CIPD

Impact of human resource management:

An evidence review

Scientific summary
August 2025

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Impact of human resource management: An evidence review

Contents

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About CEBMa

CEBMa is the leading authority on evidence-based practice in the field of management and leadership. It is an independent, non-profit foundation providing support and resources to managers, leaders, consultants, facilitators and instructors, academics and others interested in evidence-based practice and decision-making. It enjoys the support of prominent universities including Stanford, Carnegie Mellon, the Australian National University and the Free University of Amsterdam.

1 Background

Despite being a core function in most organisations, human resource management (HRM) is often met with scepticism regarding its actual impact. Many question whether HR practices meaningfully influence organisational performance or key workplace outcomes such as turnover, absenteeism and employee engagement. This scepticism raises concerns about the necessity of HR departments and whether their contributions translate into measurable benefits for businesses. For this reason, the CIPD has commissioned the Center for Evidence-Based Management (CEBMa) to conduct a rapid evidence assessment (REA) of the scientific literature on the impact of human resource management on organisational and workplace outcomes.

Main question: What does the REA answer?

What is known in the scientific literature about the impact of human resource management and its related practices on workplace and organisational outcomes?

Supplementary questions

a) How is human resource management defined in the scientific literature, and what are its primary objectives?
b) What does the scientific evidence say about the impact of human resource practices on workplace and organisational outcomes?

2 Method

What is a rapid evidence assessment (REA)?

Evidence reviews come in many forms. One of the best-known types is the conventional literature review, which provides an overview of the relevant scientific literature published on a topic. However, a conventional literature review's trustworthiness is often low: clear criteria for inclusion are often absent and studies are selected based on the researcher's individual preferences. As a result, conventional literature reviews are prone to severe bias. This is why 'rapid evidence assessments' (REAs) are used. This type of review uses a specific research methodology to comprehensively identify the most relevant studies on a specific topic, and to select appropriate studies based on explicit criteria. The methodological quality of the included studies is assessed by two independent reviewers, based on explicit criteria. In contrast to a conventional literature review, an REA is transparent, verifiable and reproducible, and, as a result, the likelihood of bias is considerably less.

Search process: How was the research evidence obtained?

To answer the review question, the following databases were used to identify studies: ABI/INFORM Global from ProQuest, Business Source Premier from EBSCO, and PsycINFO from Ovid. The following generic search filters were applied to all databases during the search:

- scholarly journals, peer-reviewed
- published in 1990–2025 for meta-analyses and 2005–2025 for primary studies
- articles in English.

A search was conducted using combinations of various search terms, including 'human resource management', 'people management', 'workforce management' and 'human capital management'.

We conducted eight different search queries, which yielded 134 studies. An additional search in Google Scholar and Consensus AI yielded six more studies. An overview of all search terms and queries is provided in **Appendix 1**.

Inclusion criteria: Which studies were taken into account?

To determine the studies to include, the following criteria were applied:

- Type of studies: empirical, quantitative.
- Measurement: studies in which the effects of human resource management and related practices are quantitatively measured.
- Context: studies of workplaces.

In addition, the following exclusion criteria were applied:

- studies that focus on characteristics, profiles, preferences, needs, perceptions, etc of HR professionals
- studies that focus on determinants of HR professionals' behaviour.

Selection process: How were the studies selected?

Study selection took place in two phases. First, the titles and abstracts of identified studies were screened for relevance to this review. In case of doubt or lack of information, the study was included. Duplicate publications were removed. This first phase yielded 45 studies. Second, studies were selected based on the full text of the article according to the inclusion criteria. This second phase yielded 37 studies. An overview of the selection process is provided in **Appendix 2**.

Data extraction: What data were extracted?

Data extraction involves the collation of the results of the included studies. From each study we extracted and interpreted information relevant to the review question, such as year of publication, research design, sample size, population (eg industry, type of employees), possible moderators or mediators, main findings, effect sizes, and limitations. An overview is provided in **Appendix 3**.

Critical appraisal: How was the quality of included studies judged?

Often, it is possible to find a scientific study to either support or refute a given claim. Thus, it is important to determine which studies are trustworthy (ie valid and reliable) and which are not. The trustworthiness of a scientific study is first determined by its methodological appropriateness.

To determine the methodological appropriateness of the included study's research design, the classification system of Shadish, Cook and Campbell (2002) and Petticrew and Roberts (2006) was used. In addition, a study's trustworthiness is determined by its methodological quality (its strengths and weaknesses). For instance, was the sample size large enough and were reliable measurement methods used? To determine methodological quality, all the studies included were systematically assessed on explicit quality criteria.

Finally, the effect sizes were identified. An effect (eg a correlation, Cohen's d or odds ratio) can be statistically significant yet not necessarily be of practical relevance: even a trivial effect can be statistically significant if the sample size is big enough. For this reason, the effect size – a standard measure of the magnitude of the effect – was assessed (Cohen, 1988). For a detailed explanation of

how the quality of included studies was judged, see CEBMa's *Guideline for Rapid Evidence Assessments in Management and Organizations* (Barends et al, 2017).

Purpose	Example	Study Design				
		RCT	CBA	C / BA	Cross	Qual
Effect, impact	Does A have an effect/impact on B? What are the critical success factors for A? What are the factors that affect B?	**A**	**B**	**C**	**D**	na
Association	Is A related to B? Does A often occur with B? Do A and B co-vary?	**A**	**A**	**A**	**A**	na
Frequency	How often does A occur? How many people prefer A?	na	na	na	**A**	na
Difference	Is there a difference between A and B?	na	na	**A**	**A**	na
Attitude, opinion	What is people's attitude toward A? Are people satisfied with A? Do people agree with A?	na	na	na	**A**	**C**
Experience, perceptions, feelings, needs	What are people's experiences with A? What are people's feelings about A? What are people's perceptions about A?	na	na	na	**B**	**A**
Exploration, theory building	Why does A occur? Why is A different from B? In what context does A occur?	na	na	na	**B**	**A**

RCT = Randomized controlled trial; CBA = Non-randomized controlled before-after study; C = Controlled study; BA = Before-after study; Cross = cross-sectional study; Qual = Qualitative study; na = not appropriate

Critical appraisal: What is the quality of the studies included?

Our initial search yielded 15 relevant meta-analyses and systematic reviews of which three were based on controlled and/or longitudinal studies. In addition, this review identified 10 longitudinal primary studies. This result indicates that the domain of HRM is well established and grounded in a substantial body of research. However, some meta-analyses and systematic reviews were found to be methodologically weak, suggesting a high risk of bias. In contrast, most longitudinal studies were well conducted and presented a limited risk of bias. Therefore, we can conclude that the scientific evidence on the impact of HRM is high in volume and moderate in quality. An overview of all studies included is provided in **Appendix 3**.

