Review

Effort-Reward Imbalance and Passion Exploitation: A Narrative Review and a New Perspective

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Posted Date: 19 November 2024

doi: 10.20944/preprints202409.0721.v2

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Effort-Reward Imbalance and Passion Exploitation: A Narrative Review and a New Perspective

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Abstract: This paper provides a narrative review of previous research on effort-reward imbalance (ERI) and passion exploitation, and provides a perspective for future research. Previous research has shown that ERI can cause work stress, negative economic behavior such as job turnover, and illnesses such as metabolic syndrome. Previous research also claims that loyal and generous people, as well as young people and women, are more likely to be targets of passion exploitation. However, there are unresolved issues in previous research, such as (i) the mechanism by which effort-reward imbalance leads to stress and illness, (ii) there is a lack of research on what types of jobs are more likely to experience imbalance, and (iii) there is a lack of research on what level of imbalance is acceptable, and therefore further research is required. To this end, this study recommends addressing these challenges through the integration of ERI and passion exploitation theory.

Keywords: effort-reward imbalance; passion exploitation; intrinsic motivation; transformational leadership

1. Introduction

Effort-reward imbalance (ERI) refers to a work condition characterized by high effort and low reward and is used to assess job stress. The concept of ERI is based on the idea of social exchange, where individuals provide their labor and hope to be rewarded for it [1 1]. According to the ERI model, the time and effort individuals put into their work are compensated with money, respect, and opportunities for career advancement. Individuals feel stressed when they do not receive what they deserve in exchange for what they give. Therefore, ERI arises from a failure of reciprocity in the workplace and reduces job motivation and satisfaction [2], organizational commitment [3], and increases levels of burnout [4], absenteeism [5], and turnover [6,7]. To make matters worse, ERI may have adverse effects on an individual's physical or mental health [8]. Previous studies have shown that ERI increases the risk of cardiovascular disease [9], including metabolic syndrome (MetS) [10], coronary heart disease [11], diabetes [12,13], and depressive symptoms [7,14]. Among these, MetS refers to a group of risk factors for cardiovascular disease and type 2 diabetes, including central obesity, impaired glucose metabolism, insulin resistance, dyslipidemia, and hypertension. It has been suggested that prolonged exposure to work stress, such as ERI, may lead to MetS by activating the autonomic nervous system (increased heart rate and blood pressure) and increasing the release of cortisol [10 Schmidt]. Alternatively, some studies suggest that ERI increases the risk of MetS and other diseases through the deterioration of lifestyle factors such as unhealthy diet [15,16]. Furthermore, the risk of ERI is not equal for all workers. A meta-analysis by Zhang et al. [17 Zhang] showed that the incidence of ERI among nurses has gradually increased over time, and is higher among Asian nurses, as well as among nurses in certain departments such as operating rooms, emergency departments, pediatrics, and ICUs [17]. These differences are likely because nurses in these departments have a heavier daily workload [18,19] and endure more work pressure than nurses in other departments [20]. This means that we need to better understand what ERI is, as well as identify and care for occupations where ERI occurs.

In this study, we will review how ERI is related to similar concepts such as "passion exploitation" and "intrinsic motivation," and how workers adapt to exploitation. We will then state three remaining challenges for ERI research and present specific research proposals.

 doi:10.20944/preprints202409.0721.v2

2. ERI and Passion Exploitation

The imbalance between effort and rewards has been discussed by other researchers under a different concept called passion exploitation. Passion exploitation refers to the practice of employers exploiting employees' motivation by forcing them to work unreasonably long hours and at low wages. In Japan, the term "passion exploitation (yarigai sakusyu)" is said to have been first used by Honda [21]. Today, companies that engage in such practices are called "exploitative enterprises (black kigyo)" in Japan and are often discussed in relation to collectivism and peer pressure, which are characteristic of Confucian societies including Japan [22]. However, similar practices are seen worldwide. For example, Lyons [23] provides evidence showing how information and technology (IT) ventures in the United States create a family-like atmosphere to tame and exploit obedient employees. Furthermore, it has been made clear that such practices do not target all workers to the same extent. Previous studies have used experimental methods to measure the degree to which people can empathize with the characters in stories, and have shown that loyal [24] and generous [25] people are more likely to be targets of passion exploitation. Interestingly, these studies depict how many exploited workers are exploited not because they are forced to be exploited, but because they want to be exploited. For example, a boss targets a loyal subordinate and gives them work that goes beyond their original role, while the targeted subordinate believes that taking on such extra work is a virtue and willingly takes on the extra work to gain a reputation for being loyal. In this way, passion exploitation is established with the consent of both the organization and the employee, even though it involves a "vicious cycle of suffering" [25]. The results of a recent meta-analysis also show that people tend to view passionate workers as justified in accepting poor treatment (e.g., degrading tasks unrelated to the job description or unpaid overtime) [26], mainly based on the belief that the work is its own reward for passionate workers. This suggests that passion may lead to the acceptance of poor and exploitative treatment of workers [26]. ERI and passion exploitation are similar concepts, but strangely, there is little discussion of ERI about the possibility that employees may willingly fall into the imbalance trap.

