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Open-plan office employees' perceived mental and social well-being

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Abstract

Purpose – Over the past century, office designers have adapted to changing work conditions across various industries by creating workspaces that cater to the needs of modern workers. As a result, a range of office layouts have been developed, from traditional private offices to open-plan setups. The choice of layout can significantly impact communication, social interaction and overall performance. This study aims to explore the social and mental well-being of employees working in open-plan offices in the public sector in South Africa.

Design/methodology/approach – The research was conducted in the Johannesburg Metropolitan Municipality, South Africa, focusing on five governmental departments. Using purposive sampling, employees working in open-plan offices were identified. A structured online interview form with open-ended questions was distributed to all selected employees between May and September 2021, resulting in 54 responses. Thematic content analysis using ATLAS.ti was used to analyze the data.

Findings – The findings suggest that while open-plan offices can enhance teamwork, communication, accessibility and inclusivity, their design can negatively affect employees' perceptions of social and mental health in the workplace. Specifically, open-plan designs are perceived to compromise privacy, shorten attention spans, lower productivity and increase stress levels. Interestingly, absenteeism was not reported by employees in this study, which contradicts previous research and requires further investigation.

Practical implications – These findings can be valuable for human resource managers, facilities managers and office space designers.

Originality/value – This research contributes to the ongoing conversation surrounding the impact of open-plan offices on the mental and social well-being of employees in the public sector within the South African context. The contribution of this paper thus lies in the South-African context and the public sector angle plus a more in-depth insight on well-being through an extensive set of 54 interviews.

Keywords Open-plan office, Office layout, Public sector, Social well-being, Mental well-being, Perception

Paper type Research paper

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Introduction

Modern-day office work is continuously changing, including office layouts. Moreover, various working arrangements, including flexible work arrangements such as shared workstations, activity-based offices and telework from home, affect the experience of an office environment. Open-plan offices gained momentum over more private, cellular offices due to the belief that they improve environmental design, communication and productivity of staff and employees (Haynes *et al.*, 2017). They were also adopted by some based on claims from office designers that they create more flexible spaces, allowing the layout to be more sensitive to organizational size and structure changes. In a workspace with an open-plan layout, workstations can be easily rearranged at a low cost, to cater to the changing needs of both employees and the organization. Finally, the move toward open-plan offices is argued because organizations have become more concerned about the contribution of interior space to their business goals (Colenberg *et al.*, 2021).

The absence of internal physical barriers is said to facilitate communication between individuals, groups and even the whole department, which consequently improves the morale and productivity of the team (Brennan *et al.*, 2002). Research findings have also attested to the claims made by office designers that besides increased communication among colleagues, there is more group sociability and higher judgment of aesthetic values (Brennan *et al.*, 2002; Villanueva *et al.*, 2019). These are just some of the benefits that organizations aim to achieve with their more open workspace design. Many organizations, including the public sector, have therefore adopted such an office plan change. The South African government workplace is also undergoing a significant shift toward collaboration through such designs, with cubicle walls being removed to create a more flexible, open and forward-thinking workspace.

However, studies also indicate that there is no clear winner among office layouts. While open-plan offices can have such positive impacts, they can also result in unintended consequences such as mental deterioration, constant distractions and general frustration (Colenberg *et al.*, 2021). Chafi *et al.* (2020) argue that open-plan offices have varying impacts on different organizations. Despite gaining popularity, open-plan offices have thus also sparked a prolonged debate over their presumed negative health effects (Colenberg *et al.*, 2021). This paper adds to this debate with data collected from public offices in South Africa, where open-plan offices are not well-studied yet. The contribution of this paper thus lies mainly in the South Africa and its public sector angle. Moreover, there is limited research focusing on well-being within the public sector (Cvenkel, 2020). In addition, this study provides a more in-depth insight into perceived social and mental well-being in relation to physical workplace experience in open-office layouts through a substantial amount of 54 interviews. So far, both outcomes affected by workplace design are understudied according to systematic literature reviews (e.g. Bergefurt *et al.*, 2022; Colenberg *et al.*, 2021).

Workspace management in the public sector

There is a difference in how open space is used between private and public sectors. This is more so when it comes to institutional architecture, organizational culture and structure, values, privacy and confidentiality, workforce composition as well as regulations and compliance. The public sector has strong hierarchical traditions and both leaders and the organizations are expected to make a shift, which needs innovative public governance models to break down the boundaries (Cvenkel, 2020; Van Wart, 2011). The public sector is dominated by leaders who think through concepts of hierarchy: e.g. control oriented, predictability, standardization (Senge *et al.*, 2004), bureaucratic and inflexible (Robledo, 2009). In this way, the public sector neglects the human side of the organization

and treats itself as an impersonal and alienating machine (Guest, 2017; Pirson, 2021; Robledo, 2009).

The constitution of the Republic of South Africa calls for a change in institutional design, values and behaviors of both leaders and public servants (Haricharan, 2023). The government has policies guiding space utilization within the public sector (RSA, 2005). There is also a wellness management policy that emerged because the government recognized the importance of employees' health and well-being (RSA, 2008). The main reason for the policy is to ensure that the office space is conducive for efficient and effective work processes. In this policy document, referred to as the "space planning norms and standards for office accommodation used by organs of state," it is clear that only those in administrative functions and technical management can use open-plan offices. Senior management can use either open or cellular offices whereas executive management should only occupy cellular offices. The reasons for such guidelines have to do with the nature of work for the different levels. For those who occupy cellular offices, it has to do with the level of privacy and provision of space for small meetings (RSA, 2005). This is different from private companies wherein the guidelines will be company-specific.

The rise of open-plan offices

The nature of work has changed over the century from passive and static activity to flexible and dynamic activities. This change facilitated the changes in the workplace environment, which experienced a conversion and move from private offices to open-plan office design in the 1920s and became commonly implemented in the 1970s (Richardson *et al.*, 2017). The changes were a response by office designers to create environments that support how people work and create workspaces that act as enablers of work processes. The tension in the office environment, or shift, stems from the conventional office design generally known for passive individual process work, which restricts the organizations' ability to be creative (Haynes, 2007). In essence, when designing an office space, the aim is not merely to find housing for organizational activities but to define a pattern that actively contributes to better employee performance and well