Check for updates

Received: 24 February 2021 | Revised: 11 April 2022 | Accepted: 19 April 2022

DOI: 10.1111/1748-8583.12447

Human Resource Management Journal WILEY

RESEARCH ARTICLE

The negative impact of individual perceived isolation in distributed teams and its possible remedies

Sut I. Wong[1] | **Marthe Berntzen**[2] | **Gillian Warner-Søderholm**[1,3] | **Steffen Robert Giessner**[4]

[1]Department of Communication and Culture, BI Norwegian Business School, Oslo, Norway

[2]Department of Informatics, University of Oslo, Oslo, Norway

[3]Department of Business, Strategy and Political Science, University of South-Eastern Norway, Notodden, Norway

[4]Department of Organisation and Personnel Management, Rotterdam School of Management, Erasmus University, Rotterdam, The Netherlands

Correspondence
Sut I. Wong, Department of Communication and Culture, BI Norwegian Business School, Nydalsveien 37, 0484 Oslo, Norway.
Email: sut.i.wong@bi.no

Funding information
the Norwegian Research Council, Grant/Award Number: 275347; the Slovenian Research Agency, Grant/Award Number: J5-2555

Abstract

Previous research on distributed teams indicates that physical distance between team members is problematic for team functioning. We advance this research by investigating the role of team members' psychological experiences of isolation using both a longitudinal diary study and a time-lag field study, applying a Job Demand–Resource (JD-R) theory lens (Bakker & Demerouti, 2017). With the diary study, we capture daily fluctuations of perceived isolation and its antecedents and consequences. Results show that (a) where distributed team members work, and (b) how much they communicate, contribute to the degree to which distributed team members may feel isolated. The combined results of the diary study and the time-lagged field study show that 1) perceived isolation, and 2) perceived isolation combined with high role ambiguity, contribute to experiences of helplessness. Subsequently, feelings of helplessness hamper the level of perceived team implicit coordination. Theoretical

Abbreviations: AIC, akaike information criterion; CFA, confirmatory factor analysis; CFI, comparative fit index; COVID, coronavirus disease 2019; DI, daily isolation; DRA, daily role ambiguity; ICC, intra-class correlation; JD-R, job demand-resource theory; M, Mean; N, sample size; n.s., non-significant; PI, perceived isolation; RA, role ambiguity; S.D., standard deviation; S.E., standard error; SPSS, statistical package for the social sciences; SRMR, standardized root mean square residual.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2022 The Authors. Human Resource Management Journal published by John Wiley & Sons Ltd.

and practical implications for managing distributed teams are discussed.

KEYWORDS
daily communication quantity, daily work location, distributed teams, helplessness, JD-R theory, perceived isolation, team implicit coordination

Practitioner notes

What is currently known:

- Perceived isolation is a major challenge for distributed team members working remotely.
- The quantity of team communication is often lower in distributed teams than in traditional teams.
- Management of the work-home interface is a perceived challenge within Job Demand–Resource contexts where job control (low job ambiguity) and felt copresence of others have a remedial effect

What this paper adds:

- Distributed team members communicate less when working from home than when working in remote offices.
- Team members' frequent interactions with colleagues and managers improves team collaboration and helps mitigate feelings of isolation.
- Team members' perceived understanding of the clear 'what' of their tasks in a team, combined with daily communication with colleagues, improves perceived team implicit coordination.
- The innovative use of a diary study to gather data.

The study finding's implications for practitioners:

- Importance of taking into consideration peoples' work location.
- Understanding that a team member's perceived need for role clarity and daily interaction counteracts perceived helplessness and so improves perceived implicit coordination.
- The importance of combining daily communication in teams with both peers and managers as a remedy for feelings of perceived isolation.
- The application of a Job Demand–Resource (JD-R) lens to develop novel theoretical underpinnings of distributed team research.
- Showcasing how we need to navigate job demands versus available resources for long term well-being and engagement, especially in post pandemic periods.

1 | INTRODUCTION

The rapid development of digital technologies has facilitated the emergence of distributed teams, and the use of distributed teams to improve organizational efficiency is expected to continue growing (Daniel et al., 2018), especially in the post-pandemic-era (Collings et al., 2021; Sanders et al., 2020). Distributed work arrangements have been studied under different labels, including virtual work, telework, remote work, dispersed work, and tele-commuting (Bartel et al., 2012). These conceptualizations align on the premise that teammates are not co-located and accordingly, rely on computer-mediated communication technology for planning and coordinating their work (Gibson & Gibbs, 2006). Compared to co-located teams, distributed teams experience greater challenges in team

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

satisfaction, knowledge sharing, work meaningfulness, team trust (Hoch & Kozlowski, 2014), communication (Daim et al., 2012), helping behaviours (ter Hoeven & van Zoonen, 2020), and generally, the ability to coordinate effectively (Huang et al., 2010; Lewis, 2003). Nonetheless, the hybrid workplace model, as a new job design, remains appealing to both workers and organisations—even if this model will not always be necessary due to the COVID-era's eventual end—highlighting the importance of further understanding psychological implications and team coordination in distributed teams.

Scholars point to the isolating nature of distributed teams as a major challenge to coordination, knowledge sharing, and trust building among team members (Espinosa et al., 2002; Maynard & Gilson, 2014; Schmidtke & Cummings, 2017). Unfortunately, research investigating the psychological processes at the individual level that result from isolation in distributed teams and their influence on implicit coordination is limited. Furthermore, the majority of research on distributed teams thus far has focussed on actual physical isolation, and lacks exploration of the role of perceived isolation, the feeling of being cut off from others (Golden et al., 2008). This is rather surprising given that perceived isolation has shown to be detrimental to work outcomes, such as job performance, perceived respect, organizational identification, and perceived employee development, whereas actual physical isolation (e.g., geographical dispersion) within distributed teams may not necessarily result in members feeling psychologically isolated (Bartel et al., 2012; Cooper & Kurland, 2002; Golden et al., 2008).

While previous research has either focussed on actual physical or perceived isolation, the current study combines those perspectives and conceptualises perceived isolation as the more proximal psychological process that relates actual physical isolation to work outcomes. In addition, we argue that perceived isolation per se does not always result in negative work outcomes, but could do so under certain conditions, such as role ambiguity. Using the Job Demand–Resource (JD-R) theory as a lens through which to investigate whether the effects of increases in job demands or decreases in job resources, arising from distributed work, lead to reduced team coordination through motivational or strain processes (Bakker & Demerouti, 2018), we conceptualise perceived isolation as compromising one's job resources, where individuals who experience a higher level of perceived isolation experience a lower level of social support, and therefore have fewer resources to help them accomplish their work goals. We propose that this lower level of available job resources impairs the motivational process, leading to feelings of helplessness (Golden et al., 2008). We also conceptualise role ambiguity as a job demand which requires mental effort to overcome in order to perform job tasks. We further posit that role ambiguity serves as a boundary condition which increases feelings of helplessness associated with perceived isolation. Finally, the JD-R theory proposes that reduced job resources and increased job demands lead to a strain process. Thus, we also suggest that feeling helpless leads to lower levels of implicit team coordination.

By investigating the antecedents and outcomes of perceived isolation in distributed teams, the contributions of our study are three-fold. First, our study adds to the current discussion addressing how the use of information communication technology may influence job demands and resources using JD-R theory (Wang et al., 2020). In particular, our study contributes to workplace isolation literature by highlighting perceived isolation as a reduced job resource, serving as a central mediating variable between physical and individual remoteness, as well as team outcomes. In addition, our study extends the workplace isolation literature by theorising and testing the daily fluctuation of the degree to which distributed team members feel isolated at work. Third, our study sheds light on the psychological mechanism at play when distributed team members respond to physical, and subsequently, psychological isolation, through JD-R theory.

2 | THEORY AND HYPOTHESES

Teams, characterised by their members' interdependent interactions directed towards a performance goal, are increasingly distributed (Forsyth, 2017; Larson & DeChurch, 2020). A key feature of distributed teams is their departure from the prototype of working in co-located offices daily, under supervision, alongside co-workers (Bartel

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

et al., 2012). The emergence of distributed teams changed team boundaries that differentiate team members: those who work in the same location, and those who do not (Sundstrom et al., 1990). The physical flexibility of distributed teams allows members to work offsite, such that a team's interdependent interaction towards the common goal relies on digital means, which poses communication challenges (Gibson & Gibbs, 2006).

Bakker and Demerouti (2017) claimed that at the heart of the JD-R model lies the understanding that in every occupation, in any sector, there are two basic categories to balance for optimal task performance: job demands and job resources. Job resources are the very social, communicational, physical, or organizational resources that a team member has, whereas job demands include the workload, emotional and cognitive demands of a task, such as concentration (Bakker & Demerouti, 2017). Distributed work has transformed teamwork in that it shifted the balance of job demands (e.g., the need to learn new technologies) and resources (e.g., social support) (Dinh, et al., 2021). Previous researchers of distributed work have explored its role as an antecedent to negative feelings, such as lack of visibility and interpersonal bonding with colleagues, resulting in social and professional isolation (Gainey et al., 1999). Building on this line of research, we argue that distributed team members are likely to feel more psychologically isolated on days where they work remotely than on days when they work in office, because physical visibility and interactions are harder to achieve via digital means (Golden et al., 2008). Thus, work-related isolation in distributed teamwork reduces available resources, as it denotes a hindrance of social support and is associated with less social relatedness and social interactions (Schaufeli & Taris, 2013). The psychological needs for belonging and connectedness constitute resources according to the JD-R theory, and their reduction, considered perceived isolation, is thought to reduce resources (in contrast to being a job demand). Indeed, earlier studies have shown that distributed team members experience a reduced sense of job resources, such as collegiality, resulting in a lack of reliance on others to achieve their work objectives (Collins et al., 2016). A second vital assumption in the JD-R model is that a consequent imbalance between such resources available to a team member and work demands can lead to issues beyond psychological problems (Bakker & de Vries, 2021). Based on the foregoing argumentation, we hypothesise that, with reduced formal and informal interactions daily, distributed team members perceive more individual isolation when working remotely. Figure 1 illustrates our conceptual model and summarises our hypotheses.

