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Building social support: The impact of workgroup characteristics, the COVID-19 pandemic and informal interactions

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Abstract.
BACKGROUND: Social support from colleagues is a key resource for employees and organizations, with beneficial effects on performance, employee well-being and resilience. Although the importance of social support is well-known, the factors that help to build and maintain social support are not equally well understood.
OBJECTIVE: This study analyzes the impact of workgroup characteristics (i.e., workgroup composition regarding national diversity and tenure; workload) and the COVID-19 pandemic on employees' perceptions of instrumental and emotional support, and examines the mediating role of informal interactions.
METHODS: The study is based on responses from 382 seafarers to a cross-sectional online survey. Hypotheses were tested using OLS regression and mediation analysis using PROCESS.
RESULTS: Workgroup composition regarding national diversity had indirect effects on social support through informal interactions around social foci (here: joint leisure activities). High workload and pressure from the COVID-19 pandemic reduced interactions around social foci, thus contributing to the erosion of perceived social support.
CONCLUSIONS: The findings provide insights on the development of social support, suggesting that informal interactions provide an important mechanism for the development of social support at work. From a theoretical perspective, this highlights the value of a relational perspective on the development of social support, a perspective that is based on the insight that social support is embedded in social relationships. From a practical point of view, this indicates that organizations can proactively foster the development of social support through practices that shape workgroup characteristics and social foci.

Keywords: Informal social relations, crisis, workload, social foci, maritime industry

1. Introduction

Social support from team members is a key resource for employees as well as for organizations. Meta-analyses and comprehensive reviews suggest that social support is "fundamental to human survival and thriving" ([1], p. 731), with beneficial effects for employees' mental and physical health [2, 3]. Moreover, social support has been associated with enhanced in-role and extra-role performance of individuals and teams [1, 4, 5]. Facilitating individual and collective coping with stressful situations and experiences, social support is a vital source of resilience in the face of both everyday job demands and unexpected adversities [6–9].

Given its beneficial effects for both employee well-being and performance, social support should be of particular interest for human resource management (HRM). Although HRM has traditionally

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focused on enhancing performance, employee well-being is increasingly considered an equally important goal [10] – a trend that may be accelerating in the wake of the COVID-19 pandemic [11]. Nevertheless, whereas the beneficial effects of social support are well known, the factors promoting or hindering the development of social support at work are less well understood. In particular, what is needed is a better understanding of the role of contextual factors (e.g., structural organizational characteristics; adverse events such as the COVID-19 pandemic), and the mechanisms through which they influence the development of social support.

First, previous studies on workplace social support and related research concerning the "helping" dimension of organizational citizenship behavior provide little insight into the role of structural workgroup characteristics such as workgroup composition or staffing levels for the development of social support (for reviews, see [12–14]). For organizations, a better understanding of how workgroups can be designed to encourage social support among employees is of high practical importance.

Second, while it has been suggested that social support can increase resilience in the face of crises or adversity [9], help may not always be forthcoming [15]. Indeed, theoretical work by Kahn et al. [16] suggests that adverse events can disrupt workplace social relations, resulting in a decline in perceived support. However, there is little empirical knowledge about the impact of adverse events such as the COVID-19 pandemic on social support at work. This is an important practical question as well: while organizations may wish to rely on social support to enhance resilience during times of crisis, this may not be possible if social support is undermined by adverse events.

Third, we know little about the mechanisms through which contextual factors affect the development of social support. For behaviors such as helping or social support, which take place in the context of ongoing social relationships [17], it is likely that social processes may be relevant. However, to date theoretical and empirical work has focused on individual-level mediating processes; dyad- and group-level processes have been largely overlooked as potential mediators [14].

The purpose of this study is to examine the effects of workgroup characteristics and the impact of the COVID-19 pandemic on employees' perceptions of instrumental and emotional support at work, and to test the role of informal interactions as a mediator. We focus on three workgroup characteristics that can be directly shaped by organizations through hiring practices (workgroup composition regarding national diversity), the types of contracts offered (workgroup composition regarding tenure), and staffing levels (workload). In a nutshell, our theoretical argument starts from the insight that social support is embedded in interpersonal relationships. Building on this, we adopt a relational perspective on the development of social support. That is, we propose that workgroup characteristics and pressure from crises such as the COVID-19 pandemic shape constraints and opportunities for informal interactions, and hence for the development of social support.

Hypotheses are tested using survey data from 382 seafarers on international commercial vessels. Seafaring is a context where social support from colleagues may be especially salient, as seafarers may live and work together for months at a time, often with limited contact with families and friends ashore [18]. In this situation, social support from fellow crew members becomes vital for seafarers' well-being and their ability to cope with job demands and crises [8, 19].

Our study makes several contributions. Theoretically, our study takes the first step towards developing and testing an alternative mechanism for the development of social support, i.e. through employees' interactions with colleagues. In addition to providing new insights on the development of social support, this adds to recent research adopting a relational perspective on HRM [20, 21]. In line with the traditional focus of HRM, these studies have typically examined employees' social relations with a view to enhancing the performance of individuals, groups or organizations. Here we extend this research in two ways. First, by shifting the focus to social support. And second, by providing insights into the impact of structural workgroup characteristics and adverse events (here: the COVID-19 pandemic). The findings suggest promising directions for future studies. They also have important practical implications, suggesting new tools for managers and HR professionals interested in encouraging the development of social support.

2. Theoretical framework

2.1. Social support

Social support is "the aid – the supply of tangible or intangible resources – individuals gain from their

network members" ([22], p. 118), i.e. from those individuals with whom they are connected through social relationships. This comprises perceived support, i.e. support that is "perceived to be *available if needed*" ([23], p. 87), and received or actual support that has been "recently provided" ([23], p. 87). Here we focus on perceived support.

