





Review

Dark personality traits in project management: A bibliometric analysis and agenda for future research

Udechukwu Ojiako^{a,b,c,*} , Malcolm Higgs^d, Khalid Khalfan Mohamed Al Naqbi^e, M.K.S. Al-Mhdawi^{f,g} , Maxwell Chipulu^h, Terry Williamsⁱ, Taiwo Adedeji^j

^a Bailey College of Engineering & Technology, Indiana State University, United States

^b Department of Design, Manufacturing & Engineering Management, University of Strathclyde, United Kingdom

^c Johannesburg Business School, University of Johannesburg, South Africa

^d Birmingham City University, Birmingham, United Kingdom

^e Department of Industrial Engineering & Engineering Management, University of Sharjah, United Arab Emirates

^f Department of Civil, Structural and Environmental Engineering, Trinity College Dublin, Ireland

^g School of Computing, Engineering and Digital Technologies, Teesside University, United Kingdom

^h The Business School, Edinburgh Napier University, United Kingdom

ⁱ Hull University Business School, University of Hull, United Kingdom

^j Faculty of Arts, Design and Humanities, De Montfort University, United Kingdom



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ABSTRACT

For the past thirty-five years, project management research has been largely dominated by studies emphasizing the prosocial, and therefore positive, traits of project managers and their influence on project outcomes. Alongside this tradition, however, a growing body of work has begun to examine alternative traits, specifically project manager dark personality (PMDP) traits, which are frequently described as ‘dark’. These traits are generally characterized as aversive, deviant, or malevolent. Despite increasing scholarly interest, the intellectual structure of research on PMDP traits remains underexplored. To address this gap, the present study undertakes a comprehensive bibliometric analysis of PMDP literature published between 1989 and 2024, with the aim of uncovering the thematic focus and publication patterns within this field. Our analysis reveals seven recurring project-focused themes: ‘Corruption, unethical, and negative behaviours’; ‘Impact of dark traits’; ‘Causes and effects of biases’; ‘Dark leadership and well-being’; ‘Causes of selective reporting’; ‘Authoritarian leadership and toxicity’; and ‘PM traits and outcomes’. The study makes two key contributions: first, it provides a pioneering primer on PMDP traits and traces their developmental trajectory; second, it highlights emerging themes and trends that merit further investigation.

1. Introduction

Academic literature has long emphasized the central role of the human element in projects, highlighting its importance in creating the conditions necessary for successful outcomes. Within this literature, considerable attention has been given to project manager behaviour (e.g., Khan and Khan, 2022; Xiong et al., 2023). Behaviour is defined as “... external changes or activities of living organisms that are functionally mediated by other external phenomena in the present moment” (Uher, 2016,

p. 490). It can be verbal (Horne and Lowe, 1997), non-verbal, for example, gazing and maintaining eye contact (Rodero et al., 2022), or multimodal, combining both forms (Jackob et al., 2016). Understanding behaviour is important because it provides a means of explaining individuals’ actions and conduct.

Behavioural studies in project management therefore seek to understand the role “... that people play in fostering an environment for success” (Slevin and Pinto, 2007, p. 1). A key foundation of behaviour is ‘personality’ (Hogan and Sherman, 2020), which has been defined as the

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* Corresponding author. Department of Civil, Structural and Environmental Engineering, Trinity College Dublin, Ireland

E-mail addresses: udechukwu.ojiako@outlook.com, uojiako@yahoo.ca, udechukwu.ojiako@gmail.com (U. Ojiako), Malcolm.Higgs@bcu.ac.uk (M. Higgs), U18104188@sharjah.ac.ae (K.K. Mohamed Al Naqbi), almhdawm@tcd.ie (M.K.S. Al-Mhdawi), m.chipulu@napier.ac.uk (M. Chipulu), terry.williams@hull.ac.uk (T. Williams), jt.adedeji@gmail.com (T. Adedeji).

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“... enduring predispositions that characterize a person, such as styles of thought, feelings, and behaviour” (Diener and Lucas, 2019, p. 294). Personality shapes how individuals behave in response to challenges and situations (Kernberg, 2016) and consists of traits, or “... dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions” (McCrae and Costa, 1990, p. 23). An individual's responses to stimuli are therefore significantly influenced by their personality traits (Nagahi et al., 2021).

Personality traits have traditionally been categorized into two categories, (Kaufman et al., 2019; Neumann et al., 2020; Sevi et al., 2020; Dickinson, 2025), namely ‘prosocial’ and ‘antisocial’. The first category (i.e., ‘prosocial’) includes traits considered benevolent; traits characterized by agreeableness, conscientiousness, cultural sensitivity, emotional stability, and extraversion. Research on prosocial traits is well established in psychology, with several reviews and meta-analyses available (Kline et al., 2019; Thielmann et al., 2020). In project management, notable reviews (Stingl and Gerdali, 2017; Fantozzi et al., 2024) and extensive field studies (e.g., Ameer et al., 2022; Kassa et al., 2024) have also been published. These traits are often collectively referred to as ‘light’ personality traits. This category of traits is not the focus of the present research.

The second category (i.e., ‘antisocial’) encompasses malevolent traits, often collectively termed ‘dark’ personality traits. These traits are characterized as aversive, deviant, or offensive (Rogoza et al., 2022; Grieve, 2023). Psychology has developed a mature body of research on dark traits, including reviews (Harms, 2022; Rogoza et al., 2022) and meta-analyses (Schreiber and Marcus, 2020; Dinić and Jevremov, 2021). While related reviews have emerged in management and leadership studies (Smith et al., 2018; Mackey et al., 2021), there remains, to date, no project-focused review focused on dark personality traits. Furthermore, within the context of projects, research has examined the prevalence of the Dark Triad. Studies have for example, examine dark personality traits such as *Machiavellianism* (e.g., Ahmad et al., 2022; Xiong et al., 2023), *Narcissism* (e.g., Lynch et al., 2022; Cavazotte et al., 2023), and *Psychopathy* (Jarman, 2013). Although this body of work is growing, there has been no consolidated overview of PMDP traits research. Thus, the focus of this research is to provide a consolidated overview of PMDP traits. Specifically, the research subject is the intellectual structure, thematic evolution, and publication patterns of project management scholarship addressing PMDP traits. To this extent, the study examines how research on aversive, deviant, and malevolent personality traits of project managers has developed over time, and what dominant and emerging themes characterize this body of literature.

Thus, the present study conducts a bibliometric analysis of PMDP traits-related literature published between 1989 (the year of the first study published on this topic) and August 14, 2024 (the date that the search was conducted). The analysis applies citation and co-citation network methods to examine the structure of the field, assess publishing trends, and identify recurring and emerging themes that may shape future research.

This study is both timely and valuable, given a growing interest in not only the ‘dark side’ of projects (refer to He et al., 2022; Locatelli et al., 2022a, 2022b; Sarhadi and Hasanzadeh, 2022), but also sustained interest in the central role of the professional project manager in project success (Cheng et al., 2005; Malach-Pines et al., 2009; Chipulu et al., 2012, 2016; Bredillet et al., 2015; Zwikael and Meredith, 2018; Fareed et al., 2021). Defined as “... the person given the authority and responsibility to manage the project on a day-to-day basis to deliver the required products within the constraints” (OGC, 2009, p. 309), project managers play a pivotal role in driving project outcomes (Chipulu et al., 2012; Nowińska and Pedersen, 2024), often making complex decisions under tight time constraints while managing diverse responsibilities.

The capacity to make consistent and well-reasoned judgments in decision-making is therefore critical to project success. For the purposes of this study, ‘project success’ is deliberately defined in narrow terms, focusing solely on the achievement of cost, time, and quality objectives;

the well-established ‘iron triangle’ (Pollack et al., 2018). This restricted conceptualization is considered appropriate given the absence of a consolidated body of research examining PMDP traits and their relationship with project outcome success. Future research could extend this line of inquiry by adopting a more strategic perspective on project success (Davis, 2014) or by engaging with more recent reconceptualization's of the construct (Ika and Pinto, 2022). Drawing on Ojiako et al. (2015) and Chipulu et al. (2019), project outcomes are conceptualised as goal attainment.

Decision-making is a multifaceted process influenced by a range of factors, including personality traits (Nicholson et al., 2005; Davis et al., 2007; Byrne et al., 2015; Basic-Sontic et al., 2017; Moncel et al., 2025; Sedlár and Gurnáková, 2025). In particular, personality traits systematically shape how individuals search for, interpret, and respond to information (Al-Samarraie et al., 2017; Jach et al., 2022; Sarsam et al., 2023).

By functioning as cognitive heuristics and emotional filters, personality traits help explain the psychological heterogeneity observed among project managers, influencing not only which decisions they prioritise but also how they respond to them (Basic-Sontic et al., 2017). Prior research has explored the effects of personality traits on project managers' decision-making styles (e.g., Rashid and Boussabiane, 2021), demonstrating associations between decision-making styles and (i) traits, (ii) the situational salience of those traits, and (iii) the strength with which a trait is activated (Lievens et al., 2006). For example, traits such as prudence are associated with more cautious decision-making behaviours (Marshall et al., 2024). This link is particularly evident in project-related risk-taking, where cognitive biases and overconfidence are common (Lauriola and Levin, 2001). Understanding how project managers' personality traits shape decision-making is therefore critical. While many managers perform effectively under low-pressure conditions, high-pressure situations increase the likelihood of poor choices, jeopardizing project outcomes (Byrne et al., 2015). In such contexts, personality traits not only affect behavioural responses to stress but also help predict the likelihood of project success (Tett and Guterman, 2000).

Considering the above, consolidating and synthesizing the existing knowledge on PMDP traits is an urgent task. A bibliometric analysis of the literature provides a representative overview of this growing area of project management research and offers a foundation for shaping future inquiry.