3 Main findings

Question 1: How is human resource management defined in the scientific literature, and what are its primary objectives?

Professional bodies such as the CIPD in the UK and the Society for Human Resource Management (SHRM) in the US do not provide a single, formal definition of human resource management (HRM). Instead, they broadly describe HRM as the process of effectively managing an organisation's employees, often emphasising a set of key practices such as recruitment and selection, training and development, performance management, compensation and benefits, and employee relations.

In the scientific literature, various definitions of HRM are used. For example, some studies describe HRM as "the design and management of human resource systems based on employment policy,

comprising a set of policies designed to maximize organizational integration, employee commitment, flexibility, and quality of work" (Guest, 1997; Hendry and Pettigrew, 1990). In contrast, other authors define HRM more broadly as "management decisions related to policies and practices that together shape the employment relationship and are aimed at achieving certain goals" (Boselie et al, 2021).

Early research into the effect of HRM typically examined individual practices and their isolated impact on firm performance, whereas later studies focused on the combined effect of interrelated practices or 'HRM bundles' (Alagaraja, 2013). In recent years, however, most researchers have approached HRM as a 'system' and have examined factors that either inhibit or enable its impact on organisational performance.

Today, most authors studying the effects of HR systems argue that while employees are exposed to systems rather than individual practices, the components of these systems do not necessarily have equal impact. As a result, three dimensions[1] and corresponding objectives are often distinguished:

- **Ability-enhancing HR practices:** Activities such as selective hiring, onboarding, training, education and professional development, which aim to improve employees' knowledge, skills and abilities to enhance performance. This dimension is also referred to as 'skill-enhancing HR practices'.
- **Motivation-enhancing HR practices:** Activities such as performance management, feedback, competitive compensation, incentives and rewards, recognition, goal setting, promotion and career development, which aim to increase employees' willingness to perform effectively.
- **Opportunity-enhancing HR practices:** Activities such as flexible working arrangements, job design, job enrichment, work teams, employee involvement, autonomy, participative decision-making and information sharing, which aim to empower employees to use their abilities and motivation to achieve organisational goals. This dimension is also referred to as 'empowerment-enhancing HR practices'.

Although some organisations still treat HRM as a unidimensional framework made up of a set of individual practices, current research emphasises a three-dimensional systems approach, as each dimension has been found to affect different types of HR outcomes.

Finally, in the scientific literature on HRM, the term 'high-performance work practices' (HPWPs) is frequently used (Meijerink et al, 2021; Saridakis et al, 2017). While it is generally assumed that HPWPs positively influence organisational performance, there is no widely accepted definition or fixed set of practices that constitute them. Although a common understanding exists that HPWPs are HRM practices designed to enhance employees' abilities, motivation and opportunities, the term appears to function as an overarching label for the three HR dimensions described above.

[1] The idea that performance is a function of ability, motivation and opportunity has roots in industrial-organisational psychology, going back to models like Campbell et al (1993). The AMO framework was introduced into the HRM field primarily through the work of Bailey (1993) and later Appelbaum et al (2000), who applied it to explain how HR practices can influence employee performance and organisational outcomes.

Question 2: What does the scientific evidence say about the impact of human resource practices on workplace and organisational outcomes?

HR practices are positively associated with a wide range of performance outcomes (Level C)

Several meta-analyses, based on large numbers of cross-sectional studies, have consistently found that HR practices are positively associated with in-role, extra-role and general performance (Blom et al, 2020); financial performance (Chali and Lakatos, 2024; Jiang et al, 2012; Kaur and Kaur, 2021; Rauch and Hatak, 2016); operational performance (Jiang et al, 2012; Kaur et al, 2021); market performance (Kaur and Kaur, 2021); and employee productivity (Salman and Masood, 2019). The observed effect sizes were moderate, explaining approximately 6–10% of the variability in performance, meaning that HR practices could make a notable difference.[2] This review did not identify any studies showing a negative association with performance outcomes.

HR practices are predictive for a wide range of performance outcomes (Level B)

The findings reported in the meta-analyses above have been confirmed by several studies using longitudinal designs, suggesting that HR practices such as empowerment and training (Birdi, 2008); career development support, mentorship programmes and job rotation (Chen, 2021); and skill, motivation and opportunity-enhancing practices more broadly (Chowhan, 2016) are not only associated with, but also predictive of, the performance outcomes mentioned above (Birdi, 2008). It should be noted, however, that the observed effect sizes were small to moderate.

HR practices are associated with a wide range of other work-related outcomes (Level B)

Several meta-analyses and longitudinal studies have found that HR practices are associated with a range of work-related outcomes, including positive employee attitudes, adaptability, creativity and commitment to change (Al-Nakeeb and Ghadi, 2024); innovative work behaviour (Bos-Nehles et al, 2017); product and process innovation (Chen et al, 2023; Kim, 2021); turnover intentions (Salman and Masood, 2019); voluntary turnover (Jiang et al, 2012); job satisfaction, absence, and health (Patterson et al, 2010); organisational climate (Chali and Lakatos, 2024), and overall employee wellbeing (Van De Voorde et al, 2012).

The association between HR practices and workplace and organisational outcomes is stronger for bundles of practices (systems) than for individual practices (Level B)

Several meta-analyses, based on large numbers of cross-sectional, longitudinal and controlled studies, have found that bundles of HR practices (HR systems), rather than individual practices, tend to show a stronger relationship with performance and work-related outcomes (Chali and Lakatos, 2024; De Menezes et al, 2010; Saridakis et al, 2017; Subramony, 2009; Sheehan, 2013; Van De Voorde et al, 2012). This finding supports the view that using a combination of interrelated, mutually reinforcing HR practices has stronger effects than a single HR intervention. Consequently, HR practices such as recruitment and selection, and training and personal development, which are designed to enhance workforce competencies, are likely to reinforce practices such as incentives and rewards, recognition and feedback, which are aimed at increasing employees' willingness to perform effectively (Saridakis et al, 2017). However, the observed differences were relatively small, with correlation differences ranging from .10 to .15.

[2] This suggests there is a 68% probability that a company implementing HR practices will outperform a company that is not.

