Original research article

Organizational cognitive neuroscience: A step ahead in understanding counterproductive workplace behavior
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Abstract: This paper discusses the dawn of cognitive neuroscience in management and organizational research. The study does that in two tiers: first, it reviews the interdisciplinary field of organizational cognitive neuroscience and second, it analyzes the role organizational cognitive neuroscience (OCN) could play in reducing counterproductive workplace behaviors (CWB). Theoretically the literature has established the benefits of a neuro-scientific approach towards understanding various organizational behaviors but no research has been done on using organizational neuroscience techniques to study counterproductive work behaviors. This paper however has taken the first step towards this research avenue. The study will shed light on this interdisciplinary field of organizational cognitive neuroscience (OCN) and the benefits that organizations can reap from it with respect to understanding employee behavior. A research agenda for future studies is provided to scholars who are interested in advancing the investigation of cognition in counterproductive work behaviors, also by using neuroscience techniques. The study concludes by providing evidences drawn from the literature in favor of adopting an OCN approach in organizations.

Keywords: organizational cognitive neuroscience; counterproductive workplace behaviors; organizational behavior; aggression and abuse; absenteeism; misuse of information and resources

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1. Introduction

Neuroscience over the next fifty years is going to introduce things that are mind blowing.

David Eagleman

The above words are a very humble depiction of the vast applicability of neuroscience. Neuroscience is an interdisciplinary field of study which seeks to understand behavioral phenomena in terms of the brain mechanisms and anatomy that produces cognitive processes, attitudes and behavior. This field has been of importance for quite a long time[1-3]. It has now started overlapping with other disciplines of study providing its assistance and guidance in numerous other social science domains like leadership, economics, marketing, etc.

For more than a decade now, its overlap with organizational behavior is also gaining attention[4]. This has laid sound foundations for the conceptualization of organizational cognitive neuroscience. Organizational cognitive neuroscience (OCN) is however a very nascent research domain, within the field of management[5]. It integrates organizational behavior with neuroscience while taking into account the social cognitive context. OCN primarily stems out from social cognitive neuroscience[6,7]. Social cognitive
neuroscience analyzes human behaviors at three distinct levels: social level, cognitive level and ultimately the neural level[8]. Given that, one can relate how it appears to be applicable on employees in an organizational setup. For instance, considering the human resource point of view, we know that all aspects like training, staffing, retention, etc., are employee oriented. Adopting a neuroscientific approach for any such phenomenon would entail studying the employees at:

- **Social level**: human interactions at multiple levels of hierarchy, organizational culture and environment, rules and regulations, etc.
- **Cognitive level**: individual thought process or group thinking. Overall perceptions regarding the phenomenon.
- **Neural level**: brain mechanism and structural functioning that makes up for the deriving factor behind the perceptions or decisions of employees both at individual and group level.

In depth analysis of all the three levels would show certain coherence, only then the particular phenomenon could be successful in its purpose. However, deviations from this alignment would suggest the problem at hand. Any discrepancy among these levels of analysis must be eliminated to get the desired results.

The current study tends to focus on the applicability of organizational cognitive neuroscience on a rather serious problem of counterproductive workplace behavior (CWB) faced by most of the organizations worldwide. Such behavior can be broadly defined as the pattern of actions and interactions of the members of an organization that directly or indirectly harms its effectiveness[9,10]. Griffin et al.[11] say that almost all the definitions describe counterproductive workplace behaviors as a disregard for societal and organizational rules and values. The application of neuroscientific techniques and methodologies in an organizational setting can aid in shaping the workplace behaviors in such a way that would ultimately enhance the organizations effectiveness while eliminating the counterproductive behaviors.