Depending on the content of the aid or resource involved, different types of social support can be distinguished [1, 4, 23]. A common distinction is between instrumental and emotional support. Instrumental support "involves practical help when necessary, such as assisting with transportation, helping with household chores and child care, and providing tangible aid such as bringing tools or lending money" ([23], p. 88). Emotional support refers to "the availability of one or more persons who can listen sympathetically when an individual is having problems and can provide indications of caring and acceptance" ([23], p. 88).

The availability of social support depends on the resources (such as knowledge, skills, material resources or time to help out) that are directly or indirectly available to the person providing support, as well as on the quality of the relationship between the provider and the recipient. While acquaintances may be a source of support, social support is typically associated with close relationships [17], which tend to provide a wider range of support [24, 25]. Indeed, social support is central to the definition of close relationships such as friendships, as partners are expected to show mutual affect, trust, solidarity, empathy, and support [26]. In other words, social support can be considered a by-product arising naturally from the enactment of close relationships [17].

Given the association between social support and interpersonal relationships, our argument is based on the assumption that factors influencing the development of interpersonal relationships also influence social support. Therefore, in the next section we draw on insights from research on the development of interpersonal relationships to understand the antecedents of social support.

2.2. Antecedents of social support

The formation, maintenance and decay of social relations is affected by endogenous processes, such as reciprocity or transitivity, and by exogenous factors [27]. Here we focus on exogenous factors, notably homophily based on similarities between actors, and proximity, i.e. characteristics of the context that shape interaction opportunities.

Homophily refers to "the principle that a contact between similar people occurs at a higher rate than among dissimilar people" ([28], p. 416). In other words, people are more likely to interact with individuals who are similar to themselves. There are two main explanations for this tendency [28, 29]. First, homophily can be "induced" by the composition of a group. Group composition affects the availability of individuals with certain attributes (e.g., gender, age) and hence the opportunity for interacting with them [30]. Second, homophily can be by choice, based on individuals' preference for interacting with people who are similar to themselves. Dissimilarity, associated with diverse experiences, knowledge and interests, may be beneficial for creativity and decision quality but may also increase friction and require greater effort for collaboration to be successful [29]. Hence interactions with similar others may be experienced as "easier and more pleasant" ([31], p. 836), more predictable, less risky and less costly to maintain [32]. This leads to more frequent interaction, positive affect and higher trust [29]. In the formation of close personal relationships, perceived similarity and shared interests can play a role especially at the early stages in the process. For instance, in an intercultural context, Sias et al. [33] found that cultural similarities and the absence of language barriers facilitated the transition from acquaintance to friend.

Proximity refers to mechanisms that bring actors together in time and space. This provides opportunities for interaction, and facilitates the creation and maintenance of social relations [27]. Proximity includes factors affecting physical proximity (e.g., sharing an office; [34]), temporal proximity (e.g., overlaps in work schedules; [31]), and social foci, i.e. joint activities around shared interests or goals such as work tasks, voluntary organizations or hobbies [35]. The importance of joint activities was already emphasized by Homans [36], who argued that joint activities, positive sentiments and interactions mutually reinforce each other. Subsequent empirical studies have supported the idea [37, 38]. For instance, shared tasks or projects, having "slack" time together and engaging in extra-work activities such as after-work drinks has been associated with the transition from considering someone a "co-worker" to considering them a "friend" [39].

In this way, contextual factors can influence the development of interpersonal relationships either

positively by providing opportunities to meet and interact, or negatively by hindering interactions. Here our focus is on the impact of workgroup characteristics and the COVID-19 pandemic.

2.3. Hypotheses

Building on the previous argument, in this section we present our hypotheses concerning the effects of workgroup characteristics and the COVID-19 pandemic on social support, with informal interactions as mediator. Figure 1 provides an overview of the proposed relationships between the variables in this study.

We include both instrumental and emotional support as dependent variables. As both types of support are embedded in social relationships [17] and therefore should be similarly affected by the antecedents considered in this study, we expect that the results will be similar. Nevertheless, a more nuanced approach that analyzes the effects on instrumental and emotional support separately may provide valuable insights, given recent calls for more attention to potential differences between types of social support [1, 4].

Because the empirical focus of this study is on seafarers, we take into account insights from previous research in this context when developing the hypotheses. In the following, we use the term "crew" to refer to the group of seafarers who work on board of a particular vessel. We start by considering three workgroup characteristics that are especially salient in our empirical context.

Crew composition shapes the extent of diversity on board, for instance with regard to gender, age, or nationality. Here we focus on national diversity. Research on multinational crews suggests that nationality is a salient characteristic, often associated with differences in hierarchical level (i.e., officers vs. ratings) and the type of contract (i.e., fixed term vs. permanent; length of work period; social security and health insurance benefits) [18]. Although some seafarers prefer diverse crews, for instance in order to learn about other cultures [40], linguistic and cultural differences may contribute to loneliness and tensions on board, making it more difficult to form close relationships with fellow crew members and create a supportive work environment [18, 40–42]. Consequently, in line with the tendency towards homophily, we expect that close, supportive relationships are more likely to form with similar others. Hence seafarers with a large percentage of co-nationals among the crew would be expected to form more relations, and hence experience more social support, than seafarers with a smaller percentage of co-nationals on board.

