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A Meta-analytic Systematic Review and Theory of the Effects of Perceived Listening on Work Outcomes

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Abstract

The quality of listening in interpersonal contexts was hypothesized to improve a variety of work outcomes. However, research of this general hypothesis is dispersed across multiple disciplines and mostly atheoretical. We propose that perceived listening improves job performance through its effects on affect, cognition, and relationship quality. To test our theory, we conducted a registered systematic review and multiple meta-analyses, using three-level meta-analysis models, based on 664 effect sizes and 400,020 observations. Our results suggest a strong positive correlation between perceived listening and work outcomes, $\bar{r} = .39$, 95%CI = [.36, .43], $\bar{p} = .44$, with the effect on relationship quality, $\bar{r} = .51$, being stronger than the effect on performance, $\bar{r} = .36$. These findings partially support our theory, indicating that perceived listening may enhance job performance by improving relationship quality. However, 75% of the literature relied on self-reports raising concerns about discriminant validity. Despite this limitation, removing data solely based on self-reports still produced substantial estimates of the association between listening and work outcomes (e.g., listening and job performance, $\bar{r} = .21$, 95%CI = [.13, .29], $\bar{p} = .23$). Our meta-analyses suggest further research into (a) the relationship between listening and job knowledge, (b) measures assessing poor listening behaviors, (c) the incremental validity of listening in predicting listeners' and speakers' job performance, and (d) listening as a means to improve relationships at work.

Keywords Listening · Relationships · Affect · Cognition · Job performance

Additional supplementary materials may be found here by searching on article title <https://osf.io/collections/jbp/discover>

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Predicting job performance is central to business and psychology research and practice (Kozlowski et al., 2017). Thanks to advancements in job-performance research, it is now possible to predict as much as 50% of the variance in performance (Cascio & Aguinis, 2008). This success reflects voluminous research which has identified no fewer than 19 families of predictors (Schmidt & Hunter, 1998). Yet, none of these predictors include the quality of employees' or managers' listening.

The absence of listening in job performance research is curious because listening satisfies the three main criteria to consider a skill relevant to performance outcomes: frequency, difficulty, and contribution to effective functioning (Wolvin & Coakley, 1991). Concerning frequency, surveys have shown that employees and managers spend between 42 and 63% of their workday listening (Wolvin & Coakley, 1991). Concerning difficulty, managers consider poor listening as one of the biggest challenges they face in training employees (Wolvin & Coakley, 1991). Finally, concerning contribution, many scholars have suggested that listening

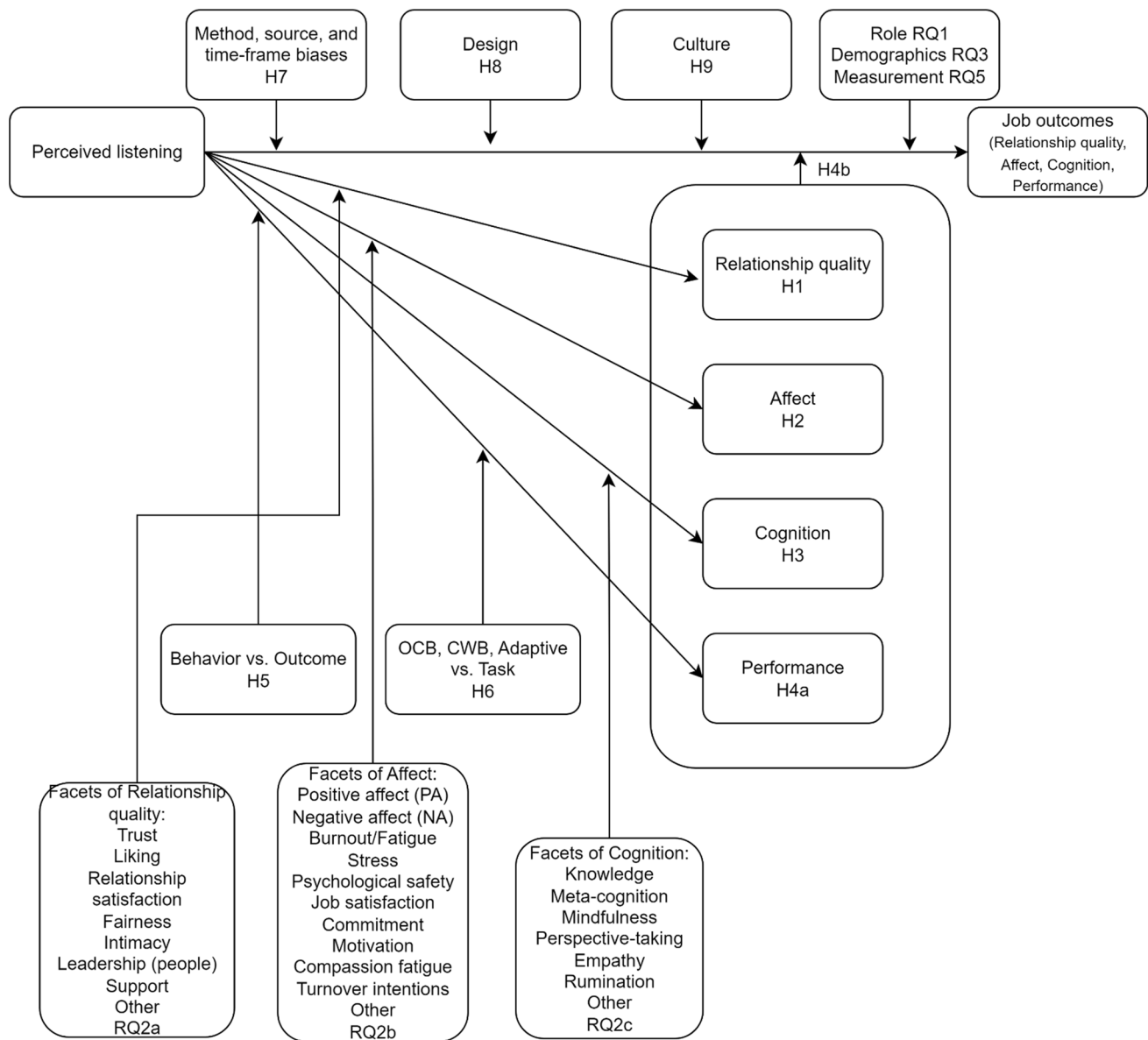


Fig. 1 Summary of Hypotheses (H) and Research Questions (RQ), Note: *OCB* = organizational citizenship behaviour; *CWB* = counterproductive work behaviors

is the most critical communication skill affecting organizational behavior, including performance (e.g., Brink & Costigan, 2015; Pery et al., 2020; Wolvin & Coakley, 1991; Zenger & Folkman, 2016). It seems that business and psychology research—theoretical and empirical—has somehow failed to ask two fundamental questions: Is listening an antecedent of job performance for speakers and listeners? If so, how theoretically and practically substantial is this effect? The present study seeks to address these questions.

We aim to advance applied psychology and business by identifying a new, potentially impactful predictor of work outcomes that applies across various settings and contexts. Specifically, we explore the role of providing and receiving

listening on job performance and its putative antecedents: relationship quality, affect, and cognitions. Additionally, we test a host of moderators of these effects, both general and specific. Our theory-based hypotheses and methodological research questions are presented in Fig. 1 and Table 1.

Theoretical Background

Listening: Conceptual Definition

Listening research typically focuses on listeners' actions (Worthington & Bodie, 2018). To indicate listening and to

Table 1 Summary of Hypotheses (H) and Research Questions (RQ) and the Meta-Analyses Designed to Address Them (Moderators and Control Variables)

H/RQ	Dependent variable (DV)	Moderator	Meta-regression control variable
H1	Relationship quality		
H2	Affect		
H3	Cognition		
H4a	Job performance		
H4b	All outcomes	Job performance vs. other DVs	
H5	Job performance	Behavior vs. outcome	
H6	Job performance	Task performance vs. OCB, CWB, and adaptive behavior	
H7a	All outcomes	Mono-source	DV type ^a
H7b	All outcomes	Mono-method	DV type ^a
H7c	All outcomes	Time frame congruency	DV type ^a
H8a	All outcomes	Design: Experiment vs. correlation	DV type ^a
H8b	All outcomes	Design: Predictive vs. concurrent	DV type ^a
H9a	All outcomes	Culture: Secular-rational values ^b	DV type ^a
H9b	All outcomes	Culture: Self-expression values ^b	DV type ^a
RQ1	All outcomes	Role: Speaker vs. listener	DV type ^a
RQ2a	Relationships	Type of relationship measure (e.g., trust)	
RQ2b	Affect	Type of affect measure (e.g., PA)	
RQ2c	Cognition	Type of cognition measure (e.g., knowledge)	
RQ3	All outcomes	Demographics (e.g., occupation, average age ^b)	DV type ^a
RQ5	All outcomes	Measurement (e.g., published vs. adapted vs. developed)	DV type ^a

^aA categorical moderator (relationship quality, affect, cognition, job performance)

^bThis moderator is continuous

create a give-and-take with the speaker, listeners emit multiple non-verbal and verbal cues. Non-verbal cues, known as backchannel communication (Yngve, 1970, as cited in Duncan, 1972; Pasupathi & Billitteri, 2015), include generic signals to indicate attention, such as nodding, directing the gaze, interjecting with fillers (e.g., “uh-huh”; Bavelas et al., 2002), or orienting the body toward the other (cf. Bodie et al., 2014); and specific signals, such as wincing, exclaiming, or laughing as appropriate (Bavelas et al., 2000). Verbal listening signals include paraphrasing (Nemec et al., 2017; Weger et al., 2010), reflecting the other’s feelings (Linehan, 1997; Nemec et al., 2017), asking open-ended questions (Nemec et al., 2017; Van Quaquebeke & Felps, 2018), and asking the speaker to repeat content (Lycan, 1977). Some non-verbal and verbal signals can indicate poor listening: tone used, expressions, or gestures that convey inattention, impatience, or judgment of the speaker; changing the topic; asking irrelevant questions; offering advice where none was requested; dual-tasking (e.g., looking at one’s smartphone); or physically disengaging from the conversation.

The non-verbal and verbal cues emitted by the listener are perceived and integrated by speakers holistically (Kluger & Itzchakov, 2022; Lipetz et al., 2020). The speakers use this holistic perception to assess the degree to which the listener

pays attention, understands, and acts benevolently (Castro et al., 2016; Itzchakov et al., 2017). Such holistic *perceptions* of the listener’s behavior may better predict work outcomes than objective or listener-reported measures (see Bodie et al., 2014). For example, a customer’s purchase decisions may be better predicted by the customer’s perceptions of the salesperson’s listening than by the latter’s objective or self-reported listening. Indeed, the primacy of perceptions in predicting behavior has been observed in research on similarity, social support, and understanding: perceived similarity predicts attraction better than actual similarity (Tidwell et al., 2013); perceived social support predicts mental health better than objective social support (Lakey & Orehek, 2011); and the feeling of being understood predicts relational satisfaction better than the partner’s actual understanding (Reis et al., 2017).

Therefore, we focus primarily on *perceived* listening, defined as *the speaker’s evaluation of the listener’s interest in and reaction to their (i.e., the speaker’s) utterances*, ranging from negative to positive¹. In the present study, we

¹ The evaluation, however may be bi-polar, such that the evaluation of lack of poor listening does not entail an evaluation of positive listening (e.g., Kluger & Zaidel, 2013).

restrict perceived listening to perceptions of *workplace* conversations. These conversations could be both with people inside the organization (e.g., co-workers, subordinates) or outside of it (e.g., customers, suppliers, clients) and on any topic (i.e., work-related and other).

To complete our conceptualization of perceived listening, we distinguish it from other related constructs (Podsakoff et al., 2016). The evaluation of listening is closely related to perceptions of empathy (Kellett et al., 2006), perspective-taking (Lui et al., 2020), no rudeness (Porath & Erez, 2007), responsiveness (Reis & Clark, 2013), respect (Frei & Shaver, 2002), and feeling understood (Reis et al., 2017). Theoretically, perceived listening differs from all of these constructs in that it is based on evaluating the other person's behavior during or after a *conversation* (Kriz et al., 2021a, b). All other perceptions may be formed without a conversation. For example, employees can judge from the actions of the CEO (e.g., announcing the opening of a day-care center on the company's premises) that the CEO has looked at things from their perspective, even if the CEO and employees have never spoken directly. Similarly, a worker who hurt his back while lifting a load may perceive that coworkers' glances convey empathy without conversing with them. Thus, perceptions of good listening are comprised in part of perceived empathy, perspective-taking, no rudeness, etc., but those things may be present without listening.

Our definition diverges from early definitions of listening (for a review, see Goyer, 1954; Nichols, 1948) that tacitly equated listening with recalling the content or meaning of verbal messages (cf. Thomas & Levine, 1994). Equating listening with memory is problematic because it is unclear whether memory differs from intelligence or understanding verbal stimuli (cf. Thomas & Levine, 1994; Worthington & Bodie, 2018). Moreover, the voluminous early research on listening has mainly focused on the cognitive understanding of aural stimuli (Duker & Petrie Jr., 1964). Understanding aural stimuli, or listening comprehension, was found to share 90% of its latent variance with reading comprehension, where both were determined by genetic influences (Christopher et al., 2016). In addition, the correlations between the recall of facts from a conversation and various behavioral indicators of listening (e.g., gaze) are modest at best (Thomas & Levine, 1994). Most relevant, in a sample of 1,148 lawyers, listening, conceived as a form of social influence, correlated only 0.02 with GPA and -0.05 with LSAT scores (Shultz & Zedeck, 2011). Thus, listening, as defined here, which refers to the perception of listening reported by the speaker, appears to be independent of general mental ability and can, therefore, predict work outcomes that cannot be explained by general mental ability.

Next, we propose that perceived listening affects job performance through relationship quality, affect, and cognition. Note that these outcomes are interrelated. As will

be seen, some effects on affect and cognition derive from the relationship engendered or strengthened by perceived listening. Also, we use causal language in postulating the theory, but we will use primarily observational data to assess the consistency between the theory and the data. In following this procedure, we respond to calls for nonexperimental researchers to openly discuss causal assumptions while recognizing the limitations of the inferences the data might afford (Grosz et al., 2020).

Effects on the Speaker–Listener Relationship

Listening builds relationships (Rogers & Roethlisberger, 1991/1952) by satisfying, for the speaker, at least three sets of interrelated needs: epistemic needs (Rossignac-Milon et al., 2020), self-determination needs such as relatedness and autonomy (Itzchakov & Weinstein, 2021; Itzchakov et al., 2022a, b, c; Van Quaquebeke & Felps, 2018; Weinstein et al., 2021), and belongingness needs (Dutton & Heaphy, 2003; Stephens et al., 2012). First, because the perception of reality is inherently changeable, and knowledge of reality is uncertain, people need others to help them make sense of their world (Rossignac-Milon et al., 2020). Therefore, a speaker who perceives that the listener has grasped their frame of reference (Rogers, 1951) satisfies the speaker's epistemic needs by contributing to the speaker's self-insight (Itzchakov et al., 2020), clarity (Itzchakov et al., 2018), self-knowledge (Harber et al., 2014; Pasupathi, 2001; Rossignac-Milon et al., 2020), and humility (Lehmann et al., 2021). These gains in clarity and knowledge are rewards that reinforce an attachment to the speaker, creating an “epistemic glue” between the listener and speaker (Rossignac-Milon et al., 2020).

Second, a good listener helps satisfy the three needs specified in self-determination theory: autonomy, competence, and relatedness (Van Quaquebeke & Felps, 2018; Weinstein et al., 2022).² Perceived listening (or respectful inquiry, in the language of Van Quaquebeke and Felps) satisfies these basic needs because it carries three meta-messages: “(1)[Y]ou [the speaker] have control, (2) you are competent, and (3) you belong” (2018, p. 11). Others have tested experimentally and supported the effects of listening on autonomy and relatedness (Itzchakov, Weinstein, & Cheshin, 2022a, b, c; Itzchakov et al., 2022a, b, c; Weinstein et al., 2021). Again, the satisfaction of these basic needs is a reward. The reward reinforces an attachment to the listener, thus creating or strengthening a relationship.

² Van Quaquebeke and Felps (2018) predicted that question-asking followed by listening would satisfy these needs, but in our model question-asking is a component of listening behavior leading to the perception of listening.

Finally, concerning belongingness, the positive effects of listening on workplace relationships can be partly explained by high-quality connection (HQC) theory (Dutton & Heaphy, 2003). An HQC is a short-term dyadic interaction involving mutual positive regard, trust, and engagement, strengthening a sense of openness to others, competence, and psychological safety (Stephens et al., 2012). An HQC is partly created by *positive regard* (Rogers, 1951). Speakers form a perception of the listener's positive regard when the listener is non-judgmental towards their self-disclosures. These feelings satisfy the speaker's need for belongingness and foster HQCs between the listener and speaker.

Thus far, we have considered how the speaker's perceptions of the conversation partner's listening affect how the speaker experiences the quality of their relationship. Yet because listening is a dyadic phenomenon (Kluger et al., 2021), the listener, too, is likely to benefit from the speaker's perceptions of good listening. A speaker whose needs (for epistemic clarity, self-determination, and belongingness) are satisfied is likely to reciprocate signals of gratitude to the listener that will reinforce the listener's positive regard and humility (Lehmann et al., 2021), and improve the listener's perception of the relationship with the speaker. Therefore we predict that,

H₁: Perceived listening is positively associated, for both parties, with the quality of the relationship between the listener and the speaker.

Effects on Affective Outcomes: Affect, Job Attitudes, and Motivation

Because listening addresses basic psychological needs, satisfying these needs will likely heighten positive emotions and reduce negative emotions for both the speaker and the listener. Moreover, because the sense of positive regard and acceptance that accompanies listening strengthens the dyadic relationship, both parties are likely to feel a greater sense of vitality, understood as “a feeling of positive arousal and a heightened sense of positive energy” that “stems from positive and meaningful relational connections with others” (Shefer et al., 2018). This process then triggers a chain of other positive outcomes. First, heightened vitality levels boost job-related attitudes, such as job satisfaction and commitment. In turn, these positive job-related attitudes will likely increase both individuals' job-related motivation (Judge et al., 2017). For example, teachers who participated in a year-long listening training reported increased relational energy from their interactions with their colleagues (Itzhakov, Weinstein, Vinokur, et al., 2022a, b, c).

Although affect, job attitudes, and motivation are distinct constructs, we treat them all as affective outcomes of listening:

H₂: Perceived listening is positively associated with positive affect (including job attitudes and work motivation) for both the speaker and listener.

Effects on Cognition

Listening confers cognitive benefits on both the listener and the speaker, albeit via different mechanisms. The benefits for listeners can be obvious or subtle. Most obviously, listeners gain new information. Physicians have observed, “If you listen, the patient will tell you the diagnosis” (Holmes, 2007, p. 161). Listening allows people to benefit from others' experiences, glean useful information about risks or opportunities encountered by the speaker or relayed by the speaker about a third party (Harber & Cohen, 2016). This process is dynamic, where good listening shapes the nature of the knowledge conveyed. For instance, Kraut et al. (1982) suggested that the more listeners transmit backchannel information (Bavelas et al., 2000; Duncan, 1972), the more speakers adapt their speech to ensure listeners understand the message. Thus, listening increases the amount and quality of information the speaker shares and boosts understanding of the speaker's intent. At a deep level, listening can lead to “unlearning” processes by the listeners, in which they reassess their assumptions and prior knowledge (Arcavi & Isoda, 2007) and even become more humble (Lehmann et al., 2021).

