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Do Dogs Really Influence How People Evaluate Psychotherapists? A Conceptual Replication Attempt

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ABSTRACT

The icebreaker effect – the idea that integrating animals into psychotherapy improves the therapeutic alliance – is believed to be one of the main mechanisms of action in animal-assisted psychotherapy. Support for this notion has come from preliminary evidence that the presence of a dog positively influences how people perceive psychotherapists. However, the robustness and generalizability of these findings have yet to be tested. Thus, in our study, we aimed to (1) conceptually replicate these results and (2) gain insight into what might drive them by employing a design with high experimental control. Four hundred and eighty-one participants took part in our experiment, in which they first watched a video of a psychotherapist introducing themself. In the video, we experimentally manipulated whether the psychotherapist had an additional qualification in animal-assisted therapy or in meditation techniques and mindfulness (as a control condition), whether the psychotherapist referred to this additional qualification in the video, whether this additional qualification was visible in the video (dog or meditation accessories visible), and the psychotherapist's gender. After watching the video, participants were asked to report on the anticipated therapeutic relationship, the perceived trustworthiness of the therapist, and their own willingness to self-disclose. None of our analyses yielded any evidence of positive effects from the presence of a dog in the video. Thus, we could not replicate the previous results. Given our design, we argue that our results suggest that it is neither the mere presence of the dog (i.e., the visibility of the dog in the video) nor the perception of the psychotherapist's ability to work with a dog as an additional qualification that drove the previously found positive effects. Instead, we discuss the idea that these positive effects might be due to (potentially unconscious) changes in psychotherapists' behavior and performance when accompanied by a dog. We invite future

KEYWORDS

Animal-assisted psychotherapy; animal-assisted therapy; human–animal interaction; icebreaker effect; therapeutic alliance

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research to investigate (1) the role that therapists' behavioral changes due to the presence of a dog play and (2) under which circumstances these changes occur.

Research into the human–animal bond has received considerable attention over the past two decades. Contact with companion animals has been associated with improved well-being and reduced stress and anxiety (Beetz et al., 2012; Ein et al., 2018). As a result, animals have been incorporated into various educational and therapeutic activities, including psychotherapy. An important aim of integrating animals into psychotherapy is to facilitate the development of the therapeutic alliance between client and therapist, which has been shown to be an important factor in successful psychotherapy (e.g., Lambert & Barley, 2001). The icebreaker effect – the idea that integrating animals into psychotherapy improves the therapeutic alliance – is believed to be one of the main mechanisms of action in animal-assisted psychotherapy. So far, support for this notion has come mainly from anecdotal evidence and case studies that suggest that therapy animals can act as an "ice-breaker" for cautious patients who are hesitant to self-disclose (Chandler, 2005; Levinson, 1962). Empirical studies on how therapy dogs influence the therapeutic alliance are rare and have shown mixed results (for a recent review, see Collier et al., 2022). For example, Wesley et al. (2009) showed that integrating a therapy dog into a group treatment for substance-dependent individuals improved the therapeutic alliance compared with the same group treatment without a therapy dog. In a similar vein, Schneider and Harley (2006) reported that the presence of a dog enhances people's evaluations of psychotherapists. However, research in this area is sparse, and the promising results reported so far have yet to be replicated. The present article fills this gap by reporting the results of a conceptual, experimentally highly controlled attempt to replicate Schneider and Harley's (2006) study.

In their article, "How dogs influence the evaluation of psychotherapists," Schneider and Harley (2006) reported initial evidence that the presence of a dog positively influences how people perceive psychotherapists. In their study, university students watched one of four videos on a screen in a laboratory: (1) a video of a male psychotherapist introducing himself in his own office, (2) a video of the same male psychotherapist introducing himself in his own office accompanied by his dog, (3) a video of a female psychotherapist introducing herself in her own office, and (4) a video of the same female psychotherapist introducing herself in her own office accompanied by her dog. After watching one of these four videos, participants were asked to rate the trustworthiness, expertise, credibility, attractiveness, powerfulness, and overall impression of the psychotherapist they saw (using the short version of the Counselor Rating Form; CRF-S; with the three subscales "trustworthiness," "expertness," and "attractiveness"; Corrigan & Schmidt, 1983) as well as participants' own willingness to self-disclose to the psychotherapist in the video. The authors reported that participants rated the psychotherapists significantly more positively (i.e., higher ratings on the CRF-S) and gave significantly higher ratings on the CRF-S subscales trustworthiness and attractiveness (the latter was significant only in a one-sided test) when accompanied by the dog in the video. A post-hoc analysis revealed that the more positive ratings of the psychotherapists with the dog could be found only for the

third of the participants who gave the lowest overall ratings of the psychotherapist (but not for the other two thirds) and that this effect appeared to be driven by the CRF-S trustworthiness subscale. Furthermore, the authors reported that participants were more willing to self-disclose when the psychotherapist was accompanied by the dog but added that this was true only for the female psychotherapist. Parallel with the first effect, a post-hoc analysis revealed that the effect of the presence of the dog on participants' willingness to self-disclose held only for the third of the participants with the lowest reported willingness to self-disclose. Participants' reported attitude toward companion animals did not influence these effects.

