrix, 97:24 for the 11 × 11 matrix, 115:29 for the 12 × 12 matrix, and 136:33 for the 13 × 13 matrix. In the low-certainty condition, the two colors were about evenly distributed, with ratios of 50:50, 61: 60, 72:72, and 85:84, respectively.

Role. We assigned each participant the role of either advisor or judgment provider. In the advice condition, participants provided their predictions as advice to another participant in the lab, who would later predict the color of the randomly selected cell, without the complete information they received about the makeup of the matrix. Before the first round, participants observed an example of the advisee's task, which included the same matrix shown to them, except that all but two cells, one in each color, were covered. Participants' estimates comprised a recommendation of the color to choose, and a rating of their confidence that the color they recommended will indeed be the color of the selected cell. To make their recommendation, participants completed the sentence "I advise you to choose the color…" by choosing one of the two colors that made up the matrix. Confidence ratings included the sentence "My confidence that the advice I gave you will turn out to be correct", which participants completed by placing a marker on a slider scale ranging from "I'm certain the advice will be correct" to "I'm certain the advice will be incorrect." The slider was 20 cm in length. To prevent participants from anchoring their answers on the matrices' specified color ratios, the sliders did not include numerical values or grid lines, except the two labels at the end points.[1] After completing the four rounds of the advice-giving task, participants changed stations. Each participant moved to a station previously occupied by another participant, and proceeded to

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[1] In 96 out of 736 confidence estimates participants placed the marker left of the center of the scale. However, 62 of them were less than 1cm away from the center point. Because that point was not marked or labeled, it is likely that participants in these cases intended to express zero inclination toward either of the two options. Winsorizing low confidence estimates at 0 did not change the results.

make the predictions with the advice left by his or her predecessor at that station. Although we were interested only in the responses of the advisors and not in those of the advisees, we conducted this part of the study to verify to participants that they were communicating their advice to real recipients. We created two versions of the task, so that participants would not make predictions about the same matrices both as advisors and as advisees. The two versions used different cell colors, but were identical in all other respects.

Participants in the independent judgment condition completed the prediction task without passing their predictions to others, and without an advice utilization phase. To make their predictions, they answered the question "What color will the selected cell be?" by choosing one of the two colors that made up the matrix. Similarly to the advice condition, confidence ratings included the sentence "Your confidence that the guess you made will turn out to be correct" and a slider ranging from "I'm certain the guess will be correct" to "I'm certain the guess will be incorrect."

Participants earned a lottery ticket for a monetary bonus for every prediction [recommendation] that correctly indicated the color with the higher actual likelihood of being randomly selected. We informed participants in each condition that after the completion of data collection, we would draw six lottery tickets and award each ticket owner the bonus.[2]

To make sure participants understood the instructions, we followed the instructions by asking them two questions. In the independent judgment condition, participants were asked who would see their predictions (to verify their awareness that they are not passing on their predictions to any other participant); in the advice condition, we asked participants when the recipient of their advice will receive it (to verify their awareness that recipients will receive the advice *before* making their predictions). In addition, we asked all participants to recall the amount of the monetary prize. Those who answered incorrectly were shown the instructions and questions a second time, and received the answers to the two questions as needed.[3]

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[2] Participants in the advice condition also earned a lottery ticket for each correct prediction they made in the second part of the experiment as advisees. To keep the total number of winning prizes constant between conditions, we drew 5 winning tickets from the advice elicitation part and one from the decision-making part.

[3] There were no differences in performance on the experimental task between those who answered the comprehension question correctly on the first try and those who needed a reminder, therefore we included all participants in the analysis. We conducted a similar procedure in Experiment 2, with the same results.

Measures

Our dependent variable was participants' reported confidence. We measured this variable by the placement of the marker on the confidence scale slider, relative to the midpoint, which represented absolute indifference between the two possible answers.[4]

Results

We defined outliers as rounds with reported confidence that was three standard deviations or more away from the sample mean, and removed them from the analyses. The outliers made up 0.5% of the confidence reports in the data set, and their exclusion did not change the pattern or the significance of the results (see analyses of the entire sample without exclusions in section 1.2 of the Online Appendix).

We subjected participants' confidence reports to a 2 (role: advice vs. independent judgment) × 2 (certainty: high vs. low) mixed ANOVA with participant ID as a random effect. As predicted, the analysis yielded a significant role × certainty interaction, $F(1, 179) = 4.27$, $p = .04$, $f^2 = .02$. Figure 1 shows the simple effects within certainty conditions. In the high-certainty condition, advisors expressed significantly higher confidence than providers of independent judgment, by placing the confidence marker higher on the scale, $F(1, 92) = 5.53$, $p = .02$, $f^2 = .06$. In the low-certainty condition, however, there was no difference between the confidence expressed by advisors and judgment providers, $F < 1$.

Discussion

Study 1 tested whether people convey more confidence in judgments given as advice than in private judgments that do not inform others' decision. As predicted, advisors stated higher confidence than non-advisors, but only when increasing confidence was likely to facilitate the advisee's decision without a heightened risk of error. In low-certainty environments, advisors were as cautious as were participants who made their judgments privately.

One question that emerges from the findings of Study 1 is whether the role assumed by participants drives their confidence statements or whether the mere presence of a recipient for their input is enough to encourage them to report high confidence. In the study, advisors participated in a real social exchange with a designated recipient, whereas the answers of judgment providers had no specific recipient. The

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[4] When estimates were conveyed as advice, recipients of the advice received the confidence statements as percentage values (e.g., "80% confident"), which were calculated by dividing the distance measure of confidence by the total length of the scale.

difference in observed confidence may therefore stem from a public vs. private setting rather than from acting as an advisor *per se*. We address this concern in Study 2 by designing a social exchange context, in which participants in both conditions communicated their predictions publicly to specific recipients.

Study 2

Study 2 tested the robustness of the effect we observed in Study 1 to a number of methodological changes. First, to allow dissociating the effect of acting as an advisor from the effect of making a public vs. private judgment, in this study, both advisors and judgment providers stated their predictions and confidence to specific recipients in a public exchange. The only difference was that advisors provided advice that others could use in their own tasks, whereas judgment providers stated their predictions to recipients who were not able to use them when making their decisions.

Second, Study 2 afforded a more precise measurement of the effect of advice-giving on stated confidence. We used four levels of certainty, and varied them within-subjects, so that every participant made a prediction at each of the four certainty levels. We also measured confidence using explicit, numerical probability terms, which could elucidate the interplay between participants' stated confidence and the hard/easy effect by allowing the comparison of confidence ratings to objective probabilities (Juslin et al., 2000; Soll, 1996). We hypothesized that as the objective probability of the prediction increases, the confidence expressed by advisors would increase at a higher rate than the confidence expressed by judgment providers.

Method

One hundred seventeen undergraduate students of management at an Israeli university (65 women, 52 men) participated in a prediction study in exchange for course credit and a chance to win a 40 NIS bonus.[5] A power analysis of a linear regression with two predictors suggests this sample is sufficient for detecting an effect size of $f^2 = .02$ with 90% power. As in the previous study, participants were randomly assigned to either an independent judgment or advice condition, which we varied between sessions.

The study employed a 4 (certainty: 50% vs. 60% vs. 70% vs. 80%, within subjects) × 2 (role: advisor vs. independent judgment provider, between subjects) mixed design. It consisted of two parts,

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[5] We did not ask participants' age in this experiment; all participants were recruited from the same pool as those who participated in Experiment 1.

centered around a four-round estimation task that elicited participants' predictions and confidence reports. In each round, participants observed, on the computer screen, two objects, presented side by side. They learned that a golden star is hidden behind one of the two objects. In the first part of the study, participants clicked the mouse to reveal the star, and repeated this action 20 times to learn the likelihood that the star would appear behind each object. After completing the learning phase, each participant wrote a message to his or her partner (another participant in the same session) conveying their prediction regarding the object behind which the star would be on the next trial. Participants were informed that their partners would guess the object hiding the star in a single trial, without an initial learning phase. On a sheet of paper, participants indicated the object behind which they predicted the star would be hidden in the next round, and noted their confidence that their prediction would turn out to be correct.