To this end, our study pursues three research objectives. First, we seek to identify what is currently known about PMDP traits and their effects. Second, we examine the intellectual structure of the PMDP traits literature and identifies its prominent contributors (e.g., scholars, schools, and journals). Third, we outline future research avenues that scholars should consider when investigating PMDP traits.

To achieve the three research objectives, the paper is structured as follows. Section 2 provides the project-focused background of the study, with a detailed examination of dark personality traits, thereby addressing the first research objective. Section 3 outlines the methodology, and Section 4 presents the analysis and findings, addressing the second research objective. Section 6 discusses these findings, while Section 7 proposes an agenda for future research, addressing the third research objective. Finally, Section 8 concludes by highlighting the academic and practical contributions of the study, as well as its limitations.

2. Background

2.1. Personality traits and the project environment

The project environment provides a distinct setting in which to examine PMDP traits for three reasons. First, projects possess unique characteristics that may amplify behaviours associated with PMDP traits. They are novel and unique (Maylor et al., 2018), temporary (Harvey and Aubry, 2018), demanding of multitasking (Davies and Brady, 2000), and inherently non-routine (Ojiako et al., 2024). These

features create conditions often perceived as disorderly and complex. Singh and Singh (2002) compare projects to military battles, describing them as arenas of “wild confusion, disorder, [and] discontinuity in information flow” (p. 24), which foster deviance, unpredictability, and irrationality among practitioners. At this point, it is important to emphasize that although the relationship between personality traits and project success is complex, individuals who display pronounced ‘light’ (i.e., prosocial) traits are generally expected to have a positive and beneficial impact on projects, thereby increasing the likelihood of success. Conversely, those exhibiting strong ‘dark’ traits are typically expected to exert negative, harmful, and counterproductive effects, thereby reducing the chances of project success.

Second, empirical and theoretical studies (e.g., Baumeister et al., 2001) suggest malevolent personality traits exert stronger and more lasting effects on projects and their outcomes than benevolent traits. When both behaviours are present, the psychological impact of malevolence typically outweighs that of benevolence (Rozin and Royzman, 2001). Malevolent behaviours tend to provoke more complex, context-specific emotional responses (Taylor, 1991), and the cognitive effort required to manage them amplifies their psychological influence (Baumeister et al., 2001).

Third, research indicates that project managers’ personality profiles differ significantly from those of the general population (Rafique et al., 2023) and even from functional managers (Fisher, 2011). PMDP traits may therefore diverge in both nature and expression from those found in other professional groups.

2.2. Dark personality traits and the ‘Dark Triad’

Research on ‘dark’ personality traits, aimed at explaining the constellation of malevolent traits observed in individuals, traces its origins to the foundational work of Delroy Paulhus (Paulhus and Williams, 2002). Over time, various conceptualizations of dark personality traits, primarily under the umbrella of the ‘Dark Triad’, have been developed, with recent contributions from Neumann et al. (2022) and Qaderi Bagajan et al. (2024). Central to Paulhus’s framework is the triad of subclinical traits: *Machiavellianism* (cynical, manipulative, and calculating), *Narcissism* (aggressive, arrogant, egoistic, dominant, grandiose, self-aggrandizing, and self-centred), and *Psychopathy* (coldness, impulsivity, and disregard for social norms or moral standards).

Subsequent research has sought to expand and refine the taxonomy of dark traits. Critiques of trait overlap and low discriminant validity (Crego and Widiger, 2016) led to the inclusion of Sadism, forming the ‘Dark Tetrad’ of *Machiavellianism*, *Narcissism*, *Psychopathy*, and *Sadism* (Welsh et al., 2024). Beyond this, frameworks such as the ‘Dark Dyad’ (Rogoza and Ciecuch, 2020) and the ‘Big Tent’ of dark personality traits (Marcus and Zeigler-Hill, 2015) have also been proposed, encompassing additional traits such as ‘Amoralism’ or moral disengagement (Bandura, 2018), ‘Dependency and dysfunctional trusting’ (Hart et al., 2021), ‘Perfectionism’ (González-Hernández et al., 2023), and ‘Overearning and dispositional greed’ (Martin et al., 2024).

Many dark traits share overlapping characteristics, suggesting substantial interrelatedness (Vize et al., 2018). For example, parallels have been observed between *Machiavellianism* and *Narcissism* (Spurk et al., 2016), *Machiavellianism* and *Psychopathy* (Rogoza and Ciecuch, 2019), *Psychopathy* and *Narcissism* (Krizan and Herlache, 2018), and *Sadism* and *Psychopathy* (Kowalski et al., 2020). Hardin and Smith (2022) found that the presence of certain dark traits significantly predicts the presence of others, supporting Moshagen et al.’s (2018) proposition that all dark traits reflect a general disposition to “... maximize one’s own utility ... disregarding, accepting, or malevolently provoking disutility for others ... accompanied by beliefs that serve as justifications” (p. 657). In this sense, individual dark traits serve as descriptive labels within a broader set of maladaptive characteristics (Rogoza et al., 2022).

2.3. The ‘Dark Triad’ in projects

Project manager dark personality (PMDP) traits can significantly threaten project viability (Davis and Pinto, 2022). Empirical studies suggest that 95 % of organizations have documented dark behaviours among employees, with cumulative costs amounting to billions annually (Henle et al., 2005; Berry et al., 2007). Thus, a growing recognition of the role of the Dark Triad within the field of project management.

For example, in relation to *Narcissism*, Pinto and Patanakul (2015) examined the influence of narcissistic project sponsors on project selection and governance. Similarly, Benson et al. (2016) explored how narcissistic team members can undermine overall team effectiveness. Lin et al. (2018) identified a link between senior managers’ narcissistic tendencies and diminished social responsibility in projects, while Al-Abrow et al. (2019) investigated narcissistic leadership and its detrimental effects on project success. Additional studies on *Narcissism* in project contexts include Ali et al. (2021), Lynch et al. (2022), and Cavazotte et al. (2023).

With respect to *Psychopathy*, research remains limited, primarily confined to Jarman’s (2013) study, which examined how psychopathic traits contributed to failures in information systems implementations. In contrast, *Machiavellianism* has been more extensively explored in project settings. Graham (1996) investigated the relationship between project managers’ political skills and personal rewards, while Gallagher et al. (2015) found that Dark Triad traits influenced the adoption of high-performance or abusive practices. Ahmad et al. (2022) demonstrated how Machiavellian traits negatively affected project task performance. More recently, Xiong et al. (2023) examined the role of *Machiavellianism* and self-serving moral judgment in promoting unethical behaviour within projects.

2.4. The knowledge gap

The reviewed literature highlights what is currently known about PMDP traits and their effects, thereby achieving the first research objective. It also reinforces the ‘Dark Triad’ as the dominant framework for understanding PMDP traits. However, limited understanding exists regarding the developmental trajectory and intellectual structure of the PMDP traits literature. This gap motivates the second research objective: to examine the intellectual structure of the PMDP traits literature and identify its prominent contributors (e.g., scholars, schools, and journals). To this end, we conduct a comprehensive bibliometric analysis of PMDP-related studies published between 1989 and 2024, with the aim of uncovering the thematic focus and publication patterns within the field.

3. Methodical process

Following the systematic review method proposed by Tranfield et al. (2003), we adopted a three-stage methodical process, as illustrated in Fig. 1.

3.1. The search

We commenced our search (“Title/Abstract/Keywords”) in the SCOPUS database, which arguably contains the largest collection of relevant academic journals (Singh et al., 2021). As there is no clear consensus in the literature on the precise conceptualization of dark traits (Marcus and Zeigler-Hill, 2015, p. 434), we adopted the broadest definition of PMDP traits relying on the ‘specification of search’ employed by Borgholthaus et al. (2023). We searched for keywords commonly employed in prior bibliometric analyses, meta-analyses, and reviews of dark personality. These keywords as identified by Borgholthaus et al. (2023) include:

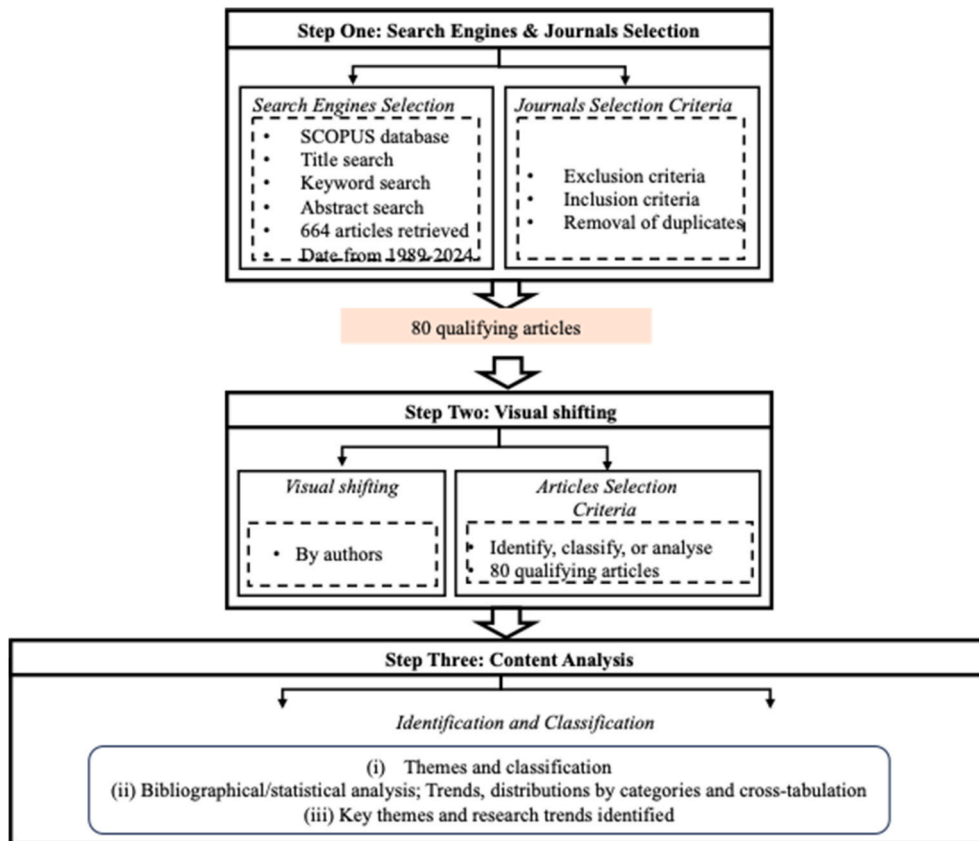


Fig. 1. The stages of the methodical process.