If robust and generalizable, these findings would have direct practical implications. To understand these implications in full detail, two aspects are crucial to consider: first, the importance of the therapeutic alliance for the success of psychotherapy (Horvath & Symonds, 1991; Lambert & Barley, 2001; Martin et al., 2000) and the role that the perception of the psychotherapist as trustworthy and generally positive plays in establishing this alliance (Ackerman & Hilsenroth, 2003), and second, the fact that companion animals should only be on duty for a limited number of hours per day and a limited number of days per week to ensure their health and wellbeing (Tierärztliche Vereinigung für Tierschutz e.V. TVT, 2018). Thus, in case of robustness and generalizability of Schneider and Harley's (2006) findings, practitioners could take their companion animal with them for their first sessions with a patient to help establish a strong therapeutic alliance and could focus on patients who show low willingness to self-disclose or who struggle to trust their therapist.

However, as Schneider and Harley (2006) discussed, the robustness and generalizability of their findings have yet to be tested. To date, there is no published replication of the results. The present conceptual replication attempt fills this gap. Throughout their study, Schneider and Harley gave priority to ecological validity rather than experimental control. For instance, to create the videos, each of the two psychotherapists had been recorded twice in their own offices, once with their own dog and once without. Moreover, the psychotherapists were given no script but half an hour to prepare before they were recorded. Thus, what drove the effects that Schneider and Harley found remains an open question, which we aimed to address in our conceptual replication attempt.

First, Schneider and Harley's findings may be due to the mere presence of the dog in the video (i.e., due to the dog being visible in the video), which might have positively influenced participants' perceptions of the psychotherapists. Second, the results may be explained by (potentially unconscious) changes in the psychotherapists' behaviors and performances between the two videos caused by the presence/absence of the dog during the recordings (cf., Schneider & Harley, 2006, p. 138). For instance, psychotherapists might have felt more comfortable in the presence of their dogs and, in return, might have appeared more relaxed to participants. Third, participants may have interpreted the ability to work with a companion dog as an additional qualification of the psychotherapist and therefore (and not because of the mere presence of the dog) might have reported a more positive perception of the therapists and a greater willingness to self-disclose. Finally, differences in the characteristics of the two dogs, the two offices, or the four videos may have influenced the results. Importantly, the implications for practitioners depend on which of these explanations holds.

In our conceptual replication attempt, we designed our experiment in a way that allowed us to disentangle the possible explanations discussed above. Precisely, we experimentally manipulated the type of additional qualification (i.e., whether the psychotherapist had an additional qualification in animal-assisted therapy [AAT] or an additional qualification in meditation techniques and mindfulness [MTM], to control for potential effects of an additional qualification not specific to an additional qualification in AAT), whether the psychotherapist referred to the additional qualification in the video, whether the additional qualification was visible in the video (i.e., whether a dog or meditation accessories were visible in the video), and the psychotherapist's gender. To ensure a maximum level of experimental control, we asked a male and a female psychotherapist to each record a single, scripted video in the same office. In the original unedited recordings, each psychotherapist introduces themself, then mentions their additional qualification in AAT before eventually mentioning their additional qualification in MMT.

To create one video for each of the 16 experimental conditions, we then edited the recordings and used a green screen to add a therapy dog or meditation accessories to the videos when needed. Note that this approach allowed us to rule out the possibility that any potential effects were due to (unconscious) changes in the psychotherapists' behavior and performance due to the presence/absence of the dog or meditation accessories during the recording of the video and enabled us to investigate the effect of the mere presence (i.e., the visibility) of the dog or the meditation accessories in the video and the effect of an additional qualification. As we asked each participant to watch a single video, this resulted in a 2 (Type of Additional Qualification: AAT vs. MTM) × 2 (Visibility of Additional Qualification: Visible vs. Not Visible) × 2 (Reference to Additional Qualification: Reference vs. No Reference) × 2 (Psychotherapist's Gender: Male vs. Female) between-subjects design. In an attempt to replicate Schneider and Harley's (2006) results, we tested the following hypotheses:

> H1: The psychotherapists are perceived more positively when the dog is in the video than when it is not.
>
> H2: The psychotherapists are perceived as more trustworthy when the dog is in the video than when it is not.
>
> H3: Participants are more willing to self-disclose to the psychotherapists when the dog is in the video than when it is not.

In addition, we investigated whether the effects mentioned in H1 and H2 were significant in the third of the sample with the lowest overall ratings of the psychotherapist and whether the effect mentioned in H3 held true for the third of the sample reporting the lowest willingness to self-disclose (in parallel with Schneider and Harley's post-hoc analyses). We did not have clear predictions about the effects including MTM as an additional qualification or about the effects of the therapists referring to the additional qualification.

Methods

All data, code, and supplementary materials can be found in the Open Science Framework project associated with this study: https://osf.io/jn9rx/.

Ethics Statement

This study was approved by the ethics committee of Saarland University (reference number 21–20).