After completing all four rounds of the task, participants turned over the sheet on which they wrote their predictions, as independent judgment or as advice. They then changed stations, each participant moving to a station previously occupied by another participant in the study. In their new stations, participants completed a similar estimation task, this time as decision makers. In each of the task's four rounds, they observed the two objects and guessed the object behind which the golden star was hidden. Participants received the messages sent to them by their partners, either before or after they made their predictions. They did not receive any other information about the objects, nor did they have any learning opportunities to aid their guesses. We used two versions of the task (identical except for the specific shapes and colors used) to ensure that participants completed different tasks at each phase of the study (see a sample of the experimental task in section 2.1 of the Online Appendix).

Manipulations

Certainty. We manipulated certainty by varying between rounds the relative probability of the golden star appearing behind one object vs. the other. In one round, the star had a 50% chance of being behind one object and a 50% chance of being behind the other. In the other rounds the probabilities were 60%-40%, 70%-30%, and 80%-20%. The order of rounds was randomized between participants.

Role. Participants' role assignment determined the wording of the message they communicated to their partners and the stage at which their partners received the message. In the advice condition, participants learned that their partners would first receive their advice, then make a guess. They conveyed

their advice by completing the statements: "I advise you to choose _____. I am _____ % confident my advice will turn out correct." In the independent judgment condition, participants were told that their partners would first make a guess and only then see the message they sent. This meant their message could not possibly inform their partner's decision. Participants completed the statements: "I predict that the correct answer is _____. I am _____ % confident my answer will turn out correct." For each prediction or piece of advice that correctly identified the object behind which the golden star was ultimately hidden, participants received a lottery ticket for the monetary bonus.

After swapping stations with their partners, participants in the advice condition received the advice left by their advisors, then made their guesses. The independent judgment group first submitted their own guesses and only then read their partners' predictions. In this part of the study, participants earned a lottery ticket for every correct choice of object. In the lottery, we drew ten winning tickets.

Results

As in Study 1, we omitted from the analyses trials with reported confidence that was three standard deviations or more away from the mean. The outliers made up 0.6% of the confidence reports in the data set, and their exclusion did not change the pattern or the significance of the results (see analyses of the entire sample without exclusions in section 2.2 of the Online Appendix).

Table 1 presents the average confidence expressed by advisors and independent judgment providers at each level of certainty. We used a multilevel linear model to predict confidence by participants' role (advice = 1; independent judgment = -1), the level of certainty offered by the task (centered by subtracting 50% from each probability level, so that x = 0 represents 50% probability), and the interaction between them.

We found a main effect of certainty, $b = 0.74$, $\beta = .47$, $t(343.9) = 14.90$, $p < .001$, suggesting that participants expressed higher confidence in rounds with higher objective certainty. The main effect of role was not significant, $b = -0.97$, $\beta = .03$, $t(230.8) = -0.74$, $p = .46$. Importantly, as predicted, we observed a significant interaction between role and certainty, $b = 0.10$, $\beta = .07$, $t(343.9) = 2.11$, $p = .03$. As Figure 2

shows, the rate of increase in stated confidence as a function of actual certainty was higher for advisors than for independent judgment providers.

In addition to our main hypothesis tests, we capitalized on our probability-based confidence measures to explore the calibration of participants' confidence statements. We compared participants' reported confidence to the objective probabilities for each task round. Interestingly, we found that independent judgment providers displayed the typical hard/easy effect observed in studies of confidence, but advisors did not. Both groups displayed overconfidence in the low probability round (independent judgment providers: $t(51) = 5.36$, $p < .001$; advisors: $t(64) = 3.94$, $p < .001$). However, in the high probability round, the confidence of independent judgment providers was not significantly higher than its corresponding normative benchmark, $t(50) = 0.78$, $p = .44$, whereas the confidence stated by advisors remained higher than actual probabilities would prescribe, $t(64) = 2.78$, $p = .007$.

Discussion

Study 2 conducted a more conservative test of the difference in confidence between advice and independent judgment than in Study 1, but obtained similar results nonetheless. Even though participants in all conditions communicated with their recipients, as actual probabilities increased, advisors increased their reported confidence at a higher rate than did participants whose messages to their partners did not serve as advice. In low-certainty rounds, advisors' confidence was not higher than that of judgment providers, and was even somewhat closer to the true probability of 50%. But when actual certainty was high, advisors' confidence increased more drastically than the confidence of judgment providers, and remained significantly higher than their objective likelihood of accuracy. Thus, when giving advice, participants were not more accurate or better calibrated in their stated confidence than were participants whose confidence statements bore no consequences for the recipients of their input. Rather, as we predicted, the stated confidence of advisors displayed a steeper pattern across the various probabilities than the pattern observed in the independent judgment condition as well as in prior studies of decision makers' confidence (e.g., Moore & Healy, 2008).

The findings of Study 2 are consistent with the proposition that advisors use their confidence statements in a way that facilitates advisees' decisions. When the probability of accuracy increased, advisors could in turn increase their conveyed confidence to help their advisees make decisions more

easily, without increasing the risk of misleading them. The next three studies directly test the underlying motivational mechanism of helping the advisee.

Study 3

The main objectives of this study were: (a) to replicate our findings in a pre-registered experiment with a larger sample, and (b) to directly test the idea that the difference in stated confidence between advice and independent judgment is driven by advisors' motivation to help their advisees. To assess the causal role of helping motivation in the process, we let participants observe either generous or selfish behavior by the advisee, which should influence their motivation to help, prior to asking them for advice.

To form the basis for the manipulation of the advisee's generosity or selfishness, we conducted a preliminary study, in which we collected allocation decisions in an incentive-compatible dictator game from ten undergraduate students at an Israeli university. These participants received the equivalent of $12 each to split between themselves and a receiver, in one of three possible ways: a) keep $11.50 for self and give $0.50 to the receiver; b) keep $8 and give $4; c) keep $6 and give $6. We then picked for the role of advisee in the main study one allocator who had behaved generously by dividing the money equally with the receiver and one who had selfishly kept $11.50 of the $12 for him- or herself. Each participant in the main study observed the allocation decision of one of those allocators. We then measured participants' motivation to help the allocator. In the ensuing estimation task, participants in the advice condition provided advice to the person whose allocation decision they had observed. As noted, we argue that advisors' higher stated confidence (relative to independent judgment providers) in high certainty environments is driven by their desire to help their advisee. Following this assertion, we hypothesized that participants' motivation to help the advisee, which we expect would be determined by the advisee's generous or selfish behavior, would affect the magnitude of this difference. Our hypotheses, design and analyses are preregistered at https://aspredicted.org/blind.php?x=tb3d5p.

Method

For the main Study, we recruited 400 participants on Amazon Mechanical Turk (176 women, 221 men, 2 identified as other, one did not declare; Mage = 37.30), residing in either the USA, Canada or the UK. A power analysis of a highly powered (99% power) $2 \times 2 \times 2$ mixed ANOVA (including 2 repeated

measures at each level) with a medium-size effect and a similar inter-item correlation observed in prior

studies ($f^2 = 0.04$, $r = .007$) suggested a minimum sample size of 73 participants per group.

Participants earned $1.20 for their participation as well as a chance to win a $10 bonus, based on

their performance on the experimental task. The study employed a 2 (certainty: high vs. low, within

subjects) $\times$ 2 (role: advice vs. independent judgment, between subjects) $\times$ 2 (observed behavior: generous

vs. selfish, between subjects) mixed design, and was presented in two parts (see a sample of the

experimental task in section 3.1 of the Online Appendix).

Manipulations and Measures

Observed Behavior Manipulation and Helping Motivation Measure. The first part served as our

manipulation of the advisee's behavior. To control for possible effects of simple exposure to a generous or

selfish behavior on confidence, we administered the manipulation to all participants, including independent

judgment providers. Participants read the details of the preliminary dictator game study. On the next page,

participants observed the allocator's decision. We identified allocators by their participant ID numbers.

