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LEADERSHIP PROFILE OF CROATIAN PROJECT MANAGERS - INVESTIGATING THE EFFECTS OF STRESS AND FOLLOWERS' EXPERTISE IN ACHIEVING PROJECT SUCCESS

Ivan Matić

Abstract

The purpose of this paper is to investigate the role of stress in demonstrating adequate project leadership and ultimately achieving project success, while also respecting followers' expertise as the most important context factor. During 2021, the empirical research was conducted on 71 project managers in the Republic of Croatia. Results obtained via SPSS Statistics 23.0 and PROCESS macro v4.0 for SPSS indicate that demonstrated project leadership and followers' expertise positively affect the project's success. According to the results, stress, due to its inverted U-shaped nature of effect, does not affect project success, whereas it has a negative moderation effect on demonstrated project leadership by reducing its positive effects on project success. In addition to these results, this paper offers other interesting insights into the relationships between demonstrated project leadership, project manager's stress, and project success, further filling the identified gap in research. A relatively small sample of project managers and its cross-sectional nature stand out as the main limitations of the empirical research presented in the paper.

Keywords: *project leadership, stress, project success, followers' expertise, moderation analysis*

JEL classification: *J24, L20, M10*

1. Introduction

The irrefutable relevance of project management to economy and society, evidenced by the 'projectification' of organizational work and increased usage of projects in organizations to achieve strategic objectives, is accompanied and supported by the immense evolution of project management discipline (McKevitt, Carbery, and Lyons 2017). Even though project management discipline is constantly advancing due to the numerous and increasing contributions by practitioners, professional bodies, and academics, many projects still fail; therefore, many studies have focused on efforts to improve project success (Anantatmula and Rad 2018). Because they are ultimately responsible for projects' success or failure (Sunindijo et al. 2007), a project manager's competence is a significant factor in the successful delivery of projects (Geoghegan and Dulewicz 2008). Although closely related, the literature on project management has seriously ignored the contributions of a project manager's competence to project success (Müller and Turner 2007). The role of project leadership, as one of project managers'

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most important and most desirable competencies, in achieving project success, especially in relation to project stress, is no exception (Crawford and Turner 2007; Flannes 2010; Jiang 2014). In this sense, due to the depersonalized focus of project management literature, oriented on processes and prescriptions, research on stress's effect on project managers' performance is lacking (Farnes 2018). Apart from the project manager's characteristics and competence, similar to the aforementioned can be said for individual project team members' expertise: coordination of it and its integration into the project's collective expertise is considered beneficial for project success (Tiwana and McLean, 2005).

Following the above, this paper aims to examine the relationship between demonstrated project managers' leadership, project managers' stress, and project success while also considering followers' expertise as an influential contextual factor. Two main research questions guided the research presented in the paper: (1) how is project leadership associated with project success, and (2) what is stress's role in demonstrating adequate project leadership and ultimately achieving project success?

2. Theoretical background and research hypotheses

2.1. Project Leadership and Project Success

Today, project success is measured against the overall objectives of the project and stakeholders' requirements, compared to the term 'project management success', which focuses more narrowly on traditional performance indicators, such as cost, time, scope, and quality (Anantatmula and Rad 2018). According to Luo et al. (2017), the contemporary view of project manager's responsibilities goes beyond the golden triangle and includes internal and external perspectives, encompassing relations, as well as cultural and stakeholder management, thus putting significantly more emphasis on project leadership, as one of the project manager's essential functions. Successful project management always involves effective leadership and although the overlap between the concepts exists, they denote different attributes and responsibilities, i.e. project management refers to planning and organizing of project activities, and decision-making processes aimed to improve the efficiency and effectiveness of a project, whereas project leadership encompasses the process of motivating and guiding people to realize their potential and achieve often tough and challenging project objectives (Anantatmula 2010). Moreover, the field's professional organizations and practice perceive a competent and successful project manager as the combination or the right mix of technical expertise (use of project management methods and techniques), leadership (behavior), and experience (accumulated lessons learned from managing and leading previous projects). In this regard, a project is successful 'if it meets the technical performance specifications and/or mission to be performed and if there is a high level of satisfaction concerning the project outcome among key people in the parent organization, key people on the project team and key users or clientele of the project effort' (Morris and Pinto 2007 in Jiang 2014, p. 53). In other words, project success consists of project product success and project management success, an important aspect of which is the quality of the project management process itself, perceived as leadership performance (Baccarini 1999; Schwalbe 2004 in Nixon, Harrington, and Parker 2012). Hence, project success is a multidimensional construct, in which project success criteria are perceived as a mixture of objective, mainly short-term (cost, time, etc.) and subjective, mainly long-term criteria (usability, acceptance, satisfaction, etc.), thereby infusing multiple stakeholders' subjectivity into the measurement of project success (Ahmed and bin Mohamad 2016; Joslin and Müller 2016). In this sense, despite influential conceptualizations of project success (e.g., Pinto and Slevin 1987, 1988; Cooke-Davies 2002; Davis 2014), Müller and Turner's (2007, 2010) conceptualization of project success criteria dominates the relevant literature. These authors proposed the measurement of project success through 10 project elements or factors: 1) project's overall performance (functionality, budget, and timing), 2) user requirements, 3) project's purpose, 4) client satisfaction with the project results, 5) reoccurring business with the client, 6) end-user satisfaction with the project's product or service, 7) suppliers' satisfaction, 8) project team's satisfaction, 9) other stakeholders' satisfaction, and 10) self-defined (project manager) success.

Although leadership is one of the most researched aspects of human behavior (Dulewicz and Higgs 2005), it has not received a corresponding amount of research attention and treatment in the project management literature due to the discipline's emphasis on efficiency rather than on behavioral, interpersonal, and competency factors (Munns and Bjeirmi 1996 in Muller and Turner 2007; Ahmed and Anantatmula 2017; Farnes 2018). In fact, the majority of their working hours project managers spend interacting with different stakeholders, striving to build better relationships. In this sense, relevant 21st-century project management literature emphasizes leadership as a

key skill area of effective project managers (Clarke 2012), who must function as visionaries, technical experts, motivators, team builders, negotiators, salespeople, and so forth (Thoms and Pinto 1999, p. 19). Defined as 'the process of influencing the activities of an individual or a group to achieve project goals in a given situation' (Hersey and Blanchard 1982 in Ahmed and Anantatmula 2017, p. 190), project leadership is more challenging compared to leadership in conventional organizations, due to the project characteristics and specificities (Podgórska and Pichlak 2019). Project leader, faced with constraints of project deadline and budget, more frequent changes, and with freer form of work, must put special emphasis on building and maintaining relations within the project team due to the temporary nature of the project and mentioned relations (p. 870).

An evident shift of focus in project management literature from project manager's technical skills to project managers' behaviors, i.e. soft skills (Leyborune 2007 in Maqbool et al. 2017), clearly emphasizes the importance of complementing pure project management expertise (process, systems, delivery) with leadership competencies of motivating people, resolving conflicts, and developing trust among project team members and stakeholders, all in order to achieve project success. Thus, following the notion that contemporary projects require not just the usage of the right tools and techniques for being successful, i.e. technically minded project manager (Müller and Turner 2010), but also a project leader, leadership, as one of the most important and most desirable project manager competencies, is crucial in all phases of a project's life cycle (DuBois et al. 2015).

An over-100-year long and rich research history and six major schools of thought on leadership-traits, behavior, contingency, visionary, emotional intelligence, and competency-have yielded commonly known conceptualization of leadership as a combination of skills, knowledge, and personal characteristics of a person (Geoghegan and Dulewicz 2008). Following this conceptualization and adopting the recent dominant paradigm in leadership research, focused on the competence of leaders (Podgórska and Pichlak 2019), contemporary project management literature is mainly oriented on developing competency models of a successful project leader. Among notable contributions such as Rees, Turner, and Tampoe (1996), Pinto and Trailer (1998), and Crawford (2007), the conceptualization developed by Dulewicz and Higgs (2003, 2005) dominates the research on project leadership the most. According to this highly influential conceptualization, project leadership is perceived as a combination of 15 leadership dimensions clustered into three areas: intellectual competencies, managerial competencies, and competencies of emotional and social awareness.