Turning to the speaker, a perception of being listened to positively affects the cognitions of the *speaker* by improving memory, self-knowledge (Pasupathi & Hoyt, 2010; Pasupathi & Rich, 2005), attitudinal complexity (Itzhakov & Kluger, 2017; Itzhakov et al., 2017), attitude clarity, reflective self-awareness (Itzhakov et al., 2018), and self-insight (Itzhakov et al., 2020). Building on Bavelas et al. (2000) and others, Pasupathi (2001) theorized that as listeners and speakers co-construct a conversation, they affect the speaker's memory of the narrated experience and, in turn, shapes how speakers think about themselves (their identity). Put differently, a sense of being listened to induces in the speaker a richer memory of the narrated event, which eventually becomes part of the speaker's self-knowledge. In contrast, poor listening constrains the speaker from freely constructing a story and so causes the speaker's self-knowledge to become fragmented and disconnected from the experiences being related (Pasupathi & Hoyt, 2010; Pasupathi & Rich, 2005).³

³ However, this effect of poor listening on memory may be reversed to the extent that the speaker responds with silence, concealing a meaningful memory rather than trying to relate it (Stone et al., 2012).

Finally, emotional broadcaster theory (Harber & Cohen, 2016; Harber & Wenberg, 2005) suggests that good listening helps listeners access a story's emotional core. When a story violates the listener's initial beliefs, the resulting emotional arousal leads people to seek relief by retelling the story to others. Thus, emotionally powerful stories trigger a cycle of listening and retelling, in which listeners process and consolidate valuable new knowledge by sharing it with a new set of listeners (Harber et al., 2014).

In light of the research described above, we hypothesize:

H₃: Perceived listening correlates positively with (a) the listener's cognition (e.g., knowledge) and (b) the speaker's cognition (e.g., cognitive complexity).

Effects on Job Performance

Our first three hypotheses concern the effects of perceived listening on three variables known to predict job performance: relationship quality, affect, and cognitions. In each case, our discussion can be extended to show how perceived listening relates to job performance in terms of the employee's focal job assignments; organizational citizenship behavior (OCB; i.e., performance above and beyond tasks included in the job description); reduced levels of counterproductive work behaviors (CWB); and adaptability.

H1 posits that listening improves the relationship between the listener and the speaker. A range of theoretical mechanisms links the quality of relationships at work with job performance. Some of these effects stem from the positive feelings produced by good relationships. For instance, the feeling of vitality, which results from good relationships (discussed above under H2), protects employees from stressful events at work and motivates them to direct their energies toward work tasks, including their focal job assignment and OCB (Shefer et al., 2018). The positive emotions derived from HQC elevate cognitive flexibility and creativity (Dutton & Heaphy, 2003), both of which are associated with better job performance. Sguera et al. (2020) theorized that experiencing high-quality relationships at work meets employees' psychological needs, leading them to identify with the organization and manifest more OCB and fewer CWB (for empirical evidence, see Kluger et al., 2021; Rave et al., 2022).

Another way that high-quality relationships at work improve performance is direct—through the relationship itself. For example, Gottfredson and Aguinis (2017) conducted 35 meta-analyses involving 3,327 primary-level studies and 930,349 observations and concluded that the supervisor-employee relationship, as perceived by the subordinate, is a better predictor of employee performance compared to several other constructs, such as consideration

and initiating structure, contingent rewards, and transformational leadership. Rossignac-Milon et al. (2020) showed that relationships lead to shared cognitions and, eventually, a shared identity. Shared cognition, in turn, facilitates shared coordination and, consequently, contributes to focal task performance. Using similar reasoning, Gittell et al. (2010) proposed that shared relational coordination facilitates effective communication, contributing to performing interdependent tasks. Finally, Colquitt et al. (2007) suggested that trust enables the development of a more effective exchange relationship between the parties and allows employees to focus on the job without monitoring the actions of others or wondering where needed resources will come from. The outcome is improved task performance, higher OCB, lower levels of CWB, and willingness to take a risk (Colquitt et al., 2007).

H2 suggests that perceived listening increases positive emotions for the speaker and listener. In a review of several meta-analyses, Diener et al. (2020) found that positive emotions are associated with higher job performance, including creativity and OCB. We can assume this is true for positive emotions above and beyond those induced by improved relationships at work. Moreover, job satisfaction and commitment—two job-related attitudes that result from positive emotional states at work—predict extremely well ($\rho=0.59$) a latent variable of job performance that affects focal performance, contextual performance (OCB), and absence of lateness, absenteeism, and turnover (Harrison et al., 2006). Positive job attitudes also promote motivation—one of the best predictors of job performance, even after controlling for cognitive ability (Van Iddekinge et al., 2018).

Finally, H3 posits that perceived listening correlates with cognitions—specifically, greater understanding, knowledge, and self-insight. As aforementioned, good listening increases the amount and quality of information divulged by the speaker. Knowledge gained from listening is likely to include job knowledge, which in turn, predicts job performance across roles and occupations (Hunter, 1986). Perceived listening also positively affects the speaker's memory and cognitive complexity, likely improving the speaker's job performance.

Thus, listening creates a bundle of processes, all expected to affect job performance. Hence, we hypothesize:

H_{4a}: Perceived listening correlates positively with job performance for both the listener and the speaker.

H_{4a} posits a main effect of listening on job performance rather than a mediated effect. Theoretically, we propose that the effects of listening on job performance are mediated by relationship quality, affect, and cognition. Empirically, however, we intend to restrict our meta-analyses to exclude data on the association between the three mediators and job performance. We decided this because we view testing H1 through H4 as a step to be accomplished first before planning research to test the entire model.

Nevertheless, a corollary of our previous hypotheses is that the association between listening and job performance will be weaker than the associations between listening and each of its putative antecedents (relationship quality, affect, and cognition). This hypothesis is a logical extension of our full theoretical (i.e., mediated) model. Therefore, if we consider all four work outcomes of perceived listening simultaneously,

H_{4b} : Perceived listening is associated more strongly with work outcomes, such as relationship quality, affect, and cognition, than with job performance.

Operationally, H_{4b} suggests that the type of outcome moderates the association between perceived listening and work outcomes. The association is stronger for work outcomes classified as relationship quality, affect, and cognition than for job performance.

Job Performance: Behaviors versus Outcomes and Taxonomies

Thus far, we have treated job performance as a unitary concept. The benefit of this approach is that a general factor of performance (Viswesvaran & Ones, 2000) may yield higher validities than any single job-performance component (Harrison et al., 2006). Nevertheless, the effect of listening on job performance may vary depending on whether the job-performance measure reflects behaviors on the job or their results. According to one definition, job performance includes only the “things that people actually do, actions they take, that contribute to the organization’s goals” (Campbell & Wiernik, 2015, p. 48). Others define job performance to include both behaviors and outcomes, viewing them as related (Aguinis, 2019; Dalal et al., 2020) and influencing each other (Aguinis, 2019). However, job-performance *behaviors* are more under the employee’s control than job-performance *outcomes*. Therefore,

H_5 : Perceived listening is associated with job performance more strongly when job performance is operationalized as a behavior than as an outcome.

Moreover, job-performance behaviors and outcomes are multifaceted (Dalal et al., 2020). They include, at the very least, (a) focal task or technical performance; (b) OCB or contextual performance; (c) CWB, and (d) proactive or adaptive behavior. In addition, following Harrison et al. (2006), we conceptualize withdrawal behaviors, including tardiness, absenteeism, and turnover, as additional facets of a general performance factor. The magnitude of perceived

listening’s effects on these facets is likely to differ because focal task performance is likely affected mostly by one putative mediator (e.g., knowledge). In contrast, all the other facets are likely to be affected both by relationship quality and affect. Thus,

H_6 : Perceived listening is associated more strongly with OCB, CWB, adaptive behavior, and withdrawal behaviors than with focal-task performance.

In short, the way job performance is operationalized—whether as a behavior or as an outcome, and whether as a unitary or multifaceted concept—moderates the effects of listening on job performance. Moreover, the effects of listening on job performance and its antecedents are likely to be moderated by methodological factors and culture, as discussed next.

Methodological and Culture Moderators

Several methodological considerations might affect the strength of the relationships we investigate. Two of these relate to the *source* of the data collected and the *method* of collecting data. For example, according to a meta-analysis of 16 studies testing the association between listening and job performance in the sales domain, the average dis-attenuated correlation between listening and sales volume is $\rho = 0.47$ (Itani et al., 2019). This meta-analysis indicated significant and unaccounted for heterogeneity. Yet some of the effect sizes in Itani et al. (2019) were based on salespersons’ *self-reported* listening and performance (e.g., Castleberry et al., 1999). These effects could be inflated by both mono-source and mono-method biases (Podsakoff et al., 2003). We expect that correlations based on a single source will be stronger than correlations based on different informants. We also expect a similar effect for different informants using the same method (e.g., a questionnaire eliciting listener-reported performance, and another questionnaire eliciting speaker-reported listening) relative to studies employing different informants and methods (e.g., customer-reported listening combined with company sales records).

Another relevant methodological factor is the fit between the time frame for measures of listening and job performance. In attitude research, validities are higher when the predictor and the criterion have a similar construct breadth (Ajzen, 1991). Accordingly, a measure of listening that refers to a single episode will predict job performance better when the measure of performance refers to the same episode (e.g., a customer-rated salesperson’s listening and sales to that customer) than when the measure of performance is general (e.g., that salesperson’s quarterly performance).

Similarly, listening measures referring to chronic behavior may predict performance over time better than performance during a single episode. The effects of mono-source bias, mono-method bias, and time frame on effect sizes are likely to be found not only for the job performance measures but also for any of its antecedents (e.g., relationship quality). Thus,

H₇: The association of listening with work outcomes is moderated by (a) the use of a single source vs. multiple sources, (b) the use of a single method vs. multiple methods, and (c) the congruence of listening–outcome time frames. The correlation will be weaker when multiple sources and methods are used compared to mono-source or mono-method designs and when listening and work outcomes are reported for mismatched time frames compared to the same time frames.

Relatedly, the type of study design used may influence the observed effects of listening on work outcomes. Although experimental research in general usually yields larger effects than observational studies due to experimenter control and reduced noise (Bosco et al., 2015), in the particular domain of listening, experimental studies may actually yield smaller effects because they are inherently free from common source biases. Also, studies using predictive validity designs (in which measures of listening in the present are compared against future performance outcomes) are likely to yield weaker results than studies using concurrent validity designs (in which measures of listening are compared against current performance outcomes). Thus,

H₈: The correlation between perceived listening and work outcomes is moderated by the study design. The correlation will be lower (and probably less biased) in (a) experimental than correlational designs and (b) predictive than concurrent designs.

Moreover, we expect that even when the design is optimal—different sources, different methods, same time frame, experimental, and predictive—the correlation of perceived listening and job performance will still be substantial relative to other predictors of performance (e.g., conscientiousness).

Culture may also moderate the observed link between listening and performance outcomes. For example, the need for positive self-regard, which may be satisfied by a feeling that one is being listened to, tends to be higher in Western cultures (Heine et al., 1999). To operationalize this conjecture, we expect that the effects of listening will be more substantial in countries characterized by secular–rational values and self-expression values, both of which are prominent in Western cultures according to the Inglehart–Welzel Cultural Map (for reviews see Fog, 2021).⁴ Thus, for example, employees

in Morocco, characterized by low secular–rational and self-expression values, may not expect their leaders to listen to them (Es-Sabahi, 2015), whereas in Western societies, poor listening—even by leaders—is construed as a violation of expected behavior, with effects spilling over into affective reactions and job performance. Hence,

H₉: The correlation of perceived listening with all work outcomes will be stronger in cultures high (vs. low) in (a) secular-rational values and (b) self-expression values.

Our nine hypotheses are derived from existing knowledge based on previous findings. We next propose five research questions addressing methodological issues that do not lend themselves to formulating hypotheses. The first three relate to the generalizability of findings, and the last two relate to how listening is measured.

Generalizability (Research Questions 1–3)

Putting aside the questions of time frame and predictive versus concurrent design, the existing studies that should be best able to test how perceived listening correlates with job performance are those in which one person reports perceived listening, and objective measures of performance are obtained from the organization (i.e., where the correlation is free from common-source and common-method bias). Yet, beyond these considerations, it is vital to ensure that we compare apples with apples before asking whether such studies produce consistent results. One of the first questions to ask in examining any study is, whose performance is being measured? For example, Bergeron and Laroche (2009) found that customer-reported perceptions of salesperson's listening are strongly associated with a composite performance variable including salesperson's gross sales, unit sales, and contribution to profit, $r = 0.50$, 95% $CI = [0.42, 0.57]$. In contrast, Ivancevich and Smith (1981) examined salespersons' ratings of supervisor listening, and found weak and non-significant correlations with two performance variables: salesperson's new account creations, $r = 0.14$, 95% $CI = [-0.02, 0.29]$, and conversion ratio, $r = 0.11$, 95% $CI = [-0.05, 0.27]$. Yet the apparent inconsistency between these findings should not worry us because while both studies used objective performance measures, they assessed the performance of different targets (the listener and the speaker, respectively).

⁴ The map can be found at <https://www.worldvaluessurvey.org/wvs.jsp>. Other cultural maps could also be used to test our hypothesis (e.g., Schwartz, 1999). Yet, we chose to use the Inglehart–Welzel Cultural Map because it is published with value scores for more than 120 countries, facilitating the test of *H₉*.

Given this, it is worth asking whether listening has differential effects when outcomes—job performance or its antecedents—are measured for the speaker vs. the listener. Hence, our first research question:

RQ₁: Does the role (listener vs. speaker) for whom each job outcome is reported moderate the association between listening and the job outcome?

Our second research question relates to operationalizing the constructs measured (relationship quality, affect, cognition). We assessed these mediators at a relatively abstract level. In practice, we may find various operationalizations of these constructs. For example, relationship quality may be indexed by trust, liking, and relationship satisfaction. Similarly, affect and job attitudes may be indexed by PANAS, job satisfaction, commitment, and vitality. Thus,

RQ₂: Do different operationalizations of (a) relationship quality, (b) affect, and (c) cognition moderate their association with listening?

Next, we ask whether the effect of listening on work outcomes is generalizable across different sample or study characteristics. These include demographic variables and the publication status:

RQ₃: Do demographic characteristics of the sample (occupation, gender composition, age) and the publication status of the study (unpublished vs. published, year of publication) moderate the effects of listening on work outcomes?

Measurement of Listening (Research Questions 4–5)

Although our theory focuses primarily on listening as perceived by the speaker, there are two good reasons to consider other measures: the listener's self-reported listening and objective listening behaviors assessment. First, the measurement of listening often spans the boundaries between enacted listening, behavioral indicators of listening, and the speaker's perceptions of both. Second, to be as comprehensive as possible, we also assessed whether the type of listening measurement moderates the perceived listening effects hypothesized in H1–H4.

Listening research relies on three types of informants: listeners, observers, and speakers. For example, the Active Empathetic Listening scale (AEL; Drollinger et al., 2006) allows listeners to self-report their listening quality; the Roter Interaction Analysis System (Roter & Larson, 2002) enables coding by third-party observers;

and the Facilitating Listening Survey (Kluger & Bouskila-Yam, 2018) measures speakers' perceptions of the other party's listening. Many of these listening measures aim to improve reliability by assessing both more observable and unobservable behaviors. For example, the AEL aims to capture both unobservable listener behaviors (e.g., "I am sensitive to what my customers are not saying") and observable listener behaviors (e.g., "I summarize points of agreement and disagreement when appropriate"). Similarly, Castro et al. (2016), using speakers as informants, asked both about less quantifiable behaviors of the listener ("Focuses only on me") and more quantifiable behaviors ("Asks for more details"). Thus, it is unclear whether the effects of listening on work outcomes are moderated by the operationalization of listening, including the informant (listener, observer, or speaker) and the types of measure(s) used.

Moreover, some listening measures seem to conflate listening with listening outcomes. For example, the survey used by Lloyd et al. (2017) includes the following: "Generally, when my supervisor listens to me, I feel my supervisor...makes me comfortable so I can speak openly/ makes it easy for me to open up." It is unclear whether responses to such items reflect perceived listening or evaluations of the listener's impact on the speaker.

The multitude of listening operationalizations also raises concerns that different studies are not sampling the same construct. On the other hand, various factor analytic studies of listening questionnaires suggest that their items converge to a single factor (Jones et al., 2016; Lipetz et al., 2020; Schroeder, 2016) or one second-order factor (Bodie et al., 2014; Kluger & Bouskila-Yam, 2018).⁵ Many listening questionnaires also achieve high reliabilities, opening the possibility that "listening may even be measured sufficiently with a single item ('He/She listened to me very well'), in a similar manner [to that] in which job satisfaction can be captured reliably with a single item (Wanous, Reichers, & Hudy, 1997)" (Lipetz et al., 2020, p. 89).

Given the multitude of listening measures, we first ask:

RQ₄: What are all the approaches to operationalize listening in predicting work outcomes (e.g., the scale used, the number of items, and whether the scale is published, adapted, or developed ad hoc)? How do they map to the listener's self-reported behavior, the listener's observable behavior, the speaker's perception of listening, and the speaker's perception of how listening affects them?

⁵ But see evidence that a perception of poor listening could form a separate factor from a perception of good listening (Kluger & Zaidel, 2013).

RQ4 is a question about descriptive information. Answering it would characterize the literature (it does not involve a meta-analysis) and may illuminate potential biases in the literature. However, to the degree that we find heterogeneity for these variables, it could be informative to test whether these characteristics moderate the effects of listening on work outcomes. For example, suppose two studies find different effects using two different scales. One is published (and has been shown to be reliable), and the other has been developed for the study. In that case, we will test whether the scale's publication status moderates the listening–outcome association. Similar questions are relevant for the outcome measures. Therefore,

RQ₅: Is the relationship between listening and work outcomes moderated by differences in measurement approaches (e.g., the scale used, number of items, and whether the scale is published, adapted, or developed ad hoc)?

In tandem, the investigation of RQ4 and RQ5 may help shed light on the thorny issue of the construct validity of listening (Kluger & Itzchakov, 2022). If different listening scales moderate the effects, it will hint that the listening construct lacks *convergent* validity. However, as indicated in H7, the literature may use different informants to report listening, some asking the performers to self-report their listening, some relying on observers, and some on speakers. The source of the listening measure could also moderate the listening-induced effects. Therefore, we tested RQ5 separately for each source. For example, we tested the moderating effects of listening measures reported by speakers. If listening scales, within sources, moderate listening effects, convergent validity for the construct of listening would be questionable. In contrast, if different scales, within each source, indicate a likely convergence (no moderation effects), it will raise questions about the *discriminant* validity of listening (Kluger & Itzchakov, 2022). For example, it may suggest that all the findings in the literature are not uniquely about listening. They may reflect the effects of constructs such as perceived empathy, perspective-taking, or no rudeness.

In sum, we theorize that listening affects job performance because it improves relationship quality, affect, and cognition—known predictors of job performance. Our goal is to assess the direction, strength, and variance of the association between listening at work and our four work outcomes (the three mediators just mentioned and job performance itself), with attention to a host of potential moderators of these effects. The hypotheses and research questions are summarized in Fig. 1 and Table 1.

Method

We followed the PRISMA guidelines for systematic reviews (Liberati et al., 2009; Page et al., 2020) and guidelines developed in psychology and management both for meta-analysis and for transparency more generally (Aguinis et al., 2020, 2011, 2018, 2010a, 2010b; Aytug et al., 2011; Bosco et al., 2016; Gonzalez-Mulé & Aguinis, 2018; Kepes et al., 2013; Polanin et al., 2020; Steel et al., 2021). All authors agreed on the search terms, eligibility, and moderator coding criteria. To test the feasibility of the proposed meta-analyses, we pretested all procedures, from developing a search string to writing a code in *R* for testing all our hypotheses and research questions. The workflow from developing search strings to reaching conclusions is depicted in Fig. 2.