Half of the participants (the generous behavior condition) observed a generous, equal division of the $12,

and half (the selfish behavior condition) observed the selfish, most unequal $11.50-$0.50 division. All

participants then evaluated the allocator ("How fair do you think [the allocator] was?"; "How nice do you

think [the allocator] is as a person?"; "To what extent do you think [the allocator] is a moral person?").

Responses were recorded on a 0 (*not at all*) to 4 (*very much*) scale. We averaged these three items into a

single manipulation check measure (alpha = .97).

Next, we measured participants' helping motivation toward the allocator. We asked them to rate the

extent to which they would like to help the allocator if needed, the extent to which they would be pleased

if the allocator achieved something important, and the extent to which they wanted the allocator to do well.

Responses to these items were also recorded on scales ranging from 0 (*not at all*) to 4 (*very much*). We

averaged these three items into a single "helping motivation" factor (alpha = .95).

Certainty Manipulation. The second part of the study included an estimation task similar to the

one administered in Study 1. In each of the task's four rounds, participants observed a matrix (11 cells tall

and 11 cells wide in two rounds, 13×13 in the two others). Each cell in the matrix appeared in one of two

colors. Participants freely observed the matrices but we did not explicitly tell them the exact number of

cells in each color. Participants learned that the program will randomly select one cell from the matrix and that their job is to predict the color of that cell.

We manipulated certainty between rounds by varying the matrices' color composition. The two high-certainty rounds presented a matrix in which one color was dominant (~80% of one color and ~20% of the other). The two other rounds displayed low certainty by having a nearly equal distribution of colors (~50% of each color).

Role Manipulation and Stated Confidence Measure. Each participant was assigned to the role of either advisor or independent judgment provider. In the independent judgment condition, participants provided their estimates privately. They completed the sentence "I choose the color" by choosing one of the two colors of the matrix's cells, then completed the sentence "My confidence that this choice will turn out correct is…" by marking their confidence on a slider ranging from 0% to 100%. In the advice condition, participants sent advice to the person whose behavior in the dictator game they had observed. Participants knew their advisee had no information about the color distribution in the matrix. Before the task, they observed a sample of the advisee's task, which included a matrix with all cells covered except two, each in one of the two colors of the matrix. In each round, advisors completed the sentence "I advise you to choose the color…" by marking their choice, and the sentence "My confidence that this choice will turn out correct is…" by placing the marker at the appropriate place on the slider.[6]

All participants were incentivized to provide accurate predictions, by earning a lottery ticket for each prediction (whether independent judgement or advice) that correctly indicated the color of the cell ultimately selected. At the end of the study, we held one lottery among all tickets earned in the advice condition and one for the independent judgment condition. Each lottery drew five winning tickets and awarded each winner a $10 bonus.

Results

Following our preregistered criteria, we excluded 32 participants who failed an attention check and 4 participants who did not move the confidence markers in any round, as well as 6 other participants who moved the markers all the way to one side, reporting the maximum 100% confidence in every round, low-

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[6] We observed expressed confidence of less than 50% in 104 out of 1405 estimates. Winsorizing low confidence estimates at 50% did not change the results.

and high-certainty.[7] The final sample included 358 participants. In addition, as in previous studies and

following the pre-registered criteria, we excluded outlier confidence reports that were 3 SDs or more above

or below the sample mean (1.9% of the estimates). The exclusions did not affect the pattern or significance

of the results (see analyses of the entire sample without exclusions in section 3.2 of the Online Appendix).

Manipulation Check

We compared participants' ratings of the allocator they observed in part 1, using an independent-

samples t-test. The results confirm that the manipulation worked: participants rated the allocator who had

behaved generously significantly more favorably ($M = 3.75$, $SD = 0.42$) than the one who was selfish ($M =$

0.78, $SD = 0.92$), $t(245.54) = 245.54$, $p < .001$, $d = 4.16$.

Helping Motivation

We next conducted an independent-samples t-test comparing participants' motivations towards the

allocator in the two observed behavior conditions. We found that participants who had observed generous

behavior reported significantly higher helping motivation than did those who had observed selfish

behavior, $t(286.01) = 24.55$, $p < .001$, $d = 2.60$ (see Table 2 for descriptive statistics by condition).

Stated Confidence

We conducted a mixed-model ANOVA with participant ID as a random effect to test the effects of

role, certainty and observed behavior on participants' confidence reports. Table 2 presents the means and

standard deviations of participants' stated confidence in all conditions and certainty levels. The analysis

yielded modest but highly significant effects, demonstrating that the role of advisor indeed affects stated

confidence, but that the motivation to help the advisee also matters. Consistent with our prediction, as well

as with our previous findings, there was a significant role × certainty interaction, $F(1, 1032.27) = 6.78$, $p =$

$.009$, $f^2 = .01$, as well as a significant 3-way interaction with observed behavior, $F(1, 1034.27) = 9.10$, $p =$

$.003$, $f^2 = .01$. Moreover, among advisors, specifically, we found a significant certainty × observed

behavior interaction, $F(1, 500.61) = 10.02$, $p = .002$, $f^2 = .02$. Although the simple effects of observed

behavior did not reach significance in either high-certainty estimates, $F(1, 169.45) = 2.52$, $p = .11$, or in

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[7] The last criterion was not preregistered. There were six participants who reported 100% confidence in every round and every certainty level, five of whom in the generous behavior-independent judgement condition (see analyses including these and other excluded participants in section 3.2 of the Online Appendix).

low-certainty estimates, $F(1, 167.89) = 2.22$, $p = .14$, the pattern was in the expected direction, suggesting that certainty moderated advisors' inclination to state higher confidence in advice to generous vs. selfish advisees.[8]

Next, we conducted a moderated mediation test to further assess advisors' helping motivations as the underlying reason for their reporting higher confidence specifically in high-certainty environments. We conducted 5000 bootstrapped estimates of moderated mediation (Hayes, 2013, model 14), with stated confidence in advice as the dependent variable (Y), observed behavior as the predictor variable (X), helping motivation as the mediator of the relation between the two (M) and environmental certainty as the moderator of the effect of M on Y. The analysis yielded a significant overall moderated mediation effect. Table 3 shows that, as predicted, helping motivation was significantly related to advisors' stated confidence in high-certainty rounds. Similarly, advisors' helping motivation mediated the effect of generous vs. selfish advisee behavior on their stated confidence when environmental certainty was high. These patterns were not observed in low-certainty advice.

Discussion

The results of Study 3 replicate the key finding of the previous studies and provide insight into the motivational foundations of stated confidence in advice. First, consistent with our first two studies, in high-certainty environments, advisors expressed higher confidence in their recommendations than did individuals who merely provided an independent judgment. Second, we found that advisors' motivation to help their advisees drives the higher confidence they express relative to independent judgment providers, as suggested by the larger shifts in stated confidence when advising someone who participants wanted more to help. Furthermore, advisors' motivation to help mediated the effect of the advisee's behavior on the confidence they stated at high environmental certainty, where higher confidence is both more helpful and not riskier to the advisee. These results not only demonstrate advisor behavior that is consistent with our helpfulness motivation account, but also reveal the causal path of how the motivation to help affects advisors' stated confidence.

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[8] See section 3.3 of the Online Appendix for additional analyses, including tests of helping motivation as an independent variable.

Studies 1-3 established the phenomenon of increasing one's confidence when expressing it in advice in a series of incentive-compatible behavioral tasks. The next two studies seek to test the generalizability of the phenomenon by examining it in more realistic management-related contexts.

Study 4

Results of Studies 1-3 suggest that in high certainty environments, advisors who are motivated to help their advisees state higher confidence in their recommendations than do individuals who merely provide an independent judgment. The goal of this study was to assess the relevance of our findings to advice giving in real life, particularly to advice in work settings. We tested whether, as we argue, one of the primary motivations when giving advice is to help the recipient of the advice reach a decision, and that this motivation is tied to expressing high confidence in the advice. We surveyed a group of experienced professionals who give advice to others at work. Given the previous studies' findings that advisors and non-advisors only differed in high-certainty contexts, this study focused on high-certainty situations. High-certainty situations also constitute a more ecologically valid representation of real-life advice situations, given that people usually advise others on issues in which they feel knowledgeable, and are largely asked for advice on questions in which they have high expertise.