Recent advances in technology have made it possible to use brain imaging in organizational setup at relatively little expense and in a practical manner to further research efforts[5]. Balthazard and Thatcher[12] have impeccably highlighted the kind of neuroscientific technology that can be used to study organizations. Extant literature points towards expanding this avenue of research[5,13,14]. Now would be the time for scholars to step ahead in this field so that it emerges successfully out of its infancy as a fully mature discipline with numerous practical applications for organizations to benefit from. For this to happen, organizational neuroscientists should eagerly start unearthing the plausible outcomes of applying neuroscientific approach to each and every phenomenon of the organizational setup be it human resource management (employee training, recruitment, performance appraisals, compensation) organizational behavior or change management, etc. The study shall further advance claims made by Waldman et al.[14] by providing more evidence of the benefits of incorporating neuroscience into organizational setup. To provide such evidences, this article shall apply neuroscientific approach to counterproductive work behaviors. Counter productive workplace behavior (CWB and its various dimensions shall be analyzed through the lens of neuroscience[14].

A recent systematic review has explicitly highlighted how future researches should study OCN in relationship to work related behaviors[15]. A few other theoretical studies, have also discussed OCN’s relationship with different facets of organizational behavior (OB) and its promising impact on organizational behavior research and practice[4,13,14]. Neşe[4] has discussed how organizational neuroscience can help improve leadership skills and patterns in business environments. Similarly, Waldman et al.[14] have taken up a few topical areas of individual and group work behaviors to show how these candidates can utilize the added value of neuroscience. This study extends its efforts by applying the OCN approach to explore
organizational issues. The phenomenon of counterproductive work behavior taken up serves as a representative construct of OB to show how neuroscience may affect organizations in resolving their issues. To the best of our knowledge there is a complete lack of research studying counterproductive work place behavior from the lens of organizational neuroscience. This study however takes the first step in this regard. Although theories that form up the basic themes of counterproductive work behavior are mostly found in psychology such as social learning theory and reinforcement theory (details are provided in the next section), but we propose that in addition to psychological theories organizational cognitive neuroscience can provide us with more in depth explanations regarding such deviant behaviors. The focus here is more on providing additional insights to the challenging issue of counterproductive behaviors rather than establishing its cause effect relationship with other constructs which has already been studied countless times\cite{16–18}.

The study not only urges to adopt the neuroscientific approach along with the traditional tools and techniques but is also a step ahead in the scholarly debate that continues on the advantages and acceptance of the neuroscience studies in organizational studies. It shall help bridge gaps between the advocates and challengers of organizational neuroscience.

2. Literature review

Organizational neuroscience is rather a new field but it stems from an established and well understood domain of “social neuroscience” which emerged as a field in the 1980s by integrating the fields of social psychology and neuroscience. Social neuroscience strongly complements organizational behavior. It entails a multilevel approach involving factors both internal and external to the individual, where internal factors account for aspects like individual differences, internal mental processes, etc., and external factors are environmental factors, organizational contexts, etc.\cite{19}. Primarily organizational neuroscience appears to be neuro-anatomical in its perspective, mainly focused on the role that brain anatomy plays in the mediation of organizational decisions\cite{20}.

Whereas cognitive neuroscience with a slight variation focuses on the underlying biological processes of the entire nervous system going down to the minute neurons and their functioning which result in cognitive functions in humans\cite{6}. It could therefore be said that all these domains of neurosciences including cognitive neuroscience, organizational neuroscience and social neuroscience are closely linked and overlap at some point. They tend to be symbiotic in their relationship with each other\cite{21}. Organizational cognitive neuroscience however can be considered to be the most in depth utilization of neural structural aspects for studying human behavioral responses in an organizational setting since it not only studies the brain structure but also encompasses the cognitive abilities of the human brain with reference to the social context\cite{4}.

The term ‘cognitive neuroscience’ was first coined by Miller and Gazzaniga\cite{22} towards the end of the 1980s. It amalgamates the best of both disciplines with neuroscience on one hand and cognitive science on the other. Without either of the above, the main reason behind the ontology of the field of OCN would fail. One cannot understand an organizational phenomenon from the bottom up, considering brain systems and structures as basic building blocks and studying them in isolation from the context. Similarly, it is also not possible to get accurate findings from top-down organizational research that does not take into account knowledge of cognition and neural functions\cite{23}. From a research point of view, the world is still in the phase of accepting or rejecting this overlap of organizational studies and neuroscience, still answering questions like is it time and cost effective? Is it worthy of all the effort or not?