Participants

We collected data from 481 participants (361 women, 111 men, 9 diverse; $M_{age} = 27.65$ years, $SD = 10.8$, range: 18–77, 68.4% students) recruited on campus and via social media to participate in a study on evaluations of psychotherapists. We based our sample size calculation on the smallest effect of interest reported by Schneider and Harley (2006), a t-value of 3.36 with the group sizes $n_1 = 42$ and $n_2 = 43$, yielding an effect size of Cohen's $d_z = 0.729$ or $f = 0.3645$. To ensure that our replication attempt would have sufficient power, we computed the power needed to detect an effect half the size. Using G*Power (Version 3.1.9.7; Faul et al., 2007; Faul et al., 2009), we determined a minimum total sample size of $n = 404$ (equivalent to a minimum of $n = 26$ participants for each of our 16 conditions) to detect an effect of $f = 0.18$ with a power of 0.95 at $\alpha = 0.05$. All participants actively gave their informed consent to participate before the experiment began. Psychology students received course credit for participating. The other participants were not reimbursed.

Design

We designed our experiment as a between-subjects design with four factors with two levels each. The factors were Type of Additional Qualification (AAT vs. MTM), Visibility of Additional Qualification (Visible vs. Not Visible), Reference to Additional Qualification (Reference vs. No Reference), and Psychotherapist's Gender (Male vs. Female). Therefore, there were 16 experimental conditions. We opted for MTM as the other type of additional qualification, as it was rated closest to an additional qualification in AAT in terms of perceived expertise and sympathy in a pilot study (see the online supplementary materials).

Materials and Measures

Videos

To produce the videos, a male and a female behavioral psychotherapist were filmed once each sitting in an armchair in the same office in front of a white wall. They were given the same script (see the online supplementary materials), with a non-gender-specific name and an age that matched both individuals. The scripts consisted of a brief introduction of themselves and their job as well as short sections about their additional qualification in AAT, their dog, their additional qualification in MTM, and their meditation accessories. The therapists recited the script in a single take, with short pauses between the critical text passages. After recording, we edited the videos and used a green screen to add the dog or the meditation accessories to create one video for each of the 16 experimental conditions. The therapists sat in the right half of the screen. In the left half, either the dog or the meditation accessories were superimposed. Both additional factors were filmed

separately from the therapists to avoid possible effects on the therapists' behavior. The dog was a light-colored, medium-sized crossbreed, and trained therapy dog. He lay quietly on a blanket throughout the video. The meditation accessories consisted of a meditation cushion, a singing bowl, and the associated clapper and were intended to visualize the use of MTM. The lengths of the videos ranged from 50 to 75 s, depending on the condition.

Questionnaires

THEBU/TBZI. To assess the anticipated therapeutic relationship, we used the most recent version of the Therapeutic Relationship Questionnaire (Fragebogen Therapeutische Beziehung, THEBU), the TBZI (Schulte, 1996; Schulte & Eifert, 2002). This questionnaire consists of 18 items, with three items for each subscale: understanding, competence, independence, consensus, co-creation, and trustworthiness. Each item is rated on a 7-point Likert scale (1 "not true at all" to 7 "completely true"). As the items of the THEBU/TBZI usually refer to one's own therapist, we adapted the items slightly to fit our purposes (e.g., "The therapist and I work on common goals" was adapted to "The therapist and I *will* work on common goals"). For each subscale, the answers to the respective items are summed to form the subscale score, and the subscale scores are summed to form the overall score, with higher values indicating a more positive anticipated therapeutic relationship.

DTI-VI. To measure the willingness to self-disclose, we used the Disclosure to Therapists Inventory-VI (DTI-VI; Farber et al., 2008), a newer version of the DTI-III employed in the original study (Schneider & Harley, 2006). Precisely, we translated the follow-up version of the DTI-VI into German. It contains 30 topics that are frequently discussed in psychotherapy. Participants were asked to judge the extent to which they would discuss the respective topic with their psychotherapist (on a 5-point scale ranging from 1 "not at all" to 5 "thoroughly") and to judge the relevance of each topic for themselves (on a 5-point scale ranging from 1 "minor" to 5 "great"). Participants could also choose "Not applicable" if a topic was irrelevant to them. Participants were instructed to refer to the therapist seen previously in the video when making their assessment. We computed an overall DTI-VI score for each participant by subtracting the relevance ratings from the extent ratings and computing the mean of those difference scores. The higher the value, the higher the participant's willingness to self-disclose to the therapist.

Other Questionnaires. We also assessed participants' current psychological distress by using the Mini-Symptom-Checklist (Mini-SCL; Franke, 2017), participants' attitudes toward pets by using the German translation of the Pet Attitude Scale (PAS; Römpke, 2019), and participants' attitudes toward seeking psychotherapeutic help, by using the Questionnaire on Attitudes Toward Seeking Psychotherapeutic Help ("Fragebogen zu Einstellungen gegenüber der Inanspruchnahme psychotherapeutischer Hilfe"; FEP; Schmid-Ott et al., 2002). We provide more detailed information about these measures in the online supplementary materials: https://osf.io/jn9rx/.