As a cornerstone of a project manager's overall competence (Crawford and Turner 2007), project leadership has been identified as a critical factor in achieving desired performance and project success (Geoghegan and Dulewicz 2008; Yang, Huang, and Wu 2011; Al Kazaz and Shibani 2016; Ahmed and Anantatmula 2017; Podgórska and Pichlak 2019; Owusu-Manu et al. 2020). Nevertheless, project leadership has rarely been considered and even ignored in most of the relevant research as a project's critical success factor (Turner and Müller 2005; Crawford and Turner 2007; Jiang 2014). One of the relevant literature's most influential studies, that of Geoghegan and Dulewicz (2008), found that a project leader's managerial and emotional competencies are highly important for project success, whereas intellectual competencies are less important. Similarly, the study of Jiang (2014) found that project leadership style, including corresponding competencies, has direct and, by improving teamwork and client communication, indirect effects on project success, findings largely supported also by the study of Larson and Gray (2014) (Novo, Landis, and Haley 2017). Additionally, these and similar studies also emphasized that project leadership does not have to be beneficial for project success in all types of projects and all project contexts, and that a number of mediating and moderating factors also play a significant role in the relationship between project leadership and project success. In his systematic review of 22 studies investigating the relationship between project leadership (focusing on style, behavior, or traits) and project success, published in the period 2000-2011, Clarke (2012) reflects on studies as being a mix of inconclusive findings since, apart from the larger number of studies where positive relationships were found, there were also some studies where both positive and negative relationships where identified. The same author also emphasizes studies' recurring findings on the importance of intervening factors in the relationship between project leadership and project success. Evidently, as the role of project leadership in project success continues to provoke debate in the relevant literature (Nixon, Harrington, and Parker 2012, p. 205), more research on project leadership's effects on a project's overall dynamics, especially project success, is necessary. Thus, building on the aforementioned contributions and research gaps, the following research hypothesis was developed:

H1 – There is a positive relationship between project leadership and project success.

2.2. Followers' Expertise and Project Success

Project management literature, although acknowledging the unquestionable importance of project team composition and performance for project success, heavily focuses on what makes a good project manager due to its pivotal role in the project, while treating the project team as a single, skilled, cooperative and committed entity and ignoring the individuals who comprise project teams, and their characteristics (Rogers 2019). Project success, among other factors, depends on the expertise of project team members who are followers of the project manager and his/her demonstrated leadership on the project. A project team member's expertise can be defined as a combination of specific knowledge, skills, abilities, and experience he/she possesses (Lindsjørn et al. 2016; Hong et al. 2019), needed to execute assigned project tasks effectively and efficiently. Thus, selecting more knowledgeable and experienced project team members strongly improves project team performance (Liu 2012) and can significantly improve project success (Scott-Young and Samson 2008). As such, project team members' competencies—personality, knowledge, and skills—amplified by gained project-related experience, are important for achieving project success, as Oh and Choi (2020) showed in their study, whereas Beleiu, Crisan, and Nistor (2015) identified competent project team members as the second-most important factor of project success. Liu and Cross (2016), in their meta-analysis of studies on project teams, published in the period 1980-2010, identified the project team's ability, i.e. knowledge, experience, and capability of project team members, as an important influential factor of project team performance and project success. Despite the well-recognized importance of the project team's expertise for project success, relevant project management literature, apart from a smaller number of studies, has been modest on this research topic. In this sense, unlike the project manager's competence, which is often discussed in the relevant literature, individual team members' competencies are rarely identified (Zdonek, Podgórska, and Hysa 2017). Moreover, Scott-Young and Samson (2008) noticed paucity in project management research, especially quantitative research, related to the effects of project team factors, including expertise, on project success. Based on the above-mentioned contributions from the relevant literature, the following hypothesis was postulated:

H2 – There is a positive relationship between followers' expertise and project success.

2.3. The Role of Project Stress in Demonstrating Project Leadership and Achieving Project Success

As dynamic and unique endeavours with related uncertainties, complex and dynamic social structure, strict limitations, high expectations, and clear responsibilities for individuals, projects are highly stressful work environments for project management professionals, especially project managers and leaders (Haynes and Love 2004; Aitken and Crawford 2007; Farnes 2018). Managing and leading a project is a highly demanding challenge and responsibility. The extreme, highly stimulating, and challenging contexts such as projects demand professional and effective leaders who can cope with stress and adequately respond to it (Kellett 2013). Apart from the more challenging task of leading a project team, compared to leading a traditional team (Podgórska and Pichlak 2019), the project's characteristics raise the complexity and difficulty of leading activities, thus igniting stress development in project leaders. Project stress, delineated as project-related objective stress, burnout, and physiological stress, is a subjective feeling of project professionals, in which project-related work exceeds the individual's belief in his or her capacity to cope (Cox 1993 in Leung, Chan, and Olomolaiye 2008, p. 644). According to Berg and Karlsen (2013, p. 52), project stress is a consequence of the interaction between external job conditions and the individual project manager's psychological responses to these conditions (Cooper 2001), thereby leading to positive (challenging, motivating) or negative (threatening, harmful) stress for project managers. Among the stressors identified in relevant research, new technology, boundary spanning, role ambiguity, role conflict, workload, job demands, job insecurity, job readjustment, decision authority, and uncertainty are most expected to affect project managers and their demonstrated leadership (Richmond and Skitmore 2006; An et al. 2019).

Stress affects the internal state of mind of a person and eventually modifies his/her behavior (Groen, Wouters, and Wilderom 2012). Recent leadership research suggests that a leader's well-being, closely related to stress (e.g., work stress, depression, anxiety, etc.), can harm his/her behavior, lead to negative manifestations of leadership, and significantly affect overall leadership effectiveness (Byrne et al. 2014; Li et al. 2018). Similarly, Harms et al. (2017, p. 184) emphasize that stress is associated with poorer and less effective leadership because it drains leaders' cognitive and emotional resources. Bearing in mind that stress

hinders managers' demonstrated leadership and job performance (Lin et al. 2022), project stress can hinder project leadership and thereby reduce project managers' overall performance, eventually affecting project success. The presence and intensity of stressors in a project impact project managers' cognitive and behavioral performance, including that of leadership, thereby requiring project managers to reduce stress to a moderate level to achieve high performance and ultimately project success (Flannes 2010; Heng 2016; An et al. 2019). Although the research on the relationship between leadership and stress and the relationship between stress and various professionals' performance is extensive, research on stress's effect on project managers' performance has been scarce (Gällstedt 2003; Leung, Chan, and Olomolaiye 2008). In this sense, following Yerkes-Dowson's (1908) and French, Kast, and Rosenzweig's (1985) contributions, researchers have hypothesized that a moderate level of stress is best for project manager's performance (Flannes 2010; Hamid and Afshar 2014; Heng 2016), so stress can, by affecting project manager, influence project success positively and negatively (Smith, Bruyns, and Evans 2011). More concretely, Darmawan and Djelani (2021), based on their and five other study findings, conclude that there is a strong relationship between project stress and project manager's performance in a way that low and moderate levels of project stress are beneficial for project manager's performance, whereas high levels of project stress will decrease mentioned project manager's performance. An et al. (2019), reflecting on relevant research in the field, emphasize that project stress is correlated with the project manager's performance, but also note that there is no unified conclusion on the nature of the relationship. Additionally, these authors (An et al. 2019) underline that different types of project stress affect project manager's performance differently, namely challenge stressors (e.g., job complexity, job demands, etc.) are positively associated with performance, opposite to hindrance stressors (e.g., role ambiguity, role conflict, etc.) that are negatively associated with performance. Considering the above-mentioned relevant literature's contributions and aiming to fill identified research gaps, especially the one emphasized by Clarke (2012) on the need to further examine the potential role of intervening (moderator and mediator) variables in the relationship between project leadership and project success, the following research hypothesis was developed:

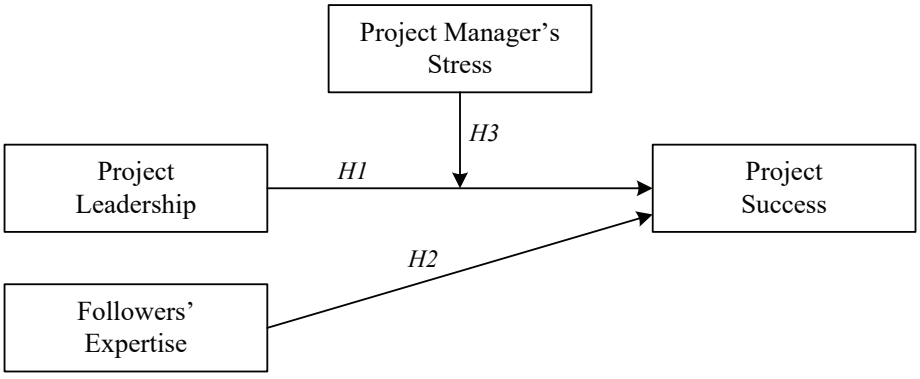
H3 – Project manager's stress plays a moderating role in the relationship between project leadership and project success, by diminishing project leadership's positive effects.