The different dimensions of HR practice have been found to affect different types of HR outcomes (Level C)

Findings from meta-analyses indicate that the three dimensions of HR practices tend to affect different HR outcomes. For example, opportunity-enhancing practices have been found to be more strongly associated with general performance (Blom et al, 2020) and process innovation (Chen et al, 2023), whereas ability-enhancing practices are more strongly associated with human capital (Jiang et al, 2012) and product innovation (Chen et al, 2023). An overview of all types of HR practices and their associations with performance outcomes is provided below.

Table 1: Overview of effect sizes (standardised β's)

Type of performance	Type of HR practice		
	Ability-enhancing	Motivation-enhancing	Opportunity-enhancing
In-role performance	.26	.14	.21
Extra-role performance	.35	.29	.19
General performance	.35	.37	.49
Product innovation	.35	.29	.29
Process innovation	.36	.37	.41
Human capital (knowledge, skills, adaptability, creativity)	.29	.22	.07
Employee motivation (satisfaction, morale, climate, commitment, trust)	.07	.29	.25

In addition, it was found that social HR systems – emphasising employee wellbeing, trust, mutual respect, training, empowerment and long-term development – tend to be more strongly associated with innovation capability and product innovation than are economic HR systems, which focus on improving performance through financial incentives, monitoring, compliance and accountability mechanisms. However, the strongest association with innovation was observed when both systems were congruent and highly developed (Kim, 2021).

The relationship between HRM practices and workplace outcomes are affected by employees' perceptions (Level A)

Longitudinal and (randomised) controlled studies have shown that employees' perceptions of HRM practices as deliberate, consistent and effective lead to stronger relationships with outcomes such as organisational commitment, innovative behaviour (Sanders and Yang, 2016) and organisational performance (Wang, 2009). Similar outcomes have been observed when HRM practices are visible, perceived as valuable, and when employees feel they are provided with sufficient support, trust and resources (Chen et al, 2023; Meijerink et al, 2021).

High-performance work practices may decrease employee wellbeing (Level B)

Some authors argue that the positive impact of HR practices – particularly in organisations aiming for higher financial performance – may diminish due to increased stress levels. Although this review did not identify any studies showing a direct negative association with performance outcomes, a meta-analysis of cross-sectional and longitudinal studies (Van De Voorde et al, 2012) found that high-performance work practices may increase workload and strain and, as a result, negatively affect

employees' health-related wellbeing. However, it remains unclear whether this negative relationship is linear or inverted U-shaped.

The evidence on the influence of contextual variables such as sector, industry and firm size is mixed

Several meta-analyses have found statistically significant differences in the effects of HRM practices across public, semi-public and private organisations; however, these differences were very small and practically negligible (Blom et al, 2020). In small- and medium-sized enterprises (SMEs), the relationship between HR-enhancing practices and organisational performance was found to be somewhat stronger in small firms compared to medium-sized firms, and in younger firms compared to older ones (Rauch and Hatak, 2016). Finally, a meta-analysis of 89 studies examining organisations that had implemented HR practices found that industry sector and firm size accounted for 12% and 8% of the difference in the effect size of HR practices on performance (Tzabbar et al, 2017).

There is limited evidence on variables that moderate or mediate the relationship between HR practice bundles and workplace and organisational outcomes

Apart from the studies on employees' perceptions (see above), only a small number of studies included in this review examined moderating and/or mediating variables in the relationship between HR practice bundles and workplace or organisational outcomes. A recent meta-analysis found that indicators of employee motivation – such as organisational commitment, perceived organisational support, organisational trust, morale, perceived climate and job satisfaction – mediate the relationship between HR bundles and organisational innovation (Chen et al, 2023). However, no meta-analyses or longitudinal studies were found that examined the impact of moderating and mediating variables on the HR practice bundle – performance relationship.[3]

Conclusion

The studies identified through this review clearly demonstrate that HR practices have a moderate, positive relationship with a wide range of workplace outcomes, and as such are a likely driver for the effectiveness of employees, divisions, and the organisation broadly. Review findings also indicate that bundles of HR practices (systems) tend to be more effective than individual practices.

Limitations

This review aims to provide a balanced assessment of what is known in the scientific literature about the impact of HRM and its related practices on organisational and workplace outcomes by using the systematic review method to search and critically appraise empirical studies.

But to be 'rapid', concessions were made in relation to the breadth and depth of the search process, such as the exclusion of unpublished studies, the use of a limited number of databases and a focus on empirical research published in the period 1990 to 2025. As a consequence, relevant studies may have been missed.

A second limitation concerns the critical appraisal of the studies included, which did not incorporate a comprehensive review of the psychometric properties of their tests, scales and questionnaires.

[3] It should be noted, however, that a number of high-quality studies have examined factors that moderate or mediate the relationship between individual HR practices and workplace outcomes. These practices include training, professional development, performance management, feedback, compensation, incentives and rewards, recognition, goal setting, flexible working arrangements, job design, job enrichment, employee involvement, autonomy, participative decision-making and information sharing.

Finally, the findings of this review are sometimes based on low-quality studies, ie studies without a control group and/or pre-test. As a result, a causal relationship between HR practices and workplace outcomes cannot be confirmed, which means that alternative explanations for the effects found are possible. Given these limitations, care must be taken not to present the findings in this review as conclusive.