Background Questionnaire. We asked participants to answer questions about their gender, age, country of birth, education, occupation, and household members.

Furthermore, we asked participants to answer questions about past and current pet ownership as well as their experience with and plans for psychotherapy (see the online supplementary materials).

Piloting of the Online Procedure

The entire online procedure (including all questionnaires and videos) was piloted with several students who were encouraged to comment when statements were not comprehensible and to state if they found anything to be remarkable about the videos (in order to ensure that participants did not realize that the dog and the meditation accessories were superimposed into the videos).

Procedure

The study was conducted online with Labvanced (Finger et al., 2017). Participants participated via a QR code or a link on their own device. After receiving general information about the experimental procedure and information about the anonymity of the data, each participant actively gave informed consent to participate in the experiment. When the experiment began, participants watched one of the videos (corresponding to the experimental condition the participant had randomly been assigned to). Subsequently, they were asked to refer to the psychotherapist they had just watched when answering the questions from the first two questionnaires (see the online supplementary materials for the exact instructions). We presented the questionnaires in the following fixed order: TBZI, DTI-VI, Mini-SCL, PAS, FEP, background questionnaire. In total, the experiment took around 20 min.

Statistical Analyses

To test H1, we computed a four-way analysis of variance (ANOVA) with the overall score on the THEBU/TBZI as the dependent variable and the between-subjects factors Type of Additional Qualification (AAT vs. MTM), Visibility of Additional Qualification (Visible vs. Not Visible), Reference to Additional Qualification (Reference vs. No Reference), and Psychotherapist's Gender (Male vs. Female) as independent variables. Subsequently, we computed three analyses of covariance (ANCOVAs) with the same four factors, the same dependent variable, and the PAS score, Mini-SCL score, and FEP score as covariates.

To test H2 and H3, we conducted the same analyses as for H1 but included the THEBU/TBZI "trustworthiness" score (i.e., the sum of the scores of the items from the trustworthiness subscale from the THEBU/TBZI; H2) or the DTI-VI overall score (H3) as dependent variables instead of the THEBU/TBZI overall score.

For all statistical analyses, we used an alpha level of 0.05. We analyzed the data using R (Version 4.0.4; R Core Team, 2021) and R Studio (Version 1.4.1106; RStudio Team, 2021). See the analysis script for the specific packages we used.

Results

THEBU/TBZI Overall Score (H1)

We computed a four-way ANOVA with the THEBU/TBZI overall score as the dependent variable to test the hypothesis that the psychotherapists are perceived more positively when the dog is in the video than when it is not (H1). The analysis yielded no support for H1 (see Table 1). In detail, the only significant effect involving the factor Visibility of Additional Qualification was the significant three-way interaction of Type of Additional Qualification × Visibility of Additional Qualification × Reference to Additional Qualification (Figure 1(a)). To understand this interaction, we computed two two-way ANOVAs (one for each level of the factor Type of Additional Qualification) with the factors Visibility of Additional Qualification and Reference to Additional Qualification and the THEBU/TBZI overall score as the dependent variable. Only the ANOVA based on the data from the MTM condition yielded a significant effect, namely, the main effect of Reference to Additional Qualification ($F_{(1,\ 236)} = 7.34$, $p = 0.022$; the p-value was Bonferroni–Holm-corrected), with participants anticipating that their therapeutic relationship with the psychotherapist would be significantly better when no additional qualification was referenced than when it was.

Closer inspection of the significant effects not involving the factor Visibility of Additional Qualification yielded by the four-way ANOVA revealed that the significant main effect of Reference to Additional Qualification was driven by participants anticipating that their therapeutic relationship with the psychotherapist would be significantly

Table 1. Results of the four-way ANOVAs with the between-subjects factors Type of Additional Qualification (additional qualification in AAT vs. an additional qualification in MTM), Visibility of Additional Qualification (Visible vs. Not Visible), Reference to Additional Qualification (Reference vs. No Reference), and Psychotherapist's Gender (Male vs. Female) as the independent variables and the THEBU/TBZI overall score, the THEBU/TBZI "trustworthiness" score, and the DTI-VI overall score as the dependent variables. Two participants judged all topics in the DTI-VI as "Not Applicable"; thus, the reduction in the degrees of freedom.