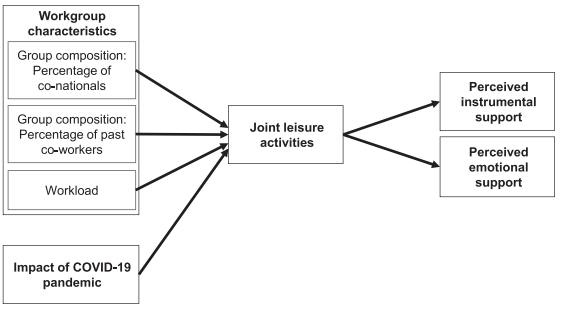

Fig. 1. Theoretical model.

Hypothesis 1: A high percentage of co-nationals increases (a) perceived instrumental support and (b) perceived emotional support.

Workgroup composition with regard to co-tenure affects temporal proximity. As close relationships take time to develop [39], opportunities for repeated interactions over longer periods of time are important [31]. Seafarers alternate between working at sea and having time off at home, after which they may be reassigned to their previous vessel, to another vessel in the same company or (for those on fixed-term contracts) to a vessel in another company. Opportunities for interactions over longer periods of time are provided by working together on repeated assignments. Hence we expect that seafarers who have worked together with a large percentage of their current crew members in the past will have more close relationships, and hence experience more social support, than seafarers who have worked with none or few of their colleagues on previous assignments.

Hypothesis 2: A high percentage of past co-workers increases (a) perceived instrumental support and (b) perceived emotional support.

While organizations can create conditions conducive to the development of social support, they may also (whether inadvertently or intentionally) introduce or increase stressors that obstruct its development. Workload in particular is "a ubiquitous problem within many workplaces" ([43], p. 96), which is influenced by staffing levels [44]. Given the pressure on shipping companies to reduce running costs, it is not uncommon that shipping companies

choose to operate close to the legally required minimum number of crew, resulting in high workloads for crew members [45, 46].

As social support depends not only on the quality of the relationship but also on the resources available to the potential provider of support, a high workload may reduce the availability of social support. When employees need to use their resources (e.g., time, energy, attention) for completing their core tasks [47, 48], they will have less time and/or energy to provide support to others. Moreover, recognizing that colleagues are already overburdened, others may avoid asking them for help. In line with this, previous studies found negative effects of workload on helping [49–52]. In the context of seafaring, professional norms emphasizing self-reliance [53] and awareness of fellow crew members' workload and work hours may lead seafarers to refrain from asking for help [54]. Hence we expect that seafarers experiencing high workloads on their vessel will perceive less social support.

Hypothesis 3: A high workload reduces (a) perceived instrumental support and (b) perceived emotional support.

Additional pressure may come from outside the organization. Emerging research on the impact of the COVID-19 pandemic suggests that seafarers' experiences varied [8, 55, 56]. For many, the pandemic increased existing job demands and created new ones [8, 55]. In addition to a higher workload from extra tasks such as additional cleaning and administrative work, difficulties in arranging crew changes often entailed longer work periods and contributed to higher levels of fatigue. Job insecurity and concerns about family and friends at home were additional stressors [8, 56]. As noted above, being aware of the pressure experienced by colleagues may lead seafarers to lower their expectations concerning the availability of support.

Hypothesis 4: The impact of the COVID-19 pandemic reduces (a) perceived instrumental support and (b) perceived emotional support.

The effect of workgroup characteristics and the COVID-19 pandemic should be mediated by social interactions around social foci [35]. In a maritime context, relevant social foci are provided by joint leisure activities, which allow employees to get to know their colleagues and interact in a relaxed, informal context. On international commercial vessels, joint leisure activities may include watching movies or TV together, playing games, barbecues, playing team sports or training together in the gym, making music or doing karaoke together, or (schedules permitting) joint shore visits [57]. Joint activities can influence social support by creating opportunities for interactions and by encouraging the formation of relationships that go beyond formally prescribed, directly work-related interactions (see also [20]). Consequently, we expect that joint leisure activities increase the perceived availability of social support on board.

Hypothesis 5: Joint leisure activities increase (a) perceived instrumental support and (b) perceived emotional support.

Next we consider the mediating effects of joint leisure activities, starting with the effects of workgroup composition. As discussed above, homophily based on a similar national background and/or temporal proximity through knowing someone from a previous work assignment can help to bring individuals together. Their shared backgrounds and/or experiences facilitate joint activities [35], and it is these interactions in connection with joint activities that promote close and supportive relationships [33, 39]. Hence we expect that joint leisure activities mediate the effects of the percentage of co-nationals and past co-workers on perceived social support.

Hypothesis 6: Joint leisure activities mediate the effect of the percentage of co-nationals on (a) perceived instrumental support and (b) perceived emotional support.

Hypothesis 7: Joint leisure activities mediate the effects of the percentage of past co-workers on (a) perceived instrumental support and (b) perceived emotional support.

As noted above, with increasing workloads, employees increasingly focus their efforts on core tasks. For seafarers, a high workload often entails extended work hours, sometimes beyond the allowable legal limit [46]. In this way, a high workload leaves less time and energy for non-essential activities, such as joint leisure activities [57, 58]. Hence high workloads will reduce joint leisure activities, and this, in turn, will reduce perceived social support.

Hypothesis 8: Joint leisure activities mediate the effect of workload on (a) perceived instrumental support and (b) perceived emotional support.

Similarly, we expect that the impact of the COVID-19 pandemic will reduce joint leisure activities, and hence perceived social support. Increased job demands will reduce time and energy for joint leisure activities. Moreover, concerns about the risk of infection and precautionary measures such as social distancing are likely to reduce group activities such as joint leisure activities on board or during shore leave [55].

Hypothesis 9: Joint leisure activities mediate the effect of the COVID-19 pandemic on (a) perceived instrumental support and (b) perceived emotional support.