Most of the literature available regarding this discipline is not even a decade old\cite{6,7,16,20,21,24,25}. Now the scholars have started moving onwards to the practical application in organizational setups in real time. For
instance few scholars have studied the neuroscientific technologies like fMRI and qEEG\cite{12}. in detail. A few have applied these techniques on sample groups for assessing organizational phenomena\cite{14}. Research regarding these techniques is gaining more and more attention. However, functional magnetic resonance imaging (fMRI) is the brain imaging technique that appears to be abreast all the methodologies of neuroscience research. By taking the magnetic properties of blood into account, this technique detects localized changes in the brain’s blood oxygen levels, which are considered to relate to the areas of the brain that are in use while participants are engaging in various organizational tasks or mental processes\cite{24}. Today, functional neuroimaging is successfully rendering help by opening avenues for major sciences like psychology, psychiatry, and neurology through offering the use of newest technologies\cite{12}. The intention in this paper however is not to go in technical details of these neuroscientific technologies since ample information regarding their functioning and practical usability is already available. These techniques are regularly being used in medical and neural sciences for a very long time now.

2.1. A critical analysis of organizational cognitive neuroscience

At this point in time, when there is a lot of hype regarding this new and emerging field of study and a lot of literature coming up in support of this field, there tends to be a group of scholars who contradict the idea of applying neuroscience in organizations. This has resulted in a literary debate between the two schools of thought. The challengers have raised arguments on whether the field of OCN is of any potential benefit for organizational setups or merely a management fad. These arguments include ethical issues like privacy distortion and challenges regarding reductionism of organizational and neuroscience theories\cite{25}. Explanations for a few of these challenges are provided by supporters of OCN\cite{26}. A few other explanations still need clarification. The effort here in this article is, to some extent if not completely, clear this misunderstanding and fill the gap between the supporters and opponents of organizational neuroscience.

Even the organizational neuroscience protagonists cannot disregard the issues encountered by this discipline such as the claim made by Lindebaum and Raftopoulou\cite{25} that organizational cognitive neuroscience cannot completely revolutionize the organizational and management studies, but simultaneously it is argued that it is just a step ahead in understanding organizations and not a single-handed cure for all organizational dilemmas. It provides an additional approach which can augment and strengthen the traditional organizational psychology methodologies. Incorporating neuroscience in organizational context can provide new insights into various phenomena’s like implementing and managing change, retaining key employees, hiring right employee for the right job, etc. In similar fashion, organizational behavior also gets its due share of benefit from the discipline of OCN. Counterproductive work behavior is a vastly prevalent issue that negatively affects productivity in many organizations. As this paper commences forward, we shall see how counterproductive work behavior responds to OCN.

2.2. Counterproductive workplace behavior (CWB)

Counterproductive workplace behavior (CWB) is a modern name assigned to all such volitional actions that ultimately harm the organization or its stakeholders\cite{18}. A lot of work has already been done on measuring such behaviors and ways to minimize them\cite{27-30}. Unfortunately, this dilemma still persists.

There tend to be three key paradigms or theoretical frameworks that are always referred to account for behavior in both psychology and the organizational sciences:

1) Expectancy theory\cite{31} states that human behavior results from intentionally choosing among alternatives that would maximize pleasure and minimize pain.
2) Reinforcement theory argues that a combination of rewards and punishments is used to reinforce desired behavior or to avoid unwanted behavior.

3) Social learning theory claims that human behavior is learned from the environment or the social context through the process of observational learning. Neuroscience has lately described such behavior with regards to “mirror neurons” (described later in this section).