H1 *Distributed team members experience higher daily isolation on days where they work remotely than days where they work in office.*

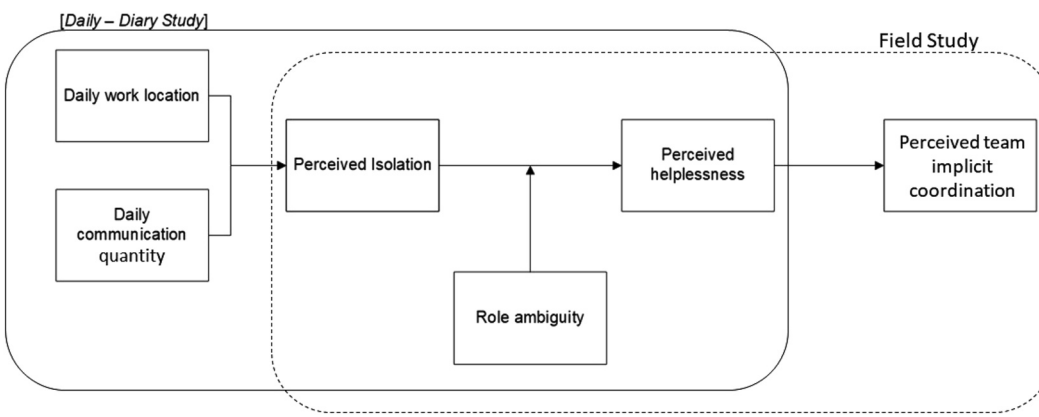

FIGURE 1 The conceptual model

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

2.1 | Daily team and manager communication quantity and daily perceived isolation

In addition to daily work location, we argue that daily communication quantity also predicts perceived isolation. The use of counter-balance measures, such as access to communication-enhancing technology (i.e., job resources) to facilitate interactions with other co-workers in the organisation, can reduce perceived isolation from both colleagues and the company's support network (Golden et al., 2008). However, distributed teamwork often impacts the quantity and quality of formal and informal interactions (Dinh et al., 2021). Researchers have found that patterns among distributed team members vary over short periods of time, for example, daily and weekly (Huysman et al., 2003), and that distributed team members are less likely to reach out to each other and their supervisors compared to those who work in the office (Collins et al., 2016).

Communication with team members and supervisors increases perceptions of proximity through three mechanisms: increasing cognitive salience, reducing uncertainty, and making distant others more predictable and understandable, as well as envisioning other teammates' contexts and local situations in more detail (Wilson et al., 2008). These findings are supported by propositions of the JD-R theory in that resources such as relatedness to others can offset the effect of reduced resources, and even buffer the impact of job demands on experienced strain (Bakker & Demerouti, 2017, 2018). Employees who communicate often with their teams, rewarding contact with both colleagues and supervisors for work-related discussions, are most likely to be better communicators and problem solvers, and such communications increase employees' feelings of belonging and commitment (Bakker & Demerouti, 2017). In sum, the daily quantity of communication with their teams may help distributed team members feel close, despite physical distance (Gajendran & Joshi, 2012). The negative effect of communication quantity on perceived isolation likely not only develops over time, but is also valid for distributed team members' daily experiences.

H2 *Individuals experience lower perceived daily isolation on days when they have higher communication quantity with their teams than days when they have lower communication quantity with their teams.*

2.2 | Perceived isolation and helplessness: Role ambiguity as a moderator

JD-R theory (Demerouti et al., 2001) proposes that excessive job demands and insufficient job resources spark a strain process leading to lower engagement and burnout, resulting in negative organizational outcomes, like turnover intention and lower organizational commitment (Hu et al., 2011). Specific job resources, such as work role clarity, low ambiguity, and sufficient communication are critical social and organizational aspects of JD-R theory, that can be used as remedies or buffers against the harmful impact of stressful job demands (Bakker & Demerouti, 2017). We argue that in distributed teams, higher levels of perceived isolation with a lack of social and professional support can be considered an insufficient context for healthy teamwork (Gajendran & Joshi, 2012). Isolation clashes with an individual's psychological need to belong, which affects the motivational process of the JD-R theory adversely (Van den Broeck et al., 2008), recapitulating our previous argumentation of perceived isolation to reduce resources. Experiencing detachment is furthermore related to emotional stress and reduced helpfulness towards others (Baumeister et al., 2007), which can have negative implications for organizational outcomes.

Helplessness refers to the perception that one's own behaviours and actions are futile due to an uncontrollable environment (Ashforth & Saks, 2000). Individuals feel helpless when they are uncertain regarding how to go about their work and when this uncertainty is not expected to be resolved in the near future (Sparr & Sonnentag, 2008). We propose that with greater perceived isolation, individuals perceive a lower level of job resources as available for the successful accomplishment of their job tasks. In addition, perceived isolation can be associated with perceived lack of opportunity to influence decision-making and actions, leading to a perceived lack of personal control, and a lower level

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

of perceived personal resources, such as a home life to relax and engage in after work. With lower levels of perceived resources, individuals are more likely to consider themselves to be unable to perform their work and to change their situation, leading to an increased experience of helplessness.

Further, role ambiguity refers to the degree to which information concerning an individual's role is unclear or vague (Tubre & Collins, 2000), including methods for fulfiling role expectations and consequences of performance stemming from that role (Orhan et al., 2016). Role ambiguity is a critical challenge for distributed teams, as working in isolation requires team members to have clear expectations of other members (Daniel et al., 2018). Distributed team members often experience ambiguity regarding what they are expected to do and lack an updated view of the team's current challenges and priorities (Gajendran & Joshi, 2012; Orhan et al., 2016). Furthermore, relying on electronic communication leads to delays in response times and hold-ups (Golden et al., 2008) where members are unable to immediately ask for clarification or help, and may miss important communicational cues (Huang et al., 2010).

While role ambiguity is classified as a job demand (e.g., Schaufeli & Taris, 2013), some ambiguity also pertains to the conceptual differentiation between job demands and resources. For example, lacking resources could create the need for more effort and increased job demands to reach work goals. Thus, resources may be construed as job demands (Schaufeli & Taris, 2013). This is an important consideration with regards to role ambiguity, as role ambiguity could be a hindrance to personal growth and development. Crawford et al. (2010) refined the JD-R theory with the appraisal of stressors to account for the inconsistent relationship between demands and outcomes by considering the nature of the demand. Namely, hindrance demands are negatively related to work outcomes, while challenge demands lead to positive work outcomes. Their meta-analysis is consistent with previous research, where role ambiguity, role conflict, and role overload correlate with hindrance demands. Based on Crawford and colleagues' (2010) work, we propose that role ambiguity is likely to be appraised as a hindrance demand when perceived isolation is high. Specifically, when distributed team members perceive themselves as isolated from other team members and/or their leaders, role ambiguity is likely to be perceived as requiring an exceedingly large amount of effort to overcome and potentially thwart personal growth and goal attainment (Crawford et al., 2010). Therefore, the positive relationship between perceived isolation and helplessness is expected to be stronger when role ambiguity is high. In addition, as feelings of isolation, role ambiguity, and helplessness can be contextual (Sparr & Sonnentag, 2008), it is likely that this intertwining of perceived isolation and role ambiguity in predicting experiences of helplessness can occur in both daily experiences and general experiences over time.

H3a *Daily Within-Person: The positive relationship between daily-perceived isolation and daily-perceived helplessness is moderated by daily-perceived role ambiguity such that when daily role ambiguity increases, the effecst of daily perceived isolation on daily perceived helplessness becomes stronger.*

H3b *Effect Over-Time: The positive relationship between perceived isolation and perceived helplessness is moderated by role ambiguity such that when role ambiguity increases, the effect of perceived isolation on perceived helplessness becomes stronger.*

2.3 | Moderated mediation in predicting team implicit coordination

Team implicit coordination, a team's ability to act cohesively by understanding the needs of team members and tasks, has been deemed critical for team performance (Rico et al., 2008). Unlike explicit coordination, which refers to visible and external coordination patterns under regulations, implicit coordination requires team members' adjustment of behavioural models according to anticipated tasks and other team members' needs (Chang et al., 2017).

Furthermore, individuals are selective in how they use their available resources such that they tend to invest more in situations when positive outcomes are expected (Hobfoll, 1989). In response to hindrance demands, where

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

one believes efforts are unlikely to pay off, individuals choose to conserve resources by reducing their efforts. When faced with the job demand of high role ambiguity in conjunction with high perceived isolation, members of distributed teams likely interpret role ambiguity as a hindrance stressor and are therefore less likely to make active efforts to resolve role ambiguity, leading to higher helplessness. Subsequently, we argue that this greater helplessness leads to stronger perceptions of one being unable to contribute to one's team, and actions like seeking feedback or assistance as being futile, as well as reduced helpfulness in relation to others, perpetuating passivity in interactions (Baumeister et al., 2007; Eubanks et al., 2016). This passivity would likely undermine distributed team members' experiences of team implicit coordination, potentially enabling a reinforcing cycle over time. Therefore, we argue that role ambiguity will moderate the mediated relationship between perceived isolation and team implicit coordination via helplessness.