'Authoritarianism', 'Big Tent', 'Dark Tetrad', 'Dark Triad', 'Dependency', 'Dirty Dozen', 'Emotional liability', 'Greediness', 'Hubris', 'Mach-IV', 'Machiavellian', 'Machiavellianism', 'MPS', 'Narcissism', 'Narcissistic Personality Inventory', 'Narcissistic', 'Overconfidence', 'Overconfident', 'Overearning', 'Perfectionism', 'Psychopath', 'Psychopathic Personality Inventory', 'Psychopathy', 'Sadism', 'Sadistic', 'SD3', 'Sensation seeking', 'Spitefulness', and 'SRP-III'.

We also included three key words to make the search project management specific:

'Project Manager', 'Project Management', and 'Projectivity'.

We excluded book chapters and conference papers, restricting our selection to peer-reviewed journal articles published in English (Thomé et al., 2016). This process yielded 664 articles, ranging from 1989 to August 14, 2024 (inclusive). We then visually screened and assessed these articles, removing those outside the study's scope in accordance with the inclusion and exclusion criteria presented in Table 1.

3.2. Visual sifting and assessment

We conducted a visual screening and assessment of the 664 articles identified from the initial SCOPUS search to exclude those deemed out of scope for this study. This process was carried out by four members of the author team, who evaluated the extent to which each article aligned with PMDP traits. The inclusion and exclusion criteria outlined in Table 1 were applied.

Four co-authors independently assessed each selected article. Each article was assigned a score of 0 ("not relevant"), 1 ("somewhat relevant"), or 2 ("definitely relevant"). Articles scoring 0 were excluded, reflecting a high degree of consensus that they were out of scope. Similarly, articles scoring 2 were immediately included, indicating strong agreement that they were within scope. Articles scoring 1 were further discussed by the

Table 1
Inclusion and exclusion criteria.

S/ N	Criteria	Exclusion	Inclusion
1	Focus	Exclude articles whose primary focus is not on the project environment.	Include papers that focus on any identified dark personality trait related to projects, or those with potential applicability to project contexts.
1		Exclude articles that do not examine instances of dark personality traits in project environments or among project managers or other project practitioners, which constitute the primary focus.	Include studies addressing individual dark personality traits, either directly or indirectly, in instances of malevolent behaviours within project or related environments.
2	Scope	Exclude all articles that do not explicitly focus on projects (e.g., project management, project managers, projectivity).	
3	Scope	Focus on papers in psychology noting that dark personality traits have been discussed from a sociological perspective (Locatelli et al., 2022a, 2022b) and involve a different debate on ideas and orientations.	
4	Document type	Exclude all articles that are not peer-reviewed, not published in English, or for which the full text could not be retrieved.	Include only journal articles published in English.

team to determine their inclusion or exclusion. After two rounds of this process, 80 articles were identified as relevant (Appendix A).

3.3. Review and analysis

We conducted our analysis in two stages: first, a descriptive overview of the selected articles; and second, a detailed mapping exercise to visualize relevant topics and their interrelationships using VOSviewer (van Eck and Waltman, 2010).

The VOSviewer network diagram contains two key elements. Nodes (circles) represent co-citations of a domain (e.g., author), while links represent relationships within the network. Larger nodes indicate higher co-citation counts, thicker lines between nodes reflect stronger co-citation frequency, and shorter lines denote closer proximity and relatedness. VOSviewer also distinguishes clusters of keywords or domains by colour to identify different thematic groupings (van Eck and Waltman, 2017).

4. Findings

In this section, we provide an overview of the relevant literature and, in doing so, develop the comprehensive understanding necessary to achieve the second research objective. While some bibliometric studies report metrics such as (i) the most prolific authors, (ii) the most contributing institutions or organizations, and (iii) the most contributing countries, we do not include such analyses in our study, as they primarily constitute ‘league tables’ that offer limited substantive insights.

4.1. Year-wise publication analysis/number of articles published

Year-wise publication analysis, which examines the annual trend in publication activity, is commonly conducted to assess the number of articles published on a topic over a specific period (Abramo and D’Angelo, 2014). This analysis provides insights into how a topic has evolved, accumulated knowledge, and matured over time. Our findings indicate that, over the examined period (1989 to August 14, 2024), the number of publications per year gradually increased, with nearly exponential growth observed from 2019 onwards (Fig. 2). Each point in the figure represents the number of publications for a given year.

Our findings reflect the general trend of near-exponential growth in research on dark personality traits (e.g., Dark Triad and Dark Tetrad) published in the field of psychology, beginning around 2018, as reported by Dinić and Jevremov (2021).

Fig. 2 illustrates a low number of related studies published between 1989 and 2000, with noticeable peaks in 2001, 2009, 2015, and again around 2020. The peaks in 2009 and 2015 may be associated with the global recession from 2008 to 2013 (Higgs and Dulewicz, 2024), as economic downturns can exacerbate PMDP traits. For instance, scarce resources may encourage malevolent behaviours aimed at personal gain. This is corroborated by reports of widespread corporate corruption during this period in South Africa (Competition Commission, 2013a;

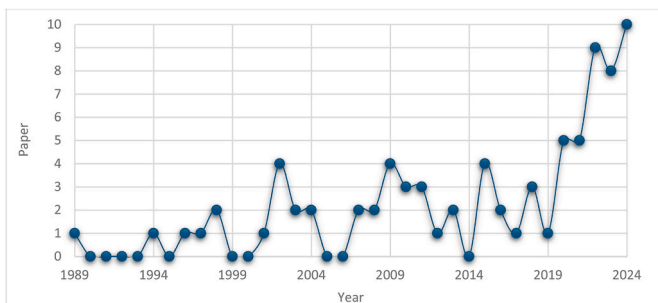


Fig. 2. Publication trends from 1989 to 2024 (August 14).

2013b; Public Protector South Africa, 2012; 2014), the UK (Office of Fair Trading, 2009), and the US (City of New York, 2014). Additional project-specific cases are noted by Locatelli et al. (2017) and Ojiako (2023). The most significant surge, however, has occurred since 2019. We suggest that the growing research interest in project-focused ‘dark’ personality traits, as reflected in the special collection published on the ‘dark side of projects’ (see Locatelli et al., 2022a), has been driven by numerous high-profile reports of potential project-related misconduct bordering on criminal behaviour during this period, for example, the V. C. Summer nuclear expansion project (Kirkland, 2022; Ojiako, 2023; Ojiako et al., 2025).

4.2. Dissemination routes

There is no consensus on an optimal indicator to provide a comprehensive view of bibliographic data (Cancino et al., 2017). To identify the most frequently cited journals for PMDP traits, we relied on three indicators: the frequency count of ‘Total Papers’ (TP), Total Citations (TC), and Total Citations per Paper (TCP). The TP indicator serves as the primary measure, while in cases where TP values are equal, the TC indicator determines relative popularity (Cancino et al., 2017).

The most frequently examined articles were published in 40 Scopus-indexed journals. Table 2 shows that PMDP traits research has appeared in approximately 35 journals, of which 10 journals have published at least two papers on the topic. ‘International Journal of Project Management’ leads with 10 articles, accumulating a total of 477 citations, averaging 47.7 citations per paper. ‘IEEE Transactions on Engineering Management’ also published 10 papers, with a total of 200 citations, averaging 20.0 citations per paper. ‘Project Management Journal’ ranks third, publishing 5 papers with a total of 117 citations, averaging 23.4 citations per paper. Table 2 provides a detailed breakdown of the most frequently cited journals.

Table 2 further indicates that the primary publication outlets for PMDP traits are the International Journal of Project Management, IEEE Transactions on Engineering Management, and Project Management Journal. These journals are affiliated with major professional bodies: APM and IPMA (for IJPM), the IEEE Technology and Engineering Management Society (IEEE Transactions), and PMI (Project Management Journal), which has over 700,000 members. This affiliation reflects strong practitioner interest in the topic and highlights a concerted effort to bridge academic research with real-world project management practice.

4.3. Frequently cited articles

We identified the most highly cited articles by calculating the Normalized Number of Citations (NNC), which is obtained by dividing the total number of citations a paper has received by the number of years since its publication. This normalization provides a fair comparison of citation impact across papers published at different times, ensuring that older articles, which have had more time to accumulate citations, are not unfairly advantaged over newer ones. Using this approach, Flyvbjerg et al. (2002) emerged as the most impactful, with an NNC of 49.40, followed by Shepherd et al. (2011) with an NNC of 4.50, reflecting their relative influence within the field based on normalized citation metrics. Table 3 presents the ten most frequently cited relevant articles according to their citation frequency.

4.4. Coupling of contributing countries

To enhance our understanding of the collaborative structure among countries contributing to PMDP traits research, we conducted a coupling analysis using VOSviewer, as shown in Fig. 3 mapping global collaboration patterns based on shared co-authorships. In the VOSviewer output, countries are represented as nodes, with node size corresponding to the number of publications from that country, larger nodes indicating higher research output. Different colours distinguish clusters of

Table 2
Most frequently cited journals.