2.4. Research Model

Following the previous discussion on the main contributions of relevant literature on the relationships between project leadership, project stress, and project success, while also acknowledging the importance of the role that followers' expertise plays in project success, a conceptual research model was developed as shown in Figure 1. In accordance with formulated research hypotheses, the model assumes two direct and positive relationships, the one between project leadership and project success and the other between follower's expertise and project success, and one negative moderating role of project manager's stress in the positive relationship between project leadership and project success.

In the subsequent sections of the paper, a methodological approach with research methods is discussed, followed by research results and discussion. The paper concludes with the main contributions of the presented research, its limitations, and suggestions for future research.

Figure 1. Research model



3. Methodology

3.1. Procedure

Most of the influential research in the project management field-including Müller and Turner (2007, 2010), Geoghegan and Dulewicz (2008), Leung, Chan, and Olomolaiye (2008), Larsson et al. (2015), Luo et al. (2017), and Ahmed and Anantatmula (2017)-emphasizes the self-assessment approach through questionnaires distributed to project managers as the most appropriate way to gain insights into various aspects of managed projects, project leadership and the project manager's characteristics. To form a research sample and collect data on project manager's characteristics related to leadership, stress, and data on project success, a combination of simple random sampling and purposive sampling methods is used (Short, Ketchen, and Palmer 2002).

A self-assessment questionnaire was distributed to the respondents at their e-mail addresses through an online survey tool while guaranteeing the anonymity of the answers given. In this sense, Croatian branches of project management professional associations–PMI and IPMA-provided their membership's e-mail addresses, whereas the e-mail addresses of separately identified project managers were obtained through official contact information from the companies' websites. After performing a logical check of submitted answers and filtering out the respondents who have not performed as project managers on their current or most recent projects, 10 responses were excluded from the sample, thereby forming a final research sample of 71 Croatian project managers and an overall rate of return of 6%.

3.2. Research Measures

The respondents were asked to give opinions by reflecting on their experiences in managing the current project or in managing the last project. The questionnaire included separate sections for each research construct, and apart from the introduction section with information related to respondents and their companies, participants gave answers to all items on research constructs through a 5-point Likert continuum from 1 (*strongly disagree; significantly below*) to 5 (*strongly agree; significantly above*). Overall, the questionnaire contained 58 questions allocated to five main sections—introduction/respondent's information, project leadership, project stress, followers' expertise, and project success.

Following Müller and Turner (2007, 2010), project leadership was measured using a 15-item Leadership Dimensions Questionnaire (LDQ) originally developed by Dulewicz and Higgs (2003, 2005). The LDQ scale measures leadership through three areas—intellectual, managerial, and emotional. Its authors empirically tested for reliability, and several later management studies confirmed it. Project stress was measured as a 16-item scale with a combination of three types of stress-objective stress (Gmelch 1982), burnout (Wharton 2004), and physiological stress (Greenberg 2003)-as conceptualized and empirically tested for reliability by Leung, Chan, and Olomolaiye (2008). Apart from the burnout and physiological stress scales, which used a 5-point Likert continuum, objective stress was measured as a discrepancy between a person's expected and actual abilities to handle stressors (Gmelch 1982 in Leung, Chan, and Olomolaiye 2008). Next, building on Lindsjørn et al. (2016) and Hong et al. (2019), followers' expertise was measured as a combination of two items: project-related education and training and project-related experience. Project success was measured as a 12-item scale based on Müller and Turner's (2007, 2010) proposed 10 project success criteria, focused on dimensions of time, budget, quality, and stakeholder satisfaction. Scholars of project management such as Müller, Geraldi, and Turner (2011), Khan and Rasheed (2015), and Maqbool et al. (2017) adopted proposed success criteria and empirically tested them for reliability in subsequent studies.

3.3. Normality and the Reliability of Data

Following Nunnally and Bernstein (1994), Gliem and Gliem (2003) and Hair, Page, and Brunsveld (2020), the reliability of internal consistency estimates for the scales and subscales of research constructs in this study were as follows (Table 1):

- excellent for the project leadership scale (α = .892; 15 items), acceptable for the project leadership IQ subscale (α = .697; 3 items), good for the project leadership MQ subscale (α = .783; 5 items), good to excellent for the project leadership EQ subscale (α = .804; 7 items),
- excellent for the project stress scale (α = .830; 16 items), excellent for the objective project stress subscale (α = .811; 7 items), good to excellent for the burnout subscale (α = .801; 4 items), good for the physiological stress subscale (α = .787; 5 items),
- excellent for the project success scale (α = .899; 12 items).

Due to the assumption of multiple-item correlation, internal consistency reliability estimates were not applicable to the followers' expertise scale (Hair,

Page, and Brunsveld 2020), as this scale contains only two items.

To assess the normality of collected data, kurtosis, and skewness were performed for all research constructs and their subscales. Obtained kurtosis and skewness results are all within the range of -2 to + 2, thereby proving the normal distribution of collected data (George and Mallery 2010; Hair et al. 2010). Thus, the results of normality and reliability checks of the collected data enabled valid parametric testing and deriving subsequent conclusions regarding research constructs and their interrelationships.

3.4. Respondents

The final research sample (N = 71) of this study were project managers who are either currently members of the Croatian branches of the world's leading project management professional associations (PMI Croatia or IPMA Croatia) (53.5%) or are separately identified as managing or have recently managed projects in Croatia (46.5%). In terms of gender and age, the sample was balanced, with women project managers representing almost half of the sample (47.9%), whereas project managers with ages between 30 and 39 years (29.6%), 40 and 49 years (32.4%) and 50 and 65 years (28.2%) are almost equally represented in the sample. The majority of project managers held graduate diplomas (53.5%) and some type of professional project management certification (59.2%). Respondents with an overall length of service longer than 10 years (64.8%) and with a project-related length of service between 11 and 20 years (40.8%) dominated the sample. As for the respondent's experience in managing projects, the sample is balanced with respondents with managing experience ranging from 2 to 5 years (23.9%), 6 to 10 years (22.5%), and 11 to 20 years (33.8%). Respondents in the sample predominantly work in private domestic or foreign-owned companies (74.6%), in companies that conduct projects on a regular and frequent basis, or whose business is exclusively based on projects (85.9%). Overall, seventeen different industries were represented in the sample, from which ICT (33.8%) and construction industries (14.1%) stand out. Half of the respondents in leading and managing current or recent projects closely collaborated with six or fewer team members, on average 10 team members (M = 9.90; Mdn = 6.00). In doing so half of the respondents managed projects with 20 or fewer participants (M = 312.28; Mdn = 20.00).

4. Results

The following section is presented in three parts: descriptive statistics, correlational analysis, and moderated regression analysis for testing hypotheses.