H4 *Role ambiguity moderates the strength of the mediated relationship between perceived isolation and team implicit coordination via helplessness, where the mediated relationship is stronger with greater role ambiguity.*

3 | METHOD

We used a mixed-method approach to test our hypotheses. First, a diary study was conducted to examine changes in a work context (i.e., remote workplace and communication quantity) as an antecedent of daily fluctuating perceived isolation and its consequential effects on daily feelings of helplessness depending on role ambiguity (H1, H2, and H3a). Second, we conducted a time-lagged field study to collect data on more general feelings of isolation, helplessness, team implicit coordination, and role ambiguity in distributed teams (H3b and H4). While the first study made use of a heterogeneous sample via panel data, the second study focussed on one organisation working with distributed teams.

3.1 | Study 1—A diary study

3.1.1 | Sample and procedure

Diary studies employ daily assessments, as opposed to collecting data at a single time point or longitudinally (Cunningham et al., 2021; Ohly et al., 2010). Most commonly, diary studies in workplace and organizational research apply a quantitative survey approach with standardized questions and multi-level structure in analyses (Bakker & Xanthopoulou, 2009). Key advantages of this method include the implementation of a process perspective and a reduction of retrospective bias (Reis & Gable, 2000). Our diary study was designed to measure individuals' daily work location, communication quantity with their teams, and perceptions of isolation, role ambiguity, and helplessness.

The diary study was conducted in July 2018 and consisted of six surveys: one background survey yielding between-person (Level 2) data, such as demographics, and five diary surveys yielding within-person (Level 1) data, including work location and communication quantity with the teams, and perceived isolation, helplessness, and role ambiguity for each day.

The data collection was carefully planned to avoid potential sample validity problems associated with the use of crowd-workers as participants (Litman et al., 2017). First, we launched a background survey with questions regarding demographics and current work situation, such as whether participants had a full-time job requiring them to work in distributed teams, as well as how they interacted with their team members and leaders. We invited respondents to participate in our daily surveys if their full-time jobs required them to work in distributed teams, not only relying on face-to-face communication, but also digital communication tools to interact. In total, we invited 150 individuals to participate.

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Following the introduction survey, the diary survey was distributed to participants every second workday for 2 weeks, corresponding to five surveys, to capture changes in experience over a period of time (Cunningham et al., 2021). All 150 participants were notified by email when a new survey became available and were instructed to complete it as soon as possible after each workday. Each diary survey was made available until midnight on the respective day. The response rate for each day ranged from 92% to 97.33% except for Day 1 (127 responses, 84.67%).

Of the 150 participants, 70 were female, and one reported to be neither male nor female. The majority (60.7%) had a bachelor's degree, followed by those who had a master's degree (14.7%), high school education (12.0%), diploma degree (10.7%), and a doctoral degree (2.0%). On average, they were 36.5 years old (*S.D.* = 9.0), with an average tenure of 7.6 years (*S.D.* = 7.0). The majority of participants reported working in the office across the five working days (Day 1: 66.0%; Day 2: 60.7%; Day 3: 74.7%; Day 4: 69.3%; Day 5: 58.0%) compared to working remotely (i.e., either at home or in the field) (Day 1: 18.7% [15.3% of the respondents did not report where they worked that day]; Day 2: 32.0% [7.3% missing]; Day 3: 25.3% [no missing]; Day 4: 28.7% [2.0% missing]; Day 5: 38% [4.0% missing]).

3.1.2 | Measures

All constructs except demographics, daily communication quantity, and work location, were measured according to five-point scales ranging from 1 ("strongly disagree") to 5 ("strongly agree"). To shorten the diary survey, we removed one item from the perceived isolation and role ambiguity scales, respectively.

Perceived isolation was measured with three items focussing on perceptions of distributed team members from Connaughton and Daly's (2004) study. A sample item is "I often feel disconnected from fellow team members located apart from me."

Feelings of helplessness was measured by three items adapted from Ashforth and Saks (2000). A sample item is "No matter what I do, nothing seems to have an effect at work."

Role ambiguity was measured by three items from the original scale developed by Rizzo et al. (1970). An example item is: "Today I knew what my responsibilities were." The items were reverse coded such that higher values imply higher perceived role ambiguity.

Daily communication quantity was measured using Bakker and Xanthopoulou's (2009) one-item scale. The original measure captured the amount of communication with colleagues, and we modified the item to include communication quantity with leaders. Specifically, we asked: "How much time did you spend today on business and informal contacts (phone, email, face-to-face) with 1) your team members, and 2) your leader?" Participants indicated the communication quantity by choosing: 1 = 0–15 min, 2 = 15–30 min, 3 = 30–60 min, 4 = 1–2 h, 5 = >2 h.

Daily work location was measured using the following item: "Where did you work today?" where 0 = in the office, and 1 = remotely either at home or in the field.

Control variables. Gender, age, education, and organizational tenure were included as (Level 2) between-person variables in this study. Given these variables are commonly examined and have been found to impact work outcomes in previous research, we include them as control variables to eliminate alternative explanations and improve statistical power (Bernerth & Aguinis, 2015). Participants reported their ages and organizational tenures in true years. Gender was measured according to three categories: 1 = male, 2 = female, and 3 = neither male nor female. Education was measured on six educational levels (1 = high school education, 13 years; 2 = higher diploma, 14 years; 3 = bachelor's degree, 16 years; 4 = master's degree, 18 years or higher, 5 = doctorate degree, 21 years or higher).

To minimise potential biases for the estimations, all predictor variables were centred (Hofman & Gavin, 1998). In our study, all Level 2 between-person control variables were centred to the grand means. For Level 1 within-person predictors, including daily communication quantity, daily perceived isolation, and daily role ambiguity, the variables were centred to each person's mean across the 5 days. Daily work location was categorical with 0 coded as office and 1 coded as remote.

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Hypotheses 1–3a posit measured relationships within-persons across days. This implies that the data are nested within the person, that is, Level 2 with daily variables, that is, Level 1. Multilevel model analysis using SPSS MIXED procedure was thus conducted to test the hypothesised within-person effects. Our statistical model thus involves a set of regression equations nested in two levels: Level 1 at the daily level of analysis and Level 2 at the individual level of analysis. For H3a, we examined three nested models: 1) with only the Level 2 control variables, for example, gender; 2) with the Level 1 within-person predictor, for example, daily work location, and moderator, for example, daily role ambiguity added; 3) with the interaction between the predictor and moderator added. For H1 and H2, as there was no moderation posited; we examined the hypotheses using the first two nested models listed above.

3.1.3 | Study 1 Results

Table 1 presents the means, standard deviations, correlations, and reliabilities for the between-person (Level 2) and within-person (Level 1) variables. Before testing our hypotheses, we conducted a set of confirmatory factor analyses (CFA) across each of the five diary days with maximum likelihood estimation procedures to assess measurement invariance over time. We ran the analyses for the measures that were repeated across the five diary entries, that is, perceived isolation, helplessness, and role ambiguity. The analyses were run in R using the lavaan package (Rosseel, 2012). As recommended (Brown, 2015; Vandenberg & Lance, 2000), we used both a multi-group approach, which includes within-time covariances, and a single-sample longitudinal approach, which includes between-time correlations between the repeated items (this is because there is no clear guideline yet available for cut-off scores in the longitudinal approach). Table 2 shows the results of the CFA tests.

As shown in the upper part of Table 2, we first tested simple CFA within each time point. Results show a generally good fit to the data with relative (normed) chi-square (χ^2/df) smaller than 3 and CFI values above 0.95 (cf. Hu & Bentler, 1999; Kline, 1988). When assessing the invariance over time in a multigroup and in a single sample longitudinal CFA model, changes in the goodness-of-fit indices provide an estimate of invariance, as chi-square values are sensitive to sample size. A cut-off value of 0.002 for ΔCFI, and 0.03 for ΔSRMR have been suggested to judge invariance in multigroup CFAs (Cheung & Rensvold, 2002; Meade et al., 2008). The multigroup-CFAs provide very well fitting configures (i.e., baseline model) and the small changes in ΔCFI and ΔSRMR provide support for metric and even scalar invariance. The slightly lower fit scores (in terms of CFI) for the longitudinal model and configural model

TABLE 1 Means, standard deviations, correlations, and alpha reliabilities for Study 1

Variable	Mean	*S.D.*	1	2	3	4	5	6	7	8
1. Gender[2]	1.48	0.51	–							
2. Age[2]	36.50	9.0	0.17*	–						
3. Education[2]	3.84	0.89	−0.01	−0.06	–					
4. Organizational tenure[2]	7.60	7.01	0.08	0.66**	−0.09	–				
5. Daily isolation[1]	1.87	0.95					(0.93)			
6. Daily role ambiguity[1]	2.31	0.97					0.31*	(0.91)		
7. Daily perceived helplessness[1]	3.79	0.90					0.43**	0.28**	(0.94)	
8. Daily communication quantity[1]	2.84	1.19					−0.13**	−0.12**	−0.09*	–
9. Daily work location[1]	0.30	0.46					0.21**	−0.05	0.03	−0.20**

Note: N(individual) = Day 1: 126, Day 2: 140, Day 3: 151, Day 4: 146, Day 5: 147; N(day) = 5; N(observation) = 710. [1]Indicates variables measured at Level 1 within-person across days; [2]Indicates variables measured at Level 2 between-person. Alpha coefficients are in parentheses on the diagonal. For Gender, 1 was coded as male, 2 was coded as female, and 3 was coded as others. For daily work location, 0 was coded as office and 1 was coded as remote.