We asked respondents about their motivations when giving advice to others, and about the behaviors they perform in light of these motivations. Specifically, we were interested in the relative importance of the motivation to help the advice seeker decide, as well as in the extent to which this helping motivation is tied to advisors' higher expressed confidence. We hypothesized that experienced professionals would rate the motivation to help the advisee decide as highly important when giving advice. Additionally, consistent with our prior findings, we predicted that these professionals would report that they are particularly likely to express high confidence in their advice when they are motivated to help the advisee decide. We preregistered our hypotheses, design and analyses at https://aspredicted.org/KS5_ZJ7.

Method

We invited 103 Executive MBA students at an Israeli university to participate in our survey during a break in class, in exchange for a nutrition bar and a chance to win an 80 NIS prize. We achieved a 100%

response rate, although not all participants answered all items of the survey. The mean age of our sample

was 37.22 years. Twenty-six of them were women, 76 men, and one preferred not to say. They reported an

average of 11.87 years of professional experience ($SD = 6.52$). All respondents reported having given

advice at least once in the last three months, with 74 of them (71.8%) reporting having given advice six

times or more in that span. The survey was administered on paper, and measured the motivations guiding

the respondents when advising others, as well as the behaviors they might perform when giving advice that

is driven by each of the aforementioned motivations.

Measures

The importance of various motivations when giving advice. We first asked participants to

imagine a situation wherein they are asked for advice on a subject in which they have high expertise. We

presented them with a list of various motivations and asked them to rate the importance of each motivation

in that situation. We based the list of motivations on Blunden and Gino's (2018) review of the literature on

advising, which identified five primary motivations: altruistic help, enhancing one's own psychological

wellbeing by helping another person, influencing others, gaining social benefits, and elevating one's status.

We split altruistic help into two specific types of help, namely to help the advice seeker reach a decision

and to provide the seeker with as accurate information as possible. Because of overlap between gaining

social benefits and elevating one's status, we combined these two motivations into one item of receiving

appreciation and establishing one's status. The final list included the following motivations: (a) help the

advice seeker reach a decision, (b) provide the seeker with as accurate information as possible, (c) enhance

one's own psychological wellbeing by helping others, (d) influence the decision maker, and (e) receive

appreciation and establish one's status. Participants responded on a scale ranging from 0 (*not important at

all*) to 4 (*extremely important*).

We predicted that the motivation to facilitate the decision process for the advice seeker will be rated

as at least as important as the average of all other motivations. Given that the meaning of the average value

of the importance of various, potentially unrelated motivations might be difficult to define, we also

compared participants' estimated motivation to help the advice seeker decide to each of the other motivations on the list, separately.

The likelihood of performing various behaviors when giving advice. Next, we presented participants with a list of behaviors people perform when giving advice. We determined the list based on the main behaviors we review in the theoretical background of this paper: (a) expressing high confidence in the advice (e.g., Van Zant, 2021), (b) exerting high cognitive effort before giving the advice (e.g., Kray, 2000), (c) trying to provide advice that is conservative and low-risk (e.g., Garcia-Retamero & Galesic, 2012), (d) trying to provide advice that is consistent with what the majority of people prefer (e.g., Kastenmüller et al., 2013), (e) trying to provide advice that is consistent with the advice seeker's original opinion (e.g., Kray, 2000), and (f) trying to provide advice that is easily justifiable (Slovic, 1975). For every motivation from the previous list, participants rated the likelihood that they would perform each of these behaviors to meet the objective on a scale ranging between 0 (*zero likelihood*) to 6 (*very high likelihood*). We predicted respondents would rate the likelihood of expressing high confidence in the advice as higher when the advice is driven by the motivation to help the advice seeker decide than when it is driven by other motivations. Here too, in addition to comparing this likelihood rating to the mean likelihood ratings across all other motivations, we also compared it to the likelihood rating within every other motivation, individually. Furthermore, we predicted that the relative likelihood of expressing high confidence vs. other behaviors would be higher when the primary motivation is to help the advice seeker decide than for other primary motivations.

Results

Our preregistered exclusion criteria included respondents who reported zero years of professional experience or zero opportunities to give advice at work, or who had zero variance in their responses. None of the respondents met any of these criteria, therefore we made no exclusions.

Motivation Importance Ratings

Our key item of interest on the list of motivations was the motivation to help the advice seeker reach a decision. Respondents generally viewed this motivation as important, with an average rating of 3.54 (*SD*

= 0.64), which was significantly closer to the highest point of the scale (labeled "*extremely important*")

than to the lowest point (labeled "*not important at all*"), as suggested by a comparison to the scale's

midpoint, $t(101) = 24.30$, $p < .001$, $d = 2.41$. Following our pre-registration, we conducted a planned

contrast to compare the importance of the motivation to help the advice seeker reach a decision with the

average importance of all other motivations. Whereas we expected that helping the advice seeker reach a

decision would be at least as important as the mean of all other motivations combined ($M = 2.97$, $SD =$

0.63), it was in fact rated as significantly more important, $t(101) = 6.83$, $p < .001$, $d = 0.68$. We further

compared the rating of the motivation to help the advice seeker decide with that of each individual

motivation on the list. We found that participants rated this motivation as significantly more important than

every other motivation ($M \leq 2.89$, $t(101) \geq 6.40$, $p < .001$, $d \geq 0.65$) except providing accurate information,

which was rated higher ($M = 3.77$, $SD = 0.51$), $t(101) = 3.18$, $p = .002$, $d = 0.32$ (see table presenting

descriptive statistics and results of all analyses in section 4.1 of the Online Appendix).

Likelihood of Expressing High Confidence in the Advice

Next, we looked at participants' reported likelihood of engaging in various behaviors when their

primary motivation is to help the advice seeker decide. Our key item of interest was the likelihood of

expressing high confidence in the advice. Respondents generally viewed this behavior as a likely course of

action, with an average rating of 4.98 ($SD = 0.83$), which was significantly closer to the highest point of

the scale (labeled "*very high likelihood*") than to the lowest point (labeled "*zero likelihood*"), as suggested

by a comparison to the scale's midpoint, $t(101) = 24.03$, $p < .001$, $d = 2.38$. We compared the likelihood of

expressing high confidence with the average likelihood of all other behaviors using a planned contrast, and

then compared the likelihood of expressing high confidence with each of the other individual behaviors.

Figure 3 shows the estimated likelihoods of various behaviors when the advisor's primary motivation is to

help the advice seeker reach a decision. We predicted that in such cases, expressing high confidence would

be rated as at least as likely as the average likelihood of all other behaviors. As Figure 3 shows,

respondents reported being significantly more likely to express high confidence than to engage in all other

behaviors, on average, when motivated to help their advisee ($M = 3.38$, $SD = 0.84$), $t(101) = 15.99$, $p <$

.001, $d = 1.58$. In fact, pairwise comparisons find that expressing high confidence was rated as significantly more likely than every other individual behavior ($M \leq 4.75$), $t(101) \geq 2.09$, $p \leq .04$, $d \geq 0.21$.

Finally, we compared the relative likelihood of expressing high confidence (versus engaging in other behaviors) across all motivations – that is, when driven by the motivation to help the advice seeker decide compared to all other motivations. Within each primary motivation, we calculated z-scores of likelihood estimates of the different behaviors.[9] We then compared the standardized likelihood of expressing high confidence to help the advice seeker decide with the standardized likelihood of expressing high confidence in all other cases, using a mixed-model ANOVA with participant ID as a random effect. As predicted, the likelihood of expressing high confidence to help the advisee decide ($M = 0.89$, $SD = 0.51$) was significantly higher than the likelihood of expressing high confidence across all other motivations ($M = 0.73$, $SD = 0.42$), $t(1,98) = 3.06$, $p = .003$, $d = 0.31$. Pairwise comparisons reveal that the standardized likelihood of expressing high confidence when motivated to help the seeker decide was at least marginally-significantly higher than for each of the other motivations ($M \leq 0.75$), $t \geq 1.89$, $p \leq .06$, $d \geq 0.19$, except influencing others ($M = 0.94$, $SD = 0.49$), $t(101) = 1.09$, $p = .28$, $d = 0.11$ (see tables presenting the descriptive statistics of all items in section 4.1 of the Online Appendix).