3. Methods

3.1. Procedure and sample

Data came from a cross-sectional online survey between 25 July and 25 September 2020 among seafarers on international commercial vessels. The study forms part of a research project on seafarers' experiences during the COVID-19 pandemic which was approved by the World Maritime University's Research Ethics Committee (REC-20-27R) (see also [8, 59, 60]). Data were collected in line with the 1964 Declaration of Helsinki. Survey participation was voluntary and responses were anonymous. Respondents provided informed consent at the start of the survey, confirming that they were at least 18 years old, had read the information about the study and agreed to participate.

Using a convenience sampling approach, the link to the online survey was distributed as widely as possible through shipping companies, industry organizations, maritime education institutions and welfare organizations, using social media, websites and e-mail.

For the present study, we included responses from seafarers on international commercial vessels (excluding cruise ships) who, at the time of the survey, had been on board for at least seven days. Due to their different employment situation, cadets and trainees were not included. Further, we excluded respondents with missing values on the variables in the regression analyses. This left 382 respondents for this study.

Most of the 382 respondents were men (96.3%; information missing for three respondents). Respondents were between 21 and 64 years old ($M = 41.0$, $SD = 10.0$; information missing for 33 respondents), and had worked at sea between 0 and 45 years ($M = 18.8$, $SD = 10.5$). About two third of the respondents (64.4%) worked in the deck department, 32.2% worked in the engine room, and 3.1% in the galley. 81.4% were officers. Over half (57.1%) worked on vessels with up to 20 crew members, and 39.8% worked on vessels with 21–30 crew members. At the time of the survey, respondents had been on board between less than a month and eighteen months ($M = 4.2$, $SD = 3.8$).

3.2. Measures

Perceived instrumental support was measured with two items based on Van Yperen and Hagedoorn [61]. The items were "When I need help from other crew members, I get it" and "I can rely on other crew members when things get stressful". Answer categories ranged from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha was 0.81.

Perceived emotional support was measured with four items developed for this survey based on the interpersonal emotion management scale [62], adapted to a seafaring context based on interviews with seafarers. The items were "When someone on this ship is sad, worried or in a bad mood, other crew members cheer him/her up", "When someone on this ship is sad, worried or in a bad mood, other crew members encourage him/her to talk about it", "When someone on this ship is sad, worried or in a bad mood, other crew members point out positive aspects of the situation to him/her", and "When someone on this ship is sad, worried or in a bad mood, other crew members get him/her to think about something else". Answer categories were the same as for perceived instrumental support. Cronbach's alpha was 0.93.

The measures of workgroup characteristics were developed for this survey. The percentage of co-nationals, i.e. the percentage of crew members with the same nationality as the respondent, was measured by asking respondents to indicate how many of those currently working on board (not including themselves) had the same nationality as themselves. Answer categories were 1 = none, 2 = less than 20%, 3 = about 20–40%, 4 = about half, 5 = about 60–80%, 6 = more than 80% and 7 = all. The percentage of past co-workers, i.e. the percentage of crew members with whom the respondent had worked in the

past, was measured by asking respondents to indicate how many of those currently working on board (not including themselves) they had "worked with in the past (i.e. before your current work period)". Answer categories were the same as for percentage of co-nationals. Workload on board during the last seven days was measured with two items. Respondents rated the crew's workload and their own workload, with answer categories from 1 (extremely low ["holiday"]) to 7 (extremely high). Cronbach's alpha was 0.87.

The impact of the COVID-19 pandemic was measured with seven items developed for this survey based on information on the impact of the pandemic on seafarers that was available at the time, notably [63, 64]. Respondents were asked to rate how seriously the pandemic had affected "work routines on this ship", "interactions between ship and shore", "the crew's non-work life on board", "crew changes (e.g., change dates, travel to/from home) for crew of this ship", "getting supplies for the crew (e.g., food) or the ship (e.g., spare parts)", "the health or financial situation of your family" and "your employment (e.g., income, future work opportunities, etc.)". Answer categories ranged from 1 (not at all) to 7 (to a very high extent). Cronbach's alpha was 0.80.

Joint leisure activities, i.e. non-work activities that three or more crew members on the vessel engaged in together, were measured using a multiple choice question developed for this study based on previous research on onboard leisure activities [57] and ethnographic studies (e.g., [18]). Respondents were asked to indicate all activities that they or other crew members had engaged in at least once during the past seven days. The items were "talking together (e.g., after meals)", "watching TV / movies together", "having a barbecue", "sports (e.g., team sports, or training together in the gym)", "music (e.g., making music together, singing / karaoke)", "playing games together", "shore visits together", and "other, what?". Cronbach's alpha was 0.60. The scale was formed by calculating the sum of the items mentioned by each respondent.

We collected information about respondents' gender, age (in years), and experience at sea (in years). Further, respondents rated their English skills ("How well do you speak English?") on a 6-point scale from 1 (not at all) to 6 (fluently, like a native speaker) [42]. Hierarchical level ranged from 1 (ratings) to 5 (masters). Department ("deck", "engine room", and "other") was indicated by dummy variables. Respondents also provided information on the expected length of their work period, i.e. the expected length of their time on board according to their contract. Answer categories ranged from 1 (about 2 weeks or less) to 7 (about 9 months or more). The number of months on board is the number of months that respondents had been on board since the start of their work period. This was calculated based on the start date of the current work period provided by the respondent, and the date when the survey was completed. Crew size was measured with one item, from 1 (less than 5) to 9 (more than 500).