These theories are well known in organizational sciences and encompass all the behavioral aspects including antecedent or environmental context, information processing, individual perception, and expected outcomes or reinforcement elements. In short, these paradigms indicate that counterproductive behavior is the result of a complex interaction between the person and the environment and that the individual’s causal reasoning about the environment and expected outcomes drive the individual’s behavior.

Various typologies and dimensions of counterproductive behaviors have been proposed in a wide variety of studies up until now. Griffin et al. describe the psychology of dysfunctional job performance. Folger and Skarlicki attempt to explain CWB from a theoretical perspective of aggression, Greenberg focuses on employee theft whereas Dalton and Wimbush explain volition. Other works on CWB include sabotaging, absenteeism, theft, being late to work or leaving early or withdrawing effort from work, violence against coworkers, supervisors, and subordinates at a workplace, cyber-loafing.

Different classifications have also been presented among which scholars often adopt the typology proposed by Robinson and Bennett for their studies. Robinson and Bennett broadly classified deviant work behaviors by dividing them into four major categories: 1) property deviant, activities which damage an organization's properties like theft; 2) political deviant, activities which people demonstrate while interacting with organizational members leading to unethical and unhealthy political activities such as spreading rumors, gossiping, etc.; 3) personal aggression, implying tough or aggressive behaviors towards colleagues and managers; 4) production deviance, employee behaviors that lead to low production levels like slacking, misuse of working hours, absenteeism, etc.

A dichotomy has also been identified regarding CWB. It originally arose from the multidimensional scaling study by Robinson and Bennett. It distinguishes CWB’s which are interpersonally directed from the ones that are organizationally directed. Examples include gossiping about coworkers (CWB-I) and coming late to work (CWB-O). The interpersonally directed versus organizationally directed distinction was further studied by Gruys and Sackett.

This study aims to address this widely prevalent organizational dilemma through the use of an additional approach of cognitive neurosciences. Counterproductive behaviors stems out of human psychological issues and has already been addressed by I-O psychology but studying human minds along with their structural brain functioning is a combination that can provide much more useful insights regarding employees exhibiting such behaviors so neuroscience sounds relevant enough because it is a more holistic view of the human mind and brain. Moreover, the context is organizations so OCN is the discipline that can analyze this predicament the best possible way.

The study commences by selecting four dimensions of counterproductive workplace behavior at individual level, one for each of the categories of Robinson and Bennett typology. The dimensions include: misuse of resources, misuse of information, absenteeism, aggression and abuse.

2.2.1. Absenteeism

Absenteeism falls within the category of withdrawal. Withdrawal consists of behaviors that result in the reduction of working time to less than what is required by the organization. It includes absence, arriving late
or leaving early, and taking longer breaks than authorized. According to the Robinson and Bennett\cite{39} typology mentioned above it falls in the production deviance category. Production deviance is the deliberate failure to perform job tasks effectively the way they are supposed to be performed. It is based in part on Hollinger’s concept of production deviance\cite{40}.

Among the various forms of withdrawal behavior, absenteeism has received the most attention. Early models have described it to be a response to dissatisfaction at work\cite{38}. More recent research has suggested that absence can occur for a variety of reasons. Health, psychological disorders, stress, organizational norms, culture, workforce-management conflict, and individual differences have been listed to be potential influences on absence\cite{38}. Koslowsky\cite{41} while elucidating the work-family conflict states that withdrawal is most of the times instrumental, adopted as a means of coping with conflicting work and personal life obligations. Absence contrasts with other forms of deviant behaviors because it is an attempt to avoid or escape a situation rather than direct some harm. An individual might wish to escape stress, injustice, dissatisfaction or situations that induce negative emotions. Organizational cognitive neuroscience can provide the inside picture to employee emotions and thought processes leading to absenteeism. It can add to the knowledge by providing biological information behind the act of absence. Hence, the issue of absenteeism can be reduced to the minute neurons inside the individual’s brain. This concept of reductionism with respect to OCN has been duly addressed by scholars previously\cite{20,42}.