Open Science

We shared all procedures, materials, datasets, and code on Open Science Framework, https://osf.io/czg4u/?view_only=a2c0d53711ed4c4abef15a92633f4cf5; <https://doi.org/10.17605/OSF.IO/CZG4U> including a Word version of our Qualtrics coding survey and R codes (including a README.docx explaining the code). Our Qualtrics survey used for the first batch of studies is also accessible.⁶

Disclosures

Before we became aware of the opportunity to submit this work for consideration for publication as a registered study, we pre-registered it at <https://aspredicted.org/mb2s4.pdf>. As noted in this pre-registration, the first author conducted meta-analyses of listening effects (not only work-related) based on a search limited to the Web of Science, inspecting records up to February 2017. That search does not qualify as a systematic review because it was done by one person. Nevertheless, the first author expected that H1 through H4 would be supported based on observed effect sizes. This earlier work is not published and will not be submitted for publication.

Eligibility Criteria

Empirical reports on listening and job performance are rare in management and organizational psychology. For example, the search term “listen* AND perform* NOT music” in the *Journal of Applied Psychology* from 1917 through August 2020, using APA PsychNet, yields eight hits only.

⁶ https://huji.az1.qualtrics.com/jfe/form/SV_b7KE2WUr1TQqTfU

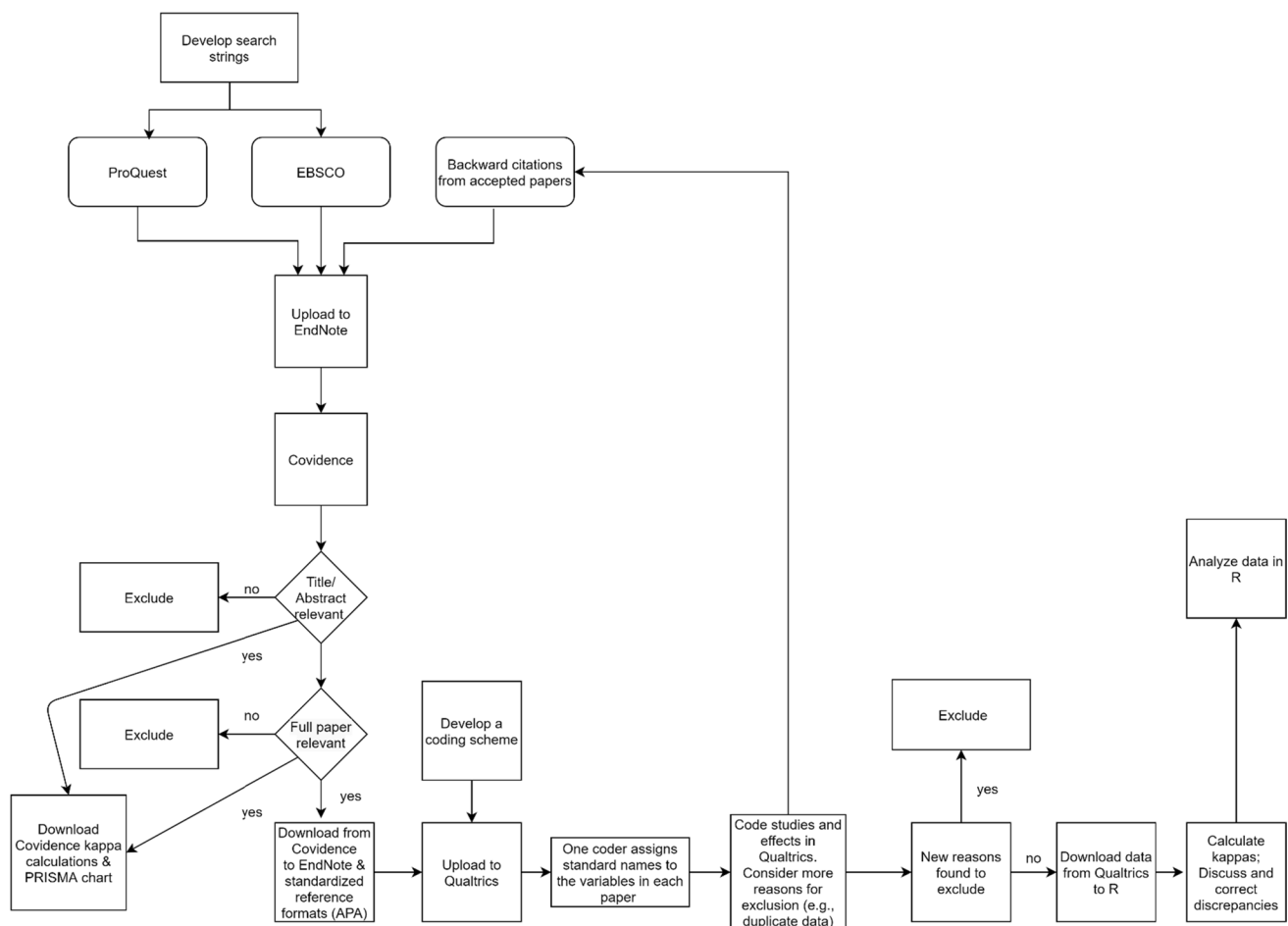


Fig. 2 Process Flowchart for a Systematic Review of Correlations between Listening and Work Outcomes

Only one reports an association between listening and job performance (Pace, 1962). Therefore, our search strategy was the broadest possible. We searched any report, published or not, in any language or field of study, without regard to occupation, design, time frame (single interaction or established relationships), or year of publication. Then, to ensure that our examination was limited to studies carried out on employees, we manually excluded effects involving listening in families, romantic relationships, non-work friendships, children, and therapy settings (except effects involving therapists' job performance, in which they are treated as employees).

Information Sources

We used two main strategies to locate candidate sources. First, we conducted comprehensive searches using two platforms covering multiple databases: ProQuest and EBSCO.

To ensure an effective search of these sources, we consulted a university librarian and experts from both ProQuest and EBSCO, as described next.

Concerning ProQuest, two authors reviewed its 59 databases and independently rated their relevance for the search. Both authors included 28 databases, excluded 27, and disputed three. To avoid omission errors, these three were included in the final list, totaling 31 databases. The selected databases include, for example, ERIC and the ABI/INFORM Collection (1971–present) and exclude, for example, Early English Books Online. The complete list of included databases is in Appendix A. We further restricted ProQuest to search only scholarly journals, dissertations and theses, conference papers and proceedings, and working papers, excluding sources such as newspapers. The last date searched in ProQuest was on April 19, 2022. Based on advice from a ProQuest representative, we used the ABTI (abstract and title) operator.

Table 2 Search Terms Used in ProQuest Database

Capsule	Search terms
Listening	listen*
DV (relationship)	AND (relation* OR trust* OR satisf* OR intima* OR liking
DV (affect)	OR affect* OR mood OR emotion OR burnout OR satisf* OR commit* OR motivat* OR “psychological safety” OR anxie* OR stress OR “secondary trauma” OR “vicarious trauma” OR traumatic
DV (cognition)	OR cogniti* OR knowledge OR complex* OR “objective-attitude ambivalence” OR learn*
DV (performance)	OR perform* OR counterproductive OR sale OR creativ OR accident OR “organizational citizenship behavior” OR contextual OR theft OR steal* OR “extra-role behavior” OR “prosocial behavior” OR turnover OR tardiness OR lateness OR absent*)
Context (work)	AND (job* OR work* OR employe* OR manage* OR boss OR company* OR supervisor OR subordinate OR customer OR patient OR client OR trainee OR mentor OR firm OR organization* OR business OR career OR collaboration)
Method (quantitative)	AND (quantitative OR association OR improvement OR correlat* OR effect OR perform* OR affect OR reduc* OR behav* OR chang* OR influenc* OR risk OR increas* OR difference)
Exclusion	NOT (accent* OR acoustic* OR alarm call OR audio* OR audit* OR autis* OR bilingual OR biography OR cochlea OR “computer energy” OR “cross language” OR dichotic OR “dual language” OR “English as” OR eavesdrop* OR grammar OR hear* OR “language acquisition” OR “language learning” OR learnability OR lingu* OR “listening comprehension” OR literacy OR loud* OR music OR noise* OR “performing art” OR radio OR quran OR koran OR qur’an OR kor’an OR religio* OR schizophrenia OR “second language” OR sound OR spatial OR “speech percept*” OR syntax OR translation OR television OR TV OR vocabulary OR whisper OR wife OR wi-fi OR WiFi OR wireless OR Psychoanalytic OR “working memory” OR FMRI OR neural OR autis* OR brain OR vocal* OR neural OR green OR brain activ* OR song OR poet* OR animal OR stimulus OR anthropological OR phoneme OR pedagogy OR psychoanalytic)

To replicate our search, copy the search terms and paste them into a search engine

Second, following consultation with an EBSCO representative, we restricted our EBSCO search to academic journals and dissertations/theses, excluding publication types such as newspapers and videos. Three authors reviewed the 68 disciplines covered by EBSCO and independently rated their relevance for the search. All three authors excluded 19 disciplines (e.g., anatomy and physiology) and included 13 (e.g., education), with disputed 37 disciplines. This level of agreement is low, $\kappa = 0.37$. Therefore, to avoid omission errors, the three authors discussed each area of disagreement and ultimately included 40 disciplines. The last date searched in EBSCO was on April 19, 2022.

In our second strategy, we reviewed the introduction of every paper retrieved from ProQuest and EBSCO that passed the inclusion criteria to search for backward citations. We also checked the reference lists of systematic reviews on our topics (Itani et al., 2019). Because our search spanned multiple disciplines, we did not advertise our search on academic websites. Yet, when we communicated with authors studying listening, we asked about unpublished studies related to our search.

Search Strategy

To optimize the search terms, we considered two conflicting objectives: including relevant terms reflecting our dependent variables (e.g., job performance) and excluding irrelevant

occurrences of the word “listening” that do not reflect our definition. We followed recommendations for search optimization for meta-analyses (Salvador-Olivan et al., 2019). The recommendations we adapted include using Boolean searches with truncated search terms (e.g., listen* instead of listening) and including synonyms of constructs (e.g., contextual performance and organizational citizenship behavior). The first five authors discussed and agreed on the list of inclusion terms.

We used a capsule approach to exclude irrelevant contexts and methods to reduce searches likely to be futile and an iterative process to exclude specific terms. As can be seen in Table 2, we constructed a context capsule (e.g., “job*” OR “work*”) and a method capsule (e.g., “quantitative”). These capsules exclude papers reporting listening effects in non-work contexts and papers that are not quantitative. Although some relevant hits could be lost due to these capsules, they dramatically reduce the obtained hits to a manageable set of candidate papers. For example, without these two capsules, a search-string pretest in EBSCO produced approximately 25,000 hits, and with these capsules, about 11,000 hits.

For the iterative process, the first author identified ten terms likely to yield irrelevant records, such as music, audio, hear*, and WiFi. Next, ten research assistants, namely, advanced undergraduate students in psychology supervised by the first author, were assigned to review the ProQuest results using these exclusion words. Each assistant reviewed different years and searched for additional terms for exclusion. Once they discovered a candidate term (e.g.,

acoustic*), they added the candidate term for exclusion with the AND operator. They reviewed the top 25 ProQuest records and the bottom 25 records ordered according to the ProQuest algorithm of relevance. If none of these 50 records contained a relevant record, the term became a candidate for exclusion. Next, each candidate term for exclusion was tested by another assistant on at least one different set of years than the one used to generate the term. This test was also carried out on the top and bottom 25 records arranged by relevance. If the term survived both analyses, it was used as an exclusion term.

To validate our search strategy, we tested whether our strategy successfully identified several relevant studies the authors were aware of before the search (e.g., Pace, 1962). All were found either in EBSCO or ProQuest, or both.

Selection Process

The records of the searches were uploaded to Covidence.org, a web-based software platform designed to streamline the production of systematic reviews. It randomly assigned references for inspection and checked the agreement between coders.

Four authors led the Covidence reviewing and coding process. To pretest the procedure, we trained ten undergraduate psychology students on the research goals and how to review the Covidence records. Specifically, using about 50 records, the students were shown how to inspect a title and an abstract and decide to choose “include,” “exclude,” or “maybe.” We then programmed Covidence such that a consensus of two reviewers is sufficient to reach a decision, with one of the authors making the final decision in cases of disagreement. In addition, each paper selected for inclusion based on the title and abstract had its full text inspected by two of the four authors involved in reviewing and coding papers. Disagreements were recorded by Covidence and resolved through discussion.

For papers published since 2010 that had missing information needed to determine eligibility, we emailed the corresponding author to obtain relevant information. For papers written in a language that none of the authors understand (e.g., Persian), we translated them with Google Translate and, when needed, enlisted a speaker of that language to help us extract the relevant information.

Figure 3 presents a PRISMA chart of the selection process. We identified 10,431 non-duplicate candidate papers from EBSCO and ProQuest and 46 papers from two prior meta-analyses (Henry et al., 2012; Itani et al., 2019), back-references, and authors who communicated with us. From the 10,431 records, we excluded 9,616 based on the title and abstract. The inter-rater reliability among all pairs of 12 judges who coded whether to include or exclude a paper

based on the title and the abstract was Cohen’s $\kappa = 0.19$, $z = 15.6$, $p < 10^{-54}$. While κ is significant, it appears low. Yet, it reflects that the judges agreed on 81.2% of the papers before the discussion. This pattern reflects the sensitivity of κ to an imbalance among the categories (we excluded most records and rarely accepted some).

Next, four authors reviewed the full text of 769 papers deemed relevant on Covidence.org (but not the 46 papers identified manually). The inter-rater reliability among all pairs of four judges that coded whether to include or exclude a paper based on the full text was Cohen’s $\kappa = 0.56$, $z = 16.1$, $p < 10^{-57}$, reflecting that the authors agreed on 82.2% of the papers. Note that the imbalance among the categories in this decision was lower, as higher proportions of papers survived this exclusion stage. The most common reasons for excluding studies at this stage were that the paper was theoretical, descriptive, or not about listening (see Fig. 3 for all reasons).

Finally, we coded the 175 papers included in the previous step and 46 papers we identified manually (221 papers). During the coding, we discovered additional obstacles for extracting effect sizes. These were discussed among at least two coders. Papers were excluded at this stage mainly because they did not study listening in a conversation (e.g., listening as comprehension), listening was the outcome (and not the predictor), and authors of papers published after 2010 did not answer our request to provide needed information (see Fig. 3 for all reasons). This selection process culminated in 122 papers that were successfully coded, reporting 144 studies (some papers report multiple independent samples).

Data Collection Process

To facilitate data collection, maintain transparency, and reduce coding errors, we constructed a Qualtrics survey⁷ and pretested it for clarity. In the pretesting, three authors coded three papers and considered coding discrepancies. Based on these discrepancies, the Qualtrics instructions were modified. We performed three iterations of this process until we were satisfied that the coding instructions were not ambiguous.

The Qualtrics survey was divided into four sections: information about the sample, the listening measure(s), the dependent variable measures(s), and the effect size(s). After coding each section, coders are presented with a summary of their codings and asked to double-check coded data before moving on to the next section.

Each report was coded by two authors independently. Discrepancies between raters on any coded variable were detected with an R code. To avoid inflation in estimating

⁷ https://huji.az1.qualtrics.com/jfe/form/SV_b7KE2WUrITQqTfU and the OSF site.

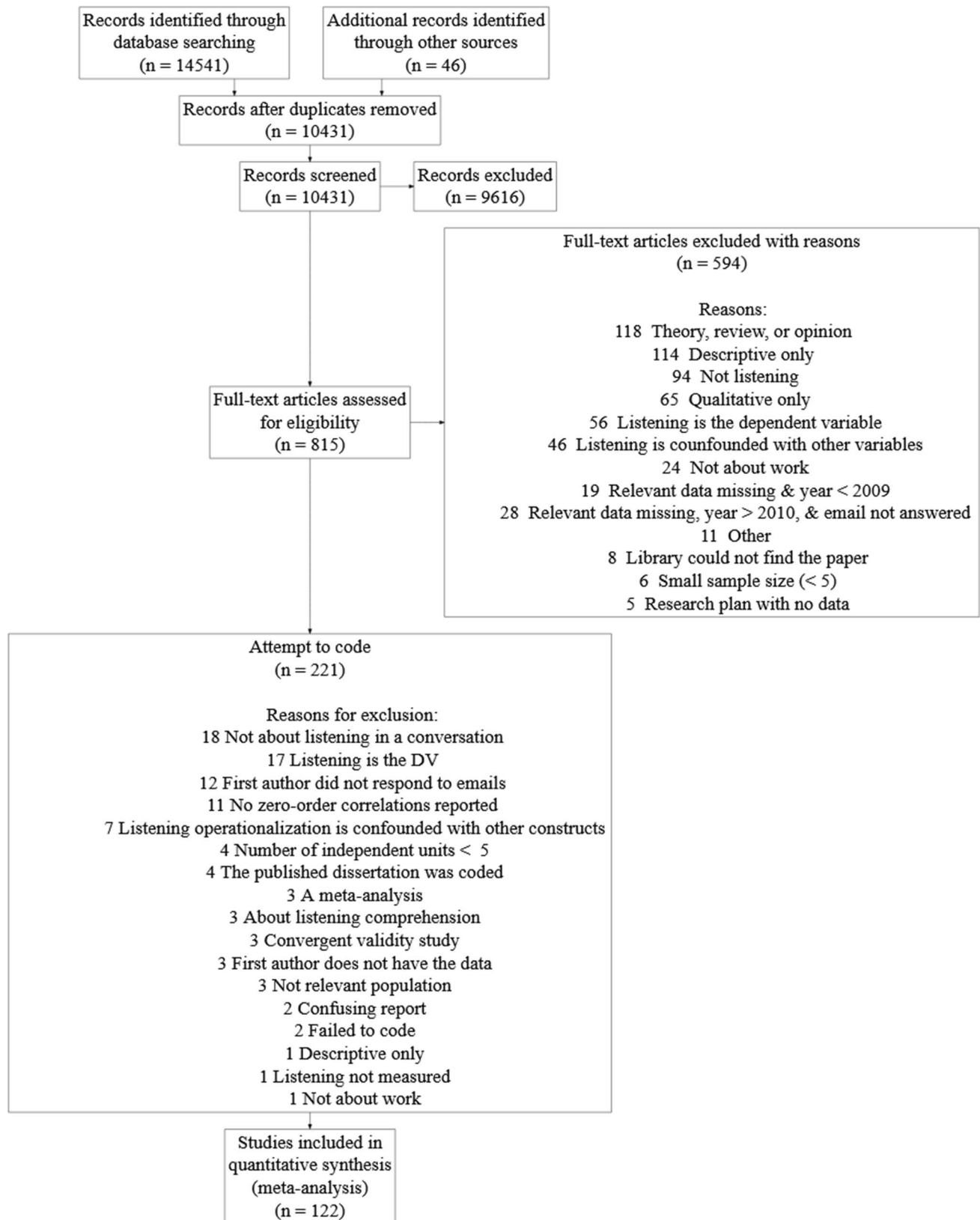


Fig. 3 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Chart

agreement between coders (with kappa), we separately considered discrepancies in facts, textual input, and subjective ratings. Discrepancies in facts (e.g., $N = 132$ or 123) were double-checked, and the correct value was retained. Discrepancies in textual input (e.g., PANAS vs. PA and NA) were manually inspected. One version was retained if the two meanings were identical; otherwise, the wrong entry was corrected. Disagreements on subjective judgments were resolved afterward by discussion; if an agreement was not reached, a third author arbitrated.

Data Items

The variables extracted from each record are presented in Table 3. It also shows the number of ratings for each item. For study variables (e.g., country), the maximum number of ratings is 144 (number of independent samples). Note that many studies did not report age or sex. For all other items, the number of ratings is a function of the number of listening measures and dependent measures; some papers report multiple measures of listening, outcomes, or both. Next, we calculated three inter-coder-reliability indices: % of ratings for which the two coders fully agreed, Cohen's κ , and, only for continuous variables, Pearson's r . For *objective* items, the average percent of complete agreement, weighted by the number of ratings, was 81.3. The weighted average of κ was 0.64. For judgment items, the average percent complete agreement, weighted by the number of ratings, was 74.9. The weighted average κ was 0.52. Finally, for continuous items, the average weighted Pearson's r was 0.68 (weighted Cronbach's $\alpha = 0.82$).