Discussion

The results of Study 4 suggest that the pattern we observed in the first three studies emerges in work contexts as well, among professionals who give advice as part of their jobs. We found that helping advice seekers reach a decision is a central motivation for advisors that influences their behavior in ways that other motivations do not. When advisors are motivated to help their advisees decide, they are likely to express high confidence in their advice. We found that the relationship between the motivation to help the advice seeker reach a decision and expressing high confidence is more pronounced than for other motivations or advice-related behaviors.

Whereas Studies 1-3 tested participants' actual behavior, in Study 4 we asked respondents to report their likely behavior in various scenarios. The results we obtained are consistent with those of the

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[9] When a respondent rated all behaviors within a particular motivation as equally likely, we gave all behaviors a z-score of 0.

behavioral studies. Further, the findings suggest that people are aware of their tendency to display high

confidence when motivated to help the advisee, and do so not as a result of a cognitive bias but

deliberately. Participants' reports in Study 4 establish the link between expressing high confidence in

advice and satisfying the need to help the advisee decide, such that when this need presents itself, advisors

may consciously adjust their stated confidence. In the final study we examined the phenomenon from the

perspective of an objective, external observer.

Study 5

In Study 5 we sought to advance our previous findings in several ways. First, we conducted a

controlled experiment, similar to Studies 1-3, but in a more organizationally relevant context. Second,

whereas Studies 1-3 found a phenomenon in advisors' behavior and Study 4 found that advisors are aware

of this behavioral pattern and of its underlying motivation, Study 5 tested whether people's intuition about

how others behave is in line with the patterns we had previously observed. We examined participants'

expectations, as objective external observers, regarding the confidence one would experience about a

question vs. the confidence that person would express when giving advice to someone else.

Participants read a workplace scenario in which a well-informed senior manager is asked for advice

by an uninformed junior manager. As in Study 4, we focused on the high environmental certainty

condition, which is where we expect, and indeed found in our previous studies, the predicted differences

between advisors and non-advisors. We employed a repeated-measures experimental design to assess

peoples' estimations of the manager's experienced and stated confidence. Participants first estimated how

confident the senior manager privately feels about the decision, and later estimated the confidence the

senior manager would express when advising the junior manager.

In addition, we tested the role of the motivation to help the advice seeker in driving the effect, by

manipulating the extent to which the junior manager in the scenario merited help. We hypothesized that

participants would expect the senior manager's confidence in his recommendation to be higher than the

experienced confidence on which the manager bases the recommendation, but less so when advising

someone the manager views as less deserving of help (see the complete scenario and experimental task in

section 5.1 of the Online Appendix). We preregistered our hypotheses, design and analyses at

https://aspredicted.org/QM4_GK3.

Method

We recruited 200 participants on Amazon Mechanical Turk in exchange for $0.45 each. Because of simultaneous registrations while the study was active, 201 participants (Mage = 40.38; 101 women, 97 men, 3 did not declare) completed and submitted the study. We based the sample size on the same power analysis of Study 3, including a highly powered (99% power) 2×2 mixed ANOVA with an effect size of $f^2 = 0.06$, which suggested a minimum sample size of 73 participants per group. Our goal was to initially collect 200 observations and increase data collection as needed in order to reach 80 valid observations per group after planned exclusions.

The study employed a 2 (context: private vs. advice, within subjects) $\times$ 2 (Advice seeker: default vs. undeserving, between subjects) mixed design. The study included a hypothetical scenario, presented in parts, with measurements of key variables administered after each relevant part.

Manipulations and Measures

Experienced confidence. The first part of the scenario described Peter, a senior manager at an outdoor equipment manufacturer. The company's Camping Division is about to present its products for the first time at two international trade shows, one in Austria and one in Spain. The division is offering junior managers who participate in these trade shows a bonus as a function of the amount of revenue generated in new contracts signed at each show. Each junior manager can only participate in one trade show, and it is up to each of them to decide which show to attend. The bonus initiative does not apply to senior managers like Peter. However, Peter knows, from his previous job at a company that presented at these two shows in the past, that the show in Austria has often generated more sales than the show in Spain (specifically, in 16 of the last 21 instances).

After reading the first part of the scenario, participants estimated which trade show Peter thinks will generate more sales this year, as well as Peter's confidence in his prediction. They rated Peter's expected confidence on a slider scale ranging from 0 (*zero confidence*) to 100 (*absolute certainty*).

Advice seeker manipulation and helping motivation. The second part of the scenario introduced Sam, a junior manager at the company's Camping Division, who worked for Peter in a previous position at the company. Unlike Peter, Sam can earn a bonus by going to one of the trade shows and is tasked with deciding which trade show is likely to earn him the highest bonus possible. We manipulated Peter's motivation to help Sam by adding, in the undeserving advice seeker condition the following description: "Peter is ambivalent about Sam. He sees Sam as someone who is not very easy to work with, and he is not sure how valuable Sam will be to the company in the long run." Participants in the default condition did not receive any information related to Peter's attitudes toward Sam. We then measured participants' estimations of Peter's helping motivation towards Sam by asking them to rate, on a scale ranging from 0 (*not at all*) to 4 (*very much*), how much they think Peter wants Sam to succeed in his job and how happy Peter would be if Sam achieved something important at work. We averaged these two items to form a helping motivation score ($r = .82$).

Confidence in the advice. In the third and final part of the scenario, participants learned that Sam needs to make a decision but does not know which trade show is likely to generate more sales, therefore he asks Peter for advice. We designed the confidence elicitation method by adapting Miller et al.'s (2021) paradigm, who employed a similar within-subjects design: We reminded participants that their previous confidence estimate concerned Peter's feelings about his prediction (and specified the show they previously indicated Peter would choose) and then asked them to estimate the confidence they think Peter expresses in his recommendation of that show to Sam. Participants used the same slider scale on which they rated Peter's experienced confidence, with the marker initially located where they had placed it on the experienced confidence scale.

Results

Following our preregistered criteria, we excluded 6 participants who failed an attention check and two others whose confidence estimates were 3 SDs or more above or below the sample mean. The exclusions affected neither the pattern nor the significance of any of the results (see analyses of the sample including outliers in section 5.2 of the Online Appendix). The final sample included 193 participants.

Helping Motivation

We compared participants' estimates of Peter's helping motivation toward Sam using an independent-samples t-test of the combined helping motivation measure. Participants estimated that Peter is significantly more motivated to help Sam in the default condition ($M = 3.21$, $SD = 0.73$) than in the undeserving advice seeker condition ($M = 2.23$, $SD = 1.01$), $t(170.4) = 7.72$, $p < .001$, $d = 1.12$.

Confidence Estimates: Privately Experienced and Stated in Advice

We subjected participants' confidence estimates to a 2 (context: private vs. advice) × 2 (advice seeker: default vs. undeserving) mixed ANOVA with participant ID as a random effect. The analysis yielded a significant context × seeker interaction, $F(1, 191) = 17.78$, $p < .001$, $f^2 = .09$. As Figure 4 shows, consistent with our prediction, participants in the default condition estimated that Peter would express significantly higher confidence in his advice than he experiences privately, $t(97) = 4.30$, $p < .001$, $d = 0.43$. However, when the seeker was less deserving of help, participants estimated Peter would express *lower* confidence than what he privately feels, a marginally-significant difference, $t(94) = 1.90$, $p = .06$, $d = 0.19$. This pattern of results is consistent with both our hypothesis and with the results of Studies 1-3.