2.2.2. Misuse of resources

Misuse of organizational resources entails all such acts like sabotage, theft, stealing from employer or using unauthorized resources for personal purposes. Sabotage is destroying physical property that belongs to the employer\cite{43}. Ambrose et al.\cite{44} noted that sabotage can be done for instrumental purposes or as a result of anger and hostile feelings such as actions taken to affect some organizational change process, gain peer acceptance or gain competitive advantage over peers. Robinson and Bennett classified it under property deviant behavior since sabotaging equipment is a direct harm to organizational property. Another form of sabotage could be against co-workers in the form of putting their future at risk by sabotaging their chances of a promotion you want for your own self or obstructing them from succeeding in their career. Mangione and Quinn\cite{16} infer that sabotage is a symptom of job dissatisfaction. It’s a cause effect relationship with job dissatisfaction being the cause and sabotage, its effect. Individuals who are not satisfied from their employers tend to become destructive towards their property for instance one might purposefully damage his employers car to seek revenge for being superseded maybe. Theft can be both ways: stealing from co-workers or stealing from the employer for instance taking stationery items home. Theft is assumed to have more instrumental rather than hostile motives\cite{18}.

2.2.3. Aggression and abuse

Abuse refers to behaviors that cause physical or psychological harm to the coworkers or others. It could be either of the following: making threats, passing nasty comments, ignoring an individual or undermining the individual’s ability to work effectively. Within the organizational setting cases of sexual harassment, verbal abuse, endangering colleagues, etc., all fall under this category of abuse or personal aggression as per the Robinson and Bennett\cite{39} typology. Such behaviors are direct forms of human aggression. Physical aggression in the workplace tends to be infrequent so most research studies have focused on nonphysical forms only. Geen\cite{45} notes that aggression is a result of both dispositional and environmental variables therefore some studies have been directed towards identifying an aggressive personality type. Stressors at workplace and other unpleasant situations are linked to hostile aggression through negative emotion\cite{46}. Direct links between stressors at work and counterproductive work behaviors directed toward others have
been shown before\(^{[47,48]}\). Keashly and Harvey’s study\(^{[49]}\) on emotional abuse in the workplace adds up to the aggression literature, they also identified some additional factors that contribute to such behaviors. Workplace bullying or mobbing is another particularly malicious form of behavior that involves: “all the repeated actions and practices that are directed to one or more workers, which are unwanted by the victim, which may be done deliberately or unconsciously, but clearly cause humiliation, offence and distress, and that may interfere with job performance and/or cause an unpleasant working environment”\(^{[50]}\).

### 2.2.4. Misuse of information

Information at every level plays a key role when it comes to the organizations. Misusing it is one form of a deviant work behavior that has been categorized by the Robinson and Bennett\(^{[39]}\) typology as political deviant behavior. The damage caused by such acts spreads across a long continuum with mere gossiping on the one hand and corporate espionage on the other that can lead to as harmful effects as bankruptcy. Such counterproductive behaviors sometimes lead to huge white collar crimes like releasing confidential information and trade secrets.

### 2.3. The OCN approach

Numerous managerial solutions and approaches to tackle CWB have been proposed in various researches and practically applied in organizations as well, still this issue widely persists. This is a clear proof of the fact that managerial studies alone have not been quite sufficient in addressing this dilemma. As explained earlier in this paper, organizational cognitive neuroscience is adding to the knowledge of a lot of disciplines by providing additional levels of analyses. A similar application of OCN is proposed here to the concept of counterproductive behaviors and its various dimensions elaborated in the previous section.