R	Journal	TP	TC	TCP
1	International Journal of Project Management	10	477	47.7
2	IEEE Transactions on Engineering Management	10	200	20.0
3	Project Management Journal	5	117	23.4
4	Engineering, Construction and Architectural Management	4	105	26.3
5	Journal of Management in Engineering	3	63	21.0
6	Journal of Construction Engineering and Management	3	43	14.3
7	International Journal of Managing Projects in Business	3	19	6.3
8	Information Systems Journal	2	180	90.0
9	Leadership and Management in engineering	2	26	13.0
10	Journal of Managerial Psychology	2	8	4.0
11	Journal of the American Planning Association	1	1092	1092.0
12	Academy of Management Journal	1	319	319.0
13	Journal of Occupational Health Psychology	1	117	117.0
14	Journal of Management information systems	1	116	116.0
15	Human Relations	1	92	92.0
15	Journal of Systems and Software	1	92	92.0
16	Accounting, Organizations and Society	1	88	88.0
17	Database for Advances in Information Systems	1	64	64.0
17	MIS Quarterly: Management Information Systems	1	64	64.0
18	Journal of the Association for Information Systems	1	62	62.0
19	Work	1	55	55.0
20	Organization Management journal	1	53	53.0
21	Organizational Behavior and Human Decision Processes	1	52	52.0
22	Information and Management	1	50	50.0
23	Business Horizons	1	48	48.0
24	Buildings	1	27	27.0
24	Personality and Social Psychology Bulletin	1	27	27.0
25	Business Research	1	24	24.0
26	Industrial Management and data systems	1	17	17.0
27	IEEE Software	1	14	14.0
28	Advances in Accounting	1	12	12.0
29	Group Processes and Intergroup Relations	1	10	10.0
29	Kybernetes	1	10	10.0
30	Journal of Facilities Management	1	8	8.0
31	Technovation	1	7	7.0
32	Journal of Transportation Engineering	1	6	6.0
33	Behavioral Sciences	1	5	5.0
34	Built Environment Project and Asset Management	1	3	3.0
34	Journal of Legal Affairs and Dispute Resolution in Engineering and Construction	1	3	3.0
35	Production Planning and Control	1	1	1.0

Abbreviations: R=Rank; TP = Total papers; TC = Total citations; TCP = Total citations per paper; * The primary measure is TP, however, where an equal TP, then TC is the determining factor (see Cancino et al., 2017)).

countries, reflecting bibliographic coupling and revealing patterns of collaboration within the global research network.

In bibliometric analysis, it is essential to examine the connections between contributing countries, as this offers valuable insights into the structure, dynamics, and patterns of international research collaboration. By exploring the academic links between countries through co-authorship, citation trends, and shared references, researchers can chart the movement of knowledge across borders and pinpoint nations that serve as central hubs or bridges in global scholarship. The coupling of contributing countries also brings attention to peripheral contributors, presenting opportunities to enhance knowledge-based capacity where it is required.

This consideration is especially significant in the examination of dark personality traits, including the Dark Triad, as the existing literature has predominantly depended on samples from Western, English-speaking nations (Henrich et al., 2010; Dinić et al., 2025). This limited perspective prompts questions regarding the cross-cultural validity of these assessments (Dinić et al., 2025). Through the analysis of the collaboration among contributing countries, researchers can evaluate the level of integration of various nations within the international research community, thereby uncovering both well-connected countries and those

Table 3
Ten most frequently cited papers.

R	Author(s)/year	Document title	TC	NNC
1	Flyvbjerg et al. (2002)	Underestimating costs in public works projects: Error or lie?	1087	49.40
2	Shepherd et al. (2011)	Moving forward from project failure: Negative emotions, affective commitment, and learning from the experience	319	24.53
3	Wang et al. (2016)	Influence of personality and risk propensity on risk perception of Chinese construction project managers	99	12.38
4	Lindebaum and Fielden (2011)	'it's good to be angry': Enacting anger in construction project management to achieve perceived leader effectiveness	92	7.07
5	Smith et al. (2018)	Keeping mum as the project goes under: Toward an explanatory model	116	5.04
6	Jørgensen et al. (2004)	Better sure than safe? Over-confidence in judgement based software development effort prediction intervals	92	4.60
7	Goldenhar et al. (1998)	Stressors and adverse outcomes for female construction workers.	117	4.50
8	Smith et al. (2018)	The reluctance to report bad news on troubled software projects: A theoretical model	100	4.34
9	Gallagher et al. (2015)	Working conditions in projects: Perceptions of stress and motivation among project team members and project managers	93	4.42
10	Harrell and Harrison (1994)	An incentive to shirk, privately held information, and managers' project evaluation decisions	88	2.93

Abbreviations: TC = Total citations; NNC= Normalized number of citations.

that are isolated from the global knowledge network.

As illustrated in Fig. 3, during the three analysed time frames (1989–2000, 2001–2012, and 2013–2024), the United States consistently stood out as the foremost contributor, emphasizing its position as a significant collaborative centre in the research of project management and dark personality (PMDP) traits. This observation is consistent with a report from Nature (2023), which pointed out that the United States was the primary source of publications in all fields, thereby validating our anticipations.

In the realm of project management, comprehending these patterns can be advantageous for professional organizations, such as the Project Management Institute (PMI), which fund project management research. Coupling analysis can assist in benchmarking research capabilities, pinpointing opportunities to enhance global influence, and boosting visibility. Furthermore, this analysis illuminates' disparities in scientific output, which is particularly significant considering that dark personality traits frequently manifest differently across various societies (Schmitt et al., 2017; Jonason et al., 2020). For example, Jonason et al. (2020) discovered that Narcissism is particularly responsive to country-level factors, underscoring the necessity of taking cultural context into account in this area of research.

4.5. Most common keyword occurrences and their co-occurrence

Keywords are defined as "... a word or group of words, possibly in lexicographically standardized form, taken out of a title or of the text of a document characterizing its content and enabling its retrieval" (ISO 5963, 1985). Serving as representations of the central concepts within a subject, keywords play a critical role in communicating an article's primary message and content. Identifying the most prevalent keywords, drawn from article titles and keyword lists, provides an important indication of how frequently specific topics occur (Jin et al., 2018).

In our study, keywords were extracted from the title, abstract, and

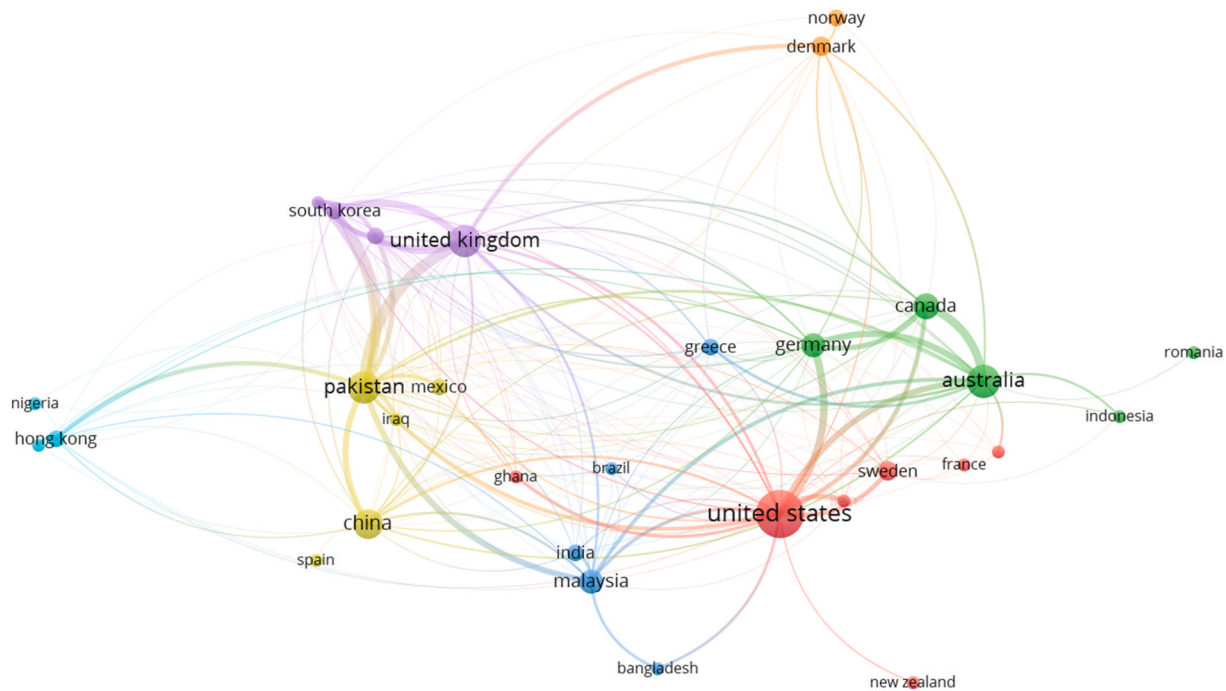


Fig. 3. Bibliographic coupling of countries publishing relevant articles.

citation contexts of the selected articles. Keywords are considered co-occurring when two or more appear simultaneously within the title, abstract, or citation context of a paper. Our primary measure of keyword occurrence is the Oc metric; in cases of a tie, the Co metric is used to determine ranking. As shown in Table 4, ‘Project Management’ ranks first (Oc = 11; Co = 16), followed by ‘Abusive Supervision’ (Oc = 9; Co = 8). This emphasizes ‘Narcissism’ as the most prominent malevolent behaviour attracting attention in PMDP traits research.

Our findings indicate that ‘Narcissism’ is the most frequently occurring keyword for PMDP traits, reflecting its prominence in academic discourse (Miller et al., 2021). This aligns with psychology literature,

Table 4
Most common author keyword occurrences (used at minimum twice).