We conducted two additional exploratory tests, which provide further support for our theoretical arguments. The first concerns the proportion of participants in each seeker condition who expected Peter to express higher confidence in the advice than the confidence he feels. We coded whether each participant estimated that Peter would express higher, lower, or the same level of confidence in his advice compared to the confidence he feels. We then compared the frequencies of these categorical outcomes between conditions using a χ^2 test. Consistent with our theory, most participants in the default condition estimated

that Peter would state increased confidence in the advice to Sam ($n = 65$, 66% of the sample), nearly

double the rate found in the undeserving condition, where Peter views Sam as less deserving of help, ($n = 34$, 36%), $\chi^2(2) = 24.98$, $p < .001$.[10]

A second finding concerns the mediating role of Peter's motivation to help Sam. We conducted a

mediation test to assess the role of Peter's helping motivation in mediating the relation between the seeker

condition and Peter's increased confidence in his advice (relative to his feelings of confidence). Following

the recommendation of Hayes and Rockwood (2017) regarding mediation models with repeated outcome

measures, we used Hayes's (2013) Model 4 to test the path: Advice seeker condition → Helping

motivation → Stated confidence in advice, while controlling for experienced confidence.[11] We conducted

5000 bootstrapped estimates of mediation with estimates of stated confidence in advice as the dependent

variable (Y), estimates of experienced confidence as a covariate (COV), the advice seeker condition as the

predictor variable (X), and estimates of the advisor's helping motivation as the mediator (M). As Table 4

shows, the analysis yielded a significant overall mediation effect, with a significant indirect effect of

advice seeker on estimates of stated confidence in the advice via the advisor's helping motivation, *effect =*

3.06, 95% CI [0.92, 5.59]. These results provide further support for our theoretical argument.

Discussion

Study 5 replicates and extends the findings of the previous four studies. First, together with Study 4,

we find evidence for increased confidence in advice in realistic, work-related situations. Second, whereas

Studies 1-4 tested people's behavior, either actual or self-reported, this study tested observers' predictions

of how another person would behave in an advice-giving situation. Consistent with our prior results, we

found that participants expected a well-informed manager to express higher confidence when giving

advice than the confidence the manager privately feels about the decision. Moreover, the scenario

paradigm employed in this study enabled us to examine confidence estimates as a repeated measure. The

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[10] The proportion of participants who estimated that Peter would express the same level of confidence in the advice as he felt privately was the same in both conditions (20%). 13 participants in the default motivation condition (13%) and 42 in the undeserving seeker condition (44%) estimated that Peter would express lower confidence in the advice than he feels privately.

[11] For mediation models with repeated measures of outcomes, Hayes and Rockwood (2017) recommend this approach over calculating a difference measure. We present a model with the difference between confidence in advice and private confidence as the dependent variable in section 5.3 of the Online Appendix. The pattern of results remains the same across both these models.

findings support the idea that people recognize that in high-certainty contexts, advisors express increased confidence relative to their own experience.

Study 5 also provides additional support for our argument that the motivation to help the advisee drives the increased confidence the advisor expresses. Similar to the results of Study 3, we found that the expectation that advisors increase their stated confidence is eliminated when this motivation is reduced, as is the case when advising someone the advisor views undeserving of help. These results are also consistent with those of Study 4, which highlight the relative importance of helping motivations in the expression of high confidence in advice.

General Discussion

When advising others, people do not merely relay their individual judgments to others. Rather, their advice serves additional functions, which shape the way advisors communicate with their audience. In five studies, we found a consistent difference in how people state their confidence when giving advice vs. when making independent judgments. In high-certainty environments, when one's predictions are likely to prove accurate, participants acting as advisors conveyed higher confidence to their advisees than did those whose judgments were not meant to aid others' decision making. Similarly, participants expected others to do the same and reported similar tendencies from their real-world experience. Studies 3-5 identified the motivation to help advisees as the underlying mechanism of this effect. Study 3 varied the advisee's behavior prior to the advice to influence advisors' motivation to help. Study 4 examined the relative importance of helping motivations among experienced professionals, as well as their propensity to engage in various behaviors when giving advice. Study 5 tested participants' expectations, as external observers, regarding the confidence that another person would express when giving advice to someone deserving or undeserving of help.

In low-certainty situations, however, advisors and non-advisors did not differ on expressed confidence. A possible reason is that in these situations, facilitating advisees' decision making requires advisors to increase their stated confidence beyond a level with which they are comfortable. In low-certainty situations, the likelihood of misleading the advisee is already high, and expressing higher confidence in such cases would run counter to the motivation to help.

Theoretical Implications

The findings reported here are relevant to several research streams. First, they extend previous findings on the role of advisor and its effects on individuals' behavior. For example, advisors tend to make more conservative choices than their advisees would make themselves in similar situations (Dana & Cain, 2015), but also tend to be highly confident when trying to be perceived as competent or persuasive (Radzevick & Moore, 2011; Van Zant, 2021). Our research complements these findings by distinguishing confidence related to advising others from confidence related to merely voicing one's opinion and suggest that the former entails the unique motivation of helping others decide. Moreover, former studies have found that being highly confident can enhance one's social status and increase ones' ability to gain influence (e.g., Anderson et al., 2012; Blunden & Gino, 2018; Hinsz, 1990; Petty et al., 2002; Rudman, 1998). We extend these observations by finding that projecting high confidence can stem not only from selfish motivations, but also from prosocial ones. A recent finding that exaggerated advice increases decision makers' likelihood of making optimal choices (Erev et al., 2022) suggests that expressing high confidence may not only reflect advisors' prosocial objectives but also help realize them.

Additionally, this work advances the research on stated confidence. Unlike most past research, which primarily compared the confidence that people state to actual probabilities (Moore et al., 2016), we compare the confidence people state in their private judgements to the confidence they express when providing advice and find that systematic differences between the two. By doing so, our research demonstrates how the social context, specifically, assuming the role of advisor, affects observed levels of confidence.

Finally, by comparing experienced confidence to stated confidence in advice, our work can advance the understanding of known phenomena related to displays of confidence. In our studies, the patterns of confidence expressed by advisors seemed to attenuate previously documented effects of intrapersonal judgment processes, such as the hard/easy effect (Erev et al., 1994; Klayman et al., 2006). In particular, whereas in high-certainty environments experienced confidence is often not as high as actual certainty prescribes, our results imply that in these high-certainty situations, advisors state higher confidence than what they might feel. These patterns may not necessarily constitute either a bias in judgment or a

correction of such bias, but they do present a consistent, predictable deviation from the behaviors documented in the vast literature on biased confidence, particularly the hard/easy effect.

Practical Implications

The primary role of stated confidence is to communicate the strength of an individual's belief in a present or future state of the world. Our studies demonstrate that for advisors, stated confidence serves an additional, unexpected purpose. Rather than simply convey their true conviction regarding the accuracy of their recommendation, advisors adjust their stated confidence to help their advisees reach a decision more easily. Although in most cases this pattern serves the goals of both parties well, we cannot always assume this is the case. Advisees might often prioritize accurate information, including about their advisors' attitudes, over reaching a decision quickly and easily. In such cases, our results suggest that advisees should perhaps consider articulating this priority to their advisors, especially when they believe the advisor is indeed motivated to help them.

In addition, in some cases, stating high confidence may carry negative consequences. Even in relatively high-certainty environments, advice has some chance of being wrong. Whereas expressing high confidence can boost one's perception as competent and knowledgeable, errors that follow expressions of high confidence may prove costly to one's reputation (Sah et al., 2013). Another context in which expressing high confidence may backfire is eyewitness testimony. Courts view stated confidence as an accurate representation of witnesses' belief in the accuracy of their memory, as well as a determinant of the true accuracy of testimonies. In practice, however, the relationship between confidence and accuracy in these cases is extremely low (Loftus, 1979; Wells et al., 2002), and the motivation to provide a helpful, informative testimony may affect the way witnesses convey their account of events in question. A study of the causes of miscarriages of justice in US court cases found that a majority of them were based on highly confident but mistaken eyewitnesses (Wells et al., 1998). Thus, an implicit motivation to be a good witness may unwittingly create a biased perception of accuracy.