*$p < 0.05$, **$p < 0.01$.

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 2 Confirmatory factor analyses

Model	χ^2	df	χ^2/df	CFI	SRMR	$\Delta\chi^2$	ΔCFI	ΔSRMR
Day 1 (*n* = 126)	45,48	24	1.90	0.971	0.045			
Day 2 (*n* = 140)	43.10	24	1.80	0.981	0.043			
Day 3 (*n* = 151)	63.46	24	2.64	0.962	0.039			
Day 4 (*n* = 146)	62.52	24	2.61	0.963	0.052			
Day 5 (*n* = 147)	29.01	24	1.21	0.996	0.025			
Multiple-groups CFA								
Configural	243.56	120	2.03	0.976	0.041			
Metric	259.22	144	1.80	0.977	0.043	15.66	0.001	−0.002
Scalar	281.53	168	1.67	0.978	0.045	22.31	0.001	−0.002
Single sample longitudinal CFA								
Configural	1200.6	750	1.60	0.930	0.055			
Metric	1217.5	774	1.57	0.931	0.057	16.93	0.001	−0.002
Scalar	1255.3	810	1.55	0.931	0.059	37.79	<0.001	−0.002

Note: Maximum likelihood estimation was used.

Abbreviations: CFI, comparative fit index; SRMR, standardized root mean square residual; $\Delta\chi^2$, change in χ^2 relative to preceding model; ΔCFI, change in CFI; ΔSRMR, change in SRMR.

+/− signs denote better/worse fitting models, respectively.

are explained by the fact that these models are more complex and generally provide a poorer fit (Brown, 2015). It is remarkable, however, that the cut-off criteria used for multilevel CFA to test invariance also holds the metric and scalar invariance test for the more complex longitudinal CFA model. Thus, overall, these analyses provide support for metric and scalar invariance of our measures across days.

Next, we conducted multilevel regression analyses to test our hypotheses. We regressed daily isolation as a dependent variable on daily work location and daily communication quantity. As presented in Table 3, individuals reported lower perceived isolation on days spent working in the office (−0.48, $p < 0.01$), supporting Hypothesis 1. In addition, supporting Hypothesis 2, daily communication quantity was negatively associated with daily-perceived isolation (−0.16, $p < 0.01$).

To test Hypothesis 3a, we regressed daily-perceived helplessness on daily isolation, daily role ambiguity, and their interaction term. As shown in Table 4 (Model 3), daily isolation (0.18, $p < 0.01$) and daily role ambiguity (0.12, $p < 0.01$) were positively related to daily-perceived helplessness. The interaction between daily isolation and daily role ambiguity was significantly positive (0.20, $p < 0.01$). The results of the two-way interaction slopes difference test demonstrate that the relationship between daily isolation and daily perceived helplessness was significant and positive when daily role ambiguity was high (0.29, $p < 0.01$). However, the daily isolation—perceived helplessness relationship was not significant when role ambiguity was low. We plotted the two-way interaction, as illustrated in Figure 2. With higher daily role ambiguity, the positive relationship between daily perceived isolation and daily perceived helplessness was stronger. Hypothesis 3a is thus supported.

3.2 | Study 2—A time-lag field study

3.2.1 | Sample and procedure

Data was collected in a two-stage survey distributed to individuals working in geographically distributed teams of an international firm across 15 countries. The Time 1 survey was distributed in March 2018 via Qualtrics to 535 targeted

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 3 Multilevel regression analyses of Study 1 for testing Hypotheses 1 and 2

	Daily perceived isolation	
Variables	**Model 1**	**Model 2**
Intercept	3.17 (0.77)***	3.25 (0.89)***
Male[2]	−0.19 (0.67)	−0.03 (0.67)
Female[2]	−0.40 (0.68)	−0.21 (0.67)
Age[2]	−0.01 (0.01)	−0.01 (0.01)
Education[2]	−0.13 (0.06)**	−0.14 (0.06)
Organizational tenure[2]	0.01 (0.01)	0.01 (0.01)
Day 1[a]	−0.19 (0.10)*	−0.10 (0.09)
Day 2	−0.13 (0.09)	−0.13 (0.08)
Day 3	−0.17 (0.09)*	−0.10 (0.08)
Day 4	−0.08 (0.10)	−0.02 (0.09)
Daily work location[b]		−0.48 (0.07)***
Daily communication quantity[1]		−0.16 (0.04)***
Model deviance (AIC)	1778.84	1729.52

Note: N(individual) = Day 1: 126, Day 2: 140, Day 3: 151, Day 4: 146, Day 5: 147; N(day) = 5; N(observation) = 710. Fixed effects coefficients and their robust standard errors are shown in each equation. [1]Indicates variables measured at Level 1 (within-person); [2]Indicates variables measured at Level 2 (between-person).

[a]Day 5 was used as a reference.

[b]0 was coded as office; 1 was coded as remote and remote location was used as a reference.

*p < 0.10, **p < 0.05, ***p < 0.01.

participants who were given three weeks to reply, ending with 153 (28.6%) completed surveys. The Time 2 survey was distributed three months after, to those 153 individuals who completed the Time 1 survey. Of these, 107 (69.9%) responded, resulting in a final sample of individuals from 42 geographically distributed teams (ranging from 1 to 8 participants from one team unit) located across 15 countries, with a final response rate of 20.0%. We then assigned each participant a unique team identification number.

Of the 107 respondents, 28 were female (26.2%). The majority had obtained a bachelor's degree (54.2%), followed by those who had a master's degree (29.0%), high school education (10.3%), a diploma degree (5.6%), and a middle school education (0.9%). On average, they were 37.10 (*S.D.* = 11.12) years old. The average tenure working for the current organisation was 6.69 (*S.D.* = 8.38) years. To assess potential dropout biases, mean comparisons were performed to examine whether there were differences between the final sample (N_1 = 107) and among those who had completed the Time 1 survey but dropped out at Time 2 (N_2 = 46). No differences were observed for their demographic variables, including age (M_1 = 37.10; $S.D._1$ = 11.11 vs. M_2 = 37.97; $S.D._2$ = 12.32, p = 0.68), gender (M_1 = 1.26; $S.D._1$ = 0.44 vs. M_2 = 1.15; $S.D._2$ = 0.36, p = 0.14), and organizational tenure (M_1 = 6.69; $S.D._1$ = 8.38 vs. M_2 = 4.30; $S.D._2$ = 4.91, p = 0.07). There was also no significant difference observed with respect to the predictor, that is, perceived isolation (M_1 = 2.15; $S.D._1$ = 0.78 vs. M_2 = 2.24; $S.D._2$ = 1.04, p = 0.56). Thus, dropout bias was not problematic in the present study.

3.2.2 | Measures

All constructs were measured according to five-point scales ranging from 1 ("strongly disagree") to 5 ("strongly agree") unless otherwise stated. We employed the same measures used in the diary study (Study 1) for *perceived isolation*,

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 4 Multilevel regression analyses of Study 1 for testing Hypothesis 3a

	Daily perceived helplessness		
Variables	**Model 1**	**Model 2**	**Model 3**
Intercept	3.39 (0.89)***	3.43 (0.89)***	3.38 (0.89)***
Male[2]	−0.12 (0.79)	−0.23 (0.79)	−0.21 (0.79)
Female[2]	−0.01 (0.79)	−0.11 (0.79)	−0.09 (0.79)
Age[2]	−0.01 (0.01)	−0.02 (0.01)	−0.01 (0.01)
Education[2]	−0.11 (0.07)	−0.11 (0.07)	−0.11 (0.07)
Organizational tenure[2]	−0.00 (0.01)	−0.00 (0.01)	−0.00 (0.01)
Day 1[a]	−0.09 (0.09)	−0.06 (0.08)	−0.03 (0.08)
Day 2	−0.02 (0.08)	0.00 (0.08)	0.04 (0.08)
Day 3	−0.17 (0.08)**	−0.13 (0.08)*	−0.12 (0.08)
Day 4	−0.02 (0.08)	0.01 (0.08)	0.02 (0.07)
Daily work location[b]	−0.09 (0.08)	−0.01 (0.08)	−0.02 (0.08)
Daily communication quantity	−0.01 (0.04)	0.03 (0.04)	0.04 (0.04)
Daily isolation[1] (DI)		0.19 (0.04)***	0.18 (0.04)***
Daily role ambiguity[1] (DRA)		0.14 (0.04)***	0.12 (0.04)***
DI x DRA			0.20 (0.06)***
Model deviance (AIC)	1704.0	1668.61	1659.74
			Simple slopes tests:
Low RA:			0.07 (n.s.)
High RA:			0.29***

Note: N(individual) = 150; N(day) = 5; N(observation) = 716. Fixed effects coefficients and their robust standard errors are shown in each equation. [1]Indicates variables measured at Level 1 (within-person); [2]Indicates variables measured at Level 2 (between-person).

[a]Day 5 was used as a reference.