This does not mean that ERI does not contain any elements that are related to passion exploitation. Recent research has revealed that ERI is negatively correlated with work engagement, a measure of passion for work [27,28], suggesting a relationship between ERI and passion exploitation. ERI also changes depending on the environment, just like passion exploitation. Siegrist, one of the developers of the ERI model, lists three reasons why workers continue to work in their current organization even though they are exploited: 1) the labor market does not provide sufficient alternative employment, 2) they tolerate the situation in the hope of getting a promotion or other benefits, and 3) they are in a state of "overcommitment" which refers to the tendency to waste oneself regardless of one's resources [29,30]. Consistent with Siegrist's argument, a recent study conducted in Germany revealed that eastern workers have a greater ERI compared to western workers, due to fewer employment opportunities, lower income levels, and a stronger work-centered culture [31]. In this way, the fact that ERI is environment-dependent suggests that ERI research can be integrated with passion exploitation research, and that doing so may provide new perspectives to the relevant academic communities.

3. Passion Exploitation and Intrinsic Motivation

Looking at it from another perspective, the theory of passion exploitation emphasizes the negative aspects of the classic psychology theory of intrinsic motivation [32]. The theory of intrinsic motivation was incorporated into human resource management theory on the premise that extrinsic motivation such as money alone is insufficient to bring out the performance of employees. Therefore, the appeal of this theory in organizational psychology is that it brings out efforts beyond what is provided by rewards. Incidentally, one method of bringing out intrinsic motivation from employees is the theory of transformational leadership [33], which aims to raise employees' awareness and bring out performance beyond the work they are instructed to do. To put it a little more daringly, the theories of intrinsic motivation and transformational leadership are positive views of efforts beyond

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rewards from the perspective of management, while the theories of ERI and passion exploitation are the negative counterparts from the perspective of employees.

However, in recent years, even from the perspective of management, research has emerged that takes a reflective view of intrinsic motivation [34,35]. Among them, there are concerns about the "moralization of intrinsic motivation" [34]. The gist of this argument is as follows: the normative pressure to do what one likes encourages people to pursue work that is satisfying for oneself and others, but at the same time, it can lead to the neglect of uninteresting tasks. Furthermore, it can elicit discriminatory attitudes toward people who do not appear to be intrinsically motivated or who have different types of motivation, which can affect the overall cohesion within the organization [34]. Consistent with this "moralization" theory, other researchers have found that passion for work is easily linked to overconfidence and lack of cooperation [35]. Thus, intrinsic motivation is not a panacea. Moreover, considering the above discussion, there may be many cases where intrinsically motivated employees are also victims of ERI and passion exploitation. It may be that employees are exhausted when they are intrinsically motivated for a long time, and one day suddenly take negative actions such as quitting their jobs, complaining about physical and mental health problems, or taking actions that disrupt teamwork. Similarly, a loyal employee who believed they were intrinsically motivated may one day find themselves the target of passion exploitation. If that is the case, the boundary between ERI or passion exploitation and intrinsic motivation is unclear, and existing management and psychology research has not yet fully met the expectations of business persons in the world.

4. Three Remaining Issues for ERI Research

As shown above, previous research has revealed that, from the employee's perspective, ERI is related to negative economic behavior and mental and physical illness, and that passion exploitation is related to the personality of the person being exploited. At the same time, from the manager's perspective, discussions have emerged that emphasize the negative aspects of intrinsic motivation. These suggest that management that relies on the passion and hard work of individual employees may be successful in the short term, but is difficult to sustain in the long term. Therefore, future research is needed to increase the sensitivity of labor and management to ERI and passion exploitation. Specifically, research is needed to (1) deepen understanding of ERI and passion exploitation, (2) identify the types of jobs in which these are likely to occur, and (3) identify the extent to which ERI and passion exploitation are acceptable or unacceptable by jobs. Below, we will look at these three points in order.