	THEBU/TBZI Overall Score		THEBU/TBZI Trustworthiness		DTI-VI Overall Score	
	$F_{(1,\ 465)}$	p	$F_{(1,\ 465)}$	p	$F_{(1,\ 463)}$	p
Type (T)	0.28	0.595	0.23	0.634	0.09	0.763
Visibility (V)	0.45	0.502	0.00	0.971	0.04	0.843
Reference (R)	**6.27**	**0.013**	**6.66**	**0.010**	0.27	0.604
Gender (G)	**18.57**	**< 0.001**	**21.23**	**< 0.001**	3.78	0.052
T × V	0.52	0.470	2.24	0.135	0.06	0.806
T × R	2.01	0.157	0.25	0.619	**6.10**	**0.014**
V × R	0.47	0.494	0.80	0.372	**5.57**	**0.019**
T × G	0.70	0.404	0.97	0.325	0.27	0.607
V × G	1.07	0.302	1.29	0.257	0.39	0.534
R × G	**4.98**	**0.026**	**4.57**	**0.033**	0.00	0.986
T × V × R	**5.00**	**0.026**	**4.47**	**0.035**	1.95	0.163
T × V × G	3.00	0.084	2.51	0.113	0.10	0.747
T × R × G	0.37	0.545	0.24	0.623	0.14	0.710
V × R × G	0.00	0.973	1.92	0.166	0.00	0.989
T × V × R × G	0.02	0.894	0.23	0.629	0.33	0.565

Note: Significant values are printed in bold. THEBU/TBZI = Therapeutic Relationship Questionnaire. DTI-VI = Disclosure to Therapists Inventory-VI.

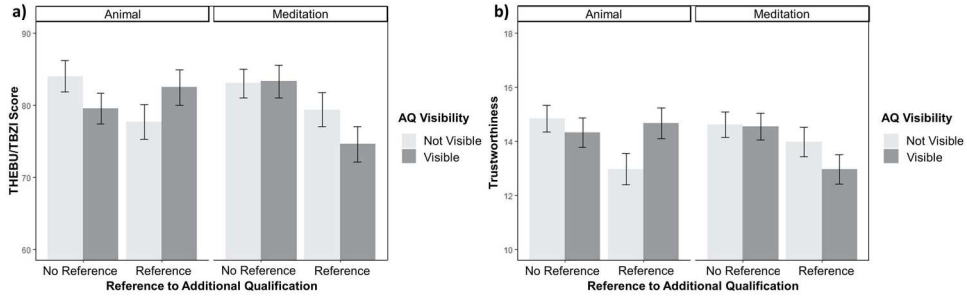

Figure 1. Three-way interaction of Type of Additional Qualification × Visibility of Additional Qualification × Reference to Additional Qualification on (a) the THEBU/TBZI overall score and (b) the THEBU/TBZI "trustworthiness" subscale score. THEBU/TBZI Score = Therapeutic Relationship Questionnaire overall score. Trustworthiness = Therapeutic Relationship Questionnaire "trustworthiness" score. AQ Visibility = Visibility of Additional Qualification. Animal = additional qualification (AAT). Meditation = additional qualification (MMT). Error bars depict standard errors.

better when no additional qualification was referenced ($M = 82.42$, $SD = 16.52$) than when it was ($M = 78.53$, $SD = 18.94$). The significant main effect of Psychotherapist's Gender was driven by participants anticipating that their therapeutic relationship with the male psychotherapist ($M = 83.88$, $SD = 17.25$) would be significantly better than with the female psychotherapist ($M = 76.98$, $SD = 17.85$). Closer inspection of the significant two-way interaction of Reference to Additional Qualification × Psychotherapist's Gender revealed that the effect of Psychotherapist's Gender was larger and significant only when an additional qualification was referenced, and that the effect of Reference to Additional Qualification was larger and significant only for the female psychotherapist (see Figure 2(a)).

The main effect of Psychotherapist's Gender, the two-way interaction of Reference to Additional Qualification × Psychotherapist's Gender, and the three-way interaction of Type of Additional Qualification × Visibility of Additional Qualification × Reference to Additional Qualification were not significant after controlling for attitude toward pets, current psychological distress, or attitude toward seeking psychotherapeutic help in

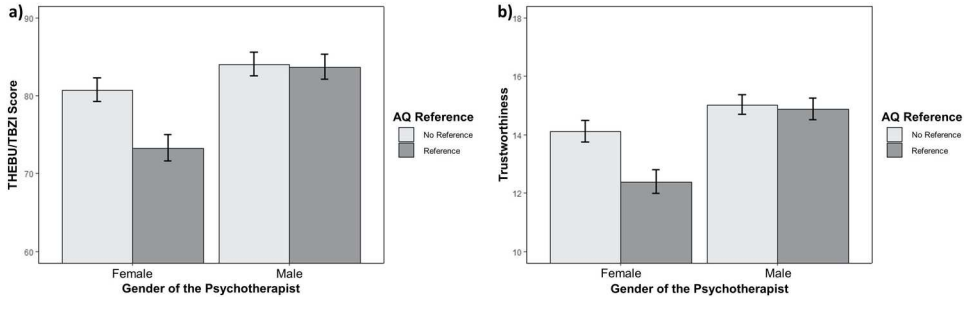

Figure 2. Two-way interaction of Psychotherapist's Gender × Reference to Additional Qualification on (a) the THEBU/TBZI overall score and (b) the THEBU/TBZI "trustworthiness" subscale score. THEBU/TBZI Score = Therapeutic Relationship Questionnaire overall score. Trustworthiness = Therapeutic Relationship Questionnaire "trustworthiness" score. AQ Reference = Reference to Additional Qualification. Error bars depict standard errors.

the ANCOVAs (see the online supplementary materials for all ANCOVA results). However, the main effect of Reference to Additional Qualification was significant in all of the ANCOVAs except for the ANCOVA with the current psychological distress as the covariate ($F_{(1,\ 464)} = 3.53$, $p = 0.061$, see online supplementary materials).