R	Keywords	Oc	Co	R	Keywords	Oc	Co
1	Project management	26	141	19	Uncertainty	3	16
2	Construction industry	14	88	20	Information systems	3	14
3	Managers	9	46	21	Project success	2	23
4	Surveys	8	59	22	Mental stress	2	20
5	Behavioural research	8	52	22	Psychological aspect	2	20
6	Psychology	6	35	23	Construction professionals	2	14
7	Project managers	6	32	23	Risk perception	2	14
8	Decision making	6	31	24	Employment	2	13
9	Construction projects	5	45	25	Cognition	2	12
10	Leadership	4	36	25	Ethics	2	12
11	Humans	4	33	26	Planning fallacy	2	10
12	Team members	4	32	27	Personal traits	2	9
13	Job satisfaction	4	29	27	Developing countries	2	9
14	Project performance	4	24	28	Decision makers	2	8
15	Adult	3	26	28	Management structure	2	8
16	Project team	3	25	29	Workplace	2	6
17	Narcissism	3	21	30	CEO	2	4
18	Construction	3	19	-	-	-	-

Abbreviations: R = Rank; Oc = Author keyword occurrences; Co = Author keyword co-occurrences links.

where ‘Narcissism’ has attracted more than twice the scholarly attention of other dark traits over the past 20 years (Higgs et al., 2023). Higgs and Dulewicz (2024) link this interest to the well-established connection between narcissism and malevolent behaviour.

While some keywords cluster around terms such as ‘project management’, overall keyword co-occurrence suggests a dispersed and unfocused research agenda. To gain deeper insight, we visualized the keyword network using VOSviewer (Fig. 4). In the visualization, nodes represent keyword co-occurrence frequency (larger nodes indicate higher frequency), links represent relationships (thicker and shorter lines indicate stronger, closer links), and colours indicate clusters. Consistent with Table 4, prominent clusters emerge around ‘project management’, ‘construction industry’, ‘behavioural research’, and ‘project managers’.

Earlier, Stephan et al. (2023) argued that the significance attributed to dark personality traits varies across industries. Consistent with this, our analysis of (i) the most frequently occurring author keywords and (ii) the co-occurrence of author keywords reveals a predominance of studies situated within the construction sector.

4.6. Bibliographic coupling

To further characterize the intellectual structure of PMDP traits research, it was important to examine potential bibliographic coupling among the articles. As noted by Kessler (1963), “... a number of scientific papers bear a meaningful relation to each other (they are coupled) when they have one or more references in common” (p. 49). Bibliographic coupling occurs when two or more articles cite the same article or journal (Kessler, 1963; Weinberg, 1974).

Fig. 5 presents a visualization of the bibliographic coupling among the analysed articles on PMDP traits. Each node represents a paper, and the colour indicates a cluster of closely related papers based on their coupling. Distinct clusters are shown in different colours. Lines between nodes reflect the strength of the coupling, with thicker lines representing stronger connections. The bibliographic coupling analysis reveals a significant level of interconnection among the 80 selected papers.

The analysis indicates robust bibliographic coupling within these clusters, which occupy different positions in Fig. 5. Most papers are

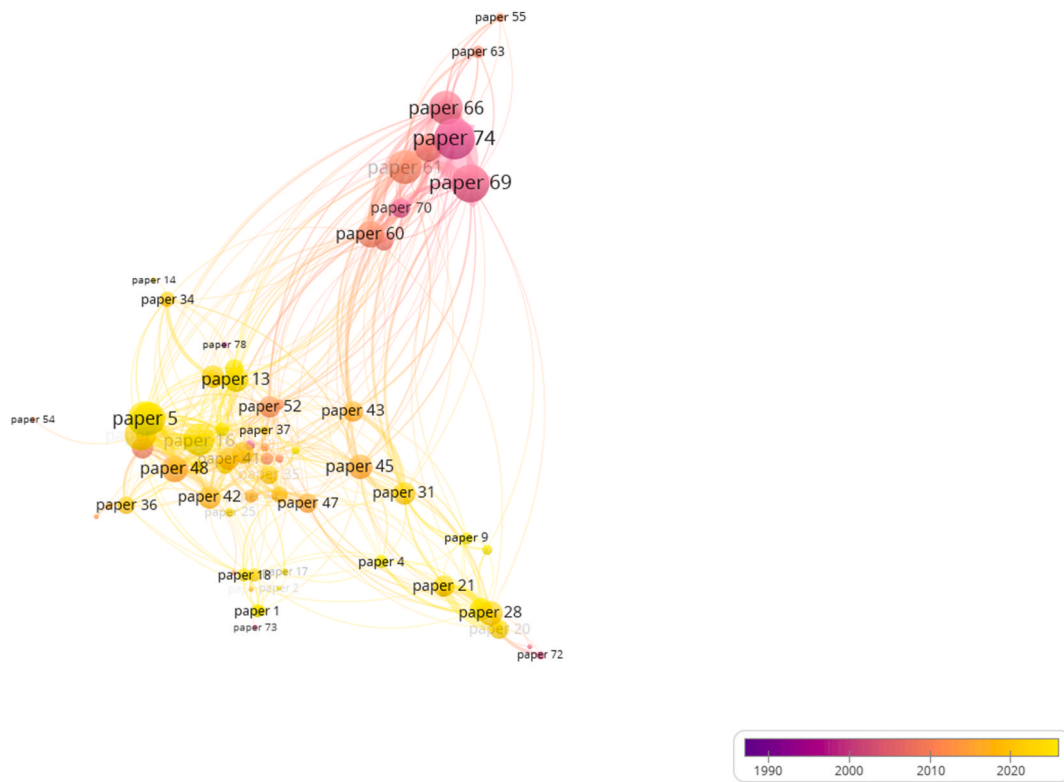


Fig. 5. Bibliographic coupling of analysed articles.

Table 5
Paper clusters.

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Paper	Paper	Paper	Paper	Paper	Paper	Paper
1	8	4	59	55	13	12
2	25	7	54	60	14	36
15	26	9	52	61	29	46
17	35	10	48	63	34	51
18	38	20	27	64	-	-
23	39	21	24	65	-	-
37	41	28	22	66	-	-
40	43	31	16	69	-	-
42	44	45	6	70	-	-
49	47	50	5	74	-	-
53	56	67	3	-	-	-
57	78	72	-	-	-	-
58	-	-	-	-	-	-
68	-	-	-	-	-	-
73	-	-	-	-	-	-

mixed, and conceptual approaches, reporting their frequency and usage percentage. Quantitative methods dominated, appearing in 65.83 % of articles, with questionnaire surveys being the most common at 51.90 %. Conceptual methods accounted for 18.99 %, qualitative methods represented 13.95 % (with interviews used in 6.33 %), and mixed methods were rare at 1.27 %. Most articles (96.20 %) employed a single method rather than multiple methods (3.79 %).

Table 9 shows that the use of a single method for analysis was more

Table 6
Finalized themes for cluster labels.

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Corruption, unethical and negative behaviours	Impact of dark traits	Causes and effects of biases	Dark leadership and well-being	Causes of selective reporting	Authoritarian leadership and toxicity	PM traits and outcomes

common (96.20 %) than the use of a combination of two or more methods (3.79 %).

The findings suggest that research on PMDP traits predominantly employs empirical methods. Bendoly et al. (2010) identified various research approaches in project and operations management that integrate behavioural theory. Field surveys constitute a large proportion of these methods, reflecting the discipline's reliance on empirical approaches to understand key issues (Rungtusanatham et al., 2003). Surveys are the primary tool for assessing PMDP traits (Smith et al., 2018), typically involving sample sizes of up to approximately 300 respondents. However, a common limitation is the frequent use of self-report surveys, which may result in under-reporting of negative behaviours and traits due to social desirability bias (Book et al., 2015), potentially compromising their validity.

4.9. Taxonomy of theories

This section examines the theoretical frameworks employed in PMDP traits research. Project management, particularly the study of PMDP traits, is a broad field that draws on insights from disciplines such as economics, psychology, and the social sciences (Loch and Wu, 2007).

Table 7
Papers not within any cluster.

Paper							
11	19	30	32	33	62	71	75
77	79	80	-	-	-	-	-

Table 8
Frequency and distribution of methodical processes in the identified articles.

Method	Instrument	Frequency	Percentage	Cumulative Percentage
Qualitative method(s)	Interviews	5	6.33	13.95
	Document analysis	1	1.27	
	Case study	1	1.27	
	Focus groups and Interviews	1	1.27	
	Textual analysis	1	1.27	
	Vignettes and Interviews	1	1.27	
	Participation action research	1	1.27	
Quantitative method(s)	Questionnaire survey	41	51.90	65.83
	Experiments	9	11.39	
	Document analysis	1	1.27	
	Modelling	1	1.27	
Mixed methods	Interviews & Questionnaire survey	1	1.27	1.27
	Conceptual	15	18.99	
Conceptual method(s)				18.99

Table 9
Number of methods used in the analysed articles.

Number of methods utilized	Frequency	Percentage	Rank
The use of single method	76	96.20	1
The use of two methods	3	3.79	2
The use of more than two methods	0	0	

Theories provide a coherent set of structured assertions applicable across multiple domains (Wacker, 1998).

Our findings reveal clustering around certain trait-related theoretical frameworks, indicating their frequent use and potential interconnection in many studies. Some articles applied multiple theories, often encompassing various dark personality traits. However, the diversity of theories suggests that understanding of PMDP traits remains fragmented. The emphasis on ‘*behavioural bias*’ highlights that project managers’ decision-making processes are subject to prejudices, systematic errors in thinking that can negatively affect judgments and decisions. Literature indicates that such biases contribute to deviations from rational decision-making (e.g., Flyvbjerg, 2021). Bias itself is not a PMDP trait. Rather, Hodson et al. (2009) notes that it is an affective tendency that shapes attitudes and behaviours, often resulting in or predicting prejudice or unfair judgments. Jonason et al. (2019) argue that individuals exhibiting dark personality traits are prone to externalizing behaviours, essentially punishing others for their own shortcomings, which enables them to persist in pursuing destructive goals. Hodson et al. (2009) notes that *Machiavellianism* has been identified as a strong predictor of bias and prejudice, largely due to its association with low empathy. *Narcissism*, with its self-centred and self-aggrandizing orientation, contributes to bias in less direct ways. Nevertheless, narcissists often display negativity toward those who differ from them, which can, though not always, predict biased attitudes. *Psychopathy*, characterized by disregard for the well-being of others, further reinforces bias through its defining feature of callousness.