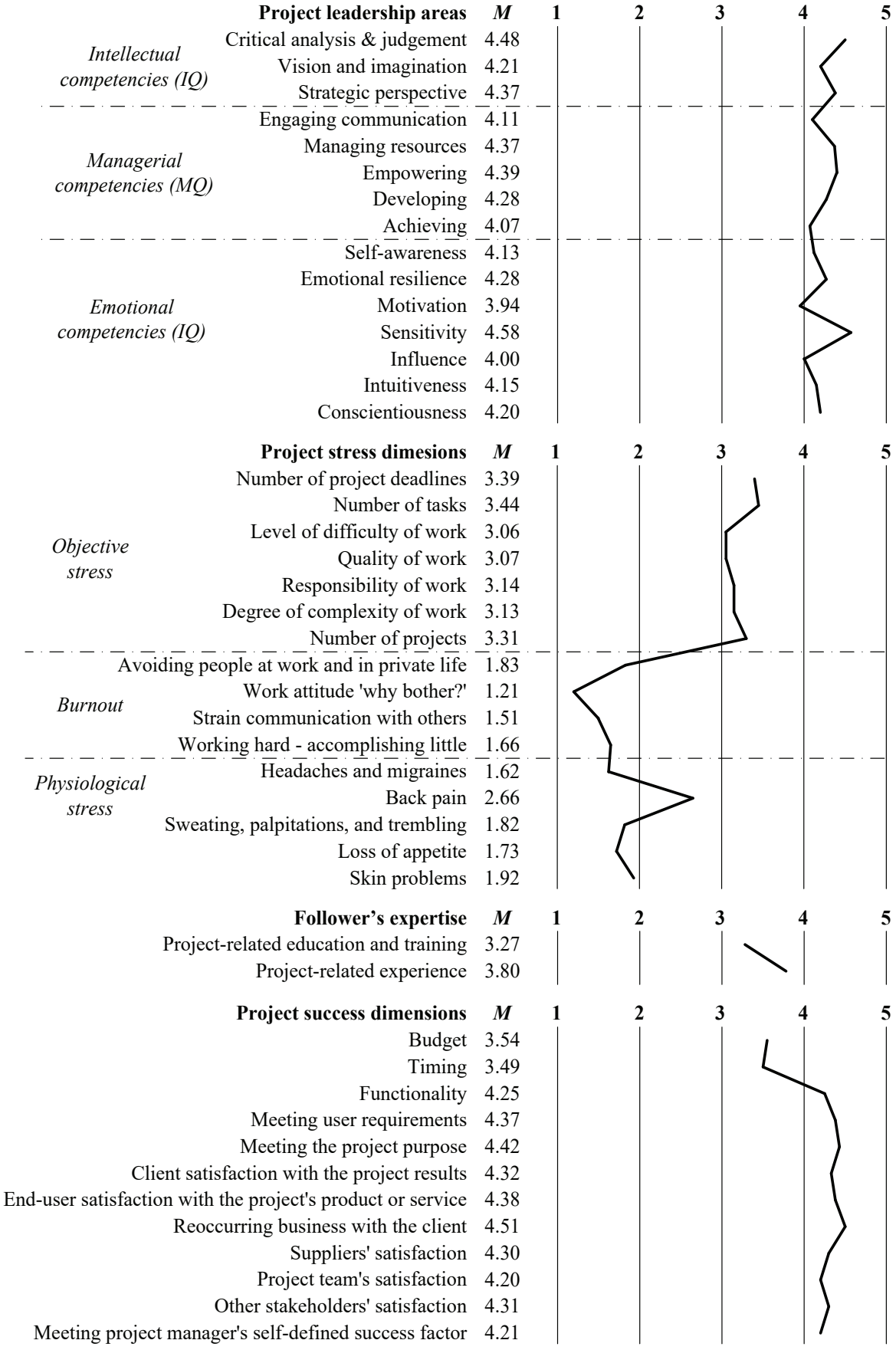
4.1. Descriptive Statistics

Leadership Profile of Project Managers. Croatian project managers demonstrate a high level of leadership competence (M = 4.24), where intellectual competencies are developed the most (M = 4.39), and emotional competencies are developed the least (M = 4.18), but still at a high level of development (Table 1). When considering specific leadership competencies across the three major areas, the competencies of motivation (M = 3.94) and influence (M = 4.00) stand out as the least developed competencies, whereas the competencies of sensitivity (M = 4.58) and critical analysis and judgment (M = 4.48) are developed the most (Figure 2). A very high level of sensitivity is an outlier among seven emotional intelligence-related competencies, the same as the competencies of achieving and engaging communication among five managerial competencies. Of all three groups of competencies, three intellectual competencies are balanced the most ($4.21 \leq M \leq 4.48$). Overall, the leadership profile of Croatian project managers indicates a relatively balanced and high level of development in leadership competencies.

Project Managers' Stress. When it comes to Croatian project managers' stress, which is generally at a low to moderate level (M = 2.41), there is an imbalance between stress factors. In this sense, objective project stress (M = 3.22) is a significantly higher factor of overall stress for project managers compared to the other two stress factors-burnout (M = 1.55) and physiological stress (M = 1.75). The number of tasks on projects assigned to them (M = 3.44) and the number of projects on which they work or which they lead (M = 3.31), combined with strict project deadlines (M = 3.39), are leading sources of stress for Croatian project managers. The burnout syndrome is not present in significant amounts in Croatian project managers ($1.21 \leq M \leq 1.83$), whereas modest level of physiological stress manifests itself primarily through back pain (M = 2.66) and skin problems such as irritations or skin disorders (M = 1.92).

Followers' Expertise. Members of the project team, as the project manager's closest colleagues and followers, possess moderate to high project-related expertise (M = 3.53). Followers' project-related

Figure 2. Descriptive statistics for main research constructs – level of individual items



Note. M stands for mean value, ranging from 1-5 in accordance with the 5-point Likert scale used in the research.

experience, in terms of months and years working on projects, is at a much higher level (M = 3.80) compared to their project-related education and training (M = 3.27). In this sense, the investigated project managers work with and lead followers who possess extensive project-related experience and moderate project education and training.

Project Success. Projects that the investigated Croatian project managers currently lead or have recently led, are achieving or have achieved high levels of success (M = 4.19). In this sense, stakeholders' aspects of project success are at a significantly higher level (M = 4.33), compared to the project's performance, namely deadlines, budget, functionality, and scope (M = 3.93). This is especially true for the project success criteria of budget and deadlines, which are at far lower achievement levels (M = 3.54; M = 3.49), thereby questioning the efficiency aspect of lead projects. On the other hand, end-user satisfaction with a project's product or service, meeting user requirements, and reoccurring business with the client are at the highest level of all 12 measured project success criteria, thus speaking in favor of high achievements in terms of a projects' effectiveness and fulfilling predefined strategic goals of projects.

4.2. Correlation Analysis

Before investigating the interrelationships between research constructs in detail, a zero-order correlation analysis was conducted to gain insights into initial relations among research constructs and their dimensions (Table 1). As is evident in the results, there is a weak to moderate (Hair, Page, and Brunsveld 2020) but definite negative relationship between project managers' stress and their project leadership (r = -.37, p < .01). This is also valid for the relationships between project leadership and the stress dimensions of burnout (r = -.38, p < .01) and physiological stress (r = -.31, p < .01), whereas the same cannot be said for the relationship between project leadership and objective project-related stress (r = -.15, p > .10). Among the three areas of project leadership, the managerial competencies of project managers has the strongest negative relationships with stress for project managers, manifested among others with the existence of weak negative relationship with objective project-related stress (r = -.22, p < .10). Project leadership and its three areas all have moderate positive relationships with project success (.42 ≤ r ≤ .57, p < .01).

Conducted correlation analyses did not identify statistically significant relationships between the project managers' stress, or its three dimensions, and

Table 1. Means, standard deviations, Cronbach alphas, and zero-order correlations for research constructs and their dimensions

Var	***M***	***SD***	1	2	3	4	5	6	7	8	9	10
1	4.24	.47	.892									
2	4.39	.57	.79***	.697								
3	4.24	.54	.90***	.68***	.783							
4	4.18	.51	.91***	.56***	.69***	.804						
5	2.41	.51	-.37***	-.27**	-.39***	-.30***	.830					
6	3.22	.58	-.15	-.09	-.22*	-.10	.70***	.811				
7	1.55	.72	-.38***	-.32***	-.34***	-.33***	.71***	.27**	.801			
8	1.75	.83	-.31***	-.23*	-.31***	-.27**	.78***	.22*	.45***	.787		
9	3.53	.84	.00	-.01	.10	-.06	.02	-.01	-.07	.10	-	
10	4.19	.56	.57***	.52***	.42***	.55***	-.13	-.07	-.17	-.06	.22*	.899

Notes. Abbreviations and symbols used in the Table are as follows: Var = variable, M = mean, SD = standard deviation; 1 = Project Leadership; 2 = Project Manager's Intellectual Competencies; 3 = Project Manager's Managerial Competencies; 4 = Project Manager's Emotional Competencies; 5 = Project Manager's Stress; 6 = Project Manager's Objective Stress; 7 = Project Manager's Burnout; 8 = Project Manager's Physiological Stress; 9 = Followers' Expertise; 10 = Project Success. Correlation coefficient (r) values are reported at the intersections between research constructs, research constructs and constructs dimensions, and the intersections between constructs dimensions, whereas Cronbach's alphas (α) values are reported underlined on the main diagonal.

***p < .01; **p < .05; *p < .10, where p stands for probability value.

project success (-.07 ≤ *r* ≤ -.17, *p* > .10). According to the results, the construct of followers' expertise has a weak but definite positive relationship with project success (*r* = .22, *p* < .10). Statistically significant relationships of this construct with the constructs of project leadership and the stress of project managers, and with their constituting dimensions, were not identified (-.07 ≤ *r* ≤ .10, *p* > .10).

4.3. Testing of Hypotheses

Hayes' (2022) PROCESS macro v4.0 for SPSS was used to conduct moderation analysis to test the hypotheses of this paper. To enhance the internal validity of the moderation model and to obtain consistent effect estimates, two control variables related to respondents' demographic characteristics - the project manager's gender and age-were introduced in the moderation model to account for confounding influence factors between independent and dependent variables (Hünermund and Louw 2020). In this sense, a final moderation model was comprised of project leadership (independent variable), followers' expertise (covariate variable), project manager's stress (moderator variable), project success (dependent variable), and the project manager's gender and age (two control variables). The moderation analysis was run with only one moderator (Model 1 in PROCESS macro v4.0 for SPSS) and covariates.