The lead cause of disagreements between coders regarding objective items was confusion about the order of coding variables in papers with multiple measures of listening, outcomes, or both. The confusion was often caused by inconsistency of variable reporting in the coded papers. For example, the order of the variables described in the Method section differed from that reported in the Results section. We had a few discrepancies between coders in estimating the effect size from frequency tables and very few discrepancies caused by typos. This information helps interpret the reliability estimates in Table 3 because they primarily reflect confusion in the variables' order rather than disagreement about the extracted values. Thus, the reliability of the judgment items should be compared not only to the ideal (e.g., 100% agreement) but to the possible reliability, given the poor reporting standard in many coded papers. Thus, we conclude that the reliability of most coding was acceptable.

Nevertheless, although the reliabilities appear acceptable, we found it difficult to resolve disagreements about five variables: whether the outcome measure pertained to the listener or the speaker, the source of both the listening

and the outcome measures (published measure, adapted or developed for the current study), the listener's occupation, and percent missing data. The difficulty in deciding whether the outcome measure pertained to the listener or the speaker appears inherent to the phenomena under study. For example, when the listener is a physician, the speaker is a patient, and the outcome is whether or not the patient returns to the hospital's emergency room within 30 days of hospital discharge. It is not clear whether the outcome is a benefit for the listener or the speaker—it appears to benefit both. We were challenged in coding the listening or outcome measure as used in the same manner as a published paper or adapted for the coded study due to the ambiguity in many coded papers. We disagreed about the listener's occupation when the listener was both a professional and a manager (e.g., a head nurse or sales manager). Whenever we had a conflict about this item, we coded the occupation as management. Finally, we disagreed on the percentage of missing data because our a priori coding instructions were unclear. It was unclear whether missing data were data that the authors intended to collect (e.g., number of mailed surveys) or only data that were collected but became useless for analysis (e.g., respondents did not follow the study's procedure). Therefore, for these variables, except occupation, the results should be viewed cautiously.

Risk of Study Bias Assessment

We presume that the study of listening is not associated with apparent gains to any party. Therefore, we do not suspect that any particular group of studies is more at risk of bias than any other (as seen, for example, in drug effectiveness studies, where pharmaceutical companies might fund some). However, bias could arise if, for example, some papers are published by consultants who want to prove to potential clients that listening “works.” We are not aware of any means to detect such bias.

Effect-size Estimates

Given that most of the literature is correlational, the effect meta-analyzed is the correlation coefficient, r . Other statistics— t -tests, F tests with 1 df , and χ^2 tests—were converted to r with the R package *compute.es* (Del Re, 2013). Other effects (e.g., $k \times j$ contingency tables) were converted with the online calculator on the Campbell Collaboration site (<https://campbellcollaboration.org/research-resources/effect-size-calculator.html>).

All the effects are shown in a file stored on the OSF site and forest plots are included in Fig. 4. Many studies provided more than one effect size for the same research questions. For example, the links between listening and work

Table 3 Variable Coding

Information about	Code	Possible values and explanations	Type	Number of ratings	Inter-coder reliability		
					% identical	κ	r
Study							
Coder name		Full citation					
Paper		e.g., Study 2 within the coded paper					
Study number		Data collected in one country, multiple countries, or not reported	Objective	144	98.6	0.74	
Multinational							
Country		If data was collected in one country, in which country was data collected? Countries will be clustered in R according to: https://en.wikipedia.org/wiki/Inglehart%E2%80%9393Welzel_cultural_map_of_the_world#Clusters	Objective	139	100	1.00	
Design		Correlational, Experimental, Quasi-experimental with pretest–posttest only, Quasi-experimental with non-random groups, or Other [specify]	Objective	144	92.4	0.69	
Time		The measurement of the dependent variable (DV) was	Objective	144	85.4	0.48	
Occupation		O*NET code https://www.onetcodeconnector.org/find/family/code	Objective	144	63.2	0.55	
Role		Role of speakers	Objective	146	77.4	0.71	
Listener age		Mean listener age	Objective	21	100	1.00	1.00
Speaker age		Mean speaker age	Objective	40	85	0.85	1.00
% Female listeners		% female listeners	Objective	29	86.2	0.86	0.95
% Female speakers		% female speakers	Objective	53	81.1	0.81	0.96
Data loss report		Is data loss reported (attrition, coding errors, response refusals, etc.)? [Yes, No]	Objective	144	90.3	0.79	
% Missing data		Percent of data lost due to missing data (% participants completely dropped; partial missing data is coded as part of the effect size coding)	Objective	79	46.8	0.46	0.81
Variable missing		Are all relationships between IVs and DVs fully reported (e.g., a correlation matrix of all variables)? [Yes, No]	Objective	144	87.5	0.31	
Study notes		Add any note about unique features of this study extraction					
Listening operationalizations		What are the listening operationalizations in this study? (All possible predictors)	Defined by the first author				
Dependent variable operationalizations		What are the dependent variable operationalizations in this study? (All possible dependent variables)	Defined by the first author				
Listening							
Measure		For each listening measure, copy the measure name from the Method section					
Items		Number of items of the measure	Objective	178	91	0.89	0.46

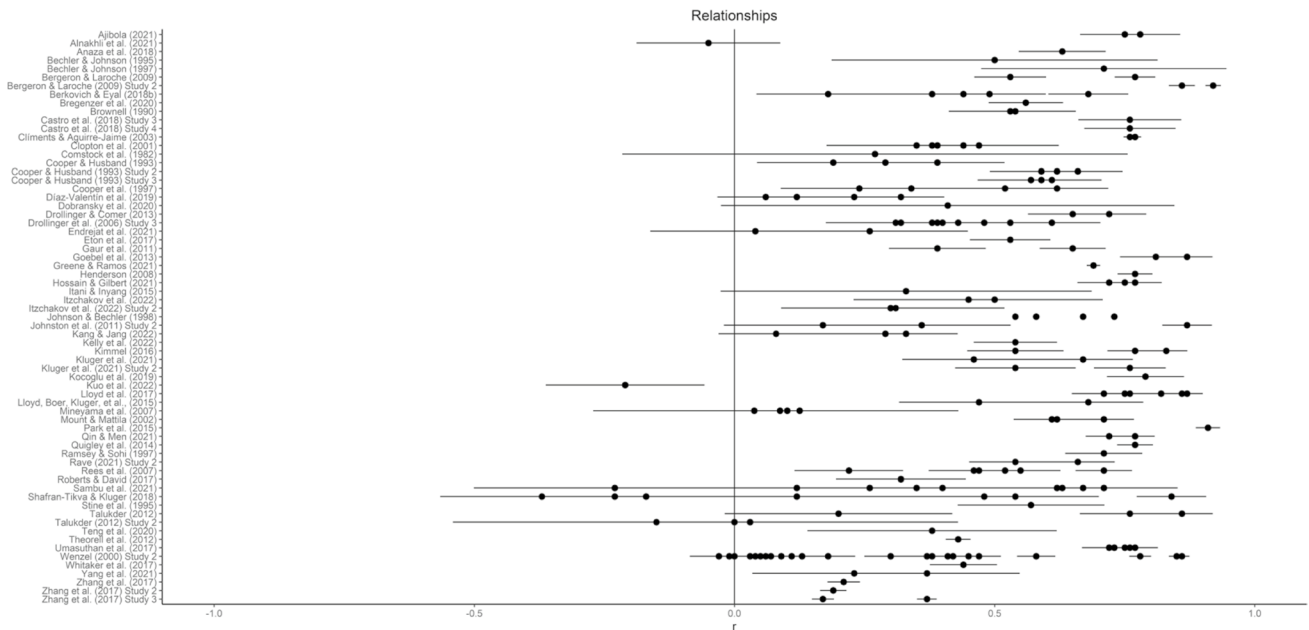
Table 3 (continued)

Information about	Code	Possible values and explanations	Type	Number of ratings	Inter-coder reliability		
					% identical	κ	r
Source		What is the source of the measure [Published measure, Adapted from a published measure, Developed in the current paper, Other][provide a textual quote for your choice]	Objective	237	54	0.42	
Measure details		Copy more detailed information about the items, such as sample item(s)					
Reliability		What is the reliability of the listening measure?	Objective	95	89.5	0.89	0.89
Reporter		Who reported the measure of listening? [Speakers, Listeners, Observer(s), Coder(s), or Experimental Condition]	Judgment	188	87.2	0.76	
Behavioral		What the measure of listening reflects [Holistic perception, Behaviors (e.g., paraphrasing, eye contact), or Other (specify)]	Judgment	198	88.9	0.59	
Time frame		What is the time-frame reference of the listening measures? [One episode (e.g., customer ratings, zero acquaintance in a lab), Chronic (e.g., subordinates' ratings of their supervisor)]	Judgment	187	74.3	0.37	
Dichotomized		Was a continuous measure of listening dichotomized into high vs. low or good vs. poor listening? [Yes, No]	Objective	188	94.7	0.64	
Dichotomy		If a continuous measure of listening was dichotomized, what percent of respondents were classified as high/good listeners (use one decimal only)?	Objective	10	30	0.27	-0.15
Dependent variables							
Measure		For each dependent variable, copy the measure name from the Method section	Defined by the first author				
Items		Number of items of the measure	Objective	428	87.1	0.85	0.93
Source		What is the source of the measure [Published measure, Adapted from a published measure, Developed in the current paper, Other][provide a textual quote for your choice]	Objective	632	50.5	0.37	
Measure details		Copy the details of the measure from the Method section (number of items, source, etc.)					
Reliability		What is the reliability of the dependent variable?	Objective	291	79.4	0.78	0.69
Reporter		Who reported the DV measure? [Speakers, Listeners, Observer(s), Coder(s), or Objective record]	Judgment	491	82.1	0.59	
Time-frame		What is the time-frame reference of the listening measures? [One episode (e.g., sales to one customer, performance in a lab, satisfaction from a single doctor visit), Chronic (e.g., annual performance ratings, job satisfaction)]	Judgment	473	74.6	0.32	
Listener vs. Speaker		The measure is an outcome for ... [Speakers, Listeners, Not clear]	Judgment	493	72	0.45	
Dichotomized		Was a continuous measure of the DV dichotomized into high vs. low or good vs. poor listening? [Yes, No]	Objective	493	95.1	0.06	

Table 3 (continued)

Information about	Code	Possible values and explanations	Type	Number of ratings	Inter-coder reliability		
					% identical	κ	r
Dichotomy		If a continuous measure of the DV was dichotomized, what percent of respondents were classified as high/good (use one decimal only)?	Objective	1			
Type		What type of a DV is this measure? [Performance, Relationships, Affect, Cognition, Other]	Judgment	501	66.3	0.54	
Performance		For performance measures, what aspect of performance does the measure reflect? [Task, Contextual, Counterproductive, Adaptive, Withdrawal, or Other (specify)]	Judgment	231	69.3	0.63	
Performance outcome		What does the performance measure reflect? [Behavior or Outcome]	Judgment	100	68	0.29	
Relationship		For relationship measures, what aspect of relationships does the measure reflect? [Trust, Liking, Relationship satisfaction, Fairness, Intimacy, Leadership, Support, or Other (specify)]	Judgment	113	69.9	0.65	
Affect		For affect measures, what aspect of affect does the measure reflect? [Positive affect (PA), Negative affect (NA), Burnout, Stress, Psychological safety, Fatigue, Job satisfaction, Commitment, Motivation, Secondary (vicarious) trauma (compassion fatigue), Turnover intentions, or Other (specify)]	Judgment	111	75.7	0.73	
Cognition		For cognition measures, what aspect of cognition does the measure reflect? [Knowledge (learning), Meta-cognition (objective-attitude ambivalence, complexity, clarity), Mindfulness, Perspective-taking, Empathy, Rumination, or Other (specify)]	Judgment	17	64.7	0.58	
Effect Size (ES)		For each combinations of listening predictor (IV) and DV present in the data, code the following					
Mono-method		The measures of the relationship between listening and the DV are based on the [same method, different method]	Objective	633	88.3	0.63	
N		Total sample size	Objective	650	83.8	0.84	0.95
Zero-order correlation (r)		Any note about the calculation of this effect size, or about this effect?	Objective	647	84.2	0.84	0.20
ES note							

(a) Relationships



(b) Affect

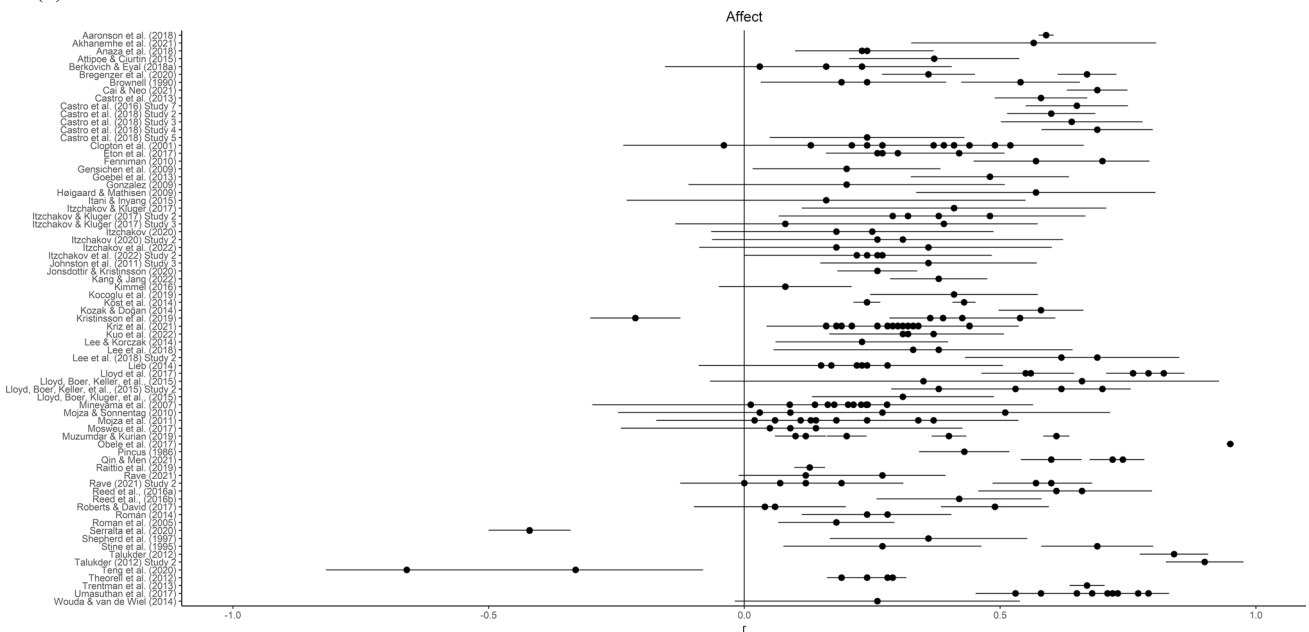


Fig. 4 Forest Plots for the Association Between Listening and Dependent Variables. (a) Relationships, (b) Affect, (c) Cognition, (d) Performance

outcomes were reported for two or more listening measures, two or more outcome measures (e.g., PA and NA, or OCB and CWB), or both. We employed a three-level meta-analysis to account for the dependencies between effects nested within studies (Van den Noortgate et al., 2013), which is needed when multiple effect size estimates are nested within the same study. In our study, multiple effects extracted from

a single study are likely to be more similar to each other than those extracted from independent studies (i.e., the true effects within the same study are likely to be correlated). Therefore, we used the *rma.mv* function of the R package *metafor* (Viechtbauer, 2010) to fit multivariate/multilevel meta-analysis models with random effects.

Cognition

Study	Correlation (r)	Lower CI	Upper CI
Bergeron & Laroche (2009)	0.85	0.75	0.95
Bergeron & Laroche (2009) Study 2	0.90	0.85	0.95
Clopton et al. (2001)	0.25	0.10	0.40
Drollinger et al. (2006) Study 2	0.20	0.10	0.30
Giacobbe et al. (2013)	0.55	0.40	0.70
Goebel et al. (2013)	0.70	0.60	0.80
Heigaard & Mathisen (2009)	0.60	0.45	0.75
Itani & Inyang (2015)	0.65	0.50	0.80
Itzhakov & Kluger (2017)	0.30	0.15	0.45
Itzhakov & Kluger (2017) Study 2	0.50	0.35	0.65
Itzhakov & Kluger (2017) Study 3	0.30	0.15	0.45
Itzhakov (2020)	0.20	0.05	0.35
Itzhakov (2020) Study 2	0.25	0.10	0.40
Johnson & Bechler (1998)	-0.70	-0.85	-0.55
Killian (2011)	0.10	0.00	0.20
Lee et al. (2018)	0.70	0.55	0.85
Lee et al. (2018) Study 2	0.80	0.65	0.95
Lyden, Boer, Kluger, et al., (2015)	0.40	0.25	0.55
Mira et al. (2013)	0.00	-0.15	0.15
Mostafa & Kasamani (2022)	0.60	0.45	0.75
Roman et al. (2005)	0.20	0.05	0.35
Sambu et al. (2021)	0.90	0.75	1.00
Wenzel (2000) Study 2	0.00	-0.10	0.10

Performance

100 studies

1.0 0.5 0.0 -0.5 -1.0

r

Alnahkhi et al. (2021) Study 1
Ames et al. (2017)
Amara et al. (2017)
Atthipon & Chutint
Bergerson & Larche
Bergerson & Larche (2009) Study 2
Bocron et al. (1986)
Burg et al. (2017)
Cai & Xiao
Carter et al. (2018)
Castelberry et al. (1998)
Castelberry et al. (2017)
Castro et al. (2019) Study 1
Castro et al. (2019) Study 2
Castro et al. (2019) Study 3
Castro et al. (2019) Study 4
Castro et al. (2019) Study 5
Clements & Aguirre-Jaime
Clopton et al. (2000)
Drollinger & Conner
Drollinger et al. (2000) Study 1
Drollinger et al. (2000) Study 2
Endrey et al. (2001)
Ephgrave et al. (2001)
Etkin et al. (2001)
Flickinger et al. (2001)
Galar et al. (2001)
Garschina et al. (2001)
Giacobbe et al. (2001)
Gopel et al. (2001)
Hossain & Gilbert
Jonke
Kelly et al. (2015)
Kilian
Kim et al. (2015)
Kluger et al. (2021) Study 2
Kocoglu et al. (2017)
Lloyd, Boer, Keller, et al. (2015) Study 1
Lloyd, Boer, Keller, et al. (2015) Study 2
Mirza et al. (2015)
Moja & Sonnenberg
Moja et al. (2015)
Moja et al. (2015)
Mostafa & Kalamarni
Mowwou et al. (2015)
Myers et al. (2015)
Nziessu et al. (2015)
Oladokun & Ghadeghean
Pace
Parks et al. (2015)
Peltier et al. (2015)
Pricca
Punwatkar & Varghese
Rahimi et al. (2015)
Rattio et al. (2015)
Ramsey & Smith
Rave (2021) Study 1
Rave (2021) Study 2
Rave (2021) Study 3
Rave (2021) Study 4
Rave (2021) Study 5
Rave (2021) Study 6
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Rave (2021) Study 99
Rave (2021) Study 100

To test the moderators, we used meta-regression with the *rma.mv* function. We tested each moderator with a separate meta-regression. Meta-regressions with all moderators entered in one model are theoretically superior and generally more parsimonious. But, by testing all our moderators within a single model (including k-1 sets of dummy codes for each categorical variable), we might fit over 100 predictors simultaneously, producing nonsensical results.

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only for models where $k > 40$ because the estimates are unreliable below this threshold (Lopez-Lopez et al., 2014).

To balance the concern for power with the risk of increasing study-wise error, we set $p < 0.05$ for our hypotheses but $p < 0.01$ for the research questions as a threshold for declaring a moderator significant. For moderators for which we planned to use all work outcomes as the dependent variables (Table 1), we control the different work outcomes (e.g., relationship quality, job performance) by entering dummy codes representing outcome types.