First, many studies claim that ERI and passion exploitation cause stress, but do not clarify the mechanism. Why does reciprocity fail in organizations, resulting in irrational imbalances? Why is it the "imbalance" between effort and reward, not effort, that is critical? If the problem is the amount of stress on the mind and body, it is effort that is critical, and reward should not be relevant. A study using hair cortisol concentration (HCC), known as a potential physiological indicator of stress, found that HCC in workers with high workloads correlated with ERI and effort, but not with reward [36]. This suggests that in the case of some types of stress, such as physical load, effort has a stronger effect on stress than reward. However, in recent years, there has been a trend of an increase in studies that claim that the balance is more important than effort or reward alone. For example, the results of a meta-analysis using data from 11 independent cohort studies conducted in six European countries between 1985 and 2005 showed that people who experienced ERI at work were at higher risk of coronary heart disease, regardless of the stress they experienced at work [11]. Additionally, a recent study showed that employees who have a good balance between effort and reward have higher job engagement, higher life satisfaction, and fewer symptoms of depression compared to employees with excessive effort, and even compared to employees with excessive rewards [37]. However, it is important to note that ERI does not have the same effect on all workers. For example, Jones et al. found that women, compared to men, are more likely to be influenced by effort rather than reward when it comes to their intention to leave their jobs [38]. Unfortunately, however, most studies only deterministically claim that imbalance is the cause of stress and avoid delving deeper into this cause.

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A clue to this problem may be the fact that indigenous people who live by hunting and gathering rarely suffer from diseases that often accompany imbalance, such as cancer, cardiovascular disease, high blood pressure, and type 2 diabetes [39]. These diseases began to develop when agriculture became established in our lives and we began to live a settled life [39]. According to Ratey and Manning, our brains and bodies have hardly changed since Homo sapiens, known as modern humans, appeared in Africa about 200,000 years ago [39]. If we live a hunting-centered life like theirs, we would not need to worry about imbalance because we would only put in effort that is commensurate with the reward. If we get hungry, we attack animals to survive, and if we are full, we will not hunt any more until we are hungry again. Our minds and bodies may be programmed to live by hunting. However, modern humans often go against this biological law and make efforts for rewards that are not necessary in the immediate future. For example, it may be because, even if gaining a good reputation in an organization is not important now, it is related to future promotion opportunities. Or perhaps, it may be because complying with global ethical standards is necessary for future business expansion overseas, even if it is inefficient and time-consuming now. As a result, sometimes people make efforts beyond the expectations of the organization reflected in the reward (long overtime hours, working on holidays, etc.), which puts extra strain on their mind and body, or they consume excessive alcohol and sweet foods to soothe their strained mind and body, which causes further mental and physical disorders. In this way, humans' vulnerability to the social systems they have created may be the cause of their susceptibility to mental and physical breakdown due to ERI. Therefore, to tackle this unsolved problem, it may be necessary to incorporate perspectives from different fields related to human particularity such as evolutionary biology and brain science.

For example, in evolutionary biology, the mechanism of cooperation based on the reputation of a third party is called "indirect reciprocity" [40,41]. The behavior of cooperating or helping someone with a good reputation even though there is no direct benefit is rarely observed in non-human organisms. Therefore, indirect reciprocity is thought to be a behavior that humans acquired during evolution [40,41]. Indirect reciprocity prevents the increase of free riders, i.e., individuals who do not cooperate with others, by providing a strong penalty that prevents support from anyone once their reputation is damaged [40,41]. In other words, humans have created a society that imposes burdens on individuals to maintain the group, and thus have maintained their survival. This ability of groups continues to exist in modern society, and there is evidence that societies with a strong culture that prioritizes the group over the individual (typically societies that require cohesion to survive in harsh natural environments) was able to suppress the increase in the number of infections caused by the COVID-19 pandemic [42]. However, people who manage groups often abuse this mechanism and ask members to bear excessive burdens that are physically and mentally destructive. Such organizations are in a state where reciprocity has failed [43] and are unsustainable, so such actions by managers not only lead to employee turnover and illness, but can eventually plunge the organization itself into crisis. This type of irrationality clearly deviates from traditional bilateral reciprocity that are premised on mutual benefit. Thus, incorporating the concept of indirect reciprocity into models of ERI and passion exploitation may help us better understand the mechanisms of reciprocity failure and the emergence of ERI through seemingly irrationally exploitative organizational behavior.