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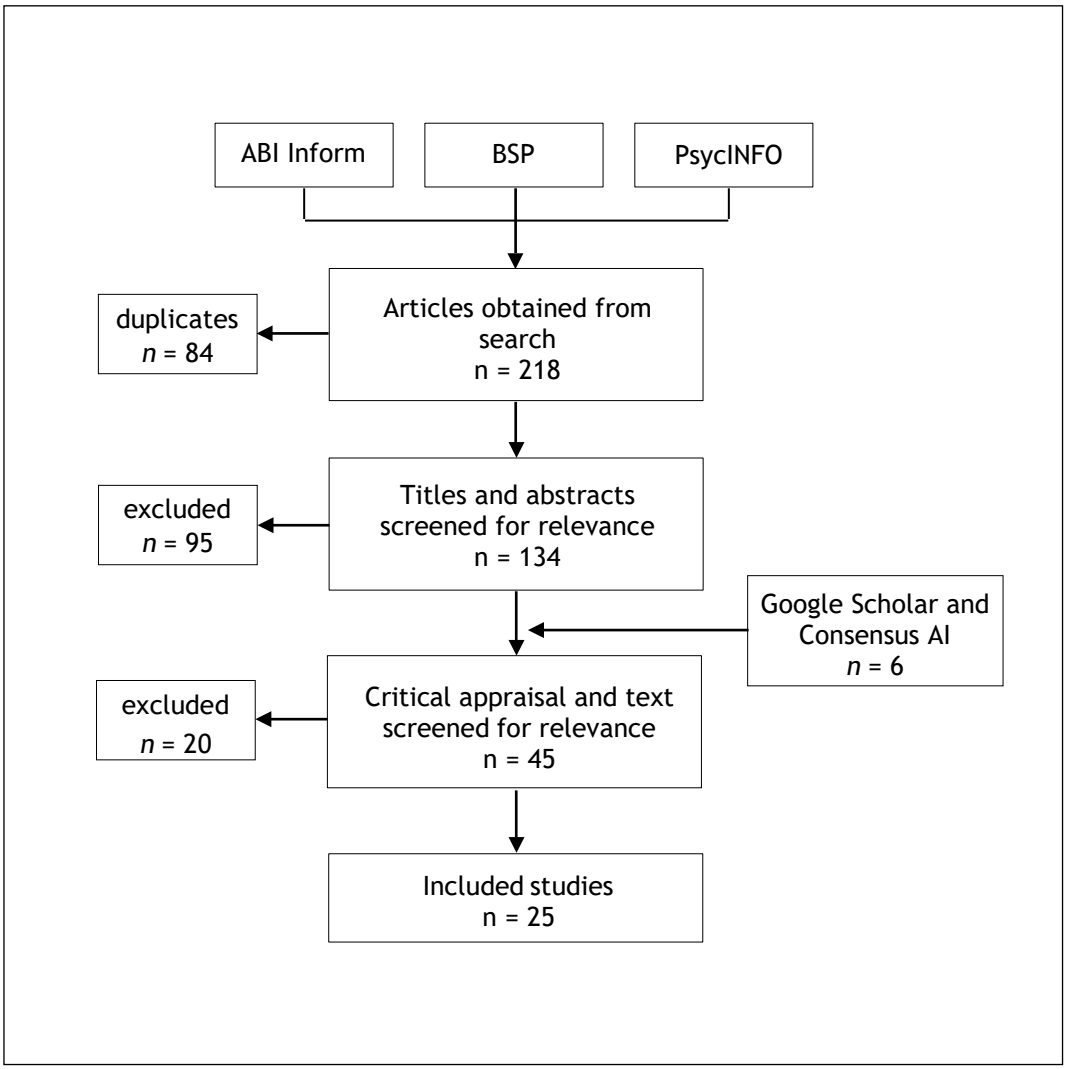
Appendix 1 – Search terms and hits

ABI/Inform Global, Business Source Elite, PsycINFO peer-reviewed, scholarly journals, March 2025			
Search terms	**BSP**	**PSY**	**ABI**
S1: TI(HRM OR “human resource*” OR “people manag*” OR “workforce manag” OR “human capital management”	11,221	4,072	10,334
S2: TI(effect* OR impact* OR outcome*)	298,462	590,022	238,363
S3: TI(perform* OR productiv*)	136,289	109,606	104,610
S4: S2 OR S3	410,356	673,583	324,388
S5: S1 AND S4	2,325	887	1,944
S6: S5 AND TI(meta-analy*) OR AB(meta-analy*) OR TI(“systematic review”) OR AB(“systematic review”), limiter > 1990, English	26	12	18
S7: S5 AND TI(experiment* OR controlled OR longitudinal OR randomized OR quasi) OR AB(experiment* OR “controlled stud*” OR “controlled trial*” OR “control group*” OR “control variable*” OR “comparison group*” OR “comparative stud*” OR quasi OR longitudinal OR randomized OR randomly OR laboratory OR “before and after stud*” OR “pretest post*” OR “pre-post” OR "panel stud*" OR “case control” OR “cohort stud*” OR “prospective stud*”)	107	21	89
S8: S6 OR S7, limiter > 2005, English	102	33	83

Appendix 2 – Selection HRM studies



Appendix 3 – Data matrix

Overview of included meta-analyses

First author and year	Design + sample size	Sector/Population	Main findings	Effect size	Limitations	Level
1. Al-Nakeeb, 2024	Systematic review k = 26	Samples from organisations in Western and non-Western countries	Examines the contribution of HRM practices to effective organisational change. 1. Findings indicate that HRM practices play a pivotal role in enabling successful organisational change by fostering positive employee attitudes, enhancing adaptability and creativity, and driving commitment to change initiatives.	Not reported	Design of included studies unclear Limited search Narrative summary of findings, no pooled or aggregated data are reported	D -
2. Blom, 2020	Systematic review k = 65	Public, semi-public and private sector organisations	Examines differences in effects of HRM practices on individual performance across sectors. 1. In-role performance is weakly to moderately correlated with ability-enhancing practices* (a), motivation-enhancing practices** (b) and opportunity-enhancing practices*** (c). 2. Extra-role performance is moderately correlated with ability-enhancing practices (a), motivation-enhancing practices (b) and opportunity-enhancing practices (c). 3. General performance is moderately correlated with ability-enhancing practices (a), motivation-enhancing practices (b) and opportunity-enhancing practices (c). 4. The effect of ability-enhancing HRM practices on individual performance is NOT larger in the semi-public sector than in the public sector (a) but somewhat smaller than in the private sector (b). 5. The effect of motivation-enhancing HRM practices on extra-role performance is larger in the semi-public sector than in the public sector (a) and smaller than in the private sector (b). 6. The effect of opportunity-enhancing HRM practices on individual performance is NOT larger in the semi-public sector than in the public sector (a) and NOT smaller than in the private sector (b).	(standardised beta's) 1a = .26 [.04 - .47] 1b = .14 [.11 - .19] 1c = .21 [.02 - .38] 2a = .35 [.17 - .53] 2b = .29 [.12 - .27] 2c = .19 [.07 - .31] 3a = .35 [.19 - .48] 3b = .37 [.15 - .59] 3c = .49 [.38 - .60] 4, 5, 6: absolute differences between estimates are very small	Research design of the included studies unclear	C