For purposes of interpretation only, we calculated a separate meta-analysis (a sub-group analysis) for categorical moderators for each category. The results of separate meta-analyses can differ slightly from the coefficients of the dummy codes in a meta-regression because meta-regression assumes identical heterogeneity in each category. In contrast, subgroup analyses estimate heterogeneity for each category separately.⁸ Therefore, we tested differences between categories with meta-regressions and reported sub-group results so that separate heterogeneity estimates could be inspected for categorical variables. Finally, to facilitate the interpretation of categorical moderators, we fixed the category with the weakest listening effect as the intercept. The meta-regression coefficient tests indicate whether each category is significantly higher than the effect in the category with the lowest effect of listening.

We conducted sensitivity analyses for meta-analysis with $k \geq 10$, following the threshold used by Field et al. (2021). We assessed the influence of outliers in three different ways. First, for each meta-analysis, we identified the observation with the highest Cook's distance (the effect that is most influential on the estimate of $\bar{r}$). We re-calculated $\bar{r}$, with the most influential observation removed. We report for every meta-analysis with $k \geq 10$ the value of $\Delta \bar{r} = \bar{r}_{\text{original}} - \bar{r}_{\text{with the most influential effect on the estimate removed}}$. Positive values of $\Delta \bar{r}$ indicate that one outlier increased the estimate of $\bar{r}_{\text{original}}$ and a negative values indicate that it decreased it. For $|\Delta \bar{r}| > 0.05$ and for $\bar{r}_{\text{with the most influential effect on the estimate removed}}$ that changes the conclusion, we planned to probe the study and try to understand its uniqueness. In addition, we explored the possibility that more than one influential outlier could change the conclusion. For that purpose, we visually explored a plot of Cook's distances. If more than one observation appears to have a *relatively* strong influence, we planned to repeat the above procedure, removing all extremely influential observations. As recommended best practices for outlier management, we report results with and without the outliers (Aguinis et al., 2013). Finally, we also inspected plots of Cook's distances aggregated by

publication (see <https://wviechthb.github.io/metafor/reference/influence.rma.mv.html>). We provide the plots in the [Supplementary Materials](#) and explore whether removing any influential publication alters the statistical conclusions.

Reporting Bias Assessment

The standard techniques to assess publication bias (e.g., trim-and-fill) are not available for three-level meta-analyses because they do not account for dependencies in the data. To address this challenge, we followed the recommendation of the author of *metafor*, which can be found in recent discussions at <https://stat.ethz.ch/mailman/listinfo/r-sig-meta-analysis>. Specifically, for each meta-analysis with $k \geq 10$ (Field et al., 2021), we tested the effect of the standard error (SE) of each r as a continuous moderator. A significant z value for the SE indicates that sample size predicts the effect size, r . A significant and positive z indicates a plausible publication bias, suggesting that effects based on small samples (high SE) yield stronger r values. This rule is also valid for undesirable outcomes (e.g., CWB) because we reversed the sign of such effects before the inclusion in the meta-analyses. The advantage of this approach for detecting a plausible publication bias is that it is part of a multi-level model that considers the dependencies in the data.

Because tests of publication bias could reflect the effect of an outlier (Field et al., 2021), we planned to assess the plausibility of publication bias after the removal of the effect size with the highest Cook's distance score (see Field et al., 2021, for the approach of testing publication bias after removal of outliers). When we detected significant z , we used a bubble plot to understand the biasing effects of small sample sizes.

Certainty Assessment

Two factors could reduce the certainty we assign to the results in our research domains: missing data and selective reporting. Therefore, we coded for every study whether the author(s) reported missing data (attrition, coding errors, response refusals, etc.), and if they did, the percentage of data loss. We also coded the presence of independent and dependent variables for which results are not reported, even if irrelevant to our research questions. Failure to report data loss may indicate bias, as most studies have data attrition. Thus, a lack of information about data loss may cover up an attempt to present only significant results. For those reporting data loss, the higher the proportion of missing data, the higher the risk of biased results. The presence of dependent variables without reported results may indicate “cherry-picking” in the study. We tested these as potential moderators.

⁸ https://www.metafor-project.org/doku.php/tips:comp_two_independent_estimates

These moderators are subsumed under our RQ5 regarding potential methodological moderators.

Results

Summary of Main Characteristics of Listening Studies

Before presenting the results of our hypothesis tests, we provide an overview of the extracted effects in Table 4, which also addresses our RQ4. Table 4 indicates that the mean publication year was 2012, and 67% of the effects were derived from studies that disclosed data loss, calculated typically as the discrepancy between the number of questionnaires distributed and the number of responses analyzed. On average, the reported data loss was 35%. Results also showed that 89% of the studies reported all effects, suggesting a low likelihood of reporting bias. The average age of the participants was approximately 41 years old, and the average percentage of women in the sample was 35% for studies reporting the listener's sex and 55% for studies reporting the speaker's sex.

The roles of the speakers included in the studies were customers (27%), followed by subordinates (23%), and patients (19%). The listeners were predominantly managers (36%), salespeople (21%), and healthcare professionals (19%). The vast majority of the studies (98%) were conducted within a single country, with the United States representing the most common location for data collection (46%), followed by Israel (15%), Germany (7%), and the United Kingdom (5%). The cultural values of the study samples were slightly below average regarding secular values but considerably higher than average regarding self-values (the average is zero).

The measurement of listening relied primarily on questionnaires, which typically comprised six items. Many measures (40%) were exclusive to a particular study, and 13% of the effects were tested using a single item. The most commonly employed scales across multiple studies were the FLS and the AELS. Most listening measures reflected the speaker's perception (63%), while others were based on the listener's self-reports (23%). Furthermore, most of the listening measures reflected perceived listening. Lastly, most (80%) of the listening measures assessed listening as a chronic trait.

The measurement of work outcomes also relied mainly on questionnaires, which included an average of five items and employed published or adapted measures (76%) rather than ad-hoc measures. The majority of the measures of work outcomes pertained to chronic outcomes (e.g., job satisfaction) as opposed to single outcomes (e.g., returning to the emergency room after hospitalization).

Figure 4 includes forest plots illustrating the associations between listening and the dependent variables: relationship

quality, affect, cognition, and performance. For each dependent variable, we placed all effects (correlations) nested in one study on the same line. We employed this approach because representing each effect on a separate line would render the forest plots incomprehensible. The forest plots indicate that most correlations between listening and all dependent variables are positive, and the magnitude of the correlations varies significantly.

Main Meta-analyses

Table 5 presents the results of meta-analyses examining the correlations between listening and any job outcome (first row) and each dependent variable, as specified by hypotheses H1 through H4. The correlations with the dependent variables, excluding the first row, are arranged in ascending order of effect sizes. The estimates in Table 5 are derived from three-level meta-analyses that control for the non-independence among the effect sizes. Moreover, the table reports statistics following best practice recommendations outlined in Gonzalez-Mulé and Aguinis (2018).

The first row in Table 5 provides a meta-analysis of the relationship between listening and work outcomes, encompassing all outcome types. It indicates that we coded 122 papers, which reported 144 independent samples and 664 effect sizes. These effects were drawn from 400,020 observations nested in data gathered from 155,143 independent individuals. The meta-analysis suggests that the inverse-variance-weighted average correlation between listening and job outcome is 0.39, with a 95% confidence interval ranging from 0.36 to 0.43. Additionally, the effect corrected for measurement unreliability, of both the listening and the dependent variable measures, is 0.44.

Results also revealed significant heterogeneity in the effects. The Q statistics is 80,865.1 with 663 degrees of freedom, suggesting that the null hypothesis of no heterogeneity is improbable. Additionally, the estimate of the true variability, $\tau = 0.26$, indicates that the range of true correlations between listening and performance can be found within $\pm 0.26 \times 1.96$ about the mean. As a result, the prediction (credibility) interval is approximately 0.39 ± 0.51 , or between -0.12 and 0.90. It is noteworthy that in rare circumstances, listening may have a negative association with desirable organizational outcomes. Out of the 664 effects extracted, 5.4% showed negative associations. The negative associations could be partly attributed to sampling error in small samples: the median sample size for negative associations was 76 participants, and for positive associations 195 participants, Mann–Whitney' test = 7,444.5, $p < 0.001$.

Furthermore, some studies indicated a strong effect size of listening that could indicate a lack of discriminant validity. Out of the 664 effects, 4% exceeded 0.80. Finally,

Table 4 Summary of Main Characteristics of Primary-level Studies on Listening

Variable	<i>M(SD)</i> or Frequency (%) <i>N</i> = 664
Year	2,012.49 (8.45)
Dissertation	61 / 664 (9.2%)
Reported data loss	443 / 664 (67%)
Mean % of missing data	35.43 (30.18)
(Missing)	233
Reported all variables or effects	592 / 664 (89%)
Listeners' mean age	40.87 (6.48)
(Missing)	456
Speakers' mean age	41.77 (11.76)
(Missing)	434
% female listeners	34.58 (21.34)
(Missing)	415
% female speakers	54.98 (14.34)
(Missing)	317
Speaker's role	
Customers	178 / 664 (27%)
Subordinates of the listener	155 / 664 (23%)
Patients	126 / 664 (19%)
Other	105 / 664 (16%)
Employees, but not subordinates of the listener	98 / 664 (15%)
Relatives of patients	2 / 664 (0.3%)
Listener's occupation	
Management	237 / 664 (36%)
Sales and Related	141 / 664 (21%)
Healthcare Practitioners and Technical	128 / 664 (19%)
Multiple	87 / 664 (13%)
Office and Administrative Support	20 / 664 (3.0%)
Personal Care and Service	18 / 664 (2.7%)
Educational Instruction and Library	16 / 664 (2.4%)
Architecture and Engineering	8 / 664 (1.2%)
Production	8 / 664 (1.2%)
Healthcare Support	1 / 664 (0.2%)
Multinational	
in one country	651 / 664 (98%)
in multiple countries	10 / 664 (1.5%)
no country information	3 / 664 (0.5%)
Country	
United States of America	298 / 651 (46%)
Israel	96 / 651 (15%)
Germany	46 / 651 (7.1%)
United Kingdom of Great Britain and Northern Ireland	32 / 651 (4.9%)
Canada	25 / 651 (3.8%)
Spain	21 / 651 (3.2%)
South Korea	19 / 651 (2.9%)
Japan	18 / 651 (2.8%)
China	14 / 651 (2.2%)
Kenya	12 / 651 (1.8%)
Bangladesh	10 / 651 (1.5%)

Table 4 (continued)

Variable	<i>M</i> (<i>SD</i>) or Frequency (%) <i>N</i> = 664
Nigeria	9 / 651 (1.4%)
Finland	7 / 651 (1.1%)
Iceland	7 / 651 (1.1%)
India	6 / 651 (0.9%)
Lebanon	6 / 651 (0.9%)
Sweden	6 / 651 (0.9%)
Taiwan	4 / 651 (0.6%)
Chile	3 / 651 (0.5%)
Norway	3 / 651 (0.5%)
Iran	2 / 651 (0.3%)
Singapore	2 / 651 (0.3%)
Brazil	1 / 651 (0.2%)
Cameroon	1 / 651 (0.2%)
Italy	1 / 651 (0.2%)
Netherlands	1 / 651 (0.2%)
Turkey	1 / 651 (0.2%)
(Missing)	13
Country's values: Secular	-0.15 (0.82)
(Missing)	67
Country's values: Self	0.84 (0.75)
(Missing)	67
Number of listening items	5.85 (4.85)
(Missing)	33
Listening was operationalized with	
Other	264 / 664 (40%)
Facilitating Listening Scale (FLS) or FLS based (Bouskila-Yam & Kluger, 2011; Kluger & Bouskila-Yam, 2018)	105 / 664 (16%)
A single item	85 / 664 (13%)
Experimental manipulation	84 / 664 (13%)
The Active-Empathic Listening Scale (AELS) (Bodie, 2011; Drollinger et al., 2006)	54 / 664 (8.1%)
Ramsey and Sohi (1997)	46 / 664 (6.9%)
Interpersonal Listening in Personal Selling (ILPS) (Castleberry et al., 1999)	11 / 664 (1.7%)
Team Listening Environment (TLE) (Johnston et al., 2011)	8 / 664 (1.2%)
Bechler and Johnson (1995)	7 / 664 (1.1%)
Listening measure status is published, adapted, or developed for current study	
Published	290 / 664 (44%)
Developed	183 / 664 (28%)
Adapted	169 / 664 (25%)
Other	22 / 664 (3.3%)
Listening reported by	
Speakers	417 / 664 (63%)
Listeners	152 / 664 (23%)
Experimental Condition	86 / 664 (13%)
Coder(s)	7 / 664 (1.1%)
Observer(s)	2 / 664 (0.3%)
Listening measure pertains to	
Perceptions	564 / 658 (86%)
Other	86 / 658 (13%)
Observed behaviors (e.g., paraphrasing, eye-contact) reported by coders, observers, or machine	8 / 658 (1.2%)

Table 4 (continued)

Variable	<i>M</i> (<i>SD</i>) or Frequency (%) <i>N</i> = 664
(Missing)	6
The time frame of the listening measure is	
Chronic	532 / 662 (80%)
Episodic	130 / 662 (20%)
(Missing)	2
The listening measure was dichotomized	49 / 664 (7.4%)
Number of dependent measure items	5.24 (7.21)
(Missing)	70
The dependent measure status is published, adapted, or developed for current study	
Published	339 / 661 (51%)
Adapted	167 / 661 (25%)
Developed	127 / 661 (19%)
Other	28 / 661 (4.2%)
(Missing)	3
The dependent measure reported by	
Speakers	471 / 663 (71%)
Listeners	165 / 663 (25%)
Objective record	16 / 663 (2.4%)
Coder(s)	10 / 663 (1.5%)
Observer(s)	1 / 663 (0.2%)
(Missing)	1
The time frame of the dependent measure is	
Chronic	533 / 662 (81%)
Episodic	129 / 662 (19%)
(Missing)	2
The dependent-variable measure was dichotomized	21 / 664 (3.2%)

Means (*M*) and standard deviations (*SD*) for continuous variables and frequencies and percentages (%) for categorical variables

the I^2 statistic shows that 98.9% of the variance is due to true variation in effect sizes, suggesting the presence of moderators. Overall, the substantial variance in the effects suggests the need for further exploration of potential moderating factors.

Table 5 and the following tables also report potential biases in each effect with $k \geq 10$. We examined potential biases caused by outliers and publication bias. The first row of Table 5 shows a $\Delta \bar{r}$ value close to zero, indicating that removing the most influential study from the meta-analysis did not significantly alter the estimate. Therefore, outliers did not affect the meta-analysis estimate of 0.39. The estimate with or without the most extreme outlier remained nearly the same. Last, the large and negative z -test value of -21.2 indicated that larger sample sizes resulted in larger effect size estimates, which is inconsistent with the hypothesis of publication bias (see also Fig. 5).

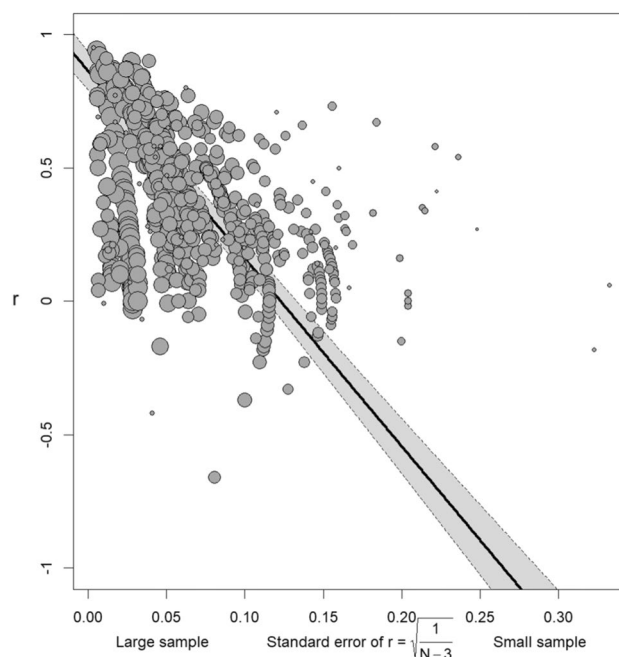
Tests of the Association of Listening with Work Outcomes

Table 5 presents the findings of the tests conducted for H1 to H4. On average, listening is significantly associated with affect, 0.36, cognition, 0.40, performance, 0.36, and relationship, 0.51, with each of these estimates accompanied by significant variability suggesting the presence of moderators. Furthermore, all effects are statistically significant based on the confidence intervals. The correlations adjusted for unreliability ($\bar{\rho}$) are obviously larger. However, two noteworthy aspects of these findings should be highlighted. First, the number of studies examining the relationship between listening and cognition is approximately one-third of the studies investigating the association between listening and each of the other outcomes, indicating an under-researched area of the impact of listening. Second, the association between

Table 5 Three-Level Meta-analyses of Listening's Effects on Performance Antecedents (H1, H2, H3) and Performance (H4)

Outcome	<i>k</i>	<i>N</i>			Effect		Meta-regression		Heterogeneity		Bias						
		Papers	Samples	Effects	Total Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{\rho}$	<i>B</i>	<i>p</i>	I^2	τ	$\Delta \bar{r}$	<i>z</i>	<i>p</i>	
All	122	144	664	400,020	155,143	0.39	0.36	0.43	0.44			80,865.1	0.26	98.9	-0.000	-21.19	<0.001
Affect (H2)	62	74	201	94,159	43,926	0.36	0.30	0.42	0.41	0.36	I	21,203.5	0.26	98.5	0.000	-6.30	<0.001
Performance (H4a)	66	74	224	189,058	78,608	0.36	0.30	0.41	0.40	0.01	0.804	29,873.1	0.24	98.8	0.002	-8.85	<0.001
Cognition (H3)	18	23	45	8,618	3,615	0.40	0.28	0.52	0.44	0.04	0.329	2,074.9	0.26	96.7	0.01	-6.85	<0.001
Relationships (H1)	58	67	194	108,185	51,366	0.51	0.46	0.57	0.56	0.10	<0.001	20,567.7	0.26	99.1	-0.001	-10.25	<0.001

Meta-regression-test statistics assessing whether the categorical variable (type of work outcome) moderates the effect of listening; $Q_{(3)} = 25.8$, $p < 0.001$; $R^2 = 0.06$; adjusted- $R^2 = 0.05$. I = this level of the moderator served as an intercept in the meta-regression. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. The degrees of freedom for the heterogeneity- Q tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z* = the value of the test of the standard error of the effect as a moderator and its associated *p*-value

**Fig. 5** A Scatter/Bubble Plot Based on a Meta-regression Model in Which the Standard Error of *r* is the Moderator of the Effect (*r*) of Perceived Listening on Job Outcome

listening and relationship is notably stronger than the association between listening and the other outcomes.

Finally, regarding H4b, results in Table 5 show that perceived listening is most strongly related to relationship quality. Inconsistent with H4b, the correlation between listening and job performance was not the weakest, with a mean estimate of $\bar{r} = 0.36$. Yet, the meta-regression analysis revealed that the type of job outcome category moderated significantly the impact of listening on work outcomes. Specifically, as shown in the note accompanying Table 5, $Q_{(3)} = 25.8$, $p < 0.001$, pseudo- $R^2 = 0.06$, and adjusted-pseudo- $R^2 = 0.05$. The Q is an omnibus test of the moderating effect of the job outcome category, and pseudo- R^2 estimates the amount of variance in listening effects explained by it.