3.3. Analytical approach

To test our hypotheses, we used OLS regression (SPSS version 27). Initial regression analyses indicated the presence of outliers (standardized residuals greater than 3). Therefore we used bootstrapping (bootstrap sample size = 20,000) to generate estimates of the coefficients, standard errors and confidence intervals for the final models reported in Tables 2 and 3.

To test Hypotheses 1–4, we included variables concerning the percentage of co-nationals, the percentage of past co-workers, the workload and the impact of the COVID-19 pandemic (Model 1). To test Hypothesis 5, we added joint leisure activities (Model 2). Hypotheses 6 to 9 concerned joint leisure activities as a mediator. These hypotheses were tested by examining the indirect effects of the predictors on perceived instrumental and emotional support through joint leisure activities. To do so, we used PROCESS version 3.5 for SPSS [65], using the "model 4" option for one mediator. Hypothesis tests were based on the 95% percentile confidence intervals [65].

Control variables were included in all models. They were selected based on qualitative and quantitative studies on interpersonal relationships and interactions on board [18, 41, 42, 53]. Due to the small number of women in our sample ($n = 11$), we did not control for gender. Further, age and experience at sea were highly correlated ($r = 0.902$, $p < 0.001$). To reduce multi-collinearity problems, we included only experience at sea, which we selected because it had fewer missing values than age. Rerunning the final models shown in Tables 2 and 3 with age instead of experience at sea ($n = 349$) showed that results were similar with regard to the direction, size and significance of the effects, except that the effect of age was significant for instrumental support in Model 2 ($b = 0.012$, $SE = 0.006$, $p < 0.05$) and for emotional support in Model 1

($b = 0.014$, $SE = 0.007$, $p < 0.05$), and some effects became slightly weaker for instrumental support (Model 1, percentage of past co-workers: $b = 0.053$, $SE = 0.031$, $p < 0.1$; Model 2: impact of COVID-19 pandemic: $b = –0.075$, $SE = 0.042$, $p < 0.1$), perhaps due to the smaller number of cases.

4. Results

Table 1 shows descriptive statistics and correlations between the variables in our study. Tables 2 and 3 show the results of the regression and mediation analyses for perceived instrumental and emotional support, respectively. Hypothesis 1 predicted a positive effect of the percentage of co-nationals on perceived instrumental and emotional support. As expected, the percentage of co-nationals had positive effects both on instrumental support (Table 2, Model 1: $b = 0.075$, $SE = 0.033$, $p < 0.05$) and emotional support (Table 3, Model 1: $b = 0.081$, $SE = 0.035$, $p < 0.05$). This provided support for Hypotheses 1a and b.

According to Hypothesis 2, having worked with other crew members in the past should increase perceived support. The percentage of past co-workers had a significant positive effect on instrumental support (Table 2, Model 1: $b = 0.062$, $SE = 0.029$, $p < 0.05$). For emotional support, the effect was positive but non-significant (Table 3, Model 1: $b = 0.052$, $SE = 0.035$, *n.s.*). This provided support for Hypothesis 2a but not for Hypothesis 2b.

Hypothesis 3 predicted a negative effect of workload on perceived support. We found a significant negative effect on instrumental support (Table 2, Model 1: $b = –0.128$, $SE = 0.062$, $p < 0.05$). For emotional support, the effect was negative but non-significant (Table 3, Model 1: $b = –0.098$, $SE = 0.070$, *n.s.*). This provided support for Hypothesis 3a but not for Hypothesis 3b.

Hypothesis 4 predicted a negative effect of the COVID-19 pandemic on perceived support. We found a significant negative effect on instrumental support (Table 2, Model 1: $b = –0.122$, $SE = 0.043$, $p < 0.01$), and a negative but non-significant effect on emotional support (Table 3, Model 1: $b = –0.061$, $SE = 0.050$, *n.s.*). This supported Hypothesis 4a but not Hypothesis 4b.

Hypothesis 5 concerned the effect of joint leisure activities. As expected, joint leisure activities had significant positive effects on instrumental support (Table 2, Model 2: $b = 0.212$, $SE = 0.034$, $p < 0.001$)

Table 1
Descriptive statistics and correlations

		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Perceived instrumental support	5.64	1.11													
2	Perceived emotional support	5.35	1.11	0.561***												
3	English skills	4.65	0.88	0.087	0.014											
4	Experience at sea	18.76	10.55	0.156**	0.062	0.101*										
5	Hierarchical level	3.30	1.33	0.096	–0.006	0.323***	0.529***									
6	Department: Engine	0.32	0.47	–0.049	–0.090	–0.063	–0.012	–0.137**								
7	Expected length of work period	4.78	1.41	–0.118*	0.044	–0.321***	–0.190***	–0.335***	–0.051							
8	Months on board	4.19	3.78	–0.190***	–0.050	–0.239***	–0.146**	–0.239***	–0.025	0.524***						
9	Crew size	4.18	0.99	–0.064	–0.095	0.032	–0.010	–0.009	0.059	0.143**	0.083					
10	Percentage of co-nationals	3.76	1.96	0.080	0.156**	–0.259***	–0.091	–0.174**	–0.012	0.299***	0.282***	–0.160**				
11	Percentage of past co-workers	3.19	1.90	0.206***	0.144**	0.000	0.145**	0.121*	–0.073	–0.244***	–0.207***	–0.226***	0.140**			
12	Workload	4.78	0.94	–0.137**	–0.111*	0.093	0.017	0.096	–0.028	–0.034	–0.025	0.040	–0.106*	–0.071		
13	Impact of COVID-19 pandemic	4.34	1.18	–0.189***	–0.082	0.032	–0.005	0.038	–0.071	0.291***	0.259***	0.153**	0.064	–0.238***	0.168**	
14	Joint leisure activities	2.85	1.65	0.391***	0.412***	0.048	0.176**	0.112*	–0.120*	–0.015	–0.063	0.000	0.178***	0.183***	–0.150**	–0.139**