Limitations and Directions for Future Research

Our studies lay the foundation for further research on the role of stated confidence in advisor-advisee exchanges. First, to preclude any possible confounds of the advisee's influence on the advisor, we elicited the advice in writing, making sure that the transmission of information was in one direction only—

from the advisor to the advisee. Each advisor was advising a specific recipient, without knowing the recipient's identity when giving the advice. Although the findings of Studies 4 and 5 suggest that similar patterns also exist in situations involving a more complex social exchange, future research may verify that these patterns occur in actual advisor behavior, in face-to-face interactions, when the parties can communicate with each other more freely.

Second, our studies elicited participants' confidence using numeric estimates and visual aids. Research has found that although senders of probability reports often feel more comfortable with verbal phrases, recipients of these reports clearly prefer receiving them in numeric form (Brun & Teigen, 1988; Hamm, 1991; Renooij & Witteman, 1999). The preference for numeric probabilities may be due to their precision, unambiguous nature, and comparability (Budescu & Wallsten, 1985; Renooij & Witteman, 1999). Although our studies found effects on stated confidence in its standardized and most straightforward form, the same factors are also likely to influence people's language and verbal expressions of uncertainty. People use many different terms to convey their confidence in their beliefs, such as "likely," "possible," and "certain." The use of these terms, however, may be influenced by the communicator's social role in systematic, predictable ways, which may be consistent with the patterns of numeric representations of confidence to which we limited our studies.

Finally, our findings highlight the need for developing more sophisticated means of communicating advice, which can take into consideration the various needs of advice seekers, in addition to receiving relevant, accurate information. For example, framing advice as an estimate of objective likelihood rather than confidence might enable advisors to state their beliefs more accurately, without sacrificing the persuasiveness of the message (Løhre & Teigen, 2016).

Conclusion

Advising others entails a plethora of social expectations and goals, which can at times clash with each other. On the one hand, advisors are tasked with providing their recipients with information that accurately represents their actual beliefs. On the other hand, they want to help recipients decide more easily. We find that advisors may be aware of these tradeoffs and walk a thin line between these competing goals, in a way that seeks to satisfy them both. As a result, advisors express increased confidence to facilitate decision making for advisees—especially advisees whom they are motivated to help. However,

this pattern only emerges in high-certainty environments, in which the risk of misleading the advisee is low. These findings shed light on the social considerations that influence information exchange, as well as our understanding of the way people collectively and integratively make decisions.

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Tables

Table 1

Descriptive statistics of stated confidence by role and certainty in Study 2

Certainty	50%		60%		70%		80%	
Role	M	SD	M	SD	M	SD	M	SD
Independent judgment	62.33	16.60	66.37	17.21	73.38	17.32	81.45	13.32
Advice	58.88	18.15	68.12	14.93	76.97	12.22	84.22	12.24

Table 2

Means and standard deviations of helping motivation and stated confidence in low-certainty and high-certainty estimates in Study 3

Condition		Helping motivation		Confidence: low certainty		Confidence: high certainty	
Observed behavior	Role	M	SD	M	SD	M	SD
Selfish	Independent judgment	1.15	1.01	53.63	13.34	78.74	9.86
	Advice	1.25	1.09	57.38	12.46	78.90	10.32
Generous	Independent judgment	3.38	0.62	54.71	13.99	78.78	10.85
	Advice	3.50	0.63	55.04	11.60	80.85	8.68

Table 3

Results of a test of moderated mediation of stated confidence in advice in Study 3

Predictor	Estimate	LL 95% CI	UL 95% CI	Sig.
Outcome variable: Helping motivation				
Observed behavior	2.25	2.12	2.39	***
Outcome variable: Stated confidence				
Observed behavior	-2.23	-4.88	0.42	†
Helping motivation	0.29	-0.80	1.38	ns
Certainty	20.81	17.58	24.03	***
Helping motivation × Certainty	1.23	0.09	2.37	*
Low certainty				
Helping motivation	0.29	-0.80	1.38	ns
Mediation	0.62	-1.91	3.27	ns
High certainty				
Helping motivation	1.52	0.43	2.61	**
Mediation	3.42	1.09	5.97	*
Moderated mediation	2.77	0.37	5.31	*

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4

*Results of a test of mediation of the stated confidence in advice in Study 5*

Predictor	Estimate	LL 95% CI	UL 95% CI	Sig.
Outcome variable: Helping motivation				
Advice seeker	1.00	0.75	1.25	***
Experienced confidence	0.005	-0.004	0.01	ns
Outcome variable: Stated confidence in advice				
Advice seeker	4.82	0.38	9.26	*
Helping motivation	3.07	0.87	5.27	**
Experienced confidence	0.64	0.52	0.77	***
Mediation	3.06	0.92	5.59	*

Note: † $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.
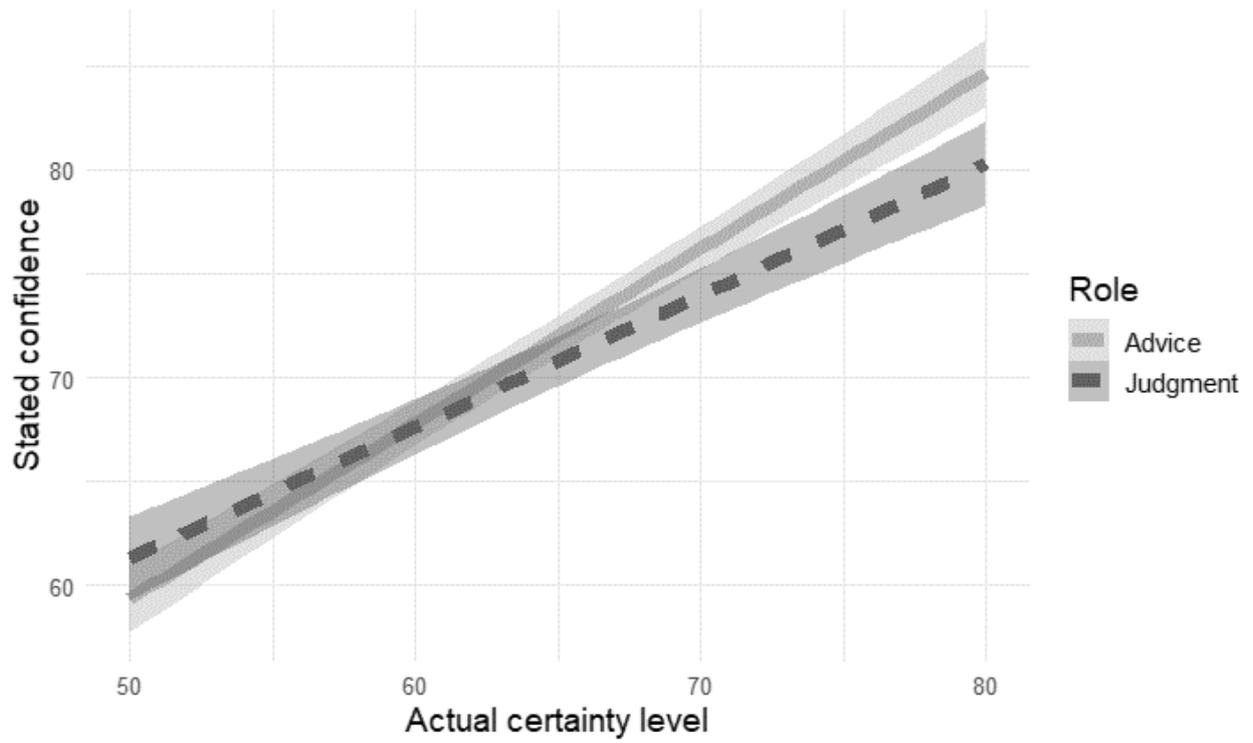
Figures