To investigate the underlying cause of the omnibus result, we set affect, which had the weakest effect size (before rounding to two decimals), as the intercept category. The estimate for the intercept was 0.36 (Column *B*), which was almost identical to the estimate of the effect of listening on performance, $\bar{r} = 0.36$. Additionally, the predicted values in this regression were slightly dissimilar from $\bar{r}$. For example, the meta-regression (*B*) weight for the relationship outcome was 0.10, implying that the effect of listening on the relationship outcome would be $0.36 + 0.10 \times \text{relationship-dummy code} = 0.46$. However, the separate meta-analysis for this effect was $\bar{r} = 0.51$. This discrepancy resulted from different estimates of τ

underlying these estimates, as described under Effect-size Estimates above. The estimate of $\bar{r}$ for each job-outcome category (e.g., performance) was based on the heterogeneity estimated separately within that category. In contrast, in the meta-regression, the estimate of B was based on τ calculated across all effect sizes, assuming homogeneous heterogeneity across the categories. Nevertheless, the association between listening and the relationship outcome was significantly stronger than the association between listening and affect, the intercept, as indicated in the p Column of Table 5 under Meta-regression, $p < 0.001$. To test whether the effect on relationships was stronger than on performance, we ran a contrast effect, which was significant, $\chi^2_{(1)} = 18.8$, $p < 0.001$, providing partial support for H4b.

Hypothesized Moderators

We tested our hypothesis that the effects of listening on job performance *behaviors* are stronger than on job performance *outcomes* (H5) by incorporating this binary moderator in a meta-regression (Table 6). Our findings indicated that the effect of listening on job performance behaviors, $\bar{r} = 0.36$, was stronger than its effect on job performance outcomes, $\bar{r} = 0.28$. The meta-regression revealed that the estimate for job performance behaviors, the intercept, was $\bar{r} = 0.30$. The coefficient for job performance outcomes was 0.06, indicating that the estimate for job performance outcomes was $0.30 + 0.06 = 0.36$. As previously explained under Effect-size Estimates, the difference between the separate meta-analyses ($0.36 - 0.28 = 0.08$) and the meta-regression coefficient (0.06) was due to different approaches to treating heterogeneity within categories. Despite these differences, the results were in the predicted direction, although the effect on behavior was not significantly stronger than on performance outcomes, $p = 0.104$, failing to support H5.

H6 suggests that perceived listening is more strongly associated with organizational citizenship behaviors (OCB), counterproductive work behaviors (CWB), adaptive behavior, and withdrawal behaviors than with focal-task performance. To test H6, we conducted an overall test to examine the moderating effect of performance measures on the association between listening and performance (Table 6). Results revealed significant differences, $p = 0.002$, accounting for 14% of the variance, indicating that the type of performance measure influences the strength of the association between listening and performance. However, our data did not support H6. Instead, we observed the weakest effect sizes for negative performance

indicators: CWB, $\bar{r} = -0.19$, and withdrawal, $\bar{r} = -0.12$.⁹ Additionally, the strongest effect size was found for adaptive performance, $\bar{r} = 0.46$. As H6 did not predict this pattern, caution should be taken when interpreting the results of this moderation test.

H7 proposes that the relationship between listening and work outcomes will be weaker when (a) multiple sources and (b) methods are used, as opposed to using only one source or method, and (c) when different time frames are used to report listening and work outcomes, as opposed to the same time frame. The results support H7a and H7b (see Table 7). The correlation between listening and work outcomes is weaker when different sources, $\bar{r} = 0.26$, are used, compared to the same source, $\bar{r} = 0.43$. The correlation is also weaker when different methods are used, $\bar{r} = 0.29$, compared with the same method, $\bar{r} = 0.42$. Moreover, the results indicate that when listening and work outcomes are measured at different times, the correlation is weaker, $\bar{r} = 0.29$ than when they are measured at the same time, $\bar{r} = 0.41$, but this difference is not statistically significant.

H8 posits that the correlation between perceived listening and work outcomes will be weaker and less biased under two conditions: (a) in experimental designs compared to correlational designs and (b) in predictive designs compared to concurrent designs. The results of the study provide partial support for H8. Specifically, the data did not support H8a, as the correlation coefficient between perceived listening and work outcomes in experimental designs, $\bar{r} = 0.39$, is similar to correlational designs, $\bar{r} = 0.40$, as shown in Table 7. In contrast, H8b is supported. The correlation in predictive designs, $\bar{r} = 0.27$, is weaker than that in concurrent designs, $\bar{r} = 0.42$.

H9 posits that the correlation between perceived listening and work outcomes is stronger in cultures high in secular-rational and self-expression values. To test H9, we conducted two meta-regressions using values as a continuous moderator. The meta-regression examining the effect of secular-rational values found that it moderated the effect of listening opposite the direction predicted, $k = 597$, $B = -0.057$, 95%CI[-0.107, -0.007], $p = 0.025$. In countries with higher secular-rational values, the effect of listening on work outcomes may be weaker. However, the prediction regarding self-expression values was supported, $k = 597$, $B = 0.063$, 95%CI[0.010, 0.116], $p = 0.019$. Specifically, in countries with higher self-expression, the effect of listening on work outcomes is stronger.

⁹ In Table 6 and following tables, the correlations of listening with undesirable outcomes are reversed such that negative correlations are positive, and vice versa, and the name of the reversed variable is preceded with “No-.” This reversal allows a fair comparison of effect sizes of undesirable outcomes (e.g., CWB) with desirable outcome (e.g., Adaptive) within the meta-regression.

Table 6 Meta-analyses of Listening's Effects on Performance and its Facets (H5 & H6)

Outcome	<i>k</i>	<i>N</i>		Effect			Meta-regression		Heterogeneity		Bias							
		Papers	Samples	Effects	Total Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{\rho}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	<i>I</i> ²	$\Delta \bar{r}$	<i>z</i>	<i>p</i>	
Performance	66	75	225	225	189,083	78,633	0.35	0.30	0.41	0.39		29,878.3	0.24	98.8	0.002	-8.72	<0.001	
H5:																		
Outcome	27	30	67	67	78,041	36,605	0.28	0.20	0.35	0.31	0.30	1	1,622.2	0.21	97.9	-0.000	-3.25	0.001
Behavior	50	54	148	148	109,118	44,566	0.36	0.30	0.43	0.41	0.06	0.104	16,517.8	0.25	98.9	-0.000	-8.45	<0.001
H6:																		
No-Withdrawal	2	2	6	6	12,074	5,056	0.12	0.07	0.16	0.13		17.5	0.03	65.6				
No-Counterproductive	12	13	22	22	16,854	13,433	0.19	0.10	0.29	0.21	0.20	1	405.2	0.16	93.9	0.01	-0.71	0.48
Other	3	3	19	19	1,160	424	0.26	0.01	0.50	0.34	0.06	0.604	82	0.20	73.7			
Task	38	39	81	81	104,242	50,734	0.37	0.29	0.44	0.41	0.15	0.014	8,731.2	0.23	98.9	0.001	-5.46	<0.001
Contextual/OCB	18	21	36	36	17,439	5,884	0.40	0.30	0.49	0.44	0.20	0.002	1,596	0.23	97.8	-0.001	-4.46	<0.001
Adaptive	23	29	61	61	37,314	22,846	0.46	0.38	0.55	0.51	0.23	<0.001	8,399.4	0.23	98.9	-0.002	-5.38	<0.001

Meta-regression-test statistics assessing whether the categorical variables (e.g., type of performance measure) moderates the effect of listening: H5: $Q_{(1)} = 2.60$, $p = 0.104$; $R^2 = 0.05$; adjusted- $R^2 = 0.04$; H6: $Q_{(4)} = 16.9$, $p = 0.002$; $R^2 = 0.14$; adjusted- $R^2 = 0.13$. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. *B* = meta-regression coefficient. *I* = this level of the moderator served as an intercept in the meta-regression. The degrees of freedom for the heterogeneity-*Q* tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z* = the value of the test of the standard error of the effect as a moderator and its associated *p*-value

Research Questions

RQ2 investigated whether different operationalizations of (a) relationship quality, (b) affect, and (c) cognition moderate the effects of listening. Table 8 presents the results of the moderator analysis for relationship quality. It produced an out-of-range estimate: a negative pseudo- R^2 . A negative estimate is due to the failure to estimate variances attributed to differences between effects, studies, and papers. We identified a potential cause of this effect as the high value of τ in the "Other" category, which we removed from a subsequent moderator analysis. This time the statistics for moderation were acceptable, $Q_{(3)} = 10.8$, $p = 0.013$; $R^2 = 0.24$; adjusted- $R^2 = 0.22$, although the high value of the pseudo- R^2 may still not be trustworthy.

Nonetheless, the conclusion from Table 8 that the effect of listening on social support is weaker than its effect on relationship satisfaction was replicated in this analysis. We further probed the "Other" category (Table 9). We found that listening effects on undesirable outcomes tended to be weaker than on desirable outcomes, as discussed later. We also noted some extremely high effects of listening on "Other" relationship outcomes, such as the association with customer satisfaction, $k = 9$ effects, $N = 2,265$ observations, is 0.74 and $\bar{\rho} = 0.78$.

Table 10 displays that the correlation between listening and affect is influenced by the type of affect measurement employed (see Note in Table 10). Table 11 displays the correlations between listening and the emotions categorized as Other before the data collection. The noteworthy observation from Tables 10 and 11 is that favorable emotions and attitudes, such as commitment and job satisfaction, exhibit a stronger correlation with listening than unfavorable emotions and attitudes, such as burnout. Table 12 illustrates that the correlation between listening and cognition could be contingent upon the specific categories of cognition. However, the dearth of effect sizes in the literature precluded a reliable meta-regression analysis.

In Table 13, we assessed whether any of the 27 possible moderators account for a significant proportion of variance in the relationship between listening and work outcomes while controlling for the type of outcome (e.g., performance, affect). Consistent with our preregistration, we exclusively considered significant effects at the 0.01 level. Among the potential moderators, only three met this criterion: the occupation of the listener, whether the listening measure was dichotomized, and the role of the reporter of the dependent measure.

To investigate occupation as a moderator, we conducted meta-analyses for each occupation and performed a meta-regression (Table 14). Our findings indicate that the effects of listening on work outcomes are weaker when the listener works in healthcare, for instance, compared to sales. However, we suspected these disparities might be due to

Table 7 Meta-analyses of Listening's Effects All Effects and Methodological Moderators (H7, H8, RQ1)

Outcome	<i>k</i>	<i>N</i>		Effect		Meta-regres- sion		Heterogeneity		Bias									
		Papers	Samples	Effects	Total Independent	$\bar{r}$		<i>lb</i>	<i>ub</i>	$\bar{p}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	<i>f</i> ²	$\Delta \bar{r}$	<i>z</i>	<i>p</i>	
All	122	144	664	400,020	155,143	0.39	0.36	0.43	0.44	80,865.1	0.26	98.9	-0.000	-21.19	<0.001				
H7a: Mono Source																			
No	35	43	150*	27,853	9,061	0.26	0.19	0.32	0.28	0.22	I	1,508.3	0.18	87.5	-0.01	-5.91	<0.001		
Yes	102	116	513	371,787	148,054	0.43	0.39	0.47	0.48	0.21	<0.001	74,649.7	0.26	99.1	-0.000	-22.55	<0.001		
H7b: Mono Method																			
No	32	40	151	54,758	21,761	0.29	0.22	0.36	0.32	0.20	I	3,791.2	0.22	95.4	0.000	-3.89	<0.001		
Yes	103	117	513	345,262	148,072	0.42	0.38	0.46	0.47	0.24	<0.001	70,521	0.25	99	-0.000	-25.69	<0.001		
H7b: Mono Timeframe																			
No	15	16	48	39,702	15,958	0.29	0.15	0.43	0.31	0.32	I	5,038.7	0.27	98.8	0.000	-6.93	<0.001		
Yes	114	134	612	360,013	139,928	0.41	0.37	0.45	0.46	0.08	0.079	72,681.5	0.25	98.9	-0.001	-19.97	<0.001		
H8a: Design																			
Quasi-experimental with pretest–posttest only	2	3	22	998	78	0.20	-0.04	0.44	0.26	0.18	I	15.7	0.15	50.7					
Quasi-experimental with non-random groups	4	8	34	2,031	436	0.34	0.25	0.42	0.38	0.13	0.471	80.2	0.11	52.2	-0.001	-4.84	<0.001		
Experimental	5	7	30	3,869	1,573	0.39	0.25	0.54	0.44	0.19	0.283	240.9	0.21	89.4	0.004	-6.96	<0.001		
Correlational	112	126	578	393,122	153,401	0.40	0.36	0.44	0.45	0.22	0.155	80,242.9	0.26	99	-0.001	-20.03	<0.001		
H8b: Design																			
Predictive	14	19	72	7,272	3,846	0.27	0.17	0.36	0.31	0.27	I	371.5	0.17	76.9	-0.03	-3.55	<0.001		
Postdictive	5	5	14	10,380	10,023	0.32	0.18	0.46	0.40	-0.01	0.915	138.5	0.22	85.4	0.02	-3.31	<0.001		
Concurrent with the IV	103	119	560	377,544	141,231	0.42	0.37	0.46	0.46	0.15	0.020	75,911.4	0.26	99.1	0.000	-21.08	<0.001		
RQ1: Outcome pertains to																			
Not clear	6	6	7	1,120	1,035	0.34	0.15	0.54	0.38			80.4	0.23	91.5					
Speakers	83	97	371	243,397	110,621	0.38	0.33	0.44	0.43	0.39	I	60,190.5	0.27	99.1	0.000	-20.97	<0.001		
Listeners	63	73	286	155,503	54,136	0.43	0.38	0.49	0.49	0.02	0.423	20,400.1	0.25	98.6	0.000	-11.99	<0.001		

Meta-regression-test statistics assessing whether the categorical variables (e.g., design types) moderates the effect of listening: H7a: $Q_{(1)}=49.2$, $p<0.001$; $R^2=0.06$; adjusted- $R^2=0.06$; H7b: $Q_{(1)}=61.0$, $p<0.001$; $R^2=0.06$; adjusted- $R^2=0.06$; H7b: $Q_{(1)}=3.1$, $p=0.079$; $R^2=0.03$; adjusted- $R^2=0.02$; H8a: $Q_{(3)}=2.9$, $p=0.403$; $R^2=0.02$; adjusted- $R^2=0.02$; H8b: $Q_{(2)}=7.3$, $p=0.026$; $R^2=0.02$; adjusted- $R^2=0.02$; $Q_{(1)}=0.6$, $p=0.423$; $R^2=0.01$; adjusted- $R^2=0.01$; lb =lower bound of the confidence interval; ub =upper bound of the confidence interval. B = meta-regression coefficient. I =this level of the moderator served as an intercept in the meta-regression. The degrees of freedom for the heterogeneity- Q tests are k effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. z =the value of the test of the standard error of the effect as a moderator and its associated p -value

* The sum of the effects do not add to 662 due to a missing datum

Table 8 Meta-analyses of Listening's Effects on Relationship and its Facets

Outcome	<i>k</i>			<i>N</i>		Effect			Meta-regression			Heterogeneity			sBias		
	Papers	Samples	Effects	Total	Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{p}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	I^2	$\Delta \bar{r}$	<i>z</i>	<i>p</i>
Relationships	58	67	196	108,460	51,366	0.51	0.46	0.57	0.57			20,576.1	0.26	99.1	0.000	-10.17	<0.001
Support	8	8	23	4,411	1,353	0.38	0.28	0.49	0.41	0.42	1	185.3	0.16	90.1	-0.001	-5.39	<0.001
Other	26	28	61	26,119	10,671	0.47	0.36	0.59	0.52	0.02	0.817	7,870.8	0.32	99.1	0.001	-7.13	<0.001
Relationship satisfaction	14	19	44	42,233	23,829	0.50	0.43	0.56	0.56	0.23	0.006	7,401.2	0.20	98.8	0.002	-7.50	<0.001
Leadership	12	14	31	14,283	5,368	0.56	0.43	0.70	0.63	0.12	0.173	3,068.2	0.26	98.6	0.004	-2.28	0.02
Trust	16	17	27	15,343	13,331	0.57	0.48	0.65	0.62	0.08	0.330	600.7	0.19	98.3	-0.01	-6.64	<0.001
Intimacy	2	2	4	546	273	0.62	0.51	0.73	0.62			20.4	0.10	80.2			
Liking	3	3	3	4,772	4,672	0.66	0.53	0.79	0.75			17.2	0.11	84.8			
Fairness	1	1	3	753	251	0.74	0.71	0.77	0.79			1.6	0.00	0			

Meta-regression-test statistics assessing whether the categorical variables (relationship type) moderates the effect of listening: $Q_{(4)} = 17.1$, $p = 0.002$; $R^2 = -0.05$; adjusted- $R^2 = -0.07$. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. *B* = meta-regression coefficient. *I* = this level of the moderator served as an intercept in the meta-regression. The degrees of freedom for the heterogeneity-*Q* tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z* = the value of the test of the standard error of the effect as a moderator and its associated *p*-value

chance differences in employing mono-source methods (e.g., questionnaires employed to measure both listening and the dependent variable) across occupations. Hence, we conducted a meta-regression that included mono-source as a covariate and occupation. Only the regression weight of mono-source remained statistically significant, $p < 0.001$, while none of the occupations differed from the intercept, all $ps > 0.34$. Furthermore, we added a contrast between health care and sales occupation controlling for mono-source and the difference vanished, $\chi^2_{(1)} = 0.002$, $p = 0.96$.

Next, in Table 14, we also inspected the effect of having the dependent variable dichotomized on the strength of the association between listening and work outcomes. Note that the effect sizes are already corrected for dichotomization. Table 14 suggests that once we covaried out the effect of mono-source, $p < 0.001$, the effect of dichotomization became insignificant, $p = 0.012$. This effect, if it exists, may merely reflect poor methodology across the entire study.

Finally, we observed that the impact of listening on work outcomes was weaker when the dependent variable was based on objective records, observers, or coders, as shown in Table 14. There was little variation in the listening outcomes, regardless of whether the listener or the speaker reported the dependent variable. Once again, we suspected that this moderation effect might be due to the general moderator of mono-source. Like the occupation analysis, we conducted a model with and without the mono-source added as a moderator. The omnibus test comparing the meta-regressions with and without mono-source was significant, $p = 0.001$. However, only the regression weight of mono-source remained statistically significant, $p < 0.0008$, while none of the types of sources differed from the intercept of different sources, all $ps > 0.21$.

Auxiliary Analyses

An interesting observation from our analysis of the moderators of the association between listening and work outcomes is the pattern where undesirable outcomes produce weaker effects (in absolute value) compared to desirable outcomes. To confirm this pattern's robustness, we ran a moderation analysis contrasting all undesirable and desirable outcomes. As presented in Table 14, the association between listening and undesirable outcomes was significantly lower, $\bar{r} = 0.17$, than desirable outcomes, $\bar{r} = 0.43$, and the difference was significant, $Q_{(1)} = 55.3$, $p < 0.001$; $R^2 = 0.14$; adjusted- $R^2 = 0.14$.