			*Ability-enhancing HRP: recruitment and selection based on skills or fit; training and development programmes; educational opportunities; onboarding and socialisation processes; career development planning **Motivation-enhancing HRP: performance-based pay or bonuses; promotion opportunities; recognition and reward systems; job security; performance appraisal and feedback; goal-setting ***Opportunity-enhancing HRP: participative decision-making; teamwork and job rotation; autonomy and empowerment; open communication channels; flexible work arrangements			
3. Bos-Nehles, 2017	Systematic review k = 27	Organisations from various industries	Examines the impact of HRM practices on employees' innovative work behaviour (IWB). 1. The best HRM practices for enhancing IWB are training and development, reward, job security, autonomy, task composition, job demand and feedback.	Not reported	Research design of the included studies unclear Mainly qualitative synthesis of the findings	D
4. Chali, 2024	Systematic review of cross-sectional, longitudinal and experimental studies k = 26	Organisations from various industries	Examines the influence of human resource management (HRM) on financial performance in cooperative enterprises. 1. A positive relationship between HRM practices and financial performance was found, with HRM driving both efficiency and profitability. 2. High-performing HRM functions (rather than individual HR practices) were found to enhance employee productivity while ensuring personnel welfare and improving the organisational climate.	Not reported	Review methodology somewhat unclear: limited search, procedure for data synthesis not reported Unclear how 'cooperative' enterprises were coded/distinguished during study selection	B

5. Chen, 2023	Meta-analysis k = 103	Organisations from various industries	Examines the relationships between three bundles of human resource management (HRM) practices – competency-enhancing, motivation-enhancing and opportunity-enhancing –and organisational innovation. 1. The competency-enhancing bundle (a), the motivation-enhancing bundle (b) and the opportunity-enhancing bundle (c) were positively related to product innovation. 2. The competency-enhancing bundle (a), the motivation-enhancing bundle (b) and the opportunity-enhancing bundle (c) were positively related to process innovation. 3. The competency-enhancing bundle is more positively related to product innovation than the motivation-enhancing and opportunity-enhancing bundles. 4. The opportunity-enhancing bundle is more positively related to process innovation than the competency-enhancing and motivation-enhancing bundles. 5. Knowledge management capability (KMC) mediates the positive relationships between the competency-enhancing bundle, the motivation-enhancing bundle and the opportunity enhancing bundle and both product innovation and process innovation. 6. Employee motivation* mediates the positive relationships between the competency-enhancing bundle, the motivation-enhancing bundle and the opportunity-enhancing bundle (H6c) and both product innovation and process innovation. *Employee motivation includes organisational commitment, perceived organisational support, organisational trust, perceived organisational climate, employee morale, collective job satisfaction and positive employee behaviour.	1a: r = .35 ; β = .23 1b: r = .29; β = .11 1c: r = .29; β = .13 2a: r = .36; β = .14 2b: r = .37; β = .18 2c: r = .41; β = .27	Research design of the included studies unclear	C

6. Jiang, 2012	Meta-analysis k = 116	Organisations from various industries	Examines the effects of three dimensions of HR systems – skills-enhancing, motivation-enhancing and opportunity-enhancing – on proximal organisational outcomes (human capital and motivation) and distal organisational outcomes (voluntary turnover, operational outcomes and financial outcomes). 1. Skill-enhancing (a), motivation-enhancing (b) and opportunity-enhancing HR practices (c) are positively related to human capital. 2. Skill-enhancing HR practices (a) are more positively related to human capital than motivation-enhancing (b) and opportunity-enhancing HR practices (c). 3. Skill-enhancing (a), motivation-enhancing (b) and opportunity-enhancing HR practices (c) are positively related to employee motivation. 4. Skill-enhancing HR practices (a) are less positively related to employee motivation than motivation-enhancing (b) and opportunity-enhancing HR practices (c). 5. Human capital and employee motivation mediate the negative relationships between the three dimensions of HR systems and voluntary turnover. 6. Human capital and employee motivation mediate the positive relationships between the three dimensions of HR systems and operational outcomes. 7. Human capital, employee motivation, voluntary turnover and operational outcomes partially mediate the positive relationships between the three dimensions of HR systems and financial outcomes. *Skill-enhancing HR practices included recruitment, selection and training. Motivation-enhancing HR practices consisted of performance appraisal, compensation, incentive, benefit, promotion and career development, and job security. In addition, opportunity-enhancing HR practices covered job design, work teams, employee involvement, formal grievance and complaint processes, and information sharing.	1a: r = .42 ; β = .29 1b: r = .38 ; β = .22 1c: r = .30 ; β = .07 3a: r = .32 ; β = .07 3a: r = .43 ; β = .29 3a: r = .41 ; β = .25 Note: Correlation HR dimensions with: Voluntary turnover: all around .20 Operational outcomes: all around .25 Financial outcomes: all around .25	Research design of the included studies unclear	C

7. Kaur, 2021	Meta-analysis k = 24	Organisations from various industries	Examines the association of human resource management (HRM) practices with financial, market and operational performance. 1. The results revealed the moderate associations of HRM practices with financial performance (a), market performance (b) and operational performance (c). 2. More specifically, HRM practices have the strongest association with market performance.	1a: r = .31 1b: r = .43 1c: r = .31	Research design of the included studies unclear	C
8. Meijerink, 2021	Meta-analysis k = 96		Examines how human resource management (HRM) practices – in particular high-performance work practices (HPWPs) – as reported by employees, relate to employee performance. 1. Evaluative reports of HPWPs (a) are more strongly related to job attitudes than descriptive reports of HPWPs (b). 2. Descriptive reports of HPWPs (a) are more strongly related to job/personal resources than evaluative reports of HPWPs (b). 3. Job attitudes and personal/job resources partially mediate the positive relationship between evaluative reports of HPWPs and employee performance. 4. Personal/job resources and job attitudes partially mediate the positive relationship between descriptive reports of HPWPs and employee performance 5. Thus: employee performance increases where organisations make HPWPs visible and valuable for employees, ensure that they are satisfied with their job, and provide them with important resources such as competences, empowerment or supportive relationships. Specifically, to ensure that employees can rely on important personal/job resources, these results imply that managers can best ensure that employees experience that they are provided with ample HPWPs. *HPWPs: HRM practices designed to enhance employee performance by increasing employees' competences, motivation and opportunities to perform. Accordingly, HPWPs fall in one of the following three policy domains: ability-enhancing HRM practices (ie staffing and training/development), motivation-enhancing HRM practices (ie performance management and compensation), and opportunity-enhancing HRM practices (ie involvement and participatory job design) *Descriptive reports: employees' factual and cognitive experiences of HRM practices	1a: β = .33 1b: β = .25 2a: β = .49 2b: β = .13	Limited search Research design of the included studies unclear Only four studies concerned evaluative reports	C