5. Looking forward

In achieving the second research objective, we outlined and discussed the nature of the relevant research. The insights gained from this analysis are valuable for project management scholars interested in PMDP traits, as they delineate the current structure of the existing body

of work. For instance, we documented and summarized the quantity and thematic focus of articles published annually on the topic from 1989 to August 14, 2024. This analysis allowed us to uncover patterns in research output over time.

Having achieved the second research objective, we now turn to the third research objective, which focuses on identifying and classifying potential research themes likely to shape PMDP traits research in the future. These emergent themes will serve as a guide for the research agenda of forthcoming publications in PMDP traits research.

5.1. The delphi process

To address the third research objective, which required an agenda-setting process, we adopted the Delphi technique (Linstone and Turoff, 1975). This approach is widely recognised in both project management (Holzmann et al., 2022) and psychology (Shaw et al., 2021; Norris et al., 2024) as a rigorous method for identifying and prioritising research directions. The technique proceeds through multiple rounds of structured questioning, with each round informed by the results of the previous one. Following each round, anonymised responses are shared with participants, enabling iterative feedback that promotes convergence toward consensus. Through this process, clarity is enhanced and agreement on priorities progressively strengthened (Barrios et al., 2021). In conducting our study, we closely followed the procedures outlined by Al-Mazrouie et al. (2021).

To identify future research themes on project manager dark personality (PMDP) traits, we engaged the expert panel introduced earlier when presenting the bibliographic clustering. Two rounds of Delphi were conducted.

- Step 1: Question formulation: The panel reflected on insights from the first research objective and reviewed prior literature on dark personality traits (e.g., Dinić and Jevremov, 2021; Higgs et al., 2023). Based on this reflection, panel members were asked to respond to the third research objective.
- Step 2: Initial responses: Panel members submitted, anonymously, a list of prospective future research topics along with brief justifications to the facilitators (i.e., the third and sixth co-authors). Notable interconnections emerged: Expert 1 focused on trait interrelations, Expert 2 emphasized trait-behaviour linkages, and Expert 3 highlighted the prevalence of dark traits in project management, aligning with Expert 2’s analysis of behavioural facilitation. A second Delphi round (Table 10) followed.
- Step 3: Aggregation and feedback: All responses were thematically analysed, and topics were grouped into overarching themes based on topical relevance and interrelationships.
- Step 4: Follow-up responses: An anonymised summary of thematic groupings was shared with the panel. Participants were invited to revise their feedback and comment on emergent themes, including justifications for agreeing or disagreeing with peer responses.
- Step 5: Validation: Panel members validated the themes, considering: (i) face validity, (ii) whether alternative descriptions better represent the themes, (iii) potential overlaps, (iv) missing topics or themes, (v) the need for additional themes, and (vi) refinements to enhance clarity.
- Step 6: Matching exercise: Finally, the validated themes were compared with broader research agenda-setting studies in project management (Maylor et al., 2018; Mishra and Browning, 2020) to ensure alignment with established research trajectories and contextualise the proposed themes within the broader field.

5.2. The future research agenda

Three key themes emerged from the Delphi exercise as priorities for future PMDP traits research. Although the topics are organised into themes, some inevitably overlap, and others could plausibly fit into

Table 10
Outcome from second round of Delphi process for future research themes identification (ranked by importance).

Expert	No.	Theme
Expert 1	1	Measurement, multi-dimensionality and issues arising when assessing traits – and discovery of new traits.
	2	Interaction between dark personality traits and behaviours (including prevalence of corrupt, unethical and illegal behaviour in projects).
	3	Dark personality traits in project context (including potential variations of dark personality traits over project lifecycle).
Expert 2	1	Measurement issues arising when assessing traits.
	2	Linkages between traits and behaviours
	3	Exploration of the relationship between the nature slash context of project management and dark traits.
Expert 3	1	Classification and measurement of dark personality traits across disciplines and contexts.
	2	Prevalence of individuals with dark traits in project management versus other disciplines; and why such individuals are attracted to PM
	3	Impact of dark traits on behaviours and thus on various project dimensions, including team dynamics, project outcomes, workplace culture, reporting practices, and overall project performance.
	4	Influence of project or construction-specific domains in facilitating behaviours associated with dark traits.
Expert 4	1	Project-context dark triad scales
	2	Discovery of new traits.
	3	Ethics (unethical behaviour) in the intersection of big data, advanced data-driven technologies and dark project management

multiple categories.

5.2.1. Assessment of multi-dimensionality

Our bibliometric analyses reveal a dominance of quantitative field studies and self-report surveys, raising concerns regarding the multi-dimensionality of PMDP traits. We propose three directions for future research:

First, reliance on self-reports can compromise reliability and validity, as respondents often underreport negative behaviours (McDonald, 2008; Paulhus and Vazire, 2007). While self-reports remain central to personality assessment in project focused research (e.g., Dvir et al., 2006; Thal and Bedingfield, 2010; Wang et al., 2016), future studies should consider a cross-informant approach, whereby project managers self-report hidden traits and followers evaluate observable behaviours (Dinić and Jevremov, 2021). This would clarify trait-behaviour relationships (Higgs et al., 2023).

Second, there are opportunities to classify and measure PMDP traits more systematically. Future research should distinguish between PMDP traits and dark behaviours and explore the links between ‘normal’ (i.e., light) traits and maladaptive outcomes such as abusive supervision. Broader personality measures may help identify dark traits. For example, lack of humility, often associated with dark behaviours, may itself constitute a dark trait (Greitemeyer, 2022).

Third, the conceptual ambiguity surrounding PMDP traits highlights the need to address multi-dimensionality. Marcus and Zeigler-Hill's (2015) ‘Big Tent’ model and Higgs et al.'s (2023) observations emphasize the overlap of malevolent traits across constructs. Different constructs may share descriptors yet reflect distinct phenomena, and a single construct may be labelled in multiple ways. Given this complexity, future studies should measure subscales rather than global PMDP traits to avoid contradictions. For instance, the Narcissistic Personality Inventory (NPI) (Raskin and Terry, 1988) has been criticised for conflating adaptive and maladaptive *Narcissism* (Ackerman et al., 2011; Clarke et al., 2015); only maladaptive narcissism should be measured in studies of dark traits. Future research should also explore overlaps within the dark triad and examine factors that moderate the effects of PMDP traits.

5.2.2. Expanding the scope of PMDP traits research

This study examines the role of PMDP traits in shaping supervisory behaviours, with a particular focus on abusive supervision as a primary manifestation of dark leadership. Abusive supervision, defined as subordinates' perceptions of sustained hostile verbal and nonverbal behaviours from supervisors, excluding physical contact (Tepper, 2000), is a widespread phenomenon in project environments and has significant consequences for subordinates' physical, psychological, and behavioural well-being (Gallagher et al., 2015; Ju et al., 2024). Our findings indicate that research on PMDP traits has predominantly framed these traits within the context of abusive supervision, emphasizing personality characteristics while largely overlooking the broader spectrum of dark behaviours.

Specifically, the PMDP traits of *Machiavellianism*, *Narcissism*, and *Psychopathy* have been shown to increase the likelihood of abusive supervision by promoting norm-violating behaviours that undermine supervisor-subordinate relationships (Paulhus and Williams, 2002; O'Boyle et al., 2012; Wisse and Sleebos, 2016; Waldman et al., 2018; Mathieu and Babiak, 2015). *Narcissism* has emerged as the most frequently studied trait, mirroring broader trends in psychology, whereas research on psychopathy remains scarce and *Machiavellianism* is only recently gaining attention (Higgs et al., 2023; Borgholthaus et al., 2023).

Our bibliometric analysis further highlights a geographic imbalance, with most PMDP research originating from Western contexts, leaving developing countries underrepresented; a trend consistent with findings in broader psychological research (Henrich et al., 2010; Dinić et al., 2025). Given the increasing prevalence of large-scale, inter-organizational projects and the rising demand for project managers to address complex global challenges (Roehrich et al., 2024; Ika and Munro, 2022), these gaps underscore the need to examine how PMDP traits manifest across diverse cultural and international contexts. Cultural factors, which shape the expression of personality, remain underexplored in PMDP research (Stackhouse et al., 2024).

Future studies should therefore expand the conceptual scope beyond *Narcissism*, integrate PMDP trait dimensions with cultural frameworks, and investigate their impact in varied national and organizational contexts. Such research would provide a more nuanced understanding of the interplay between dark personality traits, supervisory behaviour, and project outcomes, thereby informing strategies to mitigate the negative consequences of abusive supervision in complex project environments.

5.2.3. The dual nature of dark personality traits

While the negative impact of PMDP traits on project outcomes is well established, their relationship with project performance is more nuanced, as certain dark traits may also confer advantages under specific circumstances. For instance, Machiavellian project managers are often perceived as effective due to strategic thinking, persistence, and task-focused behaviour (Rauthmann and Will, 2011; Zettler et al., 2011). Their drive to maintain influence can also motivate team members, potentially enhancing project success (Bedell et al., 2006; Higgs, 2009).

Narcissism has similarly been linked to positive outcomes in certain contexts. Traits such as confidence, vision, decisiveness, and goal orientation (LeBreton et al., 2018; Campbell et al., 2011; Lubit, 2002) align with the concept of adaptive narcissism, which encompasses self-esteem, resilience, and self-sufficiency (Pincus and Lukowitsky, 2010). The emerging notion of communal narcissism, where leaders build status through collaboration (Gebauer and Sedikides, 2018), resonates with discussions of ‘dark empathy’, highlighting how certain dark traits can be leveraged to achieve constructive outcomes (Heym et al., 2021).