Note. Means, standard deviations and Pearson correlations based on 382 respondents. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Table 2
Regression results for perceived instrumental support

	DV = Perceived instrumental support		DV = Joint leisure activities	Indirect effects on perceived instrumental support, mediated by joint leisure activities		
	Model 1	Model 2	Model 3			
	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	LL	UL
Intercept	5.553 (0.553)	5.213 (0.531)	1.612 (0.968)			
English skills	0.121 (0.070)	0.085 (0.066)	0.168 (0.101)	0.035 (0.023)	–0.006	0.083
Experience at sea	0.014* (0.006)	0.009 (0.006)	0.025** (0.009)	0.005 (0.002)	0.002	0.009
Hierarchical level	–0.011 (0.054)	–0.020 (0.050)	0.044 (0.082)	0.009 (0.018)	–0.025	0.045
Department: Engine	–0.116 (0.126)	–0.030 (0.117)	–0.400* (0.171)	–0.086 (0.041)	–0.173	–0.013
Expected length of work period	0.024 (0.050)	0.008 (0.049)	0.078 (0.079)	0.017 (0.018)	–0.016	0.053
Months on board	–0.045** (0.017)	–0.039* (0.017)	–0.027 (0.024)	–0.006 (0.005)	–0.017	0.004
Crew size	0.017 (0.054)	–0.014 (0.053)	0.143 (0.096)	0.030 (0.022)	–0.008	0.078
Percentage of co-nationals	0.075* (0.033)	0.037 (0.032)	0.180*** (0.045)	0.038 (0.011)	0.019	0.060
Percentage of past co-workers	0.062* (0.029)	0.044 (0.028)	0.087 (0.049)	0.018 (0.011)	–0.002	0.041
Workload	–0.128* (0.062)	–0.083 (0.056)	–0.209* (0.095)	–0.044 (0.022)	–0.091	–0.004
Impact of COVID-19 pandemic	–0.122** (0.043)	–0.082* (0.040)	–0.191* (0.079)	–0.041 (0.018)	–0.077	–0.007
Joint leisure activities		0.212***(0.034)				
R^2	0.127	0.213	0.146			
F	4.889	8.327	5.726			

Note. Based on 382 respondents. Unstandardized coefficients, with standard errors in parentheses. Estimates are based on bootstrapping (bootstrap sample size = 20,000). DV = dependent variable. LL = lower limit of 95% confidence interval; UL = upper limit of 95 % confidence interval. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Table 3
Regression results for perceived emotional support

	DV = Perceived emotional support		DV = Joint leisure activities	Indirect effects on perceived emotional support, mediated by joint leisure activities		
	Model 1	Model 2	Model 3			
	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	LL	UL
Intercept	5.057 (0.592)	4.652 (0.550)	1.612 (0.968)			
English skills	0.099 (0.074)	0.057 (0.070)	0.168 (0.101)	0.042 (0.027)	–0.007	0.099
Experience at sea	0.009 (0.006)	0.003 (0.006)	0.025** (0.009)	0.006 (0.002)	0.002	0.011
Hierarchical level	–0.041 (0.062)	–0.052 (0.057)	0.044 (0.082)	0.011 (0.021)	–0.031	0.051
Department: Engine	–0.194 (0.130)	–0.093 (0.121)	–0.400* (0.171)	–0.102 (0.048)	–0.203	–0.015
Expected length of work period	0.094 (0.052)	0.075 (0.047)	0.078 (0.079)	0.020 (0.020)	–0.020	0.062
Months on board	–0.029 (0.018)	–0.022 (0.016)	–0.027 (0.024)	–0.007 (0.006)	–0.019	0.005
Crew size	–0.051 (0.059)	–0.087 (0.055)	0.143 (0.096)	0.036 (0.026)	–0.010	0.090
Percentage of co-nationals	0.081* (0.035)	0.036 (0.032)	0.180*** (0.045)	0.045 (0.012)	0.023	0.071
Percentage of past co-workers	0.052 (0.035)	0.030 (0.032)	0.087 (0.049)	0.022 (0.013)	–0.002	0.048
Workload	–0.098 (0.070)	–0.045 (0.064)	–0.209* (0.095)	–0.052 (0.025)	–0.106	–0.005
Impact of COVID-19 pandemic	–0.061 (0.050)	–0.013 (0.047)	–0.191* (0.079)	–0.048 (0.021)	–0.093	–0.008
Joint leisure activities		0.252***(0.036)				
R^2	0.078	0.199	0.146			
F	2.842	7.614	5.726			

Note. Based on 382 respondents. Unstandardized coefficients, with standard errors in parentheses. Estimates are based on bootstrapping (bootstrap sample size = 20,000). DV = dependent variable. LL = lower limit of 95% confidence interval; UL = upper limit of 95 % confidence interval. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

and emotional support (Table 3, Model 2: $b = 0.252$, $SE = 0.036$, $p < 0.001$). This supported Hypotheses 5a and b.

Hypothesis 6 predicted that joint leisure activities would mediate the effect of the percentage of co-nationals on perceived instrumental and emotional support. As shown in Model 2, the effect of the percentage of co-nationals became non-significant when joint leisure activities were included in the model; in other words, there were no direct effects on instrumental support ($b = 0.037$, $SE = 0.032$, *n.s.*) and emotional support ($b = 0.036$, $SE = 0.032$, *n.s.*). However, we found positive indirect effects on both instrumental support (Table 2: $b = 0.038$, $SE = 0.011$) and emotional support (Table 3: $b = 0.045$, $SE = 0.012$). In both cases,

the 95% confidence interval did not include zero. This provided support for Hypotheses 6a and b.