[b]0 was coded as office; 1 was coded as remote and remote location was used as a reference.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

feelings of *helplessness*, and *role ambiguity*, and this time employing the full scales. The reliability coefficients (α) of all constructs were above 0.70, as shown in Table 5.

Perceived team implicit coordination was measured by five items from Lewis' (2003) Transactive Memory System Scale. An example item is "Our team worked together in a well-coordinated fashion."

Control variables. Gender, age, education, and organizational tenure were included as control variables to consider the potential influence of demographic variables on work processes (Payne et al., 2007; Wong & Kuvaas, 2018). The control variables were included for the same reasons and measured in the same way as in Study 1.

3.2.3 | Analytic procedures

Some participants were from the same geographically distributed teams, leading to potential shared variance due to non-independence in the sample (Maas & Hox, 2005). Although all variables studied, that is, perceived isolation, role ambiguity, perceived helplessness, and perceived team implicit coordination, were at the individual level, we applied multilevel analysis to test the hypotheses, as the non-independence within team units could bias the standard error estimates (Hox, 2010). Before testing the hypotheses, we assessed the degree of interdependence between

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

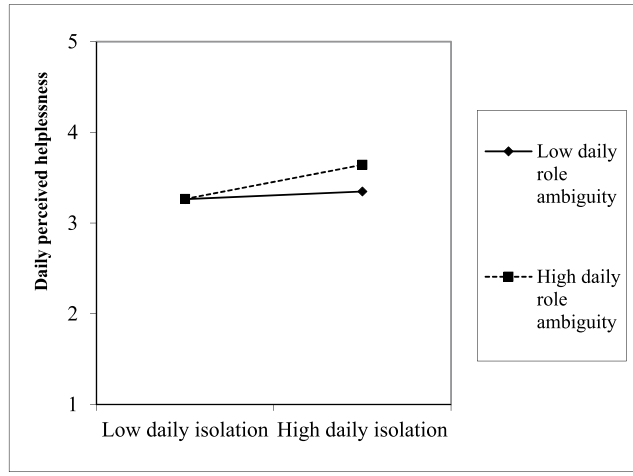

FIGURE 2 Daily-level fluctuations in helplessness predicted by the interaction between daily experience of perceived isolation and role ambiguity of Study 1

TABLE 5 Means, standard deviations, correlations, and alpha reliabilities for Study 2

Variable	Mean	*S.D.*	1	2	3	4	5	6	7	8
1. Gender[1]	1.26	0.44	–							
2. Age[1]	37.10	11.12	0.23**	–						
3. Education[1]	4.00	0.92	−0.05	−0.14	–					
4. Organizational tenure[1]	6.69	8.38	0.12	0.67***	−0.15	–				
5. Perceived isolation[1]	2.15	0.78	0.12	0.14	−0.01	−0.03	(0.83)			
6. Role ambiguity[2]	2.07	0.61	0.24**	0.14	−0.19*	0.03	0.24**	(0.84)		
7. Perceived helplessness[2]	2.47	0.87	0.05	0.04	−0.19*	0.11	0.36***	0.22**	(0.84)	
8. Perceived team implicit coordination[2]	3.75	0.65	−0.18*	−0.16	0.04	−0.09	−0.29***	−0.36***	−0.38***	(0.78)

Note: $N = 107$. [1]Indicates variables measured at Time 1; [2]Indicates variables measured at Time 2. Alpha coefficients are in parentheses on the diagonal.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

teams for the dependent variables, that is, perceived helplessness and perceived team implicit coordination (Bryk & Raudenbush, 1992). We set team identification number as the Level 2 unit (team level), and perceived helplessness and perceived team implicit coordination as the outcome variables, respectively, to run the null hypothesis test without any predictors in the model. The intra-class correlations (ICC) for perceived helplessness and perceived team implicit coordination were 0.00 and 0.11, respectively, which were relatively small. However, even when ICC is low, the repercussions on standard error estimates can increase Type I errors significantly (Huang, 2016). Recent scholars recommend employing multilevel analysis to account for the clustering effect even when ICC is low (Huang, 2018; Musca et al., 2011). Therefore, we proceeded to test our hypotheses using the multilevel analytic method with SPSS MIXED procedure to ensure more conservative estimations (Hox, 2010).

We centred all independent variables using grand means to guard against potential multicollinearity and potential effects derived from the correlations between random intercepts and random slopes in a multilevel model

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

(Bickel, 2007). Our statistical model, therefore, involved a set of regression equations nested in two levels: Level 1 at the individual level of analysis and Level 2 at the team level of analysis. While the fixed effects were estimated based on the variables at the individual level, the random effect was the intercept based on the team units. Concerning sample size, there are no standard rules of thumb. Previous studies have shown that a number of groups above 30 provide satisfactory variance estimates (Maas & Hox, 2005). Nevertheless, the restricted maximum likelihood was applied as recommended for more conservative estimates of small group samples (Heck et al., 2014). We applied Preacher et al. (2006) procedure to examine the moderated mediation. Using PROCESS analysis, the moderated mediation hypothesis will be supported if lower and upper bound estimates of the indirect effect using 95% confident intervals do not include zero.

3.2.4 | Study 2 Results

Table 5 displays the means, standard deviations, and correlations of all variables.

3.3 | Hypotheses testing

We conducted multilevel regression analyses to test our hypotheses. We regressed perceived helplessness on perceived isolation with the control variables indicating a significant positive relationship. To test the moderating role of role ambiguity on the positive relationship between perceived isolation and helplessness proposed in Hypothesis 3b, we introduced role ambiguity and its interaction with perceived isolation (i.e., perceived isolation x role ambiguity) to the multilevel regression model. Role ambiguity was positively but marginally related to perceived helplessness, while the interaction between role ambiguity and perceived isolation was significant and negative, which was unexpected. We then tested the simple slopes at high and low levels of role ambiguity using one standard deviation (0.61) above and below, respectively. As depicted in Table 6, there was an observed significant positive slope when role ambiguity was low (0.59, $p < 0.01$), while the magnitude of the slope became smaller and non-significant when role ambiguity was high (0.09, $p > 0.10$). Last, we plotted the two-way interaction, shown in Figure 3, to inspect its moderating pattern as suggested by Dawson and Richter (2006). As expected, perceived helplessness was lowest when perceived isolation and role ambiguity were low. However, instead of having higher perceived helplessness being reported when having role ambiguity and perceived isolation combined at higher levels as in the diary study, individuals with high perceived isolation reported similar levels of perceived helplessness regardless of high versus low role ambiguity. Therefore, Hypothesis 3b is not supported.

Hypothesis 4 proposed a moderated mediation such that perceived isolation is negatively related to team implicit coordination through perceived helplessness, and this mediation is moderated by role ambiguity. Table 6 shows the moderated mediation results with the conditional indirect path coefficient and the 95% confidence intervals, using PROCESS. When role ambiguity was low, the indirect path between perceived isolation and team implicit coordination mediated by perceived helplessness was negative −0.14 (*S.E.* = 0.06) and significant, with the lower and upper bound estimates not including zero [−0.26; −0.02]. On the other hand, when role ambiguity was high, the magnitude of the indirect path was negative but reduced −0.02 (*S.E.* = 0.05) and non-significant with the lower and upper bound estimates including zero [−0.11; 0.09]. In addition, the index of moderated mediation (0.10; *S.E.* = 0.06) was also significant with 95% confidence intervals not including zero (lower bound = 0.01, and upper bound = 0.24). Hypothesis 4 is therefore not supported.

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 6 Multilevel regression analyses of Study 2

Variables	Fixed effects coefficients		
	Perceived helplessness		Perceived team implicit coordination
Intercept	3.53 (0.52)***	3.10 (0.52)***	4.09 (0.40)***
Gender[1]	0.02 (0.18)	−0.01 (0.18)	−0.13 (0.14)
Age[1]	−0.01 (0.09)	−0.01 (0.01)	−0.01 (0.01)
Education[1]	−0.17 (0.09)*	−0.10 (0.08)	−0.06 (0.06)
Organizational tenure[1]	0.02 (0.01)*	−0.02 (0.02)	0.00 (0.01)
Perceived isolation[1] (PI)	0.43 (0.10)***	0.34 (0.10)***	−0.08 (0.08)
Role ambiguity[2] (RA)		0.23 (0.13)*	−0.27 (0.10)***
PI x RA		−0.41 (0.14)***	0.07 (0.11)
Perceived helplessness			−0.20 (0.08)**
Model deviance (AIC)	279.85	276.75	221.14
Simple slopes tests:			Conditional indirect effect
Low RA:		0.59***	−0.14 (0.06) [−0.26; −0.02]
High RA:		0.09 (n.s.)	−0.02 (0.05) [−0.11; 0.09]
			Index of moderated mediation
			0.10 (0.06) [0.01; 0.24]

Note: N(employee) = 107; N(team) = 42. Fixed effects coefficients and their robust standard errors are shown in each equation. [1]Indicates variables measured at Time 1; [2]Indicates variables measured at Time 2. Bootstrapped method was applied to obtain upper and lower bound estimates with 95% confidence intervals.
*p < 0.10, *p < 0.05, **p < 0.01.