A robust and anticipated finding is that mono-source and mono-method designs inflate the estimate of effect sizes, as presented in Table 7. Three-quarters of the effect sizes were derived from questionnaires that measured both listening and work outcomes (same method) and were reported by

Table 9 Meta-analyses of Listening's Effects on Relationship "Other" Category and its Facets

Outcome	<i>k</i>	<i>N</i>			Effect			Meta-regression		Heterogeneity		Bias						
		Papers	Samples	Effects	Total	Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{p}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	<i>I</i> ²	$\Delta \bar{r}$	<i>z</i>	<i>p</i>
Relationship “Other”	26	28	62	26,144	10,671	0.47	0.36	0.59	0.52			7,881.1	0.32	99.1	0.001	-7.28	<0.001	
Sociability	1	1	3	3,699	1,233	-0.01	-0.05	0.02	-0.02			0.6	0.00	0				
Special treatment	1	1	1	201	201	-0.05	-0.19	0.09	-0.06									
NO-Dominance	1	1	3	3,699	1,233	0.04	0.004	0.07	0.04			0.1	0.00	0				
No Restrictive (communication)	1	1	1	95	95	0.04	-0.16	0.24	0.05									
NO-Lack of authenticity	1	1	1	312	312	0.08	-0.03	0.19	0.09									
NO-Defensiveness	2	2	2	100	100	0.15	-0.04	0.35	0.17			0.7	0.00	0				
NO-Distance	1	1	1	152	152	0.21	0.05	0.36	0.27									
Working alliance	1	1	8	608	76	0.26	-0.05	0.58	0.27			312.6	0.00	0				
Authenticity	1	1	1	312	312	0.29	0.18	0.39	0.32									
NO-Self-centered	1	1	1	4,484	4,484	0.43	0.41	0.45	0.48									
Respect	1	1	2	96	48	0.44	0.04	0.85	0.49			13.4	0.00	0				
Teamwork	2	2	2	100	100	0.45	-0.04	0.94	0.52			12.1	0.33	83.1				
Empathy	6	6	15	7,419	2,469	0.47	0.23	0.70	0.53			1,613.9	0.28	98.8	-0.01	-3.53	<0.001	
Communication frequency	1	1	1	144	144	0.54	0.41	0.65	0.61									
Patient satisfaction	3	3	3	1,150	1,150	0.56	0.34	0.78	0.62			81	0.17	95.4				
Inclusion	1	1	2	96	48	0.63	0.50	0.75	0.70			0	0.00	0				
Emotional contagion	1	1	3	990	330	0.73	0.71	0.76	0.79			0.7	0.00	0				
Customer satisfaction	6	7	9	2,265	1,283	0.74	0.64	0.84	0.78			253.5	0.12	97.3				
Brand Loyalty	1	1	1	101	101	0.75	0.65	0.82	0.77									
Psychological safety	1	1	1	96	96	0.81	0.73	0.87	0.85									

There were not enough categories with $k > 9$ to run a meta regression. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. *B* = meta-regression coefficient. *I* = this level of the moderator served as an intercept in the meta-regression. The degrees of freedom for the heterogeneity-*Q* tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z* = the value of the test of the standard error of the effect as a moderator and its associated *p*-value

Table 10 Meta-analyses of Listening's Effects on Affect and its Facets

Outcome	<i>k</i>	<i>N</i>		Effect		Meta-regression		Heterogeneity		Bias								
		Papers	Samples	Effects	Total	Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{p}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	I^2	$\Delta \bar{r}$	<i>z</i>	<i>p</i>
Affect	62	74	198	93,859	43,926		0.36	0.30	0.42	0.41			21,189.6	0.26	98.6	-0.002	-6.17	<0.001
No-Stress	8	9	13	11,093	6,263		-0.05	-0.25	0.15	-0.06	0.04	I	477.9	0.28	98.3	-0.004	0.97	0.33
No-Burnout/Fatigue	6	8	12	5,862	5,365		0.31	0.27	0.36	0.35	0.19	0.003	14.9	0.04	29.2	0.03	-0.23	0.82
No-Negative affect (NA)	7	7	18	4,355	1,446		0.35	0.19	0.50	0.38	0.26	<0.001	242.4	0.20	93.6	-0.001	-4.91	<0.001
No-Turnover intentions	5	7	9	1,866	1,548		0.35	0.24	0.46	0.38			49.5	0.12	78.5			
Motivation	2	2	3	458	369		0.38	0.13	0.64	0.49			42.8	0.22	91.2			
Other	34	40	89	59,910	37,980		0.38	0.30	0.46	0.43	0.31	<0.001	15,321.7	0.24	98.8	-0.000	-3.79	<0.001
Positive affect (PA)	8	8	13	2,310	1,381		0.40	0.26	0.55	0.45	0.37	<0.001	252.1	0.21	95.9	-0.01	-5.65	<0.001
Commitment	8	8	15	2,076	1,230		0.45	0.33	0.58	0.49	0.41	<0.001	153.9	0.16	87.1	-0.002	-3.56	<0.001
Job satisfaction	8	8	17	4,451	2,908		0.52	0.40	0.65	0.59	0.45	<0.001	412.6	0.18	96.4	-0.01	-7.62	<0.001
Psychological safety	5	8	9	1,478	1,359		0.61	0.53	0.69	0.69			47.3	0.10	82.9			

Meta-regression-test statistics assessing whether the categorical variables (affect type) moderates the effect of listening: $Q_{(6)} = 67.0$, $p < 0.001$; $R^2 = 0.22$; adjusted- $R^2 = 0.19$. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. *B* = meta-regression coefficient. *I* = this level of the moderator served as an intercept in the meta-regression. The degrees of freedom for the heterogeneity-*Q* tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z* = the value of the test of the standard error of the effect as a moderator and its associated *p*-value

Table 11 Meta-analyses of Listening's Effects on Affect "Other" Category and its Facets

Outcome	<i>k</i>			<i>N</i>		Effect		Meta-regression		Heterogeneity		Bias	
	Papers	Samples	Effects	Total	Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{p}$	<i>B</i>	<i>p</i>	$\Delta \bar{r}$	<i>z</i>
Affect "Other"	34	40	89	59,910	37,980	0.38	0.30	0.46	0.43				
Meaningfulness	1	1	1	200	200	0.04	-0.10	0.18	0.04				
No-Fear	1	1	1	4,074	4,074	0.07	0.04	0.10	0.08				
Wellbeing	1	1	2	92	46	0.07	-0.14	0.28	0.08				
Career commitment	1	1	1	226	226	0.08	-0.05	0.21	0.09				
Psychological detachment	1	1	2	210	105	0.10	-0.04	0.23	0.11				
Vigor	1	1	2	82	41	0.11	-0.11	0.32	0.14				
Mastery experience	1	1	2	210	105	0.13	-0.02	0.29	0.18				
No-Distress	1	1	1	46	46	0.14	-0.16	0.41	0.17				
No-anger-irritability	1	1	2	82	41	0.16	-0.06	0.37	0.19				
No-confusion	2	2	3	215	149	0.22	0.07	0.37	0.24				
No-Anxiety	2	3	5	209	135	0.23	0.10	0.36	0.27				
No-Depression	3	3	4	4,672	4,631	0.24	0.21	0.27	0.27				
Job control	2	2	3	535	494	0.27	0.19	0.35	0.31				
Health satisfaction	1	1	1	104	104	0.28	0.09	0.45	0.32				
Work engagement	2	2	2	700	700	0.29	0.22	0.35	0.31				
General well-being	1	1	1	434	434	0.31	0.22	0.39	0.34				
Need satisfaction	1	1	2	210	105	0.31	0.19	0.43	0.40				
No-Customer dissatisfaction	1	1	4	9,328	2,332	0.31	0.10	0.52	0.35				
Self-esteem in the team	1	1	1	152	152	0.32	0.17	0.46	0.35				
Perceived control	1	1	9	2,412	268	0.33	0.30	0.37	0.38				
Self-efficacy	7	8	10	1,332	1,206	0.39	0.25	0.53	0.44	0.38	1	-0.003	-0.74
Customer satisfaction	5	6	13	5,833	2,901	0.41	0.17	0.66	0.47	0.05	0.730	-0.004	-2.03
No-Social anxiety	3	3	4	246	180	0.42	0.31	0.52	0.49				
Communication satisfaction	2	2	2	252	252	0.49	0.31	0.67	0.54				
Patient satisfaction	5	5	7	26,998	22,037	0.63	0.43	0.83	0.70				
Organizational Identification	1	1	1	66	66	0.66	0.50	0.78	0.76				
Arousal	1	1	3	990	330	0.71	0.68	0.74	0.77				

Meta-regression-test statistics assessing whether the categorical variables (self-efficacy vs. customer satisfaction) moderates the effect of listening $Q_{(1)}=0.1$, $p=0.73$; $R^2=-0.01$; adjusted- $R^2=-0.06$. *lb*= lower bound of the confidence interval; *ub*=upper bound of the confidence interval. *B*= meta-regression coefficient. *I*=this level of the moderator served as an intercept in the meta-regression. The degrees of freedom for the heterogeneity-*Q* tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z*=the value of the test of the standard error of the effect as a moderator and its associated *p*-value

Table 12 Meta-analyses of Listening's Effects on Cognition and its Facets

Outcome	<i>k</i>	<i>N</i>			Effect		Meta-regression		Heterogeneity		Bias						
		Papers	Samples	Effects	Total	Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{p}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	<i>I</i> ²	$\Delta \bar{r}$	<i>z</i>
Cognition	18	23	45	8,618	3,615	0.40	0.28	0.52	0.44			2,074.9	0.26	96.7	0.01	-6.85	<0.001
Other	5	6	8	4,478	2,072	0.26	-0.02	0.53	0.27			1,616.9	0.31	99.1			
Empathy	4	5	7	942	598	0.37	0.19	0.55	0.42			38.1	0.17	80.5			
Knowledge (learning)	5	5	7	866	671	0.40	0.18	0.62	0.44			67	0.23	92.7			
Perspective-taking	4	5	9	1,525	810	0.41	0.22	0.60	0.44			114.8	0.19	91.6			
Meta-cognition (objective-attitude ambivalence, complexity, clarity)	4	6	12	723	363	0.51	0.39	0.63	0.57			126.3	0.19	85.9	0.02	-6.70	<0.001
Mindfulness	2	2	2	84	42	0.73	0.63	0.83	0.83			1.2	0.00	0			

There were not enough categories with $k > 9$ to run a meta regression. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. *B* = meta-regression coefficient. *I* = this level of the moderator served as an intercept in the meta-regression. The degrees of freedom for the heterogeneity-*Q* tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z* = the value of the test of the standard error of the effect as a moderator and its associated *p*-value

Table 13 Moderator Tests of the Meta-Analytical Results Controlling for Differences in Type of Outcome Measure

Moderator	<i>df</i>	<i>LRT</i>	<i>p</i>	ΔR^2
Year	1	1.29	0.256	0.01
Dissertation	1	0.17	0.681	0.001
Reported data loss	1	0.34	0.559	0.003
Mean % of missing data	1	0.61	0.437	0.01
Reported all variables or effects	1	0.86	0.354	-0.002
Listeners' mean age	1	0.14	0.710	0.16
Speakers' mean age	1	1.10	0.294	-0.04
% female listeners	1	1.72	0.190	0.09
% female speakers	1	1.08	0.298	-0.03
Speaker's role	5	12.02	0.035	0.08
Listener's occupation	9	22.28	0.008	0.11
Multinational	2	1.74	0.419	0.01
Country	26	44.87	0.012	0.21
Country's values: Secular	1	4.95	0.026	-0.005
Country's values: Self	1	6.16	0.013	-0.01
Number of listening items	1	5.31	0.021	0.02
Listening was operationalized with	8	8.25	0.409	0.05
Listening measure status is published, adapted, or developed for current study	3	1.75	0.626	-0.03
Listening reported by	4	11.37	0.023	0.03
Listening measure pertains to	2	2.42	0.298	0.02
The time frame of the listening measure is	1	0.04	0.851	-0.004
The listening measure was dichotomized	1	15.54	<0.001	0.08
Number of dependent measure items	1	3.50	0.062	0.03
The dependent measure status is published, adapted, or developed for current study	3	2.57	0.462	0.01
The dependent measure reported by	4	51.26	<0.001	0.05
The time frame of the dependent measure is	1	0.45	0.504	-0.002
The dependent-variable measure was dichotomized	1	3.99	0.046	0.02

LRT = Likelihood Ratio Test comparing the fit of a model in which only the type of outcome (e.g., performance) is a moderator, with a model adding the tested moderator

the same individual (same source). This practice resulted in a strong association between the mono-source and mono-method moderators, $\phi = 0.79$.¹⁰ Therefore, we retested H1-H4 using only effect sizes based on different sources, different methods, or both, as shown in Table 15. The effect sizes for H1-H4 are weaker than those reported in Table 5. Still, the patterns are similar, with the effect of listening on performance being the weakest, $\bar{r} = 0.21$, and on relationship the strongest, $\bar{r} = 0.44$. Note that the meta-regression is insignificant and produces unacceptable estimates for pseudo- R^2 .

¹⁰ This coefficient reflects that pattern where 73.3% of the effects sizes were based on mono-method and mono-source designs (self-reported questionnaires from a single person), 18.7% on different method and different source (e.g., experiments, speaker reports listening and company reports performance), and 8% were based on different source and same method (e.g., questionnaires of customers and salespeople).

Discussion

The present meta-analyses demonstrated that the association between perceived listening and job outcomes is robust, generally yielding effect sizes indicating strong positive outcomes, with notable heterogeneity, and showing that listening better predicts desirable outcomes than undesirable ones. The results also underscore the important role of listening as an antecedent to positive workplace relationships and suggest that listening may be an underutilized job-performance predictor and a cause of superior performance. In addition, our results revealed that many studies in the listening literature suffer from suboptimal research practices that also raise concerns about the discriminant validity of listening measures. Finally, our results also highlight gaps in the literature, pointing to needed future research. Next, we discuss specific implications for theory, methodology, and future research.

Table 14 Meta-analyses of Listening's Effects by Significant Moderators in Table 13

Moderator	<i>k</i>	<i>N</i>			Effect			Meta-regression			Heterogeneity			Bias				
		Papers	Samples	Effects	Total	Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{p}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	I^2	$\Delta \bar{r}$	<i>z</i>	<i>p</i>
All	122	144	664	400,020	155,143	0.39	0.35	0.43	0.44			80,998.7	0.26	98.9	-0.000	-21.22	<0.001	
Occupations																		
Healthcare Support	1	1	1	44	44	0.26	-0.04	0.52	0.32									
Healthcare Practitioners and Technical	36	39	128	176,714	102,459	0.31	0.23	0.40	0.36	0.31	I	41,841.8	0.28	99.5	0.000	-13.10	<0.001	
Multiple	18	21	87	10,406	2,362	0.32	0.21	0.42	0.35	0.02	0.767	1,878.2	0.27	94.2	-0.001	-7.57	<0.001	
Management	3	3	16	1,123	369	0.38	0.23	0.52	0.42	0.07	0.580	271	0.28	92.6				
Educational Instruction and Library	35	42	237	159,533	42,845	0.42	0.37	0.48	0.48	0.12	0.016	20,407.8	0.24	98.7	0.001	-12.95	<0.001	
Sales and Related	25	27	141	42,989	7,271	0.45	0.38	0.52	0.50	0.14	0.009	10,229.9	0.21	97.9	0.001	-18.47	<0.001	
Architecture and Engineering	2	2	8	336	42	0.51	0.36	0.66	0.59			30.1	0.18	75.9				
Office and Administrative Support	4	5	20	1,801	513	0.54	0.37	0.71	0.58	0.22	0.029	84.8	0.18	88.5	0.001	-6.22	<0.001	
Production	2	3	8	1,134	233	0.61	0.58	0.65	0.69			2.7	0.00	0				
Personal Care and Service	1	1	18	5,940	330	0.73	0.70	0.76	0.79	0.42	0.021	110.2	0.00	0				
Dependent Variable Dichotomized																		
Yes	9	9	21	14,597	6,630	0.18	0.12	0.25	0.21	0.25	I	140.1	0.09	84.4	0.000	-1.41	0.16	
No	116	138	643	385,423	148,971	0.40	0.36	0.44	0.45	0.15	0.017	78,812.2	0.26	98.9	0.000	-21.04	<0.001	
Dependent Variable Reported by																		
Objective record	9	9	16	6,774	4,235	0.13	0.04	0.23	0.14	0.15	I	74.5	0.14	88.7	0.04	-0.76	0.45	
Observer(s)	1	1	1	380	380	0.25	0.15	0.34	0.25									
Coder(s)	4	5	10	823	508	0.26	0.08	0.43	0.32	0.13	0.272	66.3	0.23	83.3	-0.02	-2.61	0.01	
Listeners	36	43	165	44,946	15,887	0.34	0.28	0.40	0.38	0.13	0.034	5,388.6	0.22	95.3	-0.001	-11.03	<0.001	
Speakers	92	104	471	346,717	136,535	0.43	0.38	0.48	0.48	0.31	<0.001	71,271	0.26	99.1	0.000	-22.81	<0.001	
The Dependent Variable is Desirable																		
No	40	48	113	80,105	34,894	0.17	0.11	0.24	0.19	0.25	I	3,694.4	0.21	97.3	-0.01	-1.03	0.30	
Yes	111	132	551	319,915	128,435	0.43	0.40	0.47	0.49	0.18	<0.001	64,985.7	0.24	98.8	-0.001	-20.80	<0.001	

Meta-regression-test statistics assessing whether the categorical variables moderates the effect of listening: Occupation: $Q_{(6)} = 16.8$, $p = 0.010$, $R^2 = 0.08$, adjusted- $R^2 = 0.07$; Dependent Variable Reported by: $Q_{(3)} = 50.7$, $p < 0.001$, $R^2 = 0.05$, adjusted- $R^2 = 0.04$; Dependent Variable Dichotomized: $Q_{(1)} = 5.6$, $p = 0.017$, $R^2 = 0.02$ adjusted- $R^2 = 0.02$; Desirable outcome: $Q_{(1)} = 54.7$, $p < 0.001$; $R^2 = 0.14$; adjusted- $R^2 = 0.14$. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. The degrees of freedom for the heterogeneity- Q tests are *k* effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. *z* = the value of the test of the standard error of the effect as a moderator and its associated *p*-value

Table 15 Three-Level Meta-analyses of Listening's Effects on Performance Antecedents (H1, H2, H3) and Performance (H4) Utilizing Only Effects Based on Different Sources, Different Methods, or Both

Outcome	<i>k</i>	<i>N</i>			Effect			Meta-regression			Heterogeneity			Bias				
		Papers	Samples	Effects	Total	Independent	$\bar{r}$	<i>lb</i>	<i>ub</i>	$\bar{\rho}$	<i>B</i>	<i>p</i>	<i>Q</i>	τ	<i>I</i> ²	$\Delta \bar{r}$	<i>z</i>	<i>p</i>
All	38	46	177	56,745	22,326	0.29	0.23	0.35	0.32				3,793.5	0.20	94.2	0.000	-4.34	<0.001
Affect (H2)	20	22	58	20,880	10,146	0.21	0.13	0.29	0.23		0.30	1	360.6	0.18	92.5	0.01	-2.50	0.01
Performance (H4a)	5	8	17	3,794	1,378	0.24	0.07	0.41	0.27		-0.04	0.496	225.3	0.18	88.5	0.002	-1.53	0.13
Cognition (H3)	15	21	56	4,208	1,584	0.30	0.23	0.37	0.34		-0.05	0.209	180	0.15	67.3	0.01	-4.78	<0.001
Relationships (H1)	13	15	46	27,863	10,684	0.44	0.31	0.57	0.49		0.02	0.586	2,899.9	0.24	97.9	0.003	-1.17	0.24

Meta-regression-test statistics assessing whether the categorical variable (type of work outcome) moderates the effect of listening: $Q_{(3)} = 3.5$, $p = 0.323$; $R^2 = -0.01$; adjusted- $R^2 = -0.02$. $I =$ this level of the moderator served as an intercept in the meta-regression. *lb* = lower bound of the confidence interval; *ub* = upper bound of the confidence interval. The degrees of freedom for the heterogeneity- Q tests are k effects minus 1. $\Delta \bar{r}$ = The difference between $\bar{r}$ for the entire sample and $\bar{r}$ obtained after dropping the effect with the highest Cook's distance score. z = the value of the test of the standard error of the effect as a moderator and its associated p -value

Implications for Theory

Effect sizes

The effect sizes linking listening with work outcomes are moderate to strong compared to tens of thousands of correlations found in other domains of business and psychology (Bosco et al., 2015). Specifically, Bosco et al. (2015) found that in studies that correlated two percepts, 1/3 are above 0.40. Here, for studies using mono-source designs, the effect was 0.42. Similarly, in attitude-behavior studies, 1/3 of the effects are below 0.10, and 1/3 are above 0.24 (Bosco et al., 2015). Our finding is that listening predicts performance at 0.21, and $\bar{\rho} = 0.23$ (Table 15), indicating that listening has a moderate effect size compared to effects typically reported in the literature. Yet, it is as strong, if not stronger, than conscientiousness, the best Big Five personality predictors of performance, a $\bar{\rho} = 0.20$ (Wilmot & Ones, 2019).