According to Hypothesis 7, the effect of the percentage of past co-workers on perceived support would be mediated by joint leisure activities. When controlling for joint leisure activities (Model 2), the direct effects were positive but non-significant for instrumental support ($b = 0.044$, $SE = 0.028$, *n.s.*) and for emotional support ($b = 0.030$, $SE = 0.032$, *n.s.*). Further, the means of the indirect effects were positive, but the confidence interval included zero both for instrumental support (Table 2: $b = 0.018$, $SE = 0.011$; 95% confidence interval: –0.002, 0.041) and emotional support (Table 3: $b = 0.022$, $SE = 0.013$; 95% confidence interval: –0.002, 0.048). Hence Hypotheses 7a and b were not supported.

Hypothesis 8 predicted that joint leisure activities would mediate the effect of workload on perceived support. Controlling for leisure activities (Model 2), the direct effects of workload were non-significant for instrumental support (Table 2: $b = –0.083$, $SE = 0.056$, *n.s.*) and emotional support (Table 3: $b = –0.045$, $SE = 0.064$, *n.s.*). However, there were indirect negative effects, with 95% confidence intervals excluding zero, for instrumental support (Table 2: $b = –0.044$, $SE = 0.022$) and emotional support (Table 3: $b = –0.052$, $SE = 0.025$). This supported Hypotheses 8a and b.

Finally, Hypothesis 9 predicted that the effect of the COVID-19 pandemic on perceived support would be mediated by joint leisure activities. Controlling for joint leisure activities (Model 2), we found a direct negative effect on instrumental support (Table 2: $b = –0.082$, $SE = 0.040$, $p < 0.05$), but not on emotional support (Table 3: $b = –0.013$, $SE = 0.047$, *n.s.*). However, there were indirect negative effects, with 95% confidence intervals excluding zero, for instrumental support (Table 2: $b = –0.041$, $SE = 0.018$) and emotional support (Table 3: $b = –0.048$, $SE = 0.021$). This supported Hypotheses 9a and b.

5. Discussion

Taking the insight that social support is embedded in close interpersonal relationships as our starting point, we proposed that theory on the development of interpersonal relations can be used to understand the impact of workgroup characteristics and the COVID-19 pandemic on social support. The findings from the analyses of survey responses from 382 seafarers on international commercial vessels were largely in line with the predictions derived from this argument, pointing to the usefulness of this approach.

In line with our argument that social support arises from on-going social relationships with other workgroup members, social foci provided by joint leisure activities played a pivotal role. They increased the perceived availability of both instrumental and emotional support, and mediated the effects of workgroup characteristics, notably the percentage of co-nationals and workload.

As expected based on previous research on homophily [29], respondents with a high percentage of co-nationals on board reported more joint leisure activities, which in turn increased both instrumental and emotional support. Thus the effect of workgroup composition with regard to nationality was fully mediated by joint leisure activities. By contrast, there was less support for the impact of temporal proximity, i.e. the percentage of past co-workers. Despite significant positive correlations with both instrumental and emotional support, its effect was only significant for instrumental (not emotional) support when controlling for other variables. The indirect effect (through joint leisure activities) was positive but non-significant for both types of support. This contrasts with previous studies that indicated the importance of frequent interactions over time for the development of close relationships [27, 31, 39]. This may be due to methodological factors such as sample size (i.e. the confidence intervals were only slightly below zero) or measurement (e.g., measuring the percentage rather than the number of past co-workers). Another possible explanation could be that past interactions may not necessarily involve positive experiences. Past interactions characterized by conflicts or tensions might lead individuals to avoid contact rather than to renew or strengthen their acquaintance. In other words, the effect of temporal proximity may depend on relationship quality.

Further, as expected, the results indicated that a high workload and a severe impact of the COVID-19 pandemic reduced perceived instrumental support. However, this was not the case for emotional support. As discussed earlier, when facing high demands, potential helpers may concentrate their time and effort on completing their own tasks rather than helping others [49, 52]. Hence when work is physically demanding, potential helpers may be too physically exhausted or lack the time to provide instrumental support. By contrast, emotional support such as sympathetic listening or providing encouragement may be less constrained by lack of time, as it can be more

easily combined with ongoing work, for instance in the form of brief verbal exchanges during the day or conversations during watches on the bridge or in the engine room.

5.1. Theoretical contributions

Our study makes several contributions. First, focusing on factors whose role in building and maintaining social support has been largely overlooked to date, our study provides insights into antecedents of social support. More specifically, our findings suggest that workgroup characteristics (e.g. group composition, workload) as well as adverse events (e.g., the impact of the COVID-19 pandemic) can influence the development of social support. From a theoretical perspective, these findings highlight the need for more attention to the organizational context and the organizational environment in future research (cf. [14]).

Second, our findings point to an indirect negative effect of workload and the impact of the COVID-19 pandemic on social support, through their negative impact on joint leisure activities. This suggests that persistent stressors such as workload and crises like the COVID-19 pandemic can reduce informal interactions, and in this way impede the development of social support. In other words, in addition to direct effects on instrumental social support, there may be indirect, possibly more long-term effects that undermine the interactions that sustain social support in the long run. While previous research has focused on the immediate effects of pressure from crises or high job demands on helping at work [15, 52], our findings suggest a need for future research to examine long-term effects [16].