In contrast, psychopathy shows no clear positive association with project performance, although some of its traits may be superficially mistaken for competence during recruitment (Furnham, 2010). These observations underscore the importance of adopting a context-sensitive

perspective on PMDP traits, recognizing that their effects are not universally detrimental. A comprehensive understanding of dark personality in project management requires attention to both the potentially harmful and the strategically advantageous aspects of these traits, particularly in relation to task type, organizational culture, and leadership context.

Future research should examine the conditions under which dark traits enhance or hinder performance, exploring interactions with team composition, project complexity, and cultural context. Such investigations would provide a more balanced and actionable framework for understanding and managing dark personalities in project environments.

6. Conclusions

The importance of the human factor in project management is extremely important, especially as an expanding array of research has shown significant links between the personality traits of project managers and the performance of projects. By their inherent nature, projects are executed within social environments where collaboration, decision-making, and negotiation are essential. As a result, behavioural elements, which are based on individual personalities and group dynamics, frequently represent a considerable portion of the primary influences that shape project management methodologies. This awareness has inspired a heightened academic interest in exploring how particular personality traits affect the planning, execution, and final delivery of projects.

We identified seven dominant themes in project-focused PMDP traits research: *'Corruption, unethical and negative behaviours'*; *'Impact of dark traits'*; *'Causes and effects of biases'*; *'Dark leadership and well-being'*; *'Causes of selective reporting'*; *'Authoritarian leadership and toxicity'*; *'PM traits and outcomes.'* Through our Delphi exercise, three key research themes likely to shape future inquiry were highlighted: *'Assessment of multi-dimensionality'*; *'Expanding the scope of PMDP traits research'*; *'Dark personality traits appearance'*.

In the context of this broad discourse, there has been a notable focus on the 'dark' aspects of personality traits. These characteristics, often defined by negative, deviant, or harmful inclinations, offer a significant psychological perspective for analysing the behaviours of project management professionals.

The significance of dark personality traits lies in their ability to surface the psychological foundations of decision-making within project settings. These traits can greatly affect how individual project professionals perceive obstacles, engage with their peers, and approach risk. On a personal level, they may lead to choices that favour self-interest over shared objectives. In team dynamics, the existence of such traits can result in discord, distrust, or even detrimental work environments that hinder collaboration and productivity. At the project level, the aggregated effects of dark traits may result in postponed schedules, budget overruns, or even the failure of the project. In sum, dark personality traits have a profound impact on project results, influencing not only the actions of individual project professionals but also reverberating through the intricate social networks that support project execution.

Our study shed light on behaviours (and counter behaviour) that might otherwise remain unclear or perplexing within project environments. They establish a framework for understanding why certain practitioners engage in questionable, unethical, illegal, and deviant behaviour that verge on criminality. In this regard, the investigation of PMDP traits transcends mere academic inquiry; it can provide practical insights into the risks linked to the selection of project leaders.

From a practical perspective, several suggestions arise from the expanding research on PMDP traits. First, project sponsors may find it advantageous to integrate personality evaluations into the hiring and

selection processes for project practitioners (such as project managers and team members). Although these assessments should not be the exclusive criterion for employment choices, they can act as valuable diagnostic instruments for pinpointing potential risk factors associated with dark traits. Second, leadership development programs can be structured to enhance understanding of how dark personality traits impact behaviour and, in turn, project performance. This equips project managers with strategies to identify and alleviate the adverse effects of such traits. For instance, training in emotional intelligence, conflict resolution, and ethical decision-making can act as countermeasures to undesirable, deviant, or harmful behaviours. Third, efforts must be directed towards enhancing project governance mechanisms, emphasizing not only awareness but also minimizing opportunities for individuals likely to display dark traits to exploit projects for their personal gain. Ultimately, promoting a culture of accountability, transparency, and open communication can alleviate the effects of such behaviour, ensuring that project teams stay resilient against potentially disutility (i.e., destabilising) dynamics.

From a theoretical perspective, our study characterises the published PMDP traits literature and provides a comprehensive analysis of prior research in project management, highlighting potential trajectories for future studies within the broader trajectory of project management research (see e.g., Padalkar and Gopinath, 2016; Slavinski et al., 2023). To date, this is the only bibliometric analysis specifically focused on PMDP traits, serving as a complementary reference to prior syntheses of dark personality traits (Smith et al., 2018; Mackey et al., 2021). By proposing future research themes, we have broadened the template for project-focused personality research.

Ultimately, the examination of dark personality traits enhances our comprehension of the human aspects of project management. By recognizing that not all actions stem from positive intentions or logical decision-making, both researchers and practitioners can formulate more effective strategies for anticipating and addressing the risks associated with the "dark side" of human behaviour in projects. This viewpoint improves both theoretical insight and practical project execution, ensuring that the intricate relationship between personality and performance is neither overlooked nor simplified.

Our study is not without limitations. Despite efforts to ensure a comprehensive and rigorous search and selection process, some omissions may have occurred due to the predominantly interpretive nature of visual sifting. Future work should consider leveraging artificial intelligence (AI) tools to optimise various stages of the systematic review process.

CRedit authorship contribution statement

Udechukwu Ojiako: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Malcolm Higgs:** Conceptualization, Writing – original draft, Writing – review & editing. **Khalid Khalfan Mohamed Al Naqbi:** Conceptualization, Methodology, Project administration, Writing – original draft. **M.K.S. Al-Mhdawi:** Formal analysis, Visualization, Writing – review & editing. **Maxwell Chipulu:** Conceptualization, Data curation, Writing – original draft. **Terry Williams:** Conceptualization, Project administration, Supervision, Writing – original draft. **Taiwo Adedeji:** Formal analysis, Project administration, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. List of selected/qualifying articles

No.	Year	Title	Outlet
Paper 1	2024	Exploring Corruption Factors Inhibiting Team Decision-Making on Construction Projects	Journal of Management in Engineering
Paper 2	2024	Diverse Forms of Greed and Self-Interest That Contribute to Corruption among Construction Stakeholders	Journal of Construction Engineering and Management
Paper 3	2024	Impact of CEO Duality and Overconfidence on Construction Technology Innovation: Evidence from China	Journal of Management in Engineering
Paper 4	2024	Project managers: old, grumpy and suspicious or just "once bitten, twice shy?"	International Journal of Managing Projects in Business
Paper 5	2024	Dark side of leadership and information technology project success: the role of mindfulness	Journal of Managerial Psychology
Paper 6	2024	Society and organizational leadership: Investigating the sociocultural construction of toxic and constructive leaders in Ghana	International Journal of Cross Cultural Management
Paper 7	2024	How Cognitive Bias Prevents Serendipity in New Product Development (and What to Do about It)	IEEE Transactions on Engineering Management
Paper 8	2024	Unmasking the Connection Between Managerial Narcissism, Machiavellianism and Leader-Member Exchange in the Singaporean Construction Industry: Managerial Corporate Psychopathic Behaviour as a Mediator	Vision
Paper 9	2024	Decision Bias and Bullwhip Effect in Multiechelon Supply Chains: Risk Preference Models	IEEE Transactions on Engineering Management
Paper 10	2024	Risk and Uncertainty in the Cost Contingency of Transport Projects: Accommodating Bias or Heuristics, or Both?	IEEE Transactions on Engineering Management
Paper 11	2023	Assessing the Bullwhip effect in supply chain: trends, gaps, and overlaps	Acta Logistica
Paper 12	2023	Beyond the paradox: Understanding how project leader humility and narcissism affect project outcomes	International Journal of Project Management
Paper 13	2023	At the end of the world, turn left: examining toxic leadership, team silence and success in mega construction projects	Engineering, Construction and Architectural Management
Paper 14	2023	Authoritarianism versus participation in innovation decisions	Technovation
Paper 15	2023	A cognitive model for understanding fraudulent behavior in construction industry	Engineering, Construction and Architectural Management
Paper 16	2023	How a Despotic Project Manager Jeopardizes Project Success: The Role of Project Team Members' Emotional Exhaustion and Emotional Intelligence	Project Management Journal
Paper 17	2023	Fairness matters: organisational justice in project contexts	Production Planning and Control
Paper 18	2023	How Does Collective Moral Judgment Induce Unethical Pro-Organizational Behaviors in Infrastructure Construction Projects: The Mediating Role of Machiavellianism	Behavioral Sciences
Paper 19	2022	Constructive and Destructive Leadership Behaviors, Skills, Styles and Traits in BIM-Based Construction Projects	Buildings
Paper 20	2022	Does the Planning Fallacy Prevail in Social Infrastructure Projects? Empirical Evidence and Competing Explanations	IEEE Transactions on Engineering Management
Paper 21	2022	Moving Beyond the Planning Fallacy: The Emergence of a New Principle of Project Behavior	IEEE Transactions on Engineering Management
Paper 22	2022	The Impact of Moral Leadership on Construction Employees' Psychological Behaviors	IEEE Transactions on Engineering Management
Paper 23	2022	A Qualitative Analysis of Unethical Behaviors in Projects: Insight From Moral Psychology	Project Management Journal
Paper 24	2022	Tyrannical Leader, Machiavellian Follower, Work Withdrawal, and Task Performance: Missing Links in Construction Projects	Journal of Construction Engineering and Management
Paper 25	2022	My way or the highway: Narcissism and dysfunctional team conflict processes	Group Processes and Intergroup Relations
Paper 26	2022	The impact of manager's personality traits on project success through affective professional commitment: the moderating role of organizational project management maturity system	Journal of Facilities Management
Paper 27	2022	Despotic leadership and IT project efficiency: the role of resilience	International Journal of Managing Projects in Business
Paper 28	2021	Top Ten Behavioral Biases in Project Management: An Overview	Project Management Journal
Paper 29	2021	Exploring the critical nexus between authoritarian leadership, project team member's silence and multi-dimensional success in a state-owned mega construction project	International Journal of Project Management
Paper 30	2021	Appropriateness of Fees for Construction Planning Services of Architects and Civil Engineers as a Question of Morality	Journal of Legal Affairs and Dispute Resolution in Engineering and Construction
Paper 31	2021	Conceptualizing the influence of personality and cognitive traits on project managers' risk-taking behaviour	International Journal of Managing Projects in Business
Paper 32	2021	Narcissistic leadership and project success in IT industry: Moderating the role of risk management technology.	Journal of Entrepreneurship, Management, and Innovation,
Paper 33	2020	The road to project success: the role of risk awareness and risk management in managing overconfidence among project managers	International Journal of Quality and Innovation
Paper 34	2020	Effect of authoritarian leadership on user resistance to change: evidence from IS project implementation in China	Industrial Management & Data Systems
Paper 35	2020	How Does Leader Narcissism Influence Firm Internationalization?	IEEE Transactions on Engineering Management
Paper 36	2020	PROMETHEE-based ranking of project managers based on the five personality traits	Kybernetes
Paper 37	2020	Factors that trigger bullying amongst subcontractors toward intention to quit in the construction projects	Built Environment Project and Asset Management
Paper 38	2019	The Effect of Organizational Resilience and CEO's Narcissism on Project Success: Organizational Risk as Mediating Variable	Organization Management Journal
Paper 39	2018	CEO Narcissism, Public Concern, and Megaproject Social Responsibility: Moderated Mediating Examination	Journal of Management in Engineering