Only 5.6% of the effect sizes found here were negative, suggesting that listening typically does not have harmful effects. This figure could be compared to the effects of feedback on performance, where 38% of the experimental interventions caused performance decline (Kluger & DeNisi, 1996). To make the comparison fair, we note that among the 30 experimental effects of listening, only one, 3.3%, yielded negative effects, and the most negative effect size was merely -0.04. Feedback research, and organizational attention to it, are overwhelmingly more common than listening research and attention to it. Thus, feedback, a form of talking, seems to receive attention disproportional to its risk. Listening seems to yield similar effect sizes with minimal risk. Nevertheless, although listening appears to be a form of communication much safer than feedback, the small proportion of adverse effects observed here should not be dismissed as mere sampling error effects. Employees whose job is to listen to traumatic accounts (e.g., social workers) tend to experience elevated stress as the severity of the trauma increases (Michelson & Kluger, 2023).

Our findings reveal significant heterogeneity in the impact of listening across various studies, as evidenced by the prediction interval ranging from -0.12 to 0.90. This variance can be attributed to both substantial and methodological factors. Specifically, listening affects most strongly work outcomes related to relationships and when those outcomes are desirable. Methodologically, the effect of listening is stronger when studies suffer from mono-method and mono-source biases and when the design is concurrent.

While these moderators explain some of the variance, a substantial amount of true variance remains unaccounted for. For instance, when we excluded 75% of the effects based on mono-source and mono-method biases, the estimate of true variance reduced, as shown in Table 15 compared to Table 5.

However, even in this subsample, the estimate of true variance remains substantial. This finding underscores the need for further research to develop theories and primary studies to shed light on this variance.

Listening as a Performance Predictor

Our findings suggest that listening can predict job performance and that this possibility was overlooked in over 100 years of research on performance predictors (cf., Campbell & Wiernik, 2015; Schmidt & Hunter, 1998). The meta-analytic estimate of the correlation between perceived listening and performance, excluding studies relying solely on self-reported questionnaires, is $\bar{r} = 0.21$, and $\bar{\rho} = 0.23$. Moreover, the variance of this estimate is significant, suggesting that under some unknown circumstances, the association is even stronger. Also, in some circumstances where the correlation is weaker, it may still have substantial financial and human utility. For example, one of the studies included here reported the association between patients' perception of listening by their doctor and hospital report of the likelihood of readmission to the hospital within 30 days, $N = 846$, $r = 0.07$ before correction for discontinuity. In that particular study, this correlation means that good listening reduces the proportion of readmission by 6.4%, or roughly for every 100 patients, six fewer will be readmitted if they all report that their doctor listened well.

Consider a few examples from our data to emphasize the potential of listening to predict performance. Castro et al. (2018) reported an experiment (Study 5) where half the listeners were distracted (poor listening) while listening to a speaker talking about how to advertise and sell a product. After the conversation, speakers and listeners suggested slogans for advertisement. Listening quality increased, $r = 0.28$, their creativity—measured as an aggregate of coder ratings of fluency, flexibility, originality, and the coder's subjective evaluation of creativity. Sato et al. (2021) reported, using a large sample of older Japanese adults, that if they reported that their physician listened well, they were more likely to go and get influenza and pneumococcal vaccines, $r_s = 0.04$ and 0.08 , respectively, both significant. These effects show the potential utility of listening, even when the effect sizes are very small. Last, multiple studies showed varying correlations between salesperson listening and actual sales, where two employed objective measures of performance, one showing $r = 0.10$ (Alnakhli et al., 2021) and the other showing 0.50 (Bergeron & Laroche, 2009).

Yet, this study only exposed the possibility that listening predicts performance. Still, it cannot address whether it has incremental predictive validity over existing predictors (e.g., general cognitive ability and conscientiousness). Moreover, only Castro et al. (2018) tested the effect of listening on actual performance experimentally. Also, only two other papers reported experimental studies using vignettes (Castro et al., 2018; Clopton et al., 2001). Therefore, future studies may wish

to assess (a) whether listening is a unique predictor of performance and (b) does listening causes improved performance, and if affirmative, how can it be trained effectively at work?

Relationships

The effect of listening on work outcomes that pertains to relationships (e.g., relationship satisfaction, leadership, and trust) was significantly stronger than the other outcomes (affect, cognition, and performance) and substantial, $\bar{\rho} = 0.57$. The difference between the effect on relationship relative to performance was predicted (H4b), but the differences between the effect on relationship, affect, and cognition were not (H4b). This pattern begs a revision of the view of the mechanism through which listening may affect performance. Restricting the revision to the empirical observation would suggest that listening improves relationship quality and that relationship quality mediates all listening effects on affect, cognition, and performance.

Our results suggest a revised model in which listening improves organizational outcomes through its impact on relationship quality aligns with existing theories highlighting the importance of relationships in influencing outcomes (Gottfredson & Aguinis, 2017). Bodie (2012) argued that listening can be seen as a form of relating that involves empathy, support, and intimacy (p. 113). Furthermore, because listening creates good relationships, or high-quality connections, between the listener and speaker, this would align with the theory of HQC, which suggests that HQCs cascade and create desirable organizational outcomes (Dutton & Heaphy, 2003).

Undesirable Outcomes and Destructive Listening

One surprising finding was that the average absolute association of listening with desirable outcomes (e.g., focal task performance) is 0.43 , while with undesirable outcomes, it is merely 0.17 . One reason for this pattern may be due to the lack of comprehensive coverage of the construct domain of listening. A factor analysis of 138 listening items suggested that there are two factors underlying listening measures: constructive and destructive (Kluger & Bouskila-Yam, 2018). Yet, in present meta-analyses, only one paper employed the destructive listening sub-scale. Yet, it is possible that destructive listening will be a better predictor of an undesirable outcome. This possibility is consistent with an unpublished large-scale psychometric study (Borut et al., 2022, May). Thus, we hypothesized that undesirable organizational outcomes (e.g., CWB) are more strongly associated with destructive listening than with listening measures typically used in the literature. Testing this hypothesis can benefit from employing the FLS (Kluger & Bouskila-Yam, 2018).

Implications for Methodology

Methodological factors

Suboptimal research practices permeate listening research. As shown in Table 7, using mono-source, mono-method, and mono-timeframe, or concurrent rather than predictive design, can inflate the estimate of the correlation between listening and job outcome between 0.12 and 0.17 correlation points on average. Given the evidence found here that listening is strongly associated with organizational outcomes, there seems no need to have more studies merely testing the main effect of listening on organizational outcomes with questionnaires in which the respondents report both listening and organizational outcome. Such questionnaires may be defensible only in initial studies trying to establish moderators' presence. If so used, researchers should recognize the likely inflation in their estimates.

Discriminant Validity

Some of the correlations reported here were so strong that they indicate varying degrees of threat to the discriminant validity (Rönkkö & Cho, 2020; Shaffer et al., 2016). Rönkkö and Cho (2020) suggested assessing the degree of threat to discriminant validity based on a latent correlation's confidence interval. They suggested that when the confidence interval's upper limit (UL) is > 1 , there is strong evidence of a threat of discriminant validity. When $1 > UL > 0.90$, the threat is moderate; when $0.90 > UL > 0.80$, the threat is weak. Only when $UL < 0.80$ can one conclude that there is evidence for discriminant validity.

We calculated, for every effect, the confidence intervals of its ρ estimate. We found that 0.5% exceeded 1, 6.5% exceeded 0.90, and 17.3% exceeded 0.80. That is, 17.3% of the effects reported here suffer from at least a weak threat to the discriminant validity of their measures. Yet, we were concerned that most of these threats stemmed from the association between listening and the outcome of relationships when assessed on a single questionnaire. Indeed, among the 154 effect sizes linking listening with relationships on a single questionnaire, 32.5% had a $UL > 0.80$, and 13% had a $UL > 0.90$.

This observation suggests that about a 1/3 of the studies relating relationship-related constructs (e.g., leadership, trust) with listening suffer at least a moderate threat to the discriminant validity of their measures. This observation is consistent observations in organizational behavior in that many constructs may merely reflect desirable (e.g., respect) and undesirable (e.g., incivility) behaviors (Shapiro et al., 2008) and that many leadership constructs may merely reflect positive and negative leader affect (Martinko et al., 2018). Thus, an urgent challenge for the listening literature is establishing discriminant validity

for its measures. Otherwise, the results reported above may reflect the benefits of good relationships for performance, affect, and cognition instead of the specific benefit of listening.

Implications for Future Research

Our systematic review exposed three lacunas in the listening literature: poor representation of episodic effects, effects on cognition, and lack of dyadic perspective in the existing research. First, according to the Episodic Listening Theory, listening affects behavior in short episodes which might have lasting effects (Kluger & Itzhakov, 2022). Here only 20% of the effects were based on a single episode, while the remainder assumed that listening is a chronic trait. While we have not found that this timeframe moderated the effect size, theories about performance suggest that focusing on within-person variability over short timeframes will improve understanding of performance (Dalal et al., 2020). Thus, future primary studies may wish to directly compare the listening-performance link in short episodes versus chronic behaviors.

Second, the systematic review found that the topic of listening and cognition is underrepresented, where the number of cognition-related studies is about one-third of the number of studies related to affect, relationships, or performance. Moreover, most frequently, the studies linking listening and cognition pertained to meta-cognition (e.g., good listeners increase the attitude complexity and reduce extremity). The few effects regarding knowledge and learning tended to assess salesperson knowledge of their customer. Therefore, it may be helpful to document whether good listening is associated with better knowledge in other occupations. Do physicians who listen well better know their patients and their medical needs? Do managers who listen well better know the strengths of their subordinates? Although these questions may appear trivial, studying listening, knowledge, and performance within the same study may allow investigation of whether knowledge is one path through which listening affects performance.

Finally, we struggled to decide whether the measure used was published or adapted, whether it pertains to an episode, and whether the outcome of listening pertains to the listener or the speaker. For these variables, the estimation of our inter-judge agreement tended to have the lowest values of κ . The published versus adapted measures and timeframe issues reflect poor reporting practices in many publications. In contrast, whether the outcome pertains to the listener or the speaker reflects, perhaps, a substantive bias in conceptualizing listening. For example, one study reported that participants reporting “doctors always listened to them carefully” were less likely to be readmitted to the hospital (Carter et al., 2018). Is the outcome of being healthier a benefit for the listener (the good physician), the patient (the healthier speaker), or both? Good listening seems to benefit both the listener and the

speaker. This observation is consistent with a recent view that listening is a dyadic phenomenon (Kluger et al., 2021). Thus, conceptualizing the outcomes of listening from a dyadic perspective may advance the field (for possible ways of modeling dyadic effects, see also Lehmann et al., 2022, October 13).

Limitations

One limitation is the accuracy of the meta-analytical estimations. The meta-analyses' accuracy was impacted by large variances of both the effect sizes, the r s, and their precision, the standard error of the r s. Specifically, the τ values were around 0.25 for most analyses, except for effects not involving questionnaires measuring both listening and outcomes reported by the same person (Table 15). This τ reflects a range of observation correlations as low as -0.66 and as high as 0.95. Differences in range among moderator categories contributed to imprecise estimates in the meta-regressions. Second, sample sizes varied dramatically, creating a very high ratio of high to low variances, reflecting a range of N as low as ten and as high as 22,253. These characteristics of the listening literature suggest that only the general pattern and the highly significant effects found could be reliable. Thus, any particular result and contrast between values within the reported tables should be taken as a hypothesis to be tested in primary studies, but not as robust evidence.

Conclusions

In conclusion, our systematic review and meta-analysis of over 400,000 observations and 664 effect sizes have uncovered a powerful and often overlooked predictor of work outcomes: perceived listening. Our findings reveal strong associations between perceived listening and job outcomes, most strongly with relationship quality. However, our work also highlights the need for further research to improve the construct validity of perceived listening and expand understanding of its power to predict objective performance measures. With the potential to enhance workplace relationships and performance, we invite researchers and managers to consider listening and perceived listening as critical aspects of work behavior.

Appendix A

Databases Included in ProQuest Search

1. ERIC (1966—current)
2. ABI/INFORM Collection (1971 – current)
3. Accounting, Tax & Banking Collection (1971—current)

4. Asian & European Business Collection (1971—current)
5. Australia & New Zealand Database
6. Business Market Research Collection (1986—current)
7. Canadian Business & Current Affairs Database
8. Consumer Health Database
9. Continental Europe Database
10. Criminal Justice Database (1981—current)
11. East & South Asia Database
12. East Europe, Central Europe Database
13. Education Database (1988—current)
14. Health & Medical Collection
15. Healthcare Administration Database
16. India Database (1998—current)
17. Latin America & Iberia Database
18. Middle East & Africa Database
19. Military Database
20. Nursing & Allied Health Database
21. Psychology Database
22. Public Health Database
23. Publicly Available Content Database
24. Research Library
25. Science Database
26. Social Science Database
27. Sociology Database (1985—current)
28. Turkey Database
29. UK & Ireland Database
30. ProQuest Dissertations & Theses Global
31. Sociological Abstracts (1952—current)

EBSCO: Search String, Included Disciplines and Included Databases

Capsule	Search terms
Listening	listen*
DV (relationship)	AND (relation* OR trust* OR satisf* OR intima* OR lik*
DV (affect)	OR affect* OR mood OR emotion OR burnout OR satisf* OR commit* OR motivat* OR psychological safety OR anxie* OR stress OR secondary trauma OR vicarious trauma OR traumatic
DV (cognition)	OR cogniti* OR knowledge OR complex* OR objective-attitude ambivalence OR learn*
DV (performance)	OR perform* OR counterproductive OR sale* OR creative* OR accident OR organizational citizenship behavior OR contextual OR theft OR steal* OR extra-role behavior OR prosocial behavior OR turnover OR tardiness OR late* OR absent*)

Capsule	Search terms
Context (work)	AND (job* OR work* OR employe* OR manage* OR boss* OR company* OR supervisor* OR subordinate* OR customer* OR patient* OR client* OR trainee* OR mentor* OR firm* OR organization* OR business* OR career* OR collaboration*)
Method (quantitative)	AND (quantitative OR associat* OR improv* OR correlate* OR effect* OR perform* OR affect* OR reduc* OR behav* OR chang* OR influenc* OR risk OR increase* OR difference*)
Exclusion	NOT (accent* OR acoustic* OR alarm call OR audio* OR audit* OR autis* OR bilingual OR biography OR cochlea OR computer energy OR cross language OR dichotic OR dual language OR English as OR eavesdrop* OR grammar OR hear* OR language acquisition OR language learning OR learnability OR lingu* OR listening comprehension OR literacy OR loud* OR music OR noise* OR performing art OR radio OR quran OR koran OR qur'an OR kor'an OR religio* OR schizophrenia OR second language OR sound OR spatial OR speech percept* OR syntax OR translation OR television OR TV OR vocabulary OR whisper OR wifi OR wi-fi OR WiFi OR wireless OR Psychoanalytic OR working memory OR FMRI OR neural OR autis* OR brain OR vocal* OR neural OR green OR brain activ* OR song* OR poet* OR animal* OR stimulus OR anthropological OR phoneme OR pedagogy OR psychoanalytic OR working memory)
Source	AND PT ("Academic Journal" OR "Dissertations/Theses") OR NOT PZ ("Editorial")

Limiters—Discipline: Agriculture & Agribusiness, Anthropology, Applied Sciences, Architecture, Arts & Entertainment, Biography, Business & Management, Communication & Mass Media, Consumer Health, Diplomacy & International Relations, Economics, Education, Engineering, Environmental Sciences, Ethnic & Cultural Studies, Geography & Cartography, Health & Medicine, History, Information Technology, Language & Linguistics, Law, Library & Information Science, Literature & Writing, Marketing, Military History & Science, Nursing & Allied Health, Physical Therapy & Occupational Therapy, Political Science, Politics & Government, Psychology, Public Health, Science, Social Sciences & Humanities, Social Work, Sociology, Sports & Leisure, Sports Medicine, Technology, Women's Studies & Feminism.

Databases: Publications in Education & the Social Sciences (The Szold Institute), FSTA—Food Science and Technology Abstracts, Shamaa, Springer Nature eBooks, Historical Abstracts with Full Text, Sexual Health Visual, OAPEN Library, Naxos Music Library, Digital Access to Scholarship at Harvard (DASH), Oxford Public International Law, SAGE Knowledge, Political Science Complete, EconLit, SocINDEX with Full Text, JoVE Science Education Database, CAB Abstracts, arXiv, Grove Art Online, APA PsycBooks, OECD iLibrary, Oxford Reference, MEDLINE, Eighteenth Century Collections Online, SSOAR – Social Science Open Access Repository, Directory of Open Access Journals, Springer Nature Journals, Oxford History of Western Music, ChemSpider, Social Work Abstracts, Research Starters, McGraw-Hill Medical, MLA International Bibliography with Full Text, OpenDissertations, JoVE Journal, Choice Reviews, DEHESA, RIPM—Retrospective Index to Music Periodicals, European Union Open Data Portal, Europeana, BazTech, eBook Academic Collection (EBSCOhost), Henry Stewart Talks, BrillOnline Reference Works, Scopus®, PsychiatryOnline, EU Bookshop, HeinOnline, Oxford Legal Research Library, BioOne Complete, Index to Hebrew Periodicals, APA PsycArticles, NORA (Norwegian Open Research Archive), eHRAF Archaeology, eScholarship, SveMed+, Investment Claims, TOXNET: TOXLINE, Index to Jewish Periodicals, ERIC, Library, Information Science & Technology Abstracts, Zad E-Books, Networked Digital Library of Theses & Dissertations, Oxford Scholarship Online, eBook Index, Gale Literature: Scribner Writer Series, Jewish Studies Source, Oxford Competition Law, Communication & Mass Media Complete, ClinicalTrials.gov, Index Islamicus, Retro.seals.ch, Otzar Online, F1000Research, Zad Peer-Review Articles, Rehabilitation Reference Center, Old Testament Abstracts, Encyclopedia of the Bible and its Reception Online, GreenFILE, J-STAGE, Dentistry & Oral Sciences Source, Oxford Constitutional Law, Violence & Abuse Abstracts, Business Source Complete, Public Administration Abstracts, Science Citation Index, Bloomsbury Collections, Research Tools for Studies in the Fields of Education & Society (The Szold Institute), Health and Psychosocial Instruments, Gale Academic OneFile, Grove Music Online, E-LIS (Eprints in Library & Information Science), Credo Reference, Music Index, Kotar Digital Library, Family Studies Abstracts, ORBi, IEEE Xplore Digital Library, Brill E-Book Collection, Film & Television Literature Index with Full Text, Times Digital Archive, OpenAIRE, JSTOR Journals, New Testament Abstracts, Oxford Dictionary of National Biography, Education Source, Gale eBooks, Britannica Online, Criminal Justice Abstracts, Academic Search Premier, eBook Collection (EBSCOhost), Arts & Humanities Citation Index, MathSciNet via EBSCOhost, Agricola, ScienceDirect, Philosopher's Index, Very Short Introductions

Online (VSI), Gale OneFile: LegalTrac, Biodiversity Heritage Library, RILM Abstracts of Music Literature (1967 to present), CyberLeninka, Alexander Street, TOXNET: GENE-TOX (Genetic Toxicology Data Bank), GeoRef, American National Biography Online, Westlaw UK, ProjectMUSE, LexisNexis Academic: Law Reviews, Art Index (H.W. Wilson), Social Sciences Citation Index, CINAHL Complete, University Press Scholarship Online, Atla Religion Database with AtlaSerials, RAMBI, Zad Dissertations, RePEc, Complementary Index, ICPSR Data Archive, AgeLine.

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Data Availability We shared all procedures, materials, datasets, and code on Open Science Framework, https://osf.io/czg4u/?view_only=a2c0d53711ed4c4abef15a92633f4cf5, including a Word version of our Qualtrics coding survey and R codes (along with a README.docx explaining them). Our Qualtrics survey used for the first batch of studies is also accessible.

Declarations

Conflict or interest We have no conflicts of interest to disclose.

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