Figure 1

Stated confidence by role and certainty level in Study 1
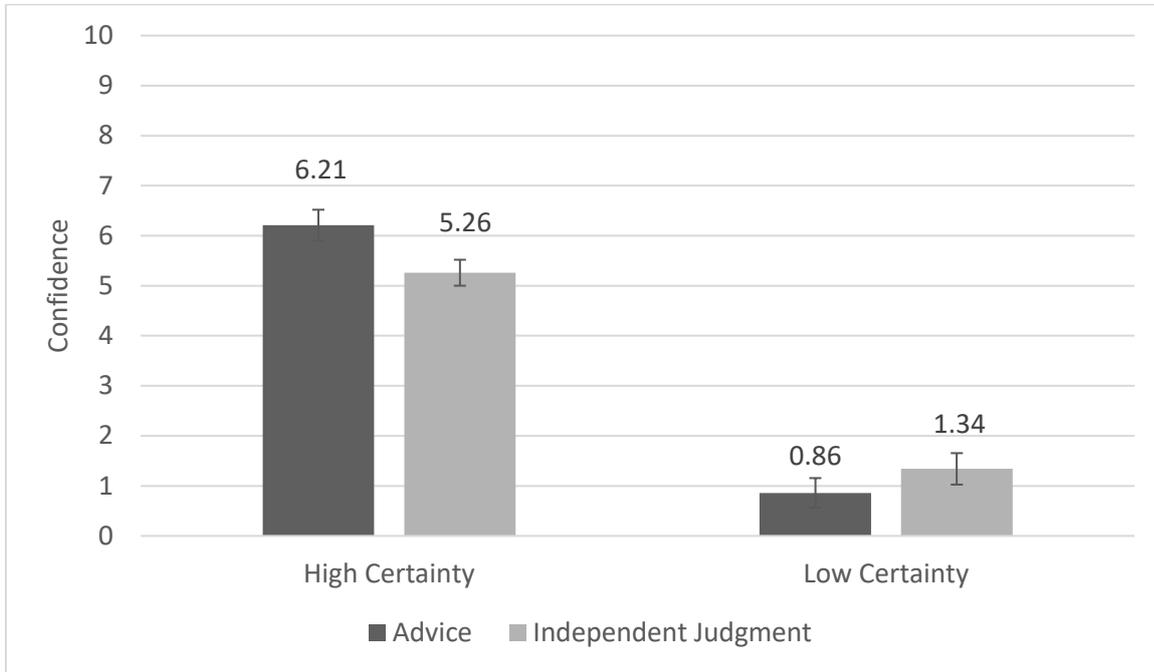
Note. Error bars represent ±1 SEM.
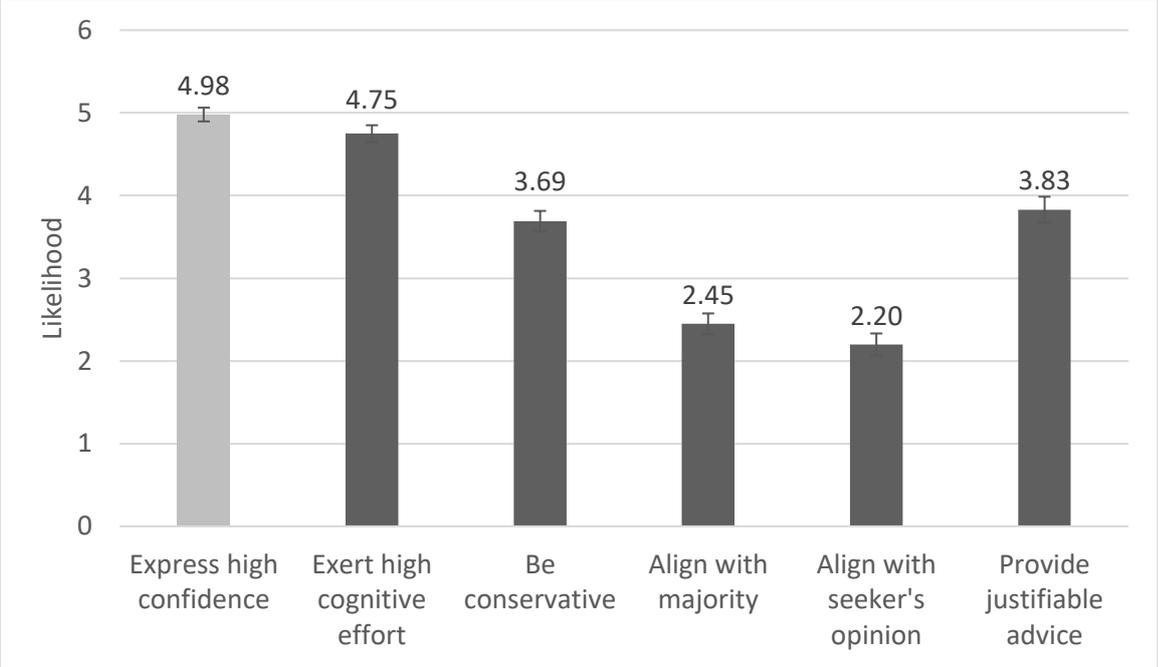
Figure 2

Stated confidence by role and actual level of certainty in Study 2

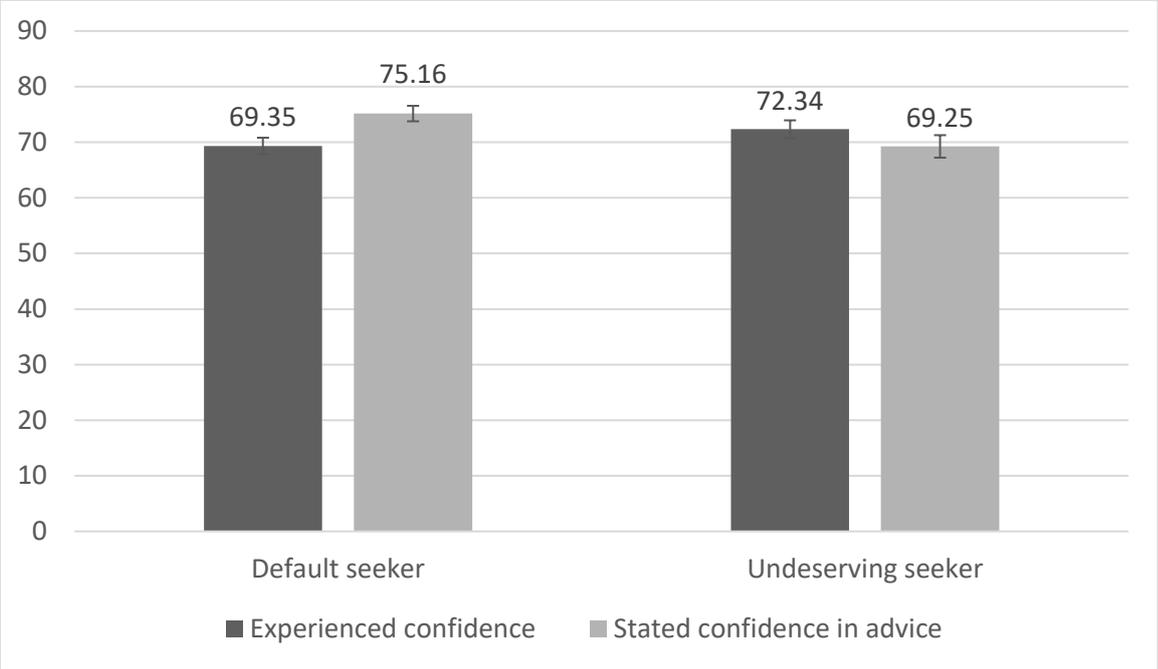*Note.* Shaded areas represent 95% confidence intervals.

Figure 3

Estimated likelihoods of performing various advice-related behaviors with the primary motivation to help

the advice seeker decide in Study 4

Note. Error bars represent ±1 SEM.

Figure 4

Estimated confidence by context and advice seeker condition in Study 5

Note. Error bars represent ±1 SEM.