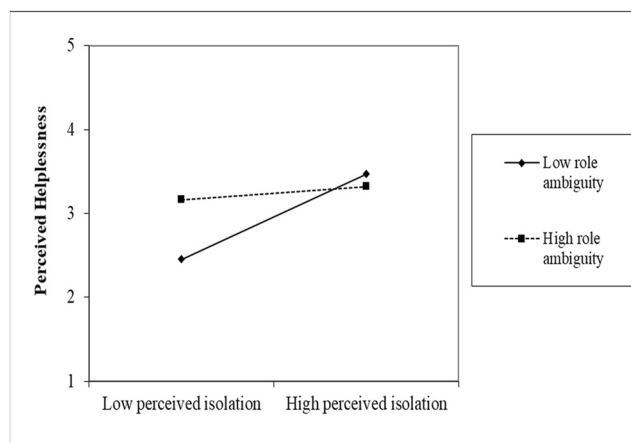

FIGURE 3 The two-way interaction between perceived isolation and role ambiguity predicting perceived helplessness of Study 2

4 | DISCUSSION

Through the lens of JD-R theory (Bakker & Demerouti, 2017, 2018; Crawford et al., 2010; Demerouti et al., 2001), we enhance current conceptual understandings of the antecedents (i.e., work location and communication quantity) and consequences (i.e., experienced helplessness and perceived team implicit coordination) of perceived isolation, and conditions that further hamper team implicit coordination (i.e., role ambiguity as a hindrance demand).

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Distributed teamwork has changed how work is performed by shifting the quality and quantity of informal and formal interactions influencing the balance of job demands and resources (Dinh et al., 2021) and has previously been related to isolation, hindering social support and connectedness, thereby reducing job resources (Schaufeli & Taris, 2013). Feeling isolated at work has severe consequences for employee functioning, including deficits in communication between team members (Daim et al., 2012; Huang et al., 2010) and increased conflict with less knowledge sharing (Hoch & Kozlowski, 2014).

Study 1 indicates that distributed team members experienced lower levels of perceived isolation when working in the office than remotely. Similarly, more communication with team members also reduced perceived isolation. Both studies found support that perceived isolation increases feelings of helplessness. Additionally, on days when employees feel high levels of role ambiguity combined with perceived isolation, the daily experience of helplessness is highest. These findings highlight how reduced job resources (i.e., perceived isolation) and hindrance demands (i.e., role ambiguity) contribute to strain. Such strain processes can lead to adverse organizational outcomes (Bakker & Demerouti, 2017, 2018), as reflected in Study 2. Study 2 primarily involved distributed team members collaborating via electronic means, showing that perceived helplessness can produce tangible effects on team implicit coordination, subsequently hampering team functioning.

4.1 | Theoretical implications

This study investigated the experience of working in distributed teams using the lens of JD-R theory, conceptualising the effects of perceived isolation in terms of diminished job resources and personal resources, and helplessness as a result of these reduced resources. Role ambiguity was conceptualised as a job demand, a boundary condition that activates the effect of these diminished job resources on the experience of helplessness on a day-to-day level. The study found that when diminished perceived job resources or increased job demands, in the form of less social resources due to isolation and role ambiguity, respectively, are experienced chronically, both conditions alone can induce the experience of helplessness.

Previous literature on workplace isolation has focussed primarily on physical aspects of isolation (e.g., geographical distance, proximity of work, connectivity) within distributed work contexts. Most research showed how various aspects of actual physical isolation result in work-related effects (e.g., Bartel et al., 2012; Wilson et al., 2008). By focussing on perceived isolation, our research examines how the experience of isolation at work might not only arise from aspects of physical distance, but also from actual communication deficits due to dependence on electronic communication. The diary study replicated and supported previous findings that physical aspects, like working from a remote location, impact perceived isolation. We extended that research by highlighting an additional antecedent, communication quantity. Interestingly, while the correlation between these two antecedents is negative, indicating that working remotely was associated with lower level of communication. In other words, working remotely can imply low levels of communication quantity. Our analysis showed that both aspects drive unique qualities of variance in perceived isolation, indicating that perceived isolation is not only driven by physical proximity, as is most often discussed in current literature, but is also influenced by communication quantity. This raises a consideration linked to the JD-R theory, namely that reduced resources (in this case through dispersed locations) initiate the second principle of the Conservation of Resources theory, which states that individuals tend to regulate their behaviours (i.e., increased communication) to protect against resource loss (Hobfoll, 2002).

Additionally, our research provides further insights on the consequences of workplace isolation by linking higher perceived isolation to reduced team implicit coordination at work through greater helplessness. Specifically, higher perceived isolation leads one to ascertain that they have less adequate social support resources to perform their jobs, resulting in feelings of helplessness. Feeling unable to influence outcomes, team members reduce their coordination efforts, leading to lower team implicit coordination. When a team's tasks are highly interdependent, these reduced efforts can be detrimental, leading to poor solutions to coordination issues, such as geographic distribution

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

of assignment, facilitating weaker overall outcomes (Olson & Olson, 2000). These findings support the propositions of the JD-R theory by showing that the resources created by additional communication might not be sufficient to offset the effects of remote work, consequently reducing resources and resulting in feelings of helplessness. Moreover, findings reflect how reduced resources can lead to withdrawal behaviour and contribute to negative organizational outcomes (Bakker & Demerouti, 2017, 2018; Schaufeli & Taris, 2013).

The unexpected findings in Hypothesis 3b highlight that different relationships between role ambiguity, perceived isolation, and helplessness exist at a daily level compared to a general level. Our diary study indicated that daily feelings of isolation relate more strongly to daily experiences of helplessness if daily role ambiguity is high (vs. low). This illustrates how strain is increased by job demands, particularly hindrance demands (Bakker & Demerouti, 2017, 2018). In contrast, our field study showed that individuals with high perceived isolation reported similar levels of perceived helplessness regardless of high versus low role ambiguity.

The main difference between the two studies is the focus on daily experiences versus the general experience of isolation and role ambiguity over a longer period, which explains the opposing patterns and negative relationship found. In a daily context, helplessness is more likely to emerge if both isolation and role ambiguity are high, as an individual faces both higher job demands and at the same time fewer social support resources to overcome these demands. When one of these is low, an individual might be better able to manage feeling helpless, as job demands are less strenuous, or one has more social resources to confront the situation.

In contrast, high perceived isolation and role ambiguity, as measured in the field study, reflect a more chronic situation, which could influence the appraisal of other job demands experienced by the individual. The chronic conditions of lacking job resources can result in the appraisal of job demands that one experiences, such as high levels of job responsibility, workload, and time pressure, as hindrance-stressors instead of challenge stressors, effectively blurring the line between areas that are 'stressful but perceived as manageable' and 'stressful and unclear'. It follows that having consistently high perceived isolation, regardless of high or low role ambiguity, is sufficient to elicit feelings of helplessness in response to other experienced job demands, as an individual typically needs to not only understand their role, but also have confidence in their ability to fulfil their role via both personal and job resources (Crawford et al., 2010; Li et al., 2020). This suggests that the prolonged experience of reduced resources potentially influences the appraisal of job demands, increasing the likelihood of demands being appraised as hindrance stressors instead of challenge stressors. This finding emphasises the importance of vigilantly managing reduced resources (i.e., perceived isolation), job demands (i.e., role ambiguity), and their potential consequences in distributed teams.

Moreover, based on the JD-R theory, suggesting that strain and motivation processes predict organizational outcomes, our research provides further support for the general assumption that perceived isolation can threaten team coordination processes (Hoch & Kozlowski, 2014). Although the hypothesised moderated mediation was not supported, we tested an indirect effect of perceived isolation (Time 1) on team coordination (Time 2) via perceived helplessness (Time 2). The indirect effect was negative and significant −0.07 (0.04) [−0.16; −0.01] indicating perceived helplessness as a mediating factor that results in lower perceived team implicit coordination. As suggested by Gevers et al. (2020), experimental research, such as longitudinal and diary studies, are needed to substantiate the causal relationships implied in our reasoning. Moreover, the results and reflection of the propositions of the JD-R theory lend support to the relevance of the model in distributed teams.

4.2 | Practical implications

Our research has several insights for the management of distributed teams. First, physical distance (as operationalised by remote work) is not the sole factor contributing to feelings of isolation, highlighting the importance of managers increasing daily communication with employees to counter the isolating affect that physical distance may have on team members. Communication quantity is therefore a critical leadership tool to build sustainable team relations. In distributed teams, this might imply an even higher amount of communication than with teams in office, since

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

communication must be managed with less rich media means, which might not always have the same impact as face-to-face meetings (Daft & Lengel, 1986). Furthermore, since physical distance and communication quantity contribute unique qualities of variances to perceived isolation, our research indicates that isolation feelings can also arise in traditional office-work settings. Thus, the amount of daily communication in teams is an important tool for managing feelings of isolation for remote work and "traditional" office work alike.

Our research also highlights the importance of managing both the experience of isolation and role ambiguity within distributed teams. On a daily level, reducing role ambiguity can attenuate the negative effects of perceived isolation on the experience of helplessness. Thus, we advise managers to also focus on role clarity in distributed teams to decrease helplessness and thereby enhance team implicit coordination. Managers should consider task structuring in terms of how team members interact and how much collaboration is needed based on the work tasks at hand. Our findings also suggest that persistent experiences of isolation alone are enough to cause high levels of helplessness, regardless of role ambiguity. On the other hand, even when perceived isolation is low, persistently high role ambiguity can also lead to helplessness. Our study therefore indicates that managers should be attentive in preventing chronic experiences of role ambiguity and perceived isolation, alleviating team members' experience of helplessness and its detrimental effects on team implicit coordination.