			*Evaluative reports: employees' emotional appraisal of and affective response to HRM activities in terms of their effectiveness or quality, or the employees' satisfaction with HRM practices			
9. Patterson, 2010	Systematic review, includes mainly longitudinal studies and some RCTs k = 99	Healthcare organisations	Examines the link between human resource management practices and performance (in particular, patient outcomes). 1. Work design practices that enhance employee autonomy and control influenced a number of employee outcomes. 2. There was consistent evidence for the positive impact of increased job control on employee outcomes, such as job satisfaction, absence and health. 3. For employee participation, the small number of studies reviewed supported the involvement of employees in design/implementation of changes that affect their work. 4. In health literature in particular, employee involvement through quality-improvement teams resulted in improved patient outcomes. 5. Findings were positive for the impact of training on the intended outcomes of the initiatives. 6. Support for the impact of performance management practices was apparent, in particular feedback on performance outcomes and the use of participative goal setting.	Not reported	No serious limitations	A

10. Rauch, 2016	Meta-analysis, includes longitudinal studies k = 56	Small- and medium-sized enterprises	Examines the link between HR practices and the performance of small- and medium-sized enterprises (SME). 1. Overall, HR practices are positively related to SME performance. 2. Skill-enhancing HR practices are positively related to SME performance. 3. Motivation-enhancing HR practices are positively related to SME performance. 4. Empowerment-enhancing HR practices are positively related to SME performance. 5. The relationship between HR-enhancing practices and SME performance is stronger in small firms (a) as compared to medium-sized firms (b). 6. The relationship between HR-enhancing practices and SME performance is stronger in young firms as compared to older firms. 7. The relationship between HR-enhancing practices and SME performance is stronger in firms operating in high-technology industries (a) as compared to firms operating in other industries (b). 8. The relationship between HR-enhancing practices and SME performance is stronger in firms operating in country contexts characterised by rigid labour market regulations (a) as compared to contexts characterised by flexible labour market regulations (b). 9. HR-enhancing practices are positively related to SME financial performance. *SME = small is up to 50, medium is up to 500 employees *Skill-enhancing HR practices aim to improve skill and knowledge levels in the firm and emphasise selection and training. Motivation-enhancing HR practices aim to direct and enforce employee behaviour, for example by providing rewards and incentives. Empowerment-enhancing HR practices emphasise employee autonomy and responsibility and consist of measures such as decision-making involvement/participation, job enrichment, meetings, feedback and flexibility	1. ρ = .23 2. ρ = .17 3. ρ = .16 4. ρ = .27 5a. ρ = .23 5b. ρ = .12 6a. ρ = .30 6b. ρ = .16 7a. ρ = .35 7b. ρ = .21 8a. ρ = .35 8b. ρ = .21 9. ρ = .21	No serious limitations	B

11. Salman, 2019	Meta-analysis k = 55	Organisations from various industries	Examines the relationship between HR practices and performance. 1. Findings indicate that HR practices, in particular employee skills and training, are positively correlated with organisational performance and employee productivity, and negatively correlated with turnover intentions.	Not reported	Limited search Selection of studies somewhat unclear Research design of the included studies unclear Limited definition of HR practices	D-
12. Saridakis, 2017	Meta-analysis of longitudinal studies k = 8	Organisations from various industries	Examines the relationship between HRM, in particular high-performance work practices (HPWPs) in strategic HRM (SHRM), and firm performance. 1. HPWPs in SHRM lead to better firm performance. 2. The relationship between HPWPs and firm performance is stronger for HPWP systems (a) than for individual HR practices (b). 3. The relationship between HPWPs and firm performance is weaker for operational performance measures (a) than financial performance measures (b).	1. ρ = .29 2a. ρ = .36 2b. ρ = .17 3a. ρ = .30 3b. ρ = .37	No serious limitations	B
13. Subramony, 2009	Meta-analysis k = 65	Organisations from various industries	Examines the relationship between HRM bundles and firm performance. 1. Empowerment-enhancing bundles are positively correlated with business outcomes. 2. The correlation between empowerment-enhancing bundles and business outcomes are significantly higher than the correlations between individual HRM practices making these bundles and business outcomes. 3. Motivation-enhancing bundles are positively correlated with business outcomes. 4. The correlation between motivation-enhancing bundles and business outcomes are significantly higher than the correlations between individual HRM practices making these bundles and business outcomes. 5. Skill-enhancing bundles are positively correlated with business outcomes. 6. The correlation between skill-enhancing bundles and business outcomes are significantly higher than the correlations between individual HRM practices making these bundles and business outcomes.	1. ρ = .26 [.21 - .30] 2. About .1 to .15 higher 3. ρ = .24 [.21 - .28] 4. About .1 to .15 higher 5. ρ = .17 [.12 - .21] 6. About .02 to .09 higher 7. ρ = .17 [.15 - .19] 8a. ρ = .17 [.15 - .19] 8b. ρ = .23 [.21 - .25]	HPWS is ill defined, no HPWS practices are mentioned Research design of the included studies unclear	C

			7. HPWSs are positively correlated with all business outcomes. 8. HPWSs (a) do NOT demonstrate higher magnitudes of relationships with business outcomes than HRM bundles.			
14. Tzabbar, 2017	Meta-analysis k = 89	Organisations from various industries	This paper uses four prior published meta-analyses to identify contextual factors that moderate the HRM-performance relationship by calculating the variance explained. 1. The relationships of various HRM practices explains only 4% of the variance in performance, whereas societal context, industry sector and firm size* explain 33%, 12% and 8% respectively. *Societal context = geographical region; industry sector = low/high technology, services and general; organisational size = small (<50), medium (50–250) and large (> 250)	Unclear	Unclear use of Fisher's Z scores Unclear use of terms like 'high-performance work practices'	C
15. Van De Voorde, 2012	Meta-analysis of cross-sectional and longitudinal studies k = 36	Organisations from various industries	Examines the relationship between HR practices, organisational performance and employee wellbeing. 1. HRM had a positive effect on employee wellbeing in almost 70% of the 54 data points, and a positive effect on performance in almost 60% of the 54 data points. 2. None of the studies indicated a negative effect, and 60% of the data points indicated a positive association between both HRM and happiness wellbeing and HRM and performance. 3. Results show that HRM is predominantly positively associated with relational aspects of employee wellbeing and with organisational performance. It was found that almost 60% of the included data points provided evidence for a mutual gains perspective. 4. It was found that high-performance work systems are related to increased workload, work intensification and increased strain. Furthermore, the majority of the included data points showed a negative relationship between HRM and health-related wellbeing. In addition, no evidence has been found for a mediating role of health-related wellbeing in the relationship between HRM and performance. 5. Thus, employee wellbeing in terms of happiness and relationship is congruent with organisational performance (mutual gains perspective), but health-related wellbeing appears to function as a conflicting outcome.	Not reported (only percentages)	Limited information about search, selection and data extraction	B

Overview of excluded meta-analyses

Author and year	Reason
1. Alagaraja, 2013	Systematic review that claims to examine the relationship of human resources (HR) and organisational performance (OP). However, the paper draws only conceptual conclusions based on selected literature; it does not provide empirical data.
2. Beijer, 2021	Systematic review on measurement of HR practices, conceptual discussion based on the included literature, no quantitative data are reported.
3. Dawood, 2018	Systematic review of methods, measures, etc; no effect sizes regarding impact on performance are reported.
4. Demo, 2020	Systematic review that uses bibliometric analyses to identify constructs most associated with HRM practices.
5. Mahdia, 2024	Traditional literature review presented as systematic review.