The produced moderation model (Table 2) was significant and explained 42% of variations in project success, $F(6,64) = 7.86$, $p < .001$, $R^2 = .42$. Project leadership was a significant predictor of project success, $b = .81$, $t(64) = 5.81$, $p < .001$. Followers' expertise, although not nearly as expressive as project leadership, was also found to be a significant predictor of project success, $b = .17$, $t(64) = 2.53$, $p = .014$. According to the results, the two control variables of a project manager's gender and age are not significant predictors of a project's success. The presented results suggest the relatively strong positive effect of project leadership on project success and a significant positive effect of followers' expertise on project success, thereby confirming hypotheses H1 and H2.

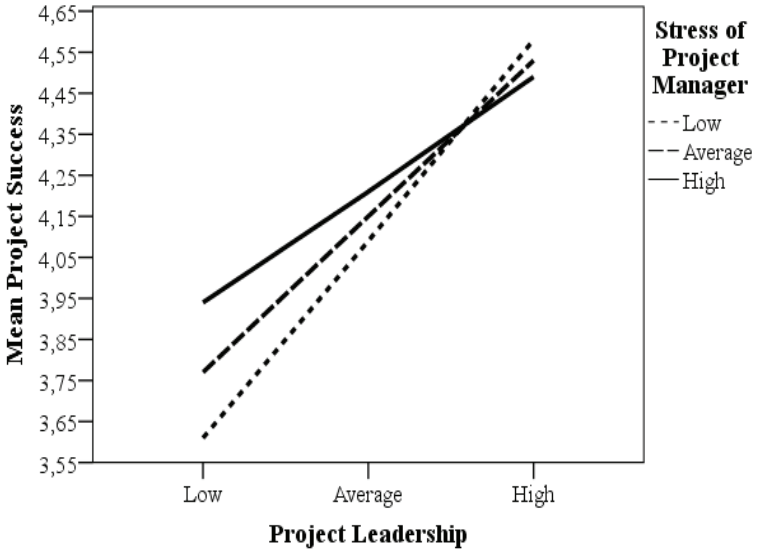
Stress of a project manager was not found to be a significant predictor of project success, $b = .12$, $t(64) = .94$, $p = .353$. Although the stress on a project manager does not directly influence project success, the interaction between project leadership and the stress on a project manager was a significant predictor of project success, $b = -.44$, $t(64) = -2.02$, $p = .048$. The addition of

Table 2. Results of moderation analysis for project stress, project leadership, and project success - main constructs' level (Process macro - Model 1)

Model	F	R^2	p			
	7.86	.42	.000			
			Project Success (Y)			
Independent variables	b	se	t	p	LLCI	ULCI
Project Leadership (X)	.81	.14	5.81	.000	.530	1.085
Project Stress (W)	.12	.13	.94	.353	-.134	.370
X × W	-.44	.22	-2.02	.048	-.881	-.005
Project Team Expertise	.17	.07	2.53	.014	.036	.303
Gender	-.06	.12	-.51	.614	-.290	.173
Age	-.07	.06	-1.14	.259	-.183	.050
Moderator (Project Stress)			**Conditional effects of X on Y**			
	b	***se***	***t***	***p***	***LLCI***	***ULCI***
Low	1.03	.21	5.02	.000	.621	1.442
Average	.81	.14	5.81	.000	.530	1.085
High	.58	.15	4.01	.000	.293	.873

Note. Symbols used in the Table are as follows: *F* = F test value; R^2 = coefficient of determination; *p* = probability value; *b* = unstandardized coefficient; *se* = standard error; *t* = t-test value; *LLCI* = lower limit confidence interval; *ULCI* = upper limit confidence interval.

Figure 3. Moderation effect of project manager's stress on the relationship between project leadership and project success - main constructs' level

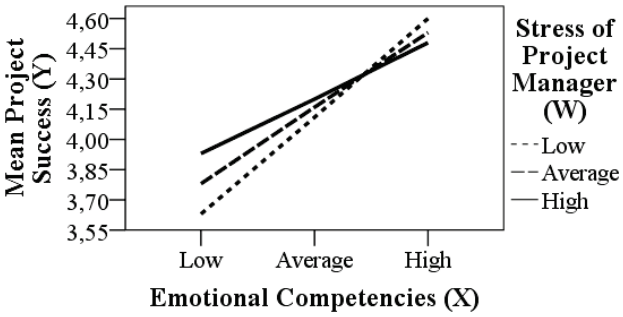


interaction between project leadership and stress on the project manager was a significant change to the model, as this interaction was responsible for 4% of variations in project success, $F(1,64) = 4.08$, $p = .048$, $\Delta R^2 = .04$. Stress on the project manager negatively moderates the relationship between project leadership and project success so that the positive effect of project leadership on project success decreases as stress on the project manager increases (Figure 3). More concretely, when the stress on the project manager is low, the positive effect of project leadership on project success is stronger (-1 *SD* below *M*, $b = 1.03$, $t(64) = 5.01$, $p < .001$) compared to the same positive effects when the stress on the project manager is average (*M* value, $b = .81$, $t(64) = 5.81$, $p < .001$), and especially when it is high (+1 *SD* above *M*, $b = .58$, $t(64) = 4.01$, $p < .001$). This moderation effect is statistically significant for 93% of values for a project manager's stress. Only when that stress increases above 3.33, the interaction between project leadership and the stress of the project manager becomes statistically insignificant for project success. Thus, the H3 hypothesis is also confirmed, assuming the existence of a moderation effect of stress on the project manager on the relationship between project leadership and project success.

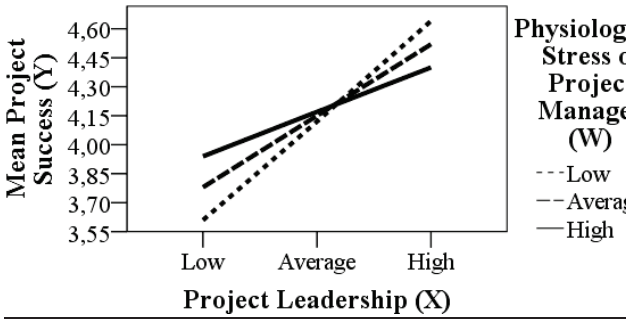
Moderation results related to the dimensions of project leadership and stress on the project manager are not so straightforward. All three areas of project leadership - intellectual competencies, managerial competencies, and emotional competencies are significant predictors of project success in run, statistically significant, moderation models. On the other hand, none of the three dimensions of stress on the project manager-project related stress, burnout, and physiological stress-are significant predictors of project success.

The area of emotional competencies has the strongest effect on project success of all three project leadership areas, and it is the most susceptible to the moderation effect of stress on the project manager in its mentioned effect on project success. (Figure 4). In effecting project success, the nature of the interaction between the area of emotional competencies and stress on the project manager is very similar to the nature of the interaction of project leadership and stress on the project manager ($b = -.40$, $t(64) = -1.81$, $p = .075$; 90% confidence). Of the three dimensions of stress on the project managers, the obtained results emphasize the very important moderating role of physiological stress in the effects of project leadership and its areas on project success. In this sense, the physiological stress on a project manager negatively moderates the relationship between project leadership and project success ($b = -.38$, $t(64) = -2.59$, $p = .012$), the intellectual competencies of project manager and project success ($b = -.23$, $t(64) = -1.92$, $p = .060$; 90% confidence), managerial competencies of project manager and project success ($b = -.27$, $t(64) = -1.89$, $p = .064$; 90% confidence), and the relationship between emotional competencies of project manager and project success ($b = -.31$, $t(64) = -2.24$, $p = .023$).