4.3 | Limitations and future research avenues

As with all empirical work, our study is not without limitations. First, we took a deductive approach, proposing a model based on prior knowledge, testing specific causes, processes, and outcomes in two subsequent studies. Consequently, our approach might not have addressed the full range of causal mechanisms predicting perceived isolation and its effects on team functioning. Given the increasing practical and theoretical interest in workplace isolation (Daim et al., 2012; Daniel et al., 2018; Huang et al., 2010; Orhan et al., 2016), inductive research might provide additional insights, helping leaders and organisations to manage feelings of isolation in the workplace.

Each of our studies have advantages and disadvantages. While the diary study made use of a heterogeneous sample, our field study was conducted within one company that primarily employed distributed teams. Further, the diary study looked at daily relationships between variables on subsequent days, whereas the field study used a time-lag approach. Thus, our approach has combined two different methodologies to compensate for the respective weaknesses with strengths. Finally, although we employed different methods to test our hypotheses, we cannot draw causal inferences for these studies. Future researchers might test parts of our model in an experimental setting to prove actual causality.

Future research could attempt to explain the disconnect between employees preferring to work remotely, while simultaneously feeling more isolated. Working remotely ostensibly minimises office distractions (e.g., water cooler chat, walk-ins, off-topic discussions at meetings), such that employees can concentrate and work more efficiently. This trade-off between productivity and isolation may explain the disconnect between preference to work remotely (for gains in productivity) and feelings of isolation. Moreover, it would be interesting to investigate how those experiencing increased isolation and passivity at home affect their teammates, both at home and in the office. Types of communication tools with various media richness used in teams can be a fruitful avenue to reduce the experience of isolation when working remotely and have the potential to mitigate isolation "spreading" to other teammates. Moreover, it is possible that teammates may be able to "compensate" for others experiencing more isolation via these tools.

Last, while distributed work arrangements have been accelerated during the pandemic, the so-called 'hybrid workplace model' (i.e., some members sharing an office while others are doing their jobs remotely) may be an appealing option to employ while addressing uncertainty around the pandemic going forward (Knight, 2020). As such, it is expected that employees will be facing a good amount of transition shifting between various degrees of 'hybrid' depending on the pandemic situation. From a JD-R perspective, these transitions between different degrees and formats of hybrid-ness will increase job demands for employees to cope with. Future researchers are recommended

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

to investigate how these transitions may influence individual and team coping. Attention should also be paid to possible negative work-home interference (Bakker & de Vries, 2021). This can be a prevalent problem in hybrid situations when employees are exposed to a seamless work-home environment and consequently may perceive job resource overload combined with high job demands.

5 | CONCLUSION

The findings reported in this research suggest that both work location and communication quantity influence feelings of workplace isolation in distributed teams. Furthermore, perceived isolation increases feelings of helplessness, which, due to withdrawal behaviour, reduces team functioning. On the day-to-day level, this process is weakened when role ambiguity is reduced. However, on a more general level, increased helplessness and low team implicit coordination can be driven by the presence of either high isolation or high role ambiguity alone. These insights, viewed through a JD-R lens are useful for organisations attempting to manage perceived isolation and its potential consequences. Role ambiguity should be handled on a regular basis for distributed teams to function optimally. We advise both leaders and team members to fully engage in communication with their distributed teams, both during and after the present pandemic.

ACKNOWLEDGEMENTS

We are grateful for the constructive feedback from the Editor and the Reviewers. The research was supported by the Norwegian Research Council (275347) and the Slovenian Research Agency (J5-2555).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Sut I. Wong https://orcid.org/0000-0003-0663-4496

REFERENCES

Ashforth, B. E., & Saks, A. M. (2000). Personal control in organizations: A longitudinal investigation with newcomers. *Human Relations*, *53*(3), 311–339. https://doi.org/10.1177/0018726700533002

Bakker, A. B., & Demerouti, E. (2017). Job demands–Resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273–285. https://doi.org/10.1037/ocp0000056

Bakker, A. B., & Demerouti, E. (2018). Multiple levels in job demands-resources theory: Implications for employee well-being and performance. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of wellbeing*. DEF Publishers.

Bakker, A. B., & de Vries, J. D. (2021). Job Demands–Resources theory and self-regulation: New explanations and remedies for job burnout. *Anxiety, Stress & Coping*, *34*(1), 1–21. https://doi.org/10.1080/10615806.2020.1797695

Bakker, A. B., & Xanthopoulou, D. (2009). The crossover of daily work engagement: Test of an actor–partner interdependence model. *Journal of Applied Psychology*, *94*(6), 1562–1571. https://doi.org/10.1037/a0017525

Bartel, C. A., Wrzesniewski, A., & Wiesenfeld, B. M. (2012). Knowing where you stand: Physical isolation, perceived respect, and organizational identification among virtual employees. *Organization Science*, *23*(3), 743–757. https://doi.org/10.1287/orsc.1110.0661

Baumeister, R. F., Brewer, L. E., Tice, D. M., & Twenge, J. M. (2007). Thwarting the need to belong: Understanding the interpersonal and inner effects of social exclusion. *Social and Personality Psychology Compass*, *1*(1), 506–520. https://doi.org/10.1111/j.1751-9004.2007.00020.x

Bernerth, J. B., & Aguinis, H. (2015). A critical review and best-practice recommendations for control variable usage. *Personnel Psychology*, *69*(1), 229–283. https://doi.org/10.1111/peps.12103

Bickel, R. (2007). *Multilevel analysis for applied research: It's just regression*. The Guildford Press.

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Guilford Press.

Bryk, A., & Raudenbush, S. W. (1992). *Hierarchical linear models: Applications and data analysis methods*. Sage.

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Chang, H. T., Lin, C. C., Chen, C. H., & Ho, Y. H. (2017). Explicit and implicit team coordination: Development of a multidimensional scale. *Social Behavior and Personality: International Journal*, *45*(6), 915–929. https://doi.org/10.2224/sbp.5893

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*(2), 233–255. https://doi.org/10.1207/s15328007sem0902_5

Collings, D. G., Nyberg, A. J., Wright, P. M., & McMackin, J. (2021). Leading through paradox in a COVID-19 world: Human resources comes of age. *Human Resource Management Journal*, *31*(4), 1–15. https://doi.org/10.1111/1748-8583.12343

Collins, A. M., Hislop, D., & Cartwright, S. (2016). Social support in the workplace between teleworkers, office-based colleagues and supervisors. *New Technology, Work and Employment*, *31*(2), 161–175. https://doi.org/10.1111/ntwe.12065

Connaughton, S. L., & Daly, J. A. (2004). Identification with leader: A comparison of perceptions of identification among geographically dispersed and co-located teams. *Corporate Communications: An International Journal*, *9*(2), 89–103. https://doi.org/10.1108/13563280410534294

Cooper, C. D., & Kurland, N. B. (2002). Telecommuting, professional isolation, and employee development in public and private organizations. *Journal of Organizational Behavior*, *23*(4), 511–532. https://doi.org/10.1002/job.145

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*(5), 834–848. https://doi.org/10.1037/a0019364

Cunningham, I., Lindsay, C., & Roy, C. (2021). Diaries from the front line—Formal supervision and job quality among social care workers during austerity. *Human Resource Management Journal*, *31*(1), 187-201. https://doi.org/10.1111/1748-8583.12289

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, *32*(5), 554–571. https://doi.org/10.1287/mnsc.32.5.554

Daim, T. U., Ha, A., Reutiman, S., Hughes, B., Pathak, U., Bynum, W., & Bhatla, A. (2012). Exploring the communication breakdown in global virtual teams. *International Journal of Project Management*, *30*(2), 199–212. https://doi.org/10.1016/j.ijproman.2011.06.004

Daniel, E., Di Domenico, M., & Nunan, D. (2018). Virtual mobility and the lonely cloud: Theorizing the mobility-isolation paradox for self-employed knowledge-workers in the online home-based business context. *Journal of Management Studies*, *55*(1), 174–203. https://doi.org/10.1111/joms.12321

Dawson, J. F., & Richter, A. W. (2006). Probing three-way interactions in moderated multiple regression: Development and application of a slope difference test. *Journal of Applied Psychology*, *91*(4), 917–926. https://doi.org/10.1037/0021-9010.91.4.917

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://doi.org/10.1037/0021-9010.86.3.499

Dinh, J. V., Reyes, D. L., Kayga, L., Lindgren, C., Feitosa, J., & Salas, E. (2021). Developing team trust. *Organizational Dynamics*, *50*(1), 100846. https://doi.org/10.1016/j.orgdyn.2021.100846

Espinosa, A., Kraut, R., Slaughter, S., Lerch, J., Herbsleb, J., & Mockus, A. (2002). Shared mental models, familiarity, and coordination: A multi-method study of distributed software teams. *ICIS 2002 Proceedings*, 39.

Eubanks, D. L., Palanski, M., Olabisi, J., Joinson, A., & Dove, J. (2016). Team dynamics in virtual, partially distributed teams: Optimal role fulfillment. *Computers in Human Behavior*, *61*, 556–568. https://doi.org/10.1016/j.chb.2016.03.035

Forsyth, D. R. (2017). *Group dynamics* (7th ed.). Wadsworth.

Gainey, T. W., Kelley, D. E., & Hill, J. A. (1999). Telecommuting's impact on corporate culture and individual workers: Examining the effect of employee isolation. *SAM Advanced Management Journal*, *4*.