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No.	Year	Title	Outlet
Paper 40	2018	Virtues and Vices in Project Management Ethics: An Empirical Investigation of Project Managers and Project Management Students	Project Management Journal
Paper 41	2018	Leader consultation mitigates the harmful effects of leader narcissism: A belongingness perspective	Organizational Behavior & Human Decision Processes
Paper 42	2017	The effects of workplace bullying on team learning, innovation and project success as mediated through virtual and traditional team dynamics	International Journal of Project Management
Paper 43	2016	Influence of personality and risk propensity on risk perception of Chinese construction project managers	International Journal of Project Management
Paper 44	2016	Narcissistic Reactions to Subordinate Role Assignment: The Case of the Narcissistic Follower	Personality and Social Psychology Bulletin
Paper 45	2015	Project managers' overconfidence: how is risk reflected in anticipated project success?	Business Research
Paper 46	2015	Gender Biases in Hiring Project Managers: Perceptions of Trust and Likeability	IEEE Transactions on Engineering Management
Paper 47	2015	When narcissism drives project champions: A review and research agenda	International Journal of Project Management
Paper 48	2015	Rallying the troops or beating the horses? How project-related demands can lead to either high-performance or abusive supervision	Project Management Journal
Paper 49	2013	Workplace stress among construction professionals in South Africa the role of harassment and discrimination	Engineering, Construction and Architectural Management
Paper 50	2013	Lies, damned lies, and project plans: Recurring human errors that can ruin the project planning process	Business Horizons
Paper 51	2012	Projects and personalities: A framework for individualising project management career development in the construction industry	International Journal of Project Management
Paper 52	2011	Moving forward from project failure: Negative emotions, affective commitment, and learning from the experience	Academy of Management Journal
Paper 53	2011	'it's good to be angry': Enacting anger in construction project management to achieve perceived leader effectiveness	Human Relations
Paper 54	2011	Do managers experience more stress than employees? Results from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees	Work
Paper 55	2010	The effect of obedience pressure and authoritarianism on managers' project evaluation decisions	Advances in Accounting
Paper 56	2010	The Project Involvement Index, psychological distress, and psychological well-being: Comparing workers from projectized and non-projectized organizations	International Journal of Project Management
Paper 57	2010	When project-based management causes distress at work	International Journal of Project Management
Paper 58	2009	Organizational power in perspective	Leadership and Management in Engineering
Paper 59	2009	Ineffective leadership: Investigating the negative attributes of leaders and organizational neutralizers	Engineering, Construction and Architectural Management
Paper 60	2009	Selective status reporting in information systems projects: A dyadic-level investigation	MIS Quarterly: Mgt. Information Systems
Paper 61	2009	The effect of IT failure impact and personal morality on IT project reporting behavior	IEEE Transactions on Engineering Management
Paper 62	2008	Lying on software projects	IEEE Software
Paper 63	2008	Overcoming the mum effect in IT project reporting: Impacts of fault responsibility and time urgency	Journal of the Association for Information Systems
Paper 64	2007	The effects of optimistic and pessimistic biasing on software project status reporting	Information and Management
Paper 65	2007	Reporting bad news on software projects: The effects of culturally constituted views of face-saving	Information Systems Journal
Paper 66	2004	'Why Didn't Somebody Tell Me? Climate, Information Asymmetry, and Bad News About Troubled Projects	Data Base for Advances in Information Systems
Paper 67	2004	Better sure than safe? Over-confidence in judgement based software development effort prediction intervals	Journal of Systems and Software
Paper 68	2003	Working conditions in projects: Perceptions of stress and motivation among project team members and project managers	International Journal of Project Management
Paper 69	2003	The reluctance to report bad news on troubled software projects: A theoretical model	Information Systems Journal
Paper 70	2002	The challenge of accurate software project status reporting: A two-stage model incorporating status errors and reporting bias	IEEE Transactions on Engineering Management
Paper 71	2002	Twenty-first-century engineering projects—more than bricks, mortar, and money	Leadership and Management in Engineering
Paper 72	2002	Underestimating costs in public works projects: Error or lie?	Journal of the American Planning Association
Paper 73	2002	Racial discrimination towards Asian operatives in the Australian construction industry	Construction Management & Economics
Paper 74	2001	Keeping mum as the project goes under: Toward an explanatory model	Journal of Management Information Systems
Paper 75	1998	Benchmarking for design of major airports worldwide	Journal of Transportation Engineering
Paper 76	1998	Stressors and adverse outcomes for female construction workers.	Journal of Occupational Health Psychology
Paper 77	1997	Designers and contractors: Impediments to integration	Journal of Construction Engineering and Management

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No.	Year	Title	Outlet
Paper 78	1996	Machiavellian project managers: Do they perform better?	International Journal of Project Management
Paper 79	1994	An incentive to shirk, privately held information, and managers' project evaluation decisions	Accounting, Organizations and Society
Paper 80	1989	Role Stress among Project Managers	Journal of Managerial Psychology

Appendix B. Outcome from first round of Delphi process for cluster labelling*

Expert	Clusters						
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Expert 1	Unethical and negative behaviours	Impact of dark traits	Causes and Effects of biases	Dark leadership and well-being	Causes of selective reporting	Effects of dark leadership style	PM traits and outcomes
Expert 2	Corrupt, unethical and unfairness examples	Leader-follower/member exchange	Bias	Leader-follower member duality	Trait induced project behaviour	Authoritarianism and toxicity	Prosociality, humility, trust, and likeability
Expert 3	Unethical behaviour	Dark triad traits	Cognitive biases	effect on project leaders and employees	Status reporting	Authoritarian leadership	Outcomes and development
Expert 4	(Un)Ethical Behaviour and outcomes in project management	Narcissism & Machiavellian leader effects	Impact of leader traits on Cognitive Biases and Decision-Making	Project Leadership Effectiveness: Effective interventions	Project Reporting Challenges	Toxic and Despotism Leadership	Prevalence and Negative Effects of Dark traits in Projects

*Numbering of 'experts' is not the order of listed co-authors/panel members.

Appendix C. Outcome from second round of Delphi process for cluster labelling*

Expert	Clusters						
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Expert 1	Unethical and negative behaviours	Impact of dark traits	Causes and Effects of biases	Dark leadership and well-being	Causes of selective reporting	Effects of dark leadership style	PM traits and outcomes
Expert 2	Corrupt, unethical and unfairness examples	Leader effect	Cognitive Bias	Leader-follower duality	Selective status reporting	Authoritarianism and toxicity	Negative PM traits
Expert 3	Unethical behaviour	Dark triad traits	Cognitive biases	Effect on project leaders and employees	Status reporting	Authoritarian leadership	outcomes and competences
Expert 4	(Un)Ethical Behaviour and outcomes in project management	Narcissism & Machiavellian leader effects	Impact of leader traits on Cognitive Biases and Decision-Making	Project Leadership Effectiveness: Effective interventions	Project Reporting Challenges	Toxic and Despotism Leadership	Prevalence and Negative Effects of Dark traits in Projects

*Numbering of 'experts' is not the order of listed co-authors/panel members.

Appendix D. Outcome from third round of Delphi process for cluster labelling*

Expert	Clusters						
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Expert 1	Unethical and negative behaviours	Impact of dark traits	Causes and Effects of biases	Dark leadership and well-being	Causes of selective reporting	Effects of dark leadership style	PM traits and outcomes
Expert 2	Corrupt, unethical and unfairness examples	Leader effect	Cognitive Bias	Leadership-employee duality	Selective status reporting	Authoritarianism and toxicity	Negative PM traits
Expert 3	Unethical behaviour	Dark triad traits	Cognitive biases	Leadership-employee duality	Status reporting	Authoritarian leadership	outcomes and competences
Expert 4	(Un)Ethical Behaviour and outcomes in project management	Narcissism & Machiavellian leader effects	Impact of leader traits on Cognitive Biases and Decision-Making	Project Leadership Effectiveness: Effective interventions	Project Reporting Challenges	Toxic and Despotism Leadership	Prevalence and Negative Effects of Dark traits in Projects

*Numbering of 'experts' is not the order of listed co-authors/panel members.

Data availability

No data was used for the research described in the article.

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