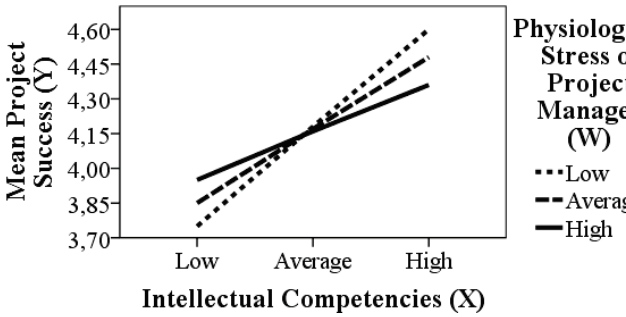
Figure 4. Notable results of moderation analyses for project stress, project leadership, and project success - specific dimensions' level (Process macro - Model 1)



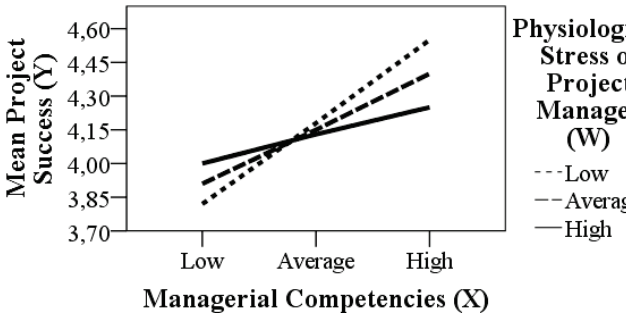
Model	*F*	R^2	*p*
	7.73	.42	.000
		Y	
Independent variables	***b***	***t***	***p***
X	.74	5.74	.000
W	.09	.68	.497
X × W	-.40	-1.81	.075
Project Team Expertise	.19	2.83	.006
Gender	-.11	-.92	.359
Age	-.09	-1.53	.132



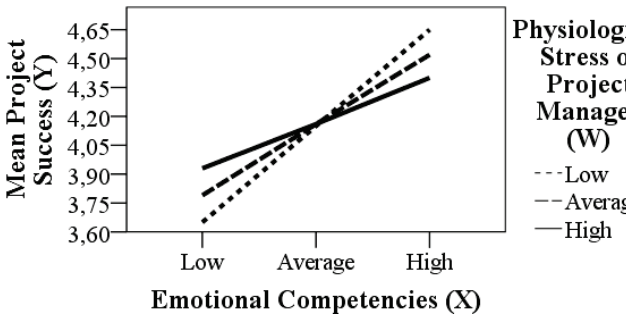
Model	*F*	R^2	*p*
	8.60	.45	.000
		Y	
Independent variables	***b***	***t***	***p***
X	.79	6.13	.000
W	.03	.36	.720
X × W	-.38	-2.59	.012
Project Team Expertise	.19	2.77	.007
Gender	-.03	-.28	.778
Age	-.07	-1.18	.244



Model	*F*	R^2	*p*
	6.12	.36	.000
		Y	
Independent variables	***b***	***t***	***p***
X	.55	5.04	.000
W	-.01	-.17	.869
X × W	-.23	-1.92	.060
Project Team Expertise	.19	2.70	.009
Gender	.085	.73	.470
Age	-.05	-.81	.418



Model	*F*	R^2	*p*
	4.07	.276	.002
		Y	
Independent variables	***b***	***t***	***p***
X	.45	3.66	.001
W	-.04	-.42	.675
X × W	-.27	-1.89	.064
Project Team Expertise	.17	2.21	.031
Gender	.10	.78	.438
Age	-.09	-1.29	.203



Model	*F*	R^2	*p*
	8.23	.44	.000
		Y	
Independent variables	***b***	***t***	***p***
X	.71	5.99	.000
W	.01	.09	.932
X × W	-.31	-2.24	.029
Project Team Expertise	.20	2.95	.004
Gender	-.09	-.74	.464
Age	-.10	-1.61	.112

Note. Symbols used in the Figure are as follows: *F* = F test value; R^2 = coefficient of determination; *p* = probability value; *b* = unstandardized coefficient; *t* = t-test value.

5. Discussion

Analysis regarding hypothesis 1 provided evidence of the relationship between project leadership and project success, offering additional empirical evidence of the importance of leadership, demonstrated by project managers, for achieving success in lead projects. The results align with the relevant literature's influential research, such as work by Geoghegan and Dulewicz (2008), Müller and Turner (2010), DuBois et al. (2015), Ahmed and Anantatmula (2017), and Podgórska and Pichlak (2019), thereby contributing to the ongoing debate in the literature on this matter (Nixon, Harrington, and Parker 2012). Each of the three project leadership areas affects project success, with emotional competencies having the strongest influence among them. Indeed, apart from intellectual and managerial capacity, emotional intelligence has been constantly identified in the literature as a required key set of managerial capabilities and of growing importance for leaders in contemporary business and project environments in particular, especially considering high project complexity and transformational style of leadership (Dulewicz and Higgs 2005; Rezvani et al. 2016). This result supports the emotional intelligence school's stance and that of its representative's, Goleman's (1995, 2020), proposition that emotional capabilities are the most important capabilities for modern leadership, especially for higher management levels. Similarly, Müller and Turner (2010) suggest that project managers, when progressing on their career development path and confronted with increasing project demands, need to enhance their emotional competencies the most to achieve successful project results. Therefore, to interact effectively with and lead their project team members and ultimately achieve project success, project managers, among others, have to possess emotional intelligence competencies, an area in which Croatian project managers are somewhat lagging compared to their highly developed intellectual and managerial competencies.

Croatian project managers lead and collaborate with project professionals who possess relatively extensive project-related experience and a moderate level of project-related education and training. Results related to hypothesis 2 suggest that followers' expertise is an important project success factor, a contextual determinant that project leaders need to take into account when aiming to lead a project successfully, as evidenced in similar research (e.g., Liu 2012; Beleiu, Crisan, and Nistor 2015; Oh and Choi 2020). Therefore, to execute all project tasks successfully, project managers should, if possible, choose project team members with a variety of competencies that are mutually complementary and with appropriate personality features, predispositions, and types of behaviors (Zdonek, Podgórska, and Hysa 2017).

Findings regarding hypothesis 3 indicate that Croatian project managers' stress does not directly influence the performance and success of projects they lead but hampers their leadership competencies. By doing so, Croatian project managers' stress diminishes their demonstrated leadership's positive effects on project success. In accordance with these findings are the conclusions of Leung, Chan, and Olomolaiye (2008), An et al. (2019), and Darmawan and Djelani (2021). Leung, Chan, and Olomolaiye (2008) emphasize that the relevant literature has not reached a definitive consensus on the relationship between stress and performance, and recognize that a majority of the research suggests that the relationship takes an inverted U-shape, in which low and high levels of stress hinder performance (understimulation and overstimulation) and moderate levels of stress enhance performance (optimum-stimulation zone). Similarly, An et al. (2019), and Darmawan and Djelani (2021) conclude that project stress affects the project manager's performance, but underline that there is no unified conclusion in the relevant literature on the nature of the relationship due to the different nature of effects of stress on the performance with regards to its levels (low, moderate, high stress) and types (challenge or hindrance stressors). By draining project managers' cognitive and emotional resources and thereby influencing their behavior and decision-making, stress hinders project managers' ability to demonstrate adequate leadership on projects (Harms et al. 2017; Lin et al. 2022). The presence of stressors in highly uncertain and demanding project environments requires project managers to cope with stress and reduce it to an acceptable or manageable level—a moderate level—to lead projects successfully (Flannes 2010; Hamid and Afshar 2014; Heng 2016). Thus, stress's effects on project success can be twofold—negative and positive—depending on the level of stress (Smith, Bruyns, and Evans 2011; Darmawan and Djelani (2021), whereas project leadership suffers from the negative influence of project-related stress. Therefore, the results regarding hypothesis 3 support the relevant literature's stance on project stress's role in demonstrating adequate leadership and ultimately achieving project success.

More detailed results on the relationships between specific areas of Croatian project managers' leadership, types of project stress, and project success reveal additional interesting and even surprising insights. Project managers' emotional competencies are additionally underlined as the most important

competency area for project success, and the area most susceptible to the negative moderation effects of project stress, especially physiological stress. These results align with Rezvani and Khosravi's (2019, p. 141) notion that stress interferes with the self-regulation of emotions, cognition, and motivation to complete a task and thereby hinders project success. Surprisingly, it seems that Croatian project managers' acute objective stress related to specific projects (deadlines, costs, scope, etc.) does not influence their capabilities needed to demonstrate adequate leadership and subsequently achieve project success, unlike the effects of the accumulated consequences of chronic and continuous stress experienced in previous projects, expressed as physiological stress (back pain, skin problems, etc.). Job stress, if not managed effectively by the project manager, over time leads to psychological stress through burnout (Leung et al. 2011 in Senaratne and Rasagopalasingam 2017) and ultimately, through accumulated chronic stress, affects project manager's physiological processes, metabolic activity, and overall health condition (Rowold and Schlotz 2009; An et al. 2019). Furthermore, underlying physiological processes can strongly influence one's leadership behavior (Waller et al. 2017), as evidenced by the results of this study, according to which physiological stress negatively moderates the effects of all three project leadership competencies' areas on project success. Indeed, stress's psychological and physiological effects associated with the leadership role negatively affect a leader's sustainability and effectiveness (Boyatzis, Smith, and Blaize 2006; Byrne et al. 2014; Li et al. 2018; An et al. 2019).