Third, in addition to drawing attention to contextual factors as antecedents of social support, our study makes an important contribution by suggesting a potential mechanism for how these factors can affect social support. Our findings support the idea that the development of social support is linked to informal interactions, thus indicating the plausibility of this pathway for the development of social support. From a broader perspective, this provides further evidence for the idea that organizations can influence not only their "human resources" but also their "social resources" [21] by creating conditions that enable or constrain social interactions and hence social support. This underlines the usefulness of a relational perspective on organizational behavior [66] and HRM [20, 21]. More research will be needed to determine the relative importance of informal interactions compared to other mediators, such as employee attitudes or the quality of the employee-organization relationship [14, 67], and to test this mediating process for other types of helping and organizational citizenship behaviors.

5.2. Practical implications

Although supportive relationships cannot be "engineered", our study indicates that organizations can create conditions that enable or constrain the development of social support, a resource that is of particular importance due to its dual benefits for both performance *and* employee well-being. Here we wish to highlight four interrelated practical implications of our findings for managers and HR professionals.

First, social support is embedded in interpersonal relationships that develop over time between employees. While previous research suggests that employees' work attitudes and performance are enhanced by a positive relation between the employee and the organization, our findings indicate that employees' social relations with each other need to be considered as well. Hence, HR practices and interventions should be designed taking into account how they might affect employees' social relations [20, 21], to ensure that they do not destroy or hinder the development of supportive relationships.

Second, interpersonal relationships develop between specific individuals. As the development of close relationships takes time, employees are not easily substitutable [68]. In that respect, organizations based on role-based coordination [69] such as seafaring may be deceptive, as standardized qualification requirements and job roles make it possible for employees to be "slotted in" into different crews almost interchangeably. This has cost advantages for organizations by allowing a "market-based" approach [70] based on the use of a flexible work force on temporary contracts. While this may work well enough to allow seafarers to fulfill their formal tasks, it hinders the development of social support and, we might add, trust [71], which are important for dealing with the high work pressure endemic in the occupation as well as with unforeseen events and crises. To foster close interpersonal relationships, organizations need to invest in employees, both with regard to employment relationships [71] and in allowing sufficient "slack" for interpersonal relationships to form.

Third, while informal interactions such as small talk [72] or, in a shipboard context, joint leisure activities might easily be dismissed as a "waste of time", such "slack" is essential for organizational resilience [73]. Organizational slack provides a "cushion" that "prevents a tightly wound organization from rupturing in the face of a surge of activity" ([73], p. 30) and facilitates strategic change by allowing for experimentation. Recent studies have started to highlight the benefits of informal interactions at the individual level, e.g. for sustaining individuals' energy [74] or promoting organizational citizenship behavior [72]. Our findings provide an additional example by demonstrating a strong link between joint leisure activities and perceived social support, and by suggesting that high workloads can erode social support.

Finally, our findings indicate that perceived social support may be vulnerable during crises. Without suitable countermeasures, pressure from crises and high workload can reduce interactions around social foci and thus erode perceived social support. To prevent this, HR professionals may wish to proactively invest in fostering social support during periods of stability, and manage job demands during periods of crisis. In this way, they can help to ensure that social support continues to be available, thus enhancing the resilience of employees and the organization.

5.3. Limitations and future research

Several limitations of our study should be noted. First, due to practical constraints given the remote and dispersed nature of our population [19], further exacerbated during the COVID-19 pandemic [55, 56], our study was based on self-report data from a cross-sectional survey. To ensure respondents' anonymity, we did not ask about the name of respondents' company or vessel, hence it was not possible to match survey responses with data from other sources (e.g., peer reports; company records) in order to reduce the potential risk of common method bias. While this may be less of a concern for variables measuring factual information (e.g., workgroup composition; leisure activities), future studies using multi-source data would be desirable.

Moreover, replications using longitudinal data would help to ascertain the direction of causality, especially with regard to the association between workload and social support, where both directions are theoretically plausible. While our focus has been on the effects of workload on social support, others have considered social support as an antecedent of workload (e.g., [43]). Arguably the two processes might co-occur, perhaps at different time scales: while social support may reduce workload in the short term, in the long term a high workload may hinder the development of supportive relations. By contrast, the direction of causality may be less of a concern regarding the effects of workgroup diversity and tenure on social support, where reverse causality seems less plausible.

To test the generalizability of our findings, studies in other settings would be desirable. Such studies should take into account the fact that relevant social foci might differ depending on the context (e.g., the nature of the work) as well as on employees' cultural and/or individual preferences. Further, we did not test for spatial proximity and potentially relevant aspects of job design such as task interdependence, as these were expected to have little variance in a context where spatial proximity and task interdependence are generally high. Hence we encourage future researchers to expand on our findings by considering a variety of contexts and organizational characteristics.

6. Conclusion

This study investigated the factors contributing to the development of social support, a "social resource" [21] that is of special interest due to its dual benefits for employee well-being and performance. As a key source of resilience, social support is an important resource in the face of challenging everyday working conditions as well as in times of crisis such as the COVID-19 pandemic. Using the maritime domain as the context, our findings demonstrated the usefulness of a relational approach for understanding the development of social support. In particular, we found that informal interactions around social foci (such as leisure activities in this study) led to an increase in perceived support and mediated the effects of workgroup homogeneity, workload and the COVID-19 pandemic. These findings suggest that organizations and HR professionals can proactively take measures that encourage the development of supportive relationships to build resilience among the employees in their organization.

Ethical approval

The project was approved by the World Maritime University's Research Ethics Committee (REC-20-27R).

Informed consent

All participants provided their informed consent.

Conflict of interest

The authors declare that they have no conflict of interest.

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