Overview of included primary studies

First author and year	Design + sample size	Sector/Population	Main findings	Effect size	Limitations	Level
1. Birdi, 2008	Longitudinal study (22 yrs) n = 308 companies	UK manufacturing companies	Examines the impact of HR practices and Lean practices on company productivity. 1. The adoption of empowerment and extensive training independently enhances company performance. 2. Teamwork is not independently associated with productivity but it enhances the impact of both training and empowerment. 3. The adoption of total quality management, just-in-time, advanced manufacturing technology, and supply-chain partnering, in each case, does NOT independently enhance company performance. 4. Total quality management, just-in-time, advanced manufacturing technology, and supply-chain partnering does NOT interact positively to predict company performance. 5. Thus: company performance benefits from the HR practices empowerment and extensive training, with the adoption of teamwork serving to enhance both. In contrast, none of the operational (Lean) practices were directly related to productivity nor did they interact with other practices. Note: The results suggest that there is a time lag before the effects of a management practice translate to changes in organisational performance	Only unstandardised coefficients are reported	No serious limitations	C

2. Chen, 2021	Longitudinal study (3 yrs) n = 213 companies	Firms in Taiwan	Examines the relationship between human resource development (HRD) practices and organisational performance improvements. 1. Human capital mediates the positive effect of developmental HRD practices on improvements in organisational performance. 2. Organisational capital does NOT mediate the positive effect of constructive HRD practices on improvements in organisational performance. 3. Social capital mediates the positive effect of collaborative HRD practices on improvements in organisational performance. *Developmental HRD practices: formal training programmes, career development support, performance appraisal systems, mentorship programmes, job rotation opportunities, tuition reimbursement policies, leadership development workshops *Human capital: the collective knowledge, skills and abilities possessed by employees within an organisation *Organisational capital: the institutionalised knowledge and codified experience that is embedded in an organisation's structures, management practices, systems, databases, culture and processes *Social capital: the value derived from relationships among employees and between employees and external stakeholders (eg trust, shared norms and values, collaboration, networks)	Note: Zero-order correlations with organisational performance at T2 are rather small (hence, test for mediation)	No serious limitations	C
3. Chowhan, 2016	Longitudinal study (3 yrs) n = 3,176 workplaces	Canadian companies	Examines the link between HRM practices, innovation and organisational performance. 1. Skill-, motivation- and opportunity-enhancing bundles of practices in time 1 is positively related with innovation in time 2 and is positively related with organisational performance in time 3. This indicates that investments in skill-enhancing practices lead to higher levels of innovation, and subsequently higher organisational performance. 2. Innovation in time 2 mediates the positive relationship between the skill-enhancing bundle of practices in time 1 and organisational performance in time 3 (but not for the motivation- and opportunity-enhancing bundle of practices). 3. Strategic activities in time 1 does not moderate the relationship between the skill-, motivation- and opportunity-enhancing bundle of practices in time 1 and innovation in time 2.	Beta coefficients are small (< .2)	A three-step analysis (Baron & Kenny) was used to test for mediation	C

			4. The positive effect of innovation in time 2 on organisational performance in time 3 is not moderated by relatively pure product leadership strategic activities in time 2.			
4. De Menezes, 2010	Longitudinal study (24 yrs) n = unclear	British industrial companies	Examines the effect of operation management (OM) and HRM integration on organisational performance in the context of lean production. 1. Organisations that consistently make more integrated use of OM and HRM practices* are more productive and outperform those where these practices are less integrated or not integrated at all. *Concerns OM and HRM practices that are associated with the lean production concept	Not reported	Methodology somewhat unclear	C
5. Fonseka, 2013	Longitudinal study (10 yrs) n = 11,985 firms	Chinese privately owned and state-owned companies	Examines the impact of human resource slacks on firm performance. 1. Absolute HR slack (AHRS) leads to enhanced firm performance. 2. AHRS is positively and relative HR slack (RHRS) is negatively affected firm performance. 3. Both AHRS and RHRS have inverse U-shaped effects on firm performance. *AHRS: the surplus of human resources in a firm in absolute terms. It is measured as the difference between the actual number of employees and the number required to meet current operational demands *RHRS: the difference between amount of firm HR slack and industry average (rival firms and peers)	Small beta's (< .1)	No serious limitations	C