Meanwhile, in brain science, neuroimaging research is making progress in elucidating the brain areas related to effort and reward. Regarding the relationship between ERI and illness, proponents of the ERI model claim that the experience of inequality due to the failure of social exchanges may over activate the brain's reward circuit, the hypothalamic-pituitary-adrenal axis, and cause a state of stress overload in several regulatory systems in the body [43]. Consistent with this, previous studies have suggested that impairments in the cortico-striatal network involved in the calculation of effort and reward are significantly associated with fatigue [44]. A recent meta-analysis has shown that the presupplementary motor area is associated with effort, and the ventromedial prefrontal cortex and ventral striatum are associated with the net value of reward minus effort [45]. Recent studies have also shown that ERI is associated with reduced gray matter volume in the left globus pallidus and altered functional connectivity in the prefrontal cortex, striatum, and cerebellum in individuals with

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high levels of schizophrenic traits [46]. These studies suggest that ERI may impair the brain's reward system, particularly in the striatum, reducing motivation to work and promoting unhealthy lifestyle habits.

Second, there is a lack of research on which occupations are most vulnerable to ERI and what economic behavior and health problems ERI causes. The theory of passion exploitation shows that young people with low status are more likely to be exploited [23] and that women tend to be more exploited than men [47,48]. In addition, Dragano et al.'s [11] meta-analysis shows that the association between ERI and coronary heart disease is stronger in employees with low socioeconomic status compared to those with high status, and in younger participants than older participants. Similarly, recent studies have shown that the association between ERI and suicidal ideation varies by gender, region, education, and household income [49]. However, most studies have shown little interest in the differences in imbalance and its impact by occupation, except for some studies [17,55], which dealt with the awareness of healthcare professionals by department. The paucity of studies addressing the relationship between occupation and ERI may be partly explained by the fact that most ERI studies have focused on health care workers. Since 2020, five meta-analyses on ERI have been conducted, of which two focused on health care workers [17,50], the remaining two focused on the relationship between disease and ERI [13,51], and one on the relationship between gender and ERI [38]. One study cited the selection of health care workers as subjects for ERI studies because they are exposed to various psychological stresses, which may affect the health and safety of patients [52,53]. At present, results that provide hints for clarifying the relationship between occupation and ERI have been partially shown by researchers with a gender inequality perspective. For example, a study conducted in Sweden from 2008 to 2014 found that women work longer hours and spend more time on unpaid work than men. The study also showed that the association between increased unpaid work hours and increased progression of depressive symptoms was stronger for women than for men [54]. The above-mentioned study by Jones et al., which found that women's intentions to leave are more likely to be influenced by effort than men [38], may reflect the environment in which women find themselves, where they are often required to do high-effort work under conditions where rewards are less likely to be increased. However, the gender gap may be more deeply rooted in countries with large gender gaps. For example, in Japan, many people view childcare and caregiving as work that women should do at home for free, even though it is hard work, which may be the reason why wages in these industries are kept low [55]. Therefore, if there was objective information on the actual situation of exploitation by country and industry, it would be useful to attract the necessary support for these people. For example, a large-scale survey using the ERI would contribute to collecting such evidence.

Finally, there is a lack of analysis from the perspective of managers on what level of imbalance is acceptable. If imbalance always leads to negative economic behavior and mental and physical disorders in employees, managers would want to avoid it. However, for many years, intrinsic motivation and leadership theory have been major themes on how to draw out efforts beyond compensation, and it is true that managers have used these discussions as a reference in their management. This means that there is a certain benefit to imbalance, at least from the manager's perspective. If ERI and passion exploitation were completely harmful, managers would have abandoned them a long time ago. In other words, managers would naturally prefer some imbalance as far as it did not have a negative impact on business operations. At first glance, the idea of "research to find acceptable imbalance" seems arrogant. However, managers who rely on words such as intrinsic motivation and transformational leadership because one does not want to be seen as a manager who tolerates imbalance are like those who use positive “symbols” such as a word “challenging” in their recruitment strategies to hide poor working conditions [56], and thus conceals the truth. In the first place, if it becomes clear in what types of jobs imbalance is likely to be harmful, it will be beneficial for workers as well, as it will make irrational exploitation that can lead to the downfall of an organization and its members more noticeable. However, if a study to clarify tolerance to ERI adopts a randomized controlled trial (RCT) or the like, there is a risk of ethical problems arising, as participants will be subject to exploitation for a certain period. Therefore, it would be