6. Conclusion

This study offered interesting insights into project managers' leadership nature and its relationship with stress and project success, all in the context of transitional, moderately developed country in Central and South Eastern Europe. The study's results suggest that project managers possess a balanced set of leadership competencies at high levels, but emotional competencies are slightly lagging behind managerial and especially intellectual competencies. On the projects they lead, confronted with moderate levels of objective project-related stress and modest levels of physiological stress, and collaborating with followers with extensive project-related experience and moderate project-related education and training, these project managers are achieving high levels of project success. Apart from descriptive insights, the study provided answers to the main research questions on the nature of the relationship between project leadership and project success and on stress's role in demonstrating adequate project leadership and ultimately achieving project success. By confirming all three research hypotheses, the study results provided additional support for the relevant literature's stance on project leadership's crucial role in achieving project success and shed light on the debated role of stress in achieving project success, especially in relation to project leadership. In this sense, the obtained results emphasize emotional competencies as the main set of leadership competencies required to achieve project success and draw attention to physiological stress as an influential barrier to demonstrating adequate project leadership and thereby achieving project success.

The results presented in this study help fill the research gaps identified in leadership and project management literature. The study offers new insights into ignored behavioral, interpersonal, and competency factors in the project management literature (Munns and Bjeirmi 1996 in Muller and Turner 2007; Ahmed and Anantatmula 2017; Farnes 2018), especially ignored contributions of project manager's competence and project leadership to project success (Müller and Turner 2007; Crawford and Turner 2007; Flannes 2010; Jiang 2014). Additionally, study results add to the lacking research on stress's effect on project managers' performance (Gällstedt 2003; Leung, Chan, and Olomolaiye 2008; Farnes 2018) and to the paucity of quantitative research on project-team factors' effects, including expertise, on project success (Tiwana and McLean 2005; Scott-Young and Samson 2008; Zdonek, Podgórska, and Hysa 2017). By examining the moderating role of project stress in the relationship between project leadership and project success, the study results' contributions to the relevant leadership and project management literature are twofold. They 1) add to the research on predictors of leadership that is lagging behind in leadership literature (Byrne et al. 2014), and also 2) answer the calls, made by literature's influential authors and papers, for more research focused on examining the potential intervening variables between project leadership and project outcomes (Clarke 2012). Finally, linking all four mentioned concepts—project leadership, project managers' stress, followers' expertise, and project success—into one conceptual model and providing empirical results into their relationships, all in the context of a transitional, moderately developed country in Central and South Eastern Europe, present additional contributions of this study to the relevant leadership and project management literature.

As in any study, the presented research has several limitations. The first is the relatively small sample of project managers. Conducting an empirical study with a larger sample by employing pure random sampling as opposed to a combination of simple random sampling and purposive sampling methods would make the presented results more valid. Additionally, this study is cross-sectional in nature whereas the results obtained from only one industry or from a longitudinal study could prove more valid. Finally, the same respondents provided answers on independent variables and the dependent variable, possibly leading to a common-method bias. Collecting the data from several sources and several hierarchical levels (project managers, followers, project stakeholders) would make the collected data more objective, especially related to the project success variable, and would decrease the issue of common-method bias.

In addition, this study's results, some of which were surprising, point to interesting future research. The debate on project leadership's role in achieving project success is still very much alive; therefore, additional research on project leadership as a project success factor is still needed. A similar conclusion is particularly valid for stress's role in shaping project leadership and directly and indirectly influencing project success. In this sense, investigating the role of emotional competencies in project success, especially in relation to the psychological and physiological effects of accumulated chronic stress, stands out as a promising research direction. Finally, given the scarcity of existing research, new empirical insights into relationships between project leadership, project success, and stress, in the contexts of moderately or less developed countries, would be welcomed.

References

Ahmed, R. and Anantatmula, V. S. 2017. Empirical study of project managers leadership competence and project performance. Engineering Management Journal 29 (3): 189-205.

Ahmed, R. and bin Mohamad, N. A. 2016. Differentiating between leadership competencies and styles: A critical review in project management perspective. International Journal of Information Technology Project Management (IJITPM) 7 (1): 58-71.

Aitken, A. and Crawford, L. 2007. Coping with stress: Dispositional coping strategies of project managers. International Journal of Project Management 25: 666-673.

Al Kazaz, M. and Shibani, A. 2016. The impact of managers' leadership skills on construction project performance in Dubai. International Journal of Managerial Studies and Research (IJMSR) 4 (6): 73-94.

An, N., Qiang, M., Wen, Q., Jiang, H., and Xia, B. 2019. Contribution of project managers' capability to project ending performance under stressful conditions. European Management Journal 37 (2): 198-209.

Anantatmula, V. S. 2010. Project manager leadership role in improving project performance. Engineering Management Journal 22 (1): 13-22.

Anantatmula, V. S. and Rad, P. F. 2018. Role of organizational project management maturity factors on project success. Engineering Management Journal 30 (3): 165-178.

Beleiu, I., Crisan, E., and Nistor, R. 2015. Main factors influencing project success. Interdisciplinary Management Research 11 (2): 59-72.

Berg, M. E. and Karlsen, J. T. 2013. Managing stress in projects using coaching leadership tools. Engineering Management Journal 25 (4): 52-61.

Boyatzis, R. E., Smith, M. L., and Blaize, N. 2006. Developing sustainable leaders through coaching and compassion. Academy of Management Learning & Education 5 (1): 8-24.

Byrne, A., Dionisi, A. M., Barling, J., Akers, A., Robertson, J., Lys, R., Wylie, J., and Dupré, K. 2014. The depleted leader: The influence of leaders' diminished psychological resources on leadership behaviors. The Leadership Quarterly 25 (2): 344-357.

Clarke, N. 2012. Leadership in projects: What we know from the literature and new insights. Team Performance Management: An International Journal 18 (3/4): 128-148.

Cooke-Davies, T. 2002. The "real" success factors on projects. International Journal of Project Management 20 (3): 185-190.

Crawford, L. W. 2007. Developing the project management competence of individuals. In Gower Handbook of Project Management (4th ed.), edited by J. R. Turner, 678–694. Aldershot, UK: Gower Publishing.

Crawford, L. W. and Turner, J. R. 2007. Developing the project management competence of individuals. Gower handbook of project management 4: 678-694.

Darmawan, D. and Djaelani, M. 2021. Correlation of work stress and performance of construction project manager. ARRUS Journal of Engineering and Technology 1 (2): 55-59.

Davis, K. 2014. Different stakeholder groups and their perceptions of project success. International Journal of Project Management 32 (2): 189-201.

DuBois, M., Hanlon, J., Koch, J., Nyatuga, B., and Kerr, N. 2015. Leadership styles of effective project managers: Techniques and traits to lead high performance teams.

Journal of Economic Development, Management, IT, Finance, and Marketing 7 (1): 30-46.

Dulewicz, V. and Higgs, M. 2003. Design of a new instrument to assess leadership dimensions & styles. Henley Working Paper HWP 0311. Henley Management College.

Dulewicz, V. and Higgs, M. 2005. Assessing leadership styles and organisational context. Journal of Managerial Psychology 20 (2): 105-123.

Farnes, K. 2018. Occupational stress and the project manager. The proceedings of the Tenth International Conference on Construction in the 21st Century (CITC 10): 333-341.

Flannes, S. 2010. Tangible tips for handling the endless stress in project management. PMI Global Congress Proceedings - Dublin.

Gällstedt, M. 2003. Working conditions in projects: Perceptions of stress and motivation among project team members and project managers. International Journal of Project Management 21 (6): 449-455.

Geoghegan, L. and Dulewicz, V. 2008. Do project managers' leadership competencies contribute to project success?. Project Management Journal 39 (4): 58-67.

George, D. and Mallery, P. 2010. SPSS for Windows step by step: A simple study guide and reference, 17.0 update (10th ed). Boston, USA: Pearson Education.

Gliem, J. A. and Gliem, R. R. 2003. Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education.

Goleman, D. 1995. Emotional intelligence. New York, USA: Bantam Books.

Goleman, D. 2020. Emotional intelligence. London, UK: Bloomsbury Publishing.

Groen, B. A., Wouters, M. J., and Wilderom, C. P. 2012. Why do employees take more initiatives to improve their performance after co-developing performance measures? A field study. Management Accounting Research 23 (2): 120-141.

Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. 2010. Multivariate data analysis (7th ed.). New York, USA: Pearson Education Limited.

Hair, J. F., Page, M., and Brunsveld, N. 2020. Essentials of business research methods. New York, USA: Routledge.