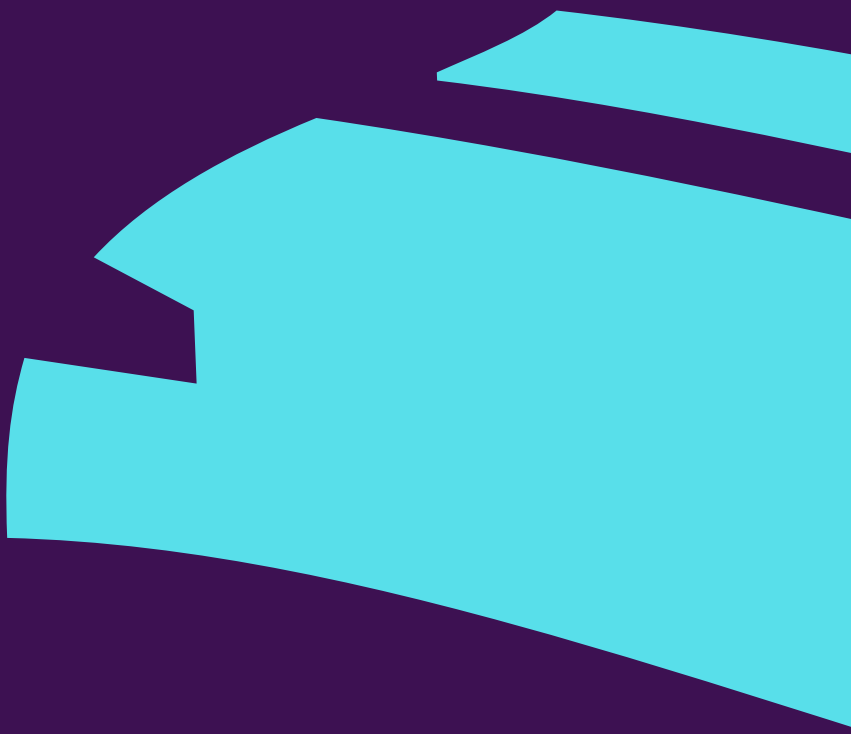
6. Kim, 2021	Longitudinal study (5 waves, 18 yrs) n = 1,940	Korean firms	Examines the impact of human resource management (HRM) systems (bundles) on the innovation capability and product innovation. 1. The positive impact of the social HRM system on innovation capability (a) is higher than the impact of the economic HRM system (b). 2. The positive impact of the social HRM system on product innovation is higher than the impact of the economic HRM system. 3. The combined effect of the social and economic HRM systems is not congruent in that innovation capability is not maximal when the difference in level between the two HRM systems is minimised. 4. The combined effect of the social and economic HRM systems is not congruent in that product innovation is not maximal when the difference in level between the two HRM systems is minimised. 5. The combined effect on innovation capability when the levels of the two HRM systems are in agreement and high is greater than the combined effect when the levels of the two HRM systems are in agreement and low. 6. The combined effect on product innovation when the levels of the two HRM systems are in agreement and high is greater than the combined effect when the levels of the two HRM systems are in agreement and low. Note finding 3 – 6: Congruence alone is insufficient – the quality and intensity of HR practices matter more *Economic HRM systems: transactional and control-oriented, focusing on extrinsic rewards and efficiency. It aims to improve performance by aligning employee behaviour with organisational goals through financial incentives, monitoring, compliance and accountability mechanisms. *Social HRM systems: relational and commitment-oriented, focusing on intrinsic motivation and long-term development. Aims to foster innovation and organisational commitment by cultivating a supportive and trusting work environment, emphasising employee wellbeing, trust, mutual respect, training, empowerment and supportive leadership	1a: r = .24 1b: r = .16 2a: r = .28 2b: r = .25	Measures of innovation capability (proximal) and product innovation (distal) are based on self-report	C

7. Piening, 2013	Longitudinal study (5 yrs) n = 169	Public hospital services provided by the English National Health Service	Examines whether HR interventions affect organisational performance. 1. Changes in employees' perceptions of the organisation's HR system lead to subsequent changes in customer satisfaction through changes in job satisfaction. 2. Changes in employees' perceptions of the organisation's HR system do not lead to subsequent changes in financial performance through changes in job satisfaction. 3. Changes in financial performance lead to subsequent changes in job satisfaction through changes in employees' perceptions of the organisation's HR system. 4. The results indicate the effect of increases in employees' HR system perceptions on job satisfaction, and thus performance outcomes are likely to unfold within the first two years and gradually diminish thereafter.	Zero-order correlations HR system perceptions – Financial performance r = .16 HR system perceptions – Customer satisfaction r = .26 HR system perceptions – Job satisfaction r = .84 Standardised beta coefficients not reported	No serious limitations	C
8. Sanders, 2016	Study 1: RCT, n = 354 (vignettes) Study 2: Cross-sectional survey, n = 639, 42 organisations	Employees from four Dutch health care organisations	Examines whether employees' perceptions affect HRM-performance relationship. 1. Employees' perception of HC-HRM as highly distinctive, highly consistent and highly consensual (attribution to management) strengthens the relationship between HC-HRM and affective organizational commitment.* 2. Employees' perception of HC-HRM as highly distinctive, highly consistent and highly consensual (attribution to management) strengthens the relationship between HC-HRM on one hand and affective commitment and innovative behaviour on the other hand.** * = The effect of HC-HRM on affective organisational commitment was stronger when employees understood HRM as was intended by management ** = The effect of HC-HRM on affective organisational commitment and innovative behaviour was stronger under the condition that employees could make sense of HRM	1. β = .14 HHH: β = .33 2. Only unstandardised beta's are reported	No serious limitations	A

9. Sheehan, 2013	Longitudinal study (4 yrs) n = 336 firms	SMEs in the UK	Examines the effect of HR management and performance in SMEs. 1. There is a positive association between the number of selected formal human resource practices (at time 1) and reported firm performance (at time 2). 2. The positive association between the number of selected formal human resource practices and reported firm performance (at time 2) sustains after controlling for previous performance (at time 1). *HR practices: recruitment and selection; performance appraisal; performance-based compensation pay; training and development; employee voice, consultation, participation and information sharing; strategic people management	1. An increase by 20 and 35% in the odds ratio for profitability and innovation, and a 42% reduction in labour turnover	No serious limitations	C
10. Wang, 2009	Longitudinal study (4 yrs) n = 181	Firms in Taiwan	Examines the longitudinal impact of (perceived) effective HR practices on performance. 1. Perceived HRM effectiveness* has a positive and direct impact on organisational performance. *Measured with a 23-item scale (employee perceptions)	1. Zero-order correlations with various aspects of productivity all between .3 and .4 β = .37	No serious limitations	C

Overview of excluded primary studies

Author and year	Reason
1. Bal, 2015	Concerns the (longitudinal) effect of flexible working arrangements
2. Chang, 2018	Does not measure the effect of HRM on workplace outcomes
3. Colvin, 2001	Outcome (dv) is managerial pay, no other workplace outcomes were measured
4. Cozzarin, 2014	Unclear outcome measure (labour productivity is set as a function of the total of wages)
5. Dan, 2011	Mainly qualitative study
6. Diaz-Fernandez, 2015	Concerns the impact of 'employment security'
7. Diaz-Fernandez, 2017	Concerns the impact of 'employment security' (same study as Diaz-Fernadez 2015, outcome is nr of patents)
8. Fonseka, 2014	Same study as Fonseka 2013, but examines the effect of both FS and HR slack combines together on firm performance
9. Garmendia, 2021	Concerns a time-lagged (two waves) cross-sectional study
10. Giardini, 2008	Concerns the impact of work-family practices on perceived general performance
11. Han, 2024	Concerns the impact of 'fun' HR practices: actions initiated by HR departments that are playful in nature and intended to create a fun work environment for employees
12. Jansen, 2001	Examines the effect of HRM practices on gender ratio
13. Ogbonnaya, 2023	Examines the effect of HRM practices on patient satisfaction and job satisfaction in a healthcare context
14. Rauch, 2005	Examines the effect of HRM practices on employment growth of small businesses
15. Sanders, 2021	Examines whether power distance weakens the relationships between HR perceptions and HR attributions



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