With regard to the covariates, the ANCOVAs revealed that attitude toward seeking psychotherapeutic help explained a significant amount of variance in the THEBU/TBZI overall score ($F_{(1,\ 464)} = 16.76$, $p < 0.001$). Precisely, a more positive attitude toward seeking psychotherapeutic help was associated with a more positive anticipated therapeutic relationship ($b = 9.45$).

In parallel with Schneider and Harley (2006), we additionally computed the same four-way ANOVA as before using only the data from participants whose overall score on the THEBU/TBZI fell in the lowest third. This analysis yielded no significant effects (all F-values < 2.90, all p-values > 0.090).

"Trustworthiness" Score (H2)

We computed a four-way ANOVA with the THEBU/TBZI "trustworthiness" score as the dependent variable to test the hypothesis that the psychotherapists are perceived as more trustworthy when the dog is in the video than when it is not (H2). The analysis yielded the same pattern of results as the four-way ANOVA regarding H1 and thus, no support for H2 (see Table 1). In detail, the only significant effect involving the factor Visibility of Additional Qualification was the significant three-way interaction of Type of Additional Qualification × Visibility of Additional Qualification × Reference to Additional Qualification (Figure 1(b)). To understand this interaction, we computed two two-way ANOVAs (one for each level of the factor Type of Additional Qualification) with the factors Visibility of Additional Qualification and Reference to Additional Qualification and the THEBU/TBZI "trustworthiness" score as the dependent variable. Neither of the two ANOVAs yielded any significant effects after the Bonferroni–Holm correction was applied to correct for Type I error accumulation.

Closer inspection of the significant effects not involving the factor Visibility of Additional Qualification yielded by the four-way ANOVA revealed the same pattern of results as regarding H1. In detail, the significant main effect of Reference to Additional Qualification was driven by participants rating the psychotherapist as significantly more trustworthy when no additional qualification was referenced ($M = 14.57$, $SD = 3.87$) than when it was ($M = 13.64$, $SD = 4.39$). The significant main effect of Psychotherapist's Gender was driven by higher trustworthiness scores for the male ($M = 14.95$, $SD = 3.90$) than for the female psychotherapist ($M = 13.24$, $SD = 4.25$). Closer inspection of the significant two-way interaction of Reference to Additional Qualification × Psychotherapists' Gender revealed that the effect of Psychotherapist's Gender was larger and significant only when an additional qualification was referenced and that the effect of Reference to Additional Qualification was larger and significant only for the female psychotherapist (see Figure 2(b)).

The main effect of Psychotherapist's Gender, the two-way interaction of Reference to Additional Qualification × Psychotherapist's Gender, and the three-way interaction of Type of Additional Qualification × Visibility of Additional Qualification × Reference to

Additional Qualification were not significant after controlling for attitude toward pets, current psychological distress, or attitude toward seeking psychotherapeutic help in the ANCOVAs (see the online supplemental materials for all ANCOVA results). However, the main effect of Reference to Additional Qualification was significant in all of the ANCOVAs. Moreover, the ANCOVA controlling for attitude toward pets and the ANCOVA controlling for attitude toward seeking psychotherapeutic help yielded significant two-way interactions of Visibility of Additional Qualification × Reference to Additional Qualification ($F_{(1,\ 464)} = 4.12$, $p = 0.043$; $F_{(1,\ 464)} = 4.62$, $p = 0.032$, respectively). Closer inspection of these interactions revealed that the significant main effect of Reference to Additional Qualification, which remained significant in both ANCOVAs, was more pronounced when the additional qualification was not visible than when it was.

With regard to the covariates, the ANCOVAs revealed that attitude toward seeking psychotherapeutic help explained a significant amount of variance in the THEBU/TBZI "trustworthiness" score ($F_{(1,\ 464)} = 10.04$, $p = 0.002$). Precisely, a more positive attitude toward seeking psychotherapeutic help was associated with higher perceived trustworthiness ($b = 1.71$).

In parallel with Schneider and Harley (2006), we additionally computed the same four-way ANOVA as before using only the data from participants whose overall score on the THEBU/TBZI fell in the lowest third. This analysis yielded a significant main effect of Psychotherapist's Gender ($F_{(1,\ 152)} = 4.57$, $p = 0.034$), again with higher trustworthiness scores for the male ($M = 10.28$, $SD = 2.86$) than for the female psychotherapist ($M = 9.32$, $SD = 2.62$).

Willingness to Self-Disclose (H3)

We computed a four-way ANOVA with willingness to self-disclose as the dependent variable to test the hypothesis that participants are more willing to self-disclose to the psychotherapists when the dog is in the video than when it is not (H3). This analysis yielded two significant interactions (see Table 1) but no support for H3. In detail, the only significant effect involving the factor Visibility of Additional Qualification was a significant crossover interaction of Visibility of Additional Qualification × Reference to Additional Qualification (Figure 3). Closer inspection of this interaction by means of simple effects analyses revealed that when an additional qualification was visible, participants reported a greater willingness to self-disclose when this additional qualification was referenced than when it was not ($p = 0.040$). No other simple effects were significant (all p-values > 0.067).