Human behavior is a product of a number of interconnected systems and processes rather than being a result of a single motivator. This is an important insight because it reveals how the rationale behind our behavior can considerably deviate from its original cause. For this OCN provides us with one stop solution which is that of neuroimaging. Neuroimaging has the capacity to co-locate the cortical substrates that mediate decision-making processes within the brain, and to relate the processes to time ultimately revealing those interconnected systems behind a single human behavior\(^{[5]}\). Waldman et al.\(^{[14]}\) conducted qEEG research which empirically identifies the neural patterns associated with desirable behaviors. So, this connection of neural studies to desirable behaviors can further be extended to seek reasons behind undesirable behaviors or the counterproductive behaviors. Brain studies reveal countless concepts that can all be helpful in understanding human behavior. Major ones that advocate the OCN approach in understanding CWB’s have been listed in Table 1.

### Table 1. Basic concepts behind OCN approach.

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<thead>
<tr>
<th>Concepts</th>
<th>Brief explanation</th>
<th>Authors</th>
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<tbody>
<tr>
<td>Forward and reverse inference</td>
<td>Forward inference is studying the resultant behaviors from activation of a particular brain region whereas reverse inference is to trace back the activated brain region behind a particular behavior. OCN approach tends to combine both these paradigms.</td>
<td>Lee et al.(^{[21]})</td>
</tr>
<tr>
<td>Explicit and implicit attitudes</td>
<td>Implicit attitudes are automatic and outside the domain of conscious awareness whereas explicit attitudes are more deliberate, conscious and self-reportable.</td>
<td>Becker et al.(^{[20]}) Perugini(^{[51]})</td>
</tr>
<tr>
<td>Mirror neuron</td>
<td>Mirror neuron system that explains why workers automatically and often not knowingly imitate one another’s behavior and feeling.</td>
<td>Goleman(^{[52]}) Becker et al.(^{[20]})</td>
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Table 1. (Continued).

<table>
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<tr>
<th>Concepts</th>
<th>Brief explanation</th>
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<tbody>
<tr>
<td>Neuroessentialism</td>
<td>Reflects the belief that all identity and behavior can be reduced to individual neurons.</td>
<td>Bickle[53] Racine et al.[54]</td>
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<tr>
<td>Neurofeedback</td>
<td>Involves measuring brain activity using EEG and feeding this information back to modify behavior.</td>
<td>Kaiser and Othmer[55]</td>
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<tr>
<td>Hierarchical reductionism</td>
<td>The concept of reducing phenomena to very basic levels of analysis. OCN provides an additional level of analysis for management studies, i.e., the neural level.</td>
<td>Becker et al.[20]</td>
</tr>
<tr>
<td>Human consciousness</td>
<td>Neuroscience believes that human brain has the capacity to perceive things outside of an individual’s conscious awareness as well. This objective perception plays a vital role in shaping an individual’s behavior.</td>
<td>Becker et al.[20]</td>
</tr>
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</table>

Due to the limited scope of the study, it is not viable to address all these concepts in depth. However, references have been provided for details. The concepts mentioned in Table 1 together form a strong basis for adopting a neuroscientific approach towards counterproductive behaviors. All these concepts have been discussed by Becker et al.[20]. In their paper, they have elucidated the matter of human consciousness. According to them, human consciousness has important limitations. Neuroscience takes a somewhat different stance to view human thinking and feeling. Brain research indicates that a good deal of processing takes place outside the limits of our conscious awareness. For this reason, organizational neuroscience suggests that greater emphasis be placed on non-conscious processing, an ability that traditional managerial methodologies lack.

Another aspect is that of Hierarchical reductionism. It refers to how any phenomenon can be analyzed at various levels, since one level only is never sufficient for instance in organizational settings every phenomenon is analyzed at three distinct levels: organizational, group/team level and finally the individual level. OCN approach provides an additional level of analysis by deconstructing individuals further to discrete brain structures. And as these neural processes are homogenous to all humans, this additional level of reduction can help in unearthing new and effective solutions to counter deviant behaviors. OCN helps scholars identify certain themes. These themes elucidate particular networks of brain systems that are responsible for the workplace attitudes and behaviors. It can be concluded, prior organizational theories are incomplete in the sense that they do not consider the most fundamental level of analysis.