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preferable to conduct a case-control study in which participants who have experienced economic behavior such as job loss or mental and physical disorders are asked about the causes of their experiences, or a cross-sectional study using a standardized questionnaire. Furthermore, to promote this type of research, it would be desirable for researchers from sociology, ethics, and public health, who have the perspective of workers, as well as business and economics, who have the perspective of managers, to become more involved in research on ERI and passion exploitation.

Regarding the third issue, we will consider in more detail what kind of participants should be recruited to measure tolerance to ERI. As a starting point for research, it would be possible to use the ERI to select occupations that are likely to impair performance and those that are not, and to clarify the differences between the two, which could serve as a benchmark for future research. For example, expatriates who are dispatched to overseas subsidiaries may be in a position where they have low tolerance for imbalance. Their mission is to complete the tasks given to them by the headquarters during their three- to five-year term. If expatriates are given excessive authority, the activities of the local subsidiary will diverge from the headquarters' intentions, resulting in a "agency problem" [57–59] that is the behavior of an agent (local subsidiary or expatriate) prioritizing their own interests to the detriment of the principal's (head office) interests. Japanese companies are particularly sensitive to this problem, and as a result, they are known to be more reluctant to localize than companies in other developed countries [60]. In addition, as previous research has revealed that intrinsic motivation and passion can easily lead to overconfidence and lack of cooperation by discriminating against people who do not find their work interesting [34,35], it is possible that the excessive enthusiasm of expatriates, who need to work cooperatively with local personnel while understanding and respecting the local culture, may interfere with daily management. Therefore, in a situation where imbalance (or efforts beyond the headquarters' expectations reflected in working conditions) occurs, it is thought that trouble will arise and the work performance of expatriates will decline. Problems such as early return home during the term, deterioration of health, and suicide due to expatriate maladjustment [61] may also be caused by imbalance.

On the other hand, the opposite of expatriates are unpaid or paid volunteers. Paid volunteers are people who work part-time on a voluntary basis for less than the norm. In many cases, the amount of compensation is less than the minimum wage [62]. For them, their intrinsic motivation to help others and demonstrate their abilities is what drives them. Therefore, it is thought that performance will not decline even if there is a discrepancy between effort and compensation. Of course, the fact that performance does not decline does not justify the imbalance. Many paid volunteers are in a serious situation where there is a shortage of people to carry out the work and the supply cannot keep up with the demand (according to an interview survey conducted by the author at a non-profit organization that handles paid volunteers). This shows the limits of relying on people who can work solely for intrinsic motivation, and even if they are not dissatisfied, it means that there is no small significance in improving treatment to fill the supply-demand gap. The same would apply to fields such as nursing care and childcare, which are exhausted by a shortage of workers. Therefore, it is believed that knowing what kind of mentality people who currently take on paid volunteer duties have, and how they differ from the opposite end of the spectrum, expatriates, will be meaningful in improving the perceptions and attitudes of employers and job seekers.

5. Discussion

In this study, the author reviewed the relationship between ERI and passion exploitation, and between passion exploitation and intrinsic motivation, and summarized three issues remaining in ERI research. To address these issues, the author proposes integrating ERI with passion exploitation theory. ERI has clarified the relationship between imbalance measured by a unified and objective evaluation scale and economic or health disadvantages, but it does not clarify the type of personality of people who suffer from imbalance. As a result, it is less wary of situations in which people who are enthusiastic about their work are exploited without realizing it, as dealt with in passion exploitation theory. On the other hand, passion exploitation theory has clarified the personality characteristics of people who are easily exploited mainly by experimental methods, but does not

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clarify the relationship between exploitation and economic or health disadvantages by not having a unified and objective evaluation scale. As a result, it has little interest in, for example, differences in imbalance by occupation, as revealed by some ERI studies. By incorporating the methods and perspectives of both, it may be possible to predict in advance who is likely to suffer health problems due to imbalance, and use this information for career selection.