Closer inspection of the significant crossover interaction of Type of Additional Qualification × Reference to Additional Qualification (Figure 4) by means of simple effects analyses revealed that when the AAT was the additional qualification, participants reported a greater willingness to self-disclose when this additional qualification was referenced than when it was not ($p = 0.033$). No other simple effects were significant (all p-values > 0.050).

While the crossover interaction of Type of Additional Qualification × Reference to Additional Qualification did not remain significant in any of the ANCOVAs (all F-values < 0.61, all p-values > 0.438, see the online supplementary materials for all ANCOVA results), the crossover interaction of Visibility of Additional Qualification × Reference to

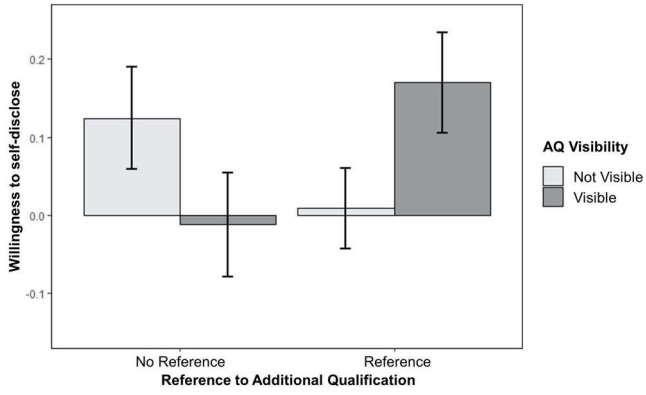

Figure 3. Crossover interaction of Visibility of Additional Qualification × Reference to Additional Qualification on willingness to self-disclose. AQ Visibility = Visibility of Additional Qualification. Error bars depict standard errors.

Additional Qualification remained significant after attitude toward pets or attitude toward seeking psychotherapeutic help were controlled for but not after current psychological distress was controlled for ($F_{(1,\ 462)} = 3.73$, $p = 0.054$, see the online supplementary materials).

With regard to the covariates, the ANCOVAs revealed that current psychological distress and attitude toward seeking psychotherapeutic help explained a significant amount of variance in the willingness to self-disclose ($F_{(1,\ 462)} = 28.69$, $p < 0.001$; $F_{(1,\ 462)} = 6.88$, $p = 0.009$, respectively). Precisely, higher current psychological distress was associated with lower willingness to self-disclose ($b = -0.02$), and a more positive attitude toward seeking psychotherapeutic help was associated with a greater willingness to self-disclose ($b = 0.24$).

In parallel with Schneider and Harley (2006), we additionally computed the same four-way ANOVA as before using only the data from those participants with an overall score on

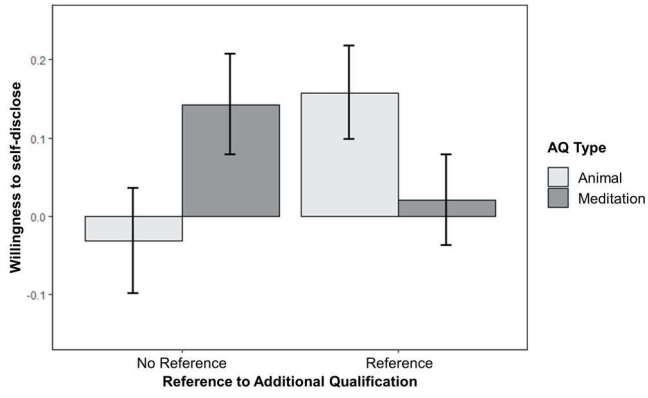

Figure 4. Crossover interaction of Type of Additional Qualification × Reference to Additional Qualification on willingness to self-disclose. AQ Type = Type of Additional Qualification. Animal = AAT. Meditation = MTM. Error bars depict standard errors.

the DTI-VI in the lowest third. This analysis yielded a significant main effect of Psychotherapist's Gender ($F_{(1, 144)} = 5.04$, $p = 0.026$), with a greater willingness to self-disclose to the male ($M = -0.55$, $SD = 0.42$) than the female psychotherapist ($M = -0.74$, $SD = 0.60$).

Discussion

The icebreaker effect – the idea that integrating animals into psychotherapy improves the therapeutic alliance – is believed to be one of the main mechanisms of action in animal-assisted psychotherapy. Support for this notion has come from an article by Schneider and Harley (2006), who found initial evidence that the presence of a dog positively influences how people perceive psychotherapists. In their study, participants who watched a video in which a psychotherapist introduced themself accompanied by a dog rated the psychotherapist significantly more positively, rated the psychotherapist as more trustworthy, and reported a greater willingness to self-disclose to said psychotherapist than participants who watched a video in which the same psychotherapist introduced themself without their dog. However, in the present high-powered conceptual replication attempt, we could not replicate these effects. Although we also used video recordings as the experimental manipulation and we investigated a sample that was comparable to the original sample in terms of age and occupation, none of our analyses yielded any support for Schneider and Harley's (2006) findings.