Becker et al.[20] also sheds light on another concept of implicit versus explicit attitudes. Implicit attitudes are automatic and outside the domain of conscious awareness whereas explicit attitudes are more deliberate, conscious and self-reportable. Organizational behavior research has emphasized the impact of explicit attitudes on work-related outcomes[56]. However, few scholars tend to disagree. They argue that explicit processing is limited so the future organizational research should consider implicit attitudes as well[57,58].

Hence, in organizational studies, the self-reported accounts of employees regarding their behaviors will often be logical and consistent and might also predict future outcomes and yet be absolutely inaccurate with respect to describing the true mechanisms behind those behaviors. This helps explain the inability of experts in resolving a lot of managerial issues because true findings are largely inaccessible[59,60]. With respect to counterproductive behaviors, employees may not be able to accurately verbalize the actual reason for their deviant behaviors. For example, an individual who is overly distressed by some family/personal issues might render some uncertainty of his job as the deriving reason behind his aggressive behavior at work. In this example, the aggression comes from an implicit response, and the explicit opinions are merely creative rationalizations. A manager who is unaware of this deeper cause might seek to address the stated concerns
through reasoned communication regarding the employees’ job insecurities rather than proposing some counseling sessions.

2.4. Counterproductive work behaviors through the lens of neuroscience

Drawing from the literature provided it can be established how cognitive neuroscience can contribute in addressing counterproductive work behaviors. The concepts like mirror neurons, implicit explicit attitudes and forward reverse inferences (explained earlier) form up the foundation for this argument. Referring to mirror neurons as proposed by Becker et al.\[20\] employees might be biologically imitating one particular employee’s counterproductive behavior because of their mirror neuron system. So the problem might not be with the entire department but that particular employee only whose behaviors were adopted by others overtime. Management might spend a lot on the whole department when only one employee needs correction. OCN can identify this underlying cause and save the organization from extra expenditures.

Similarly, OCN’s approach of forward and reverse inferences can guide in identifying causal factors behind counterproductive work behaviors\[21\]. Behind every negative behavior a particular brain region is illuminated under certain neuroscientific tests like fMRI. Tracing back from the exhibited behavior to the illuminated region of brain can give ample information on the reason behind that particular behavior. For instance, an employee is abusive or aggressive at the workplace. When put under functional magnetic resonance imaging a particular brain region that is activated in response to the employees aggressive behavior could be identified and it could be observed that the same region gets illuminated for feelings of sorrow. This could mean that the employee is grieving over something in his personal life which causes him to become aggressive.

Same is the case with the concept of implicit and explicit attitudes\[53\]. Mostly the focus is on explicit attitudes which are the deliberate and conscious attitudes but OCN argues that implicit attitudes are equally important in understanding human behavior. So, employees in organizations might be exhibiting certain counterproductive behaviors implicitly when their unconscious intentions behind it might be entirely different. Hence, understanding these automatic and non-deliberate implicit attitudes can give a clearer picture of the particular deviant behavior\[20\].

3. Conclusion

In conclusion, it is advised to remain optimistic that neuroscience will revolutionize organizational research in ways that cannot be fully anticipated at this point. These advances will certainly occur in both theory and practice. It will not only help in addressing issues like deviant behaviors but will cater to almost every aspect of a running organization. For this, the researchers should explore as much as they can in this field of study and empirically establish the contributions of neuroscience in organizational setups. This would also help in addressing to some of the challenges regarding OCN although a lot of them have already been dealt with. The current study was able to review available literature on OCN and establish that knowledge from neuroscience can add to, if not completely, help in mitigating counterproductive behaviors prevalent in organizations. Future researchers are provided with a research agenda with extremely promising implications that can benefit not only the theory but also practically contribute to various industries across the globe.
Author contributions

Conceptualization, MAZ; methodology, MAZ; validation, MAZ and AM; investigation, MAZ and AM; resources, NMQ; writing—original draft preparation, MAZ; writing—review and editing, AM; supervision, NMQ. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interests.

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