Gajendran, R. S., & Joshi, A. (2012). Innovation in globally distributed teams: The role of LMX, communication frequency, and member influence on team decisions. *Journal of Applied Psychology*, *97*(6), 1252–1261. https://doi.org/10.1037/a0028958

Gevers, J. M., Li, J., Rutte, C. G., & van Eerde, W. (2020). How dynamics in perceptual shared cognition and team potency predict team performance. *Journal of Occupational and Organizational Psychology*, *93*(1), 134–157. https://doi.org/10.1111/joop.12287

Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. *Administrative Science Quarterly*, *51*(3), 451–495. https://doi.org/10.2189/asqu.51.3.451

Golden, T. D., Veiga, J. F., & Dino, R. N. (2008). The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter? *Journal of Applied Psychology*, *93*(6), 1412–1421. https://doi.org/10.1037/a0012722

Heck, R. H., Thomas, S. L., & Tabata, L. N. (2014). *Multilevel and longitudinal modeling with IBM SPSS (quantitative methodology series)*. Routledge.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. https://doi.org/10.1037/0003-066x.44.3.513

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, *6*(4), 307–324. https://doi.org/10.1037/1089-2680.6.4.307

Hoch, J. E., & Kozlowski, S. W. J. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology*, *99*(3), 390–403. https://doi.org/10.1037/a0030264

Hofman, D. A., & Gavin, M. B. (1998). Centering decisions in hierarchical linear models: Implications for research in organizations. *Journal of Mangement*, *24*(5), 623–641. https://doi.org/10.1016/s0149-2063(99)80077-4

Hox, J. J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). Routledge.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Hu, Q., Schaufeli, W. B., & Taris, T. W. (2011). The Job Demands–Resources model: An analysis of additive and joint effects of demands and resources. *Journal of Vocational Behavior*, *79*(1), 181–190. https://doi.org/10.1016/j.jvb.2010.12.009

Huang, F. L. (2016). Alternatives to multilevel modeling for the analysis of clustered data. *The Journal of Experimental Education*, *84*(1), 175–196. https://doi.org/10.1080/00220973.2014.952397

Huang, F. L. (2018). Multilevel modeling myths. *School Psychology Quarterly*, *33*(3), 492–499. https://doi.org/10.1037/spq0000272

Huang, R., Kahai, S., & Jestice, R. (2010). The contingent effects of leadership on team collaboration in virtual teams. *Computers in Human Behavior*, *26*(5), 1098–1110. https://doi.org/10.1016/j.chb.2010.03.014

Huysman, M., Steinfield, C., Jang, C. Y., David, K., Huis In't Veld, M., Poot, J., & Mulder, I. (2003). Virtual teams and the appropriation of communication technology: Exploring the concept of media stickiness. *Computer Supported Cooperative Work*, *12*(4), 41–436. https://doi.org/10.1023/a:1026145017609

Kline, R. B. (1998). *Principles and practice of structural equation modeling*. Guilford Press.

Knight, R. (2020). *How to manage a hybrid team*. Harvard Business Review. Haettu osoitteesta https://hbr.org/2020/10/how-to-manage-a-hybridteam

Larson, L., & DeChurch, L. A. (2020). Leading teams in the digital age: Four perspectives on technology and what they mean for leading teams. *The Leadership Quarterly*, *31*(1), 101377. https://doi.org/10.1016/j.leaqua.2019.101377

Lewis, K. (2003). Measuring transactive memory systems in the field: Scale development and validation. *Journal of Applied Psychology*, *88*(4), 587–604. https://doi.org/10.1037/0021-9010.88.4.587

Li, P., Taris, T. W., & Peeters, M. C. (2020). Challenge and hindrance appraisals of job demands: One man's meat, another man's poison? *Anxiety, Stress & Coping*, *33*(1), 31–46. https://doi.org/10.1080/10615806.2019.1673133

Litman, L., Robinson, J., & Abberbock, T. (2017). TurkPrime.com: A versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behavior Research Methods*, *49*(2), 433–442. https://doi.org/10.3758/s13428-016-0727-z

Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *European Journal of Research Methods for the Behavioral and Social Sciences*, *1*(3), 86–92. https://doi.org/10.1027/1614-2241.1.3.85

Maynard, M. T., & Gilson, L. L. (2014). The role of shared mental model development in understanding virtual team effectiveness. *Group & Organization Management*, *39*(1), 3–32. https://doi.org/10.1177/1059601113475361

Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology*, *93*(3), 568–592. https://doi.org/10.1037/0021-9010.93.3.568

Musca, S. C., Kamiejski, R., Nugier, A., Meot, A., Er-Rafiy, A., & Brauer, M. (2011). Data with hierarchical structure: Impact of intraclass correlation and sample size on type-I error. *Frontier in Psychology*, *2*, 1–6. https://doi.org/10.3389/fpsyg.2011.00074

Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research. *Journal of Personnel Psychology*, *9*(2), 79–93. https://doi.org/10.1027/1866-5888/a000009

Olson, G. M., & Olson, J. S. (2000). Distance matters. *Human-Computer Interaction*, *15*(2–3), 139–178. https://doi.org/10.1207/s15327051hci1523_4

Orhan, M. A., Rijsman, J. B., & van Dijk, G. M. (2016). Invisible, therefore isolated: Comparative effects of team virtuality with task virtuality on workplace isolation and work outcomes. *Journal of Work and Organizational Psychology*, *32*(2), 109–122. https://doi.org/10.1016/j.rpto.2016.02.002

Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology*, *92*(1), 12–150. https://doi.org/10.1037/0021-9010.92.1.128

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics*, *31*(4), 437–448. https://doi.org/10.3102/10769986031004437

Reis, H. T., & Gable, S. L. (2000). *Event-sampling and other methods for studying everyday experience. Handbook of research methods in social and personality psychology* (pp. 190–222). Cambridge University Press.

Rico, R., Sánchez-Manzanares, M., Gil, F., & Gibson, C. (2008). Team implicit coordination processes: A team knowledge–based approach. *Academy of Management Review*, *33*(1), 163–184. https://doi.org/10.5465/amr.2008.27751276

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Rizzo, J., House, R., & Lirtzman, S. (1970). Role conflict and ambiguity in complex organizations. *Administrative Science Quarterly*, *15*(2), 150–163. https://doi.org/10.2307/2391486

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Sanders, K., Nguyen, P. T., Bouckenooghe, D., Rafferty, A., & Schwarz, G. (2020). Unraveling the what and how of organizational communication to employees during COVID-19 pandemic: Adopting an attributional lens. *Journal of Applied Behavioral Science*, *56*(3), 289–293. https://doi.org/10.1177/0021886320937026

Schaufeli, W. B., & Taris, T. W. (2013). A critical review of the job Demands-Resources model: Implications for improving work and health. *Bridging Occupational, Organizational and Public Health*, 43–68. https://doi.org/10.1007/978-94-007-5640-3_4

Schmidtke, J. M., & Cummings, A. (2017). The effects of virtualness on teamwork behavioral components: The role of shared mental models. *Human Resource Management Review*, *27*(4), 660–677. https://doi.org/10.1016/j.hrmr.2016.12.011

Sparr, J. L., & Sonnentag, S. (2008). Feedback environment and well-being at work: The mediating role of personal control and feelings of helplessness. *European Journal of Work and Organizational Psychology*, *17*(3), 388–412. https://doi.org/10.1080/13594320802077146

Sundstrom, E., De Meuse, K. P., & Futrell, D. (1990). Work teams: Applications and effectiveness. *American Psychologist*, *45*(2), 120–133. https://doi.org/10.1037/0003-066x.45.2.120

ter Hoeven, C. L., & van Zoonen, W. (2020). Helping Others and Feeling Engaged in the Context of Workplace Flexibility: The Importance of Communication Control. *International Journal of Business Communication*. https://doi.org/10.1177/23294884198998799

Tubre, T. C., & Collins, J. M. (2000). Jackson and Schuler (1985) revisited: A meta-analysis of the relationships between role ambiguity, role conflict, and job performance. *Journal of Management*, *26*(1), 155–169. https://doi.org/10.1177/014920630002600104

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, *3*(1), 4–70. https://doi.org/10.1177/109442810031002

Van den Broeck, A., Vansteenkiste, M., De Witte, H., & Lens, W. (2008). Explaining the relationships between job characteristics, burnout, and engagement: The role of basic psychological need satisfaction. *Work & Stress*, *22*(3), 277–294. https://doi.org/10.1080/02678370802393672

Wang, B., Liu, Y., & Parker, S. K. (2020). How does the use of information communication technology affect individuals? A work design perspective. *Academy of Management Annals*, *14*(2), 695–725. https://doi.org/10.5465/annals.2018.0127

Wilson, J. M., Boyer O'Leary, M., Metiu, A., & Jett, Q. R. (2008). Perceived proximity in virtual work: Explaining the paradox of far-but-close. *Organization Studies*, *29*(7), 979–1002. https://doi.org/10.1177/0170840607083105

Wong, S. I., & Kuvaas, B. (2018). The empowerment expectation–Perception gap: An examination of three alternative models. *Human Resource Management Journal*, *28*(2), 272–287. https://doi.org/10.1111/1748-8583.12177

How to cite this article: Wong, S. I., Berntzen, M., Warner-Søderholm, G., & Giessner, S. R. (2022). The negative impact of individual perceived isolation in distributed teams and its possible remedies. *Human Resource Management Journal*, *32*(4), 906–927. https://doi.org/10.1111/1748-8583.12447

17488583, 2022, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/1748-8583.12447 by Readcube (Labtiva Inc.), Wiley Online Library on [14/08/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License