ERI is usually measured with a scale consisting of 16 items, including 5 items to measure Effort and 11 items to measure Reward [63], and later a shortened version consisting of 10 items was developed [64]. Effort items include, for example, "I have constant time pressure due to a heavy work load." Reward items include, for example, "Considering all my efforts and achievements, my salary/income is adequate." The greater the Effort exceeds Reward, the greater the imbalance between the two is. However, it can be difficult to interpret such imbalances. This is because, in addition to cases where the imbalance occurs because of blatant exploitation by unscrupulous managers, such imbalances may also occur because of intrinsic motivation. In this case, intrinsic motivation is not only generated in an environment where such motivation is easily generated, but also increased by managers' attempts to exploit employees' passion. If this is the case, exploited employees may not perceive the occurrence of an imbalance as a negative thing. Employees who have been domesticated by their managers in this way may not feel sorry for themselves for devoting themselves to the organization at the expense of their physical and mental health, and may even feel proud of themselves. For such employees, even if they are in a state of imbalance, their performance may not decline in the short term. However, if it is harmful from a long-term perspective, organizations and employees need to recognize the exploitation of employees' motivation at an early stage. To do this, ERI alone is insufficient; a multifaceted evaluation using other measures at the same time is necessary.

The Psychological Empowerment Scale (PES) developed by Spreitzer [65] is a scale consisting of four subscales: impact, competence, meaning and self-determination, and is based on the research of Thomas and Velthouse [66], who argued that empowerment is related to intrinsic motivation for tasks. Therefore, it has been used as a determinant of intrinsic motivation in previous studies [67]. The Job Diagnostic Survey (JDS), developed by Hackman & Oldham [68] and later revised by Idaszak & Drasgow [69], consists of five subscales: skill variety, task identity, task significance, autonomy and feedback, and is similarly considered to be a determinant of intrinsic motivation [70]. However, even if these items are determinants of intrinsic motivation, they do not exclude passion exploitation. For example, Spreitzer's [65] "meaning" includes the item "My job activities are personally meaningful to me." Managers may be skillfully manipulating loyal and obedient employees to have this kind of impression of their jobs.

Therefore, to determine whether passion exploitation has occurred, the ERI alone is insufficient, and even if it is used in conjunction with the PES or JDS, it is insufficient. This is because passion exploitation and intrinsic motivation are conceptually similar, as mentioned above. To determine whether passion exploitation has occurred, attention should be paid not to whether employees are intrinsically motivated, but to the conditions that determine the employees' consciousness. A manager who is good at passion exploitation will want to control the psychology of employees and make them believe that they are doing extra work of their own volition and choice. Further, an employee who is asked by his or her superior to do work that goes beyond his or her original role may try to gain a reputation as a "passionate employee" by accepting it. In this case, the employee may not think that he or she is being exploited. However, if one looks at the background elements, it may not be impossible to notice such exploitation. Among them, Overcommitment Scale including the item “As soon as I get up in the morning I start thinking about work problems” developed by the proponents of ERI [63] has provided meaningful suggestions when often used in conjunction with ERI. For example, previous research has shown that overcommitment promotes the negative relationship between ERI and task performance [71,72]. However, overcommitment is conceptually unclear in its difference from intrinsic motivation [73], and therefore is insufficient to determine the occurrence of passion exploitation for the same reasons as PES or JDS. Similar considerations need to be taken when using measures of workaholism such as the Dutch Workaholism Scale [74], which includes the item “I seem to be in a hurry and racing against the clock.”