Importantly, our findings do not imply that the effects found by Schneider and Harley (2006) are not replicable or that they are not real. The major differences between our study and Schneider and Harley's original study are that our experiment was conducted online (instead of in a laboratory setting) and that we focused on experimental control instead of ecological validity. In fact, we believe that it is unlikely that our failure to replicate the original findings is merely due to differences in the setting of the two studies (online vs. laboratory). Rather, we argue that our findings yield important insights into what might drive the effects that were found in the original study. Precisely, given our design and the high experimental control, our findings suggest that the effects that the original study found are not due to the mere presence of the dog (i.e., the dog being visible in the video).

Furthermore, in light of our findings, we deem it unlikely that it is the perception of the psychotherapist's ability to work with a dog as an additional qualification that drove the previous positive effects. We did not find any robust, general positive effects of referencing an additional qualification. Precisely, although we found some evidence that referencing the additional qualification might positively influence participants' willingness to self-disclose, we also found evidence that referencing an additional qualification might negatively influence the anticipated therapeutic relationship and perceived trustworthiness. The latter appears to be the case only for the female psychotherapists. However, the significant effects involving the factor Psychotherapist's Gender (including both main effects and interactions) should be interpreted with caution. In our view, they are likely to be driven by individual differences between the two therapists rather than their gender.

Possibly, the positive effects that Schneider and Harley (2006) found were due to (potentially unconscious) changes in psychotherapists' behaviors and performances when accompanied by a dog (note that such changes could not take place in our study due to our high experimental control). Support for this notion has come from

studies that have shown that the presence of a dog influences human behavior (e.g., Hergovich et al., 2002; Kotrschal & Ortbauer, 2003) as well as mood, stress, and anxiety (e.g., Barker et al., 2003; Lang et al., 2010; Lass-Hennemann et al., 2014). Thus, it is reasonable to assume that the psychotherapists in Schneider and Harley's (2006) study might have felt more positive and less stressed when performing in the video with their companion dog, which might have resulted in changes in the therapists' behavior, possibly driving the positive effects that were found.

Such changes in therapists' behavior due to the presence of a dog might also account for other positive effects reported in the literature; for example, for the finding that, after completing a structured clinical interview and a brief recorded mindfulness intervention, participants reported that their bond with their therapist was more positive when a dog was present during the interview and intervention than when no dog was present (Thomas, 2018). Such changes might also account for the finding that integrating a therapy dog into a group treatment for substance-dependent individuals improved the therapeutic alliance (Wesley et al., 2009). However, null findings in two previous studies call into question the role of behavioral changes in driving positive effects of the presence of a dog (Cieslak, 2001; as reported in Collier et al., 2022; Goldmann et al., 2015). For instance, in the study by Goldmann and colleagues (2015), no differences in overall perceptions of, willingness to self-disclose to, or perceived levels of empathic understanding of an interviewer were found between interviews analogous to the initial psychotherapy intake session during which the interviewer was accompanied by her dog and interviews during which she was not.

Thus, the questions that remain involve which role therapists' behavioral changes due to the presence of a dog play and under which circumstances such changes manifest, as differences in settings (group vs. individual), modes (video vs. in-person), and measures as well as between interviews (where the focus is mostly on the patient), introductory videos (where the focus is purely on the psychotherapist), and interventions are likely to play a role. We invite future research to address these questions.

Some limitations of our study should also be noted. First, our online study evaluated a potentially biased convenience sample, as the majority of our participants self-identified as female, which limits the generalizability of our findings to other genders.

Second, many of our participants did not report clinically relevant psychological symptoms. However, the (anticipated) therapeutic relationship and ratings of the psychotherapist's trustworthiness may be particularly relevant for participants who are experiencing psychological distress and are thinking about entering psychotherapy. Future studies should aim to assess gender-balanced samples and focus on participants for whom the evaluation of psychotherapists might be of substantial relevance.

Third, our conceptual replication attempt partly assessed different questionnaires than Schneider and Harley's original study. Specifically, we used the THEBU/TBZI, a validated German questionnaire that assesses the therapeutic relationship, as the Counselor Rating Form was not available in German. Unfortunately, the THEBU/TBZI does not have an attractiveness subscale, so we were unable to assess the potential influence of the presence of the dog on attractiveness dimensions.

Finally, our results could be limited by the chosen setting and technical influences. Precisely, given the online setting, we had no control over the environment in which the

participants conducted the study, which may have had an influence on the participants' attention. As a result, some participants may have watched the video more consciously than others. In addition, the participants used different devices to participate in the study, which may have resulted in different video sizes and could also have had an influence on their perceptions of the videos. Importantly, however, as expressed above, we deem it unlikely that our failure to replicate the original findings is merely due to differences in the setting.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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