Hamid, A. R. A. and Afshar, R. H. 2014. The prevalence of stress among project manager at construction sites. National Seminar on Civil Engineering Research. Training Center, UTM Skudai.

Harms, P. D., Credé, M., Tynan, M., Leon, M., and Jeung, W. 2017. Leadership and stress: A meta-analytic review. The Leadership Quarterly 28 (1): 178-194.

Hayes, A. F. 2022. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (Third Edition). New York, USA: Guilford publications.

Haynes, N. S. and Love, P. E. 2004. Psychological adjustment and coping among construction project managers. Construction Management and Economics 22 (2): 129-140.

Heng, C. H. 2016. A study on stress of project manager. Doctoral dissertation, UTAR.

Hong, W., Zhang, L., Gang, K., and Choi, B. 2019. The effects of expertise and social status on team member influence and the moderating roles of intragroup conflicts. Group & Organization Management 44 (4): 745-776.

Hünermund, P. and Louw, B. 2020. On the nuisance of control variables in regression analysis. arXiv preprint arXiv:2005.10314.

Jiang, J. 2014. The study of the relationship between leadership style and project success. American Journal of Trade and Policy 1 (1): 51-55.

Joslin, R. and Müller, R. 2016. The relationship between project governance and project success. International journal of project management 34 (4): 613-626.

Kellett, A. 2013. Combat motivation: The behaviour of soldiers in battle. London, UK: Springer Science & Business Media.

Khan, A. S. and Rasheed, F. 2015. Human resource management practices and project success, a moderating role of Islamic work ethics in Pakistani project-based organizations. International Journal of Project Management 33 (2): 435-445.

Larsson, J., Eriksson, P. E., Olofsson, T., and Simonsson, P. 2015. Leadership in civil engineering: Effects of project managers' leadership styles on project performance. Journal of Management in Engineering 31 (6): 04015011.

Leung, M. Y., Chan, Y. S., and Olomolaiye, P. 2008. Impact of stress on the performance of construction project managers. Journal of Construction Engineering and Management 134 (8): 644-652.

Li, W. D., Schaubroeck, J. M., Xie, J. L., and Keller, A. C. 2018. Is being a leader a mixed blessing? A dual-pathway model linking leadership role occupancy to well-being. Journal of Organizational Behavior 39 (8): 971-989.

Lin, M., Ling, Q., Zhang, L., Cui, X., and Zhang, Z. 2022. The effects of manager role stress on job thriving of both employees and managers through empowering leadership. Tourism Management 92: 104545.

Lindsjørn, Y., Sjøberg, D. I., Dingsøyr, T., Bergersen, G. R., and Dybå, T. 2016. Teamwork quality and project success in software development: A survey of agile development teams. Journal of Systems and Software 122: 274-286.

Liu, W. H. (2012). A comprehensive model of perceived project team performance. PhD diss. Texas Tech University.

Liu, W. H. and Cross, J. A. (2016). A comprehensive model of project team technical performance. International Journal of Project Management 34 (7): 1150-1166.

Luo, L., He, Q., Xie, J., Yang, D., and Wu, G. 2017. Investigating the relationship between project complexity and success in complex construction projects. Journal of Management in Engineering 33 (2): 04016036.

Maqbool, R., Sudong, Y., Manzoor, N., and Rashid, Y. 2017. The impact of emotional intelligence, project managers' competencies, and transformational leadership on project success: An empirical perspective. Project Management Journal 48 (3): 58-75.

McKevitt, D., Carbery, R., and Lyons, A. 2017. A profession but not a career? Work identity and career satisfaction in project management. International Journal of Project Management 35 (8): 1673-1682.

Müller, R. and Turner, J. R. 2007. Matching the project manager's leadership style to project type. International Journal of Project Management 25 (1): 21-32.

Müller, R. and Turner, J. R. 2010. Leadership competency profiles of successful project managers. International Journal of Project Management 28 (5): 437-448.

Müller, R., Geraldi, J., and Turner, J. R. 2011. Relationships between leadership and success in different types of project complexities. IEEE Transactions on Engineering Management 59 (1): 77-90.

Nixon, P., Harrington, M., and Parker, D. 2012. Leadership performance is significant to project success or failure: A critical analysis. International Journal of Productivity and Performance Management 61 (2): 204-2016.

Novo, B., Landis, E. A., and Haley, M. L. 2017. Leadership and its role in the success of project management. Journal of leadership, accountability, and ethics 14 (1): 73-78.

Nunnally, J. and Bernstein, I. 1994. Psychometric Theory (3rd ed.). New York, USA: McGraw-Hill.

Oh, M. and Choi, S. 2020. The competence of project team members and success factors with open innovation. Journal of Open Innovation: Technology, Market, and Complexity 6 (3): 51.

Owusu-Manu, D. G., Debrah, C., Amissah, L., Edwards, D. J., and Chileshe, N. 2020. Exploring the linkages between project managers' mindset behaviour and project leadership style in the Ghanaian construction industry. Engineering, Construction and Architectural Management 28 (9): 2690-2711.

Pinto, J. and Trailer, J. 1998. Leadership skills for project managers. Newtown Square, Pennsylvania, USA: Project Management Institute.

Pinto, J. K. and Slevin, D. P. 1987. Critical factors in successful project implementation. IEEE Transactions on Engineering Management (1): 22-27.

Pinto, J. K. and Slevin, D. P. 1988. Critical success factors across the project life cycle: Definitions and measurement techniques. Project Management Journal 19 (3): 67-75.

Podgórska, M. and Pichlak, M. 2019. Analysis of project managers' leadership competencies: Project success relation: what are the competencies of polish project leaders?. International Journal of Managing Projects in Business 12 (4): 869-887.

Rees, D., Turner, R., and Tampoe, M. 1996. On being a manager and leader. In The Project Manager as Change Agent, edited by R. Turner, K. V. Grude, and L. Thurloway, 99-115. Maidenhead, UK: McGraw-Hill.

Rezvani, A. and Khosravi, P. 2019. Emotional intelligence: The key to mitigating stress and fostering trust among software developers working on information system projects. International Journal of Information Management 48: 139-150.

Rezvani, A., Chang, A., Wiewiora, A., Ashkanasy, N. M., Jordan, P. J., and Zolin, R. 2016. Manager emotional intelligence and project success: The mediating role of job satisfaction and trust. International Journal of Project Management 34 (7): 1112-1122.

Richmond, A. and Skitmore, M. 2006. Stress and coping: A study of project managers in a large ICT organization. Project Management Journal 37 (5): 5-16.

Rogers, T. 2019. Project success and project team individuals. European Project Management Journal 9 (1): 27-33.

Rowold, J. and Schlotz, W. 2009. Transformational and transactional leadership and followers' chronic stress. Leadership Review 9 (1): 35-48.

Scott-Young, C. and Samson, D. 2008. Project success and project team management: Evidence from capital projects in the process industries. Journal of Operations Management 26 (6): 749-766.

Senaratne, S. and Rasagopalasingam, V. 2017. The causes and effects of work stress in construction project managers: The case in Sri Lanka. International Journal of Construction Management 17 (1): 65-75.

Short, J. C., Ketchen Jr, D. J., and Palmer, T. B. 2002. The role of sampling in strategic management research on performance: A two-study analysis. Journal of Management 28 (3): 363-385.

Smith, D. C., Bruyns, M., and Evans, S. 2011. A project manager's optimism and stress management and IT project success. International Journal of Managing Projects in Business 4 (1): 10-27.

Sunindijo, R. Y., Hadikusumo, B. H., and Ogunlana, S. 2007. Emotional intelligence and leadership styles in construction project management. Journal of Management in Engineering 23 (4): 166-170.

Thoms, P. and Pinto, J. K. 1999. Project leadership: A question of timing. Project Management Journal 30 (1): 19-26.

Tiwana, A. and McLean, E. R. 2005. Expertise integration and creativity in information systems development. Journal of Management Information Systems 22 (1): 13-43.

Turner, J. R. and Müller, R. 2005. The project manager's leadership style as a success factor on projects: A literature review. Project Management Journal 36 (2): 49–61.

Waller, L., Reitz, M., Poole, E., Riddell, P. M., and Muir, A. 2017. Experiential learning as preparation for leadership: An exploration of the cognitive and physiological processes. Leadership & Organization Development Journal 38 (4): 513-529.

Yang, L. R., Huang, C. F., and Wu, K. S. 2011. The association among project manager's leadership style, teamwork, and project success. International journal of project management 29 (3): 258-267.

Zdonek, I., Podgórska, M., and Hysa, B. 2017. The competence for project team members in the conditions of remote working. Foundations of Management 9 (1): 213-224.