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On the other hand, the Perceived Exploitative Employee–Organization Relationship Items [75], which includes the item "As long as I work in my organization, it will keep taking advantage of me," is a scale that measures "employees' perceptions that they have been purposefully taken advantage of." In contrast, passion exploitation, as mentioned above, is often accepted by employees without being recognized as harmful. Therefore, if loyal employees who are unaware of exploitation had a clue earlier that their passion is being exploited, it may be possible to avoid the worst possible outcome that is undesirable for both labor and management. Let us think about it a little based on the discussion in this paper. For example, this situation may have come about because the roles of employees are ambiguous, which allows the boss to assign work arbitrarily, and loyal subordinates who are unlikely to refuse may be targeted (role ambiguity). Also, because it was a workplace where it was difficult to disagree with the boss, obedient subordinates may have become targets for exploitation (psychological safety). These are conditions that make it easy for passion exploitation to occur. On the other hand, workplace social capital may be useful in determining the extent of passion exploitation after it has occurred. In workplaces where exploitation is occurring, there may be a breakdown in solidarity among employees, as the "moralization" theory preaches. Furthermore, if employees lack support from each other, they will become more dependent on their bosses and will be more susceptible to further exploitation (social capital). Furthermore, exploitation may cause a disruption in the balance between life and work. If employees who sacrifice their lives and devote themselves to work are praised and seen as role models in the workplace, it will be easier for their bosses to exploit them (work-home interaction). Therefore, to measure whether passion exploitation is occurring in the workplace, it is recommended to use the items shown in Table 1, for example. This study proposes that these items be used in conjunction with the ERI as reference information for determining whether the ERI is at an acceptable level.

At present, it is still unknown why ERI occurs or why it leads to mental and physical illnesses as well as economic behaviors such as job turnover. However, the accumulated research in evolutionary biology and brain science has provided hints that should be referred to for ERI research. First, regarding the mechanism of indirect reciprocity that humans acquired during evolution to eliminate traitors and increase the survival ability of organizations and their members, managers may be able to at least maximize exploitation and obtain short-term profits, even if it means sacrificing long-term development, by making good use of it. Therefore, the idea of indirect reciprocity may well explain part of the causes of irrational ERI that may cause damage to both organizations and members in the long term. Also, if the brain's reward network centered on the striatum is more strongly related to ERI than effort or reward, it may well explain part of the reason why an imbalance between the two, rather than effort or reward, is more harmful to humans. Unfortunately, modern humans have not evolved enough to prevent the actions of unscrupulous managers who exploit the passion of conscientious employees and cause ERI in employees while pretending to benefit the organization. Also, unfortunately, the brains of modern humans have not evolved to be resistant to exploitation, and the confusion caused by ERI sometimes causes physical and mental illness. Therefore, to protect workers from excessive exploitation today and to increase the sustainability of organizations and themselves, it is necessary to make good use of questionnaire surveys so that workers, management, and stakeholders can become aware of passion exploitation and ERI in a timely manner. In such cases, if accumulated survey data can be used to evaluate the actual state of ERI and differences in tolerance to ERI by occupation, the seriousness of ERI faced by individual organizations and workers will become clear, and this will serve as good reference information to help improve their sustainability.

Table 1. Four scales that may help determine passion exploitation.

Scale	Item	Developer
Role ambiguity	6 items including "I know what my responsibilities are"	Rizzo et al. [76].
Psychological safety	7 items for team leader including "If I had a question or was unsure of something in relation to my role at work, I could ask my team leader".	O'Donovan et al. [77].

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Social capital	8 items including “We have a 'we are together' attitude”.	Kouvonen et al. [78].
Work-home interaction	8 items for Negative Work-home interaction including “You are irritable at home because your work is demanding?”	Geurts et al. [79].

6. Limitations

In writing this study, the author has researched previous studies related to ERI and passion exploitation as extensively and thoroughly as possible. However, it is possible that the author has not yet noticed the existence of research that could provide a clue to solving the issues presented in this paper. Particularly, passion exploitation is not yet a widely used concept, and therefore it is possible that the author has missed research that deals with the same concept using different words. In relation to this, it is important to note that the previous research the author has looked at is only research written in English or Japanese, and the author has not looked at research written in other languages. Finally, the items shown in Table 1 are examples and do not exclude the use of items with similar concepts.

7. Conclusions

In this study, we reviewed previous research on ERI and passion exploitation, and discussed the achievements and shortcomings of these studies, as well as the possibilities for future research. Imbalance and exploitation are bad for employees, but attractive for employers, and the temptation to rely on them is always there. The fact that exploitation often occurs without employees' knowledge blurs the distinction between exploitation and intrinsic motivation, leaving them open to being taken advantage of by management. Therefore, it is important to clarify the mechanism by which imbalance leads to health damage, as well as the likelihood and tolerance of imbalance in each occupation, for employees and employers to find a compromise and achieve optimal management.

Funding: This research received no external funding.

Data Availability Statement: No datasets were analyzed in this study.

Conflicts of Interest: The author declares no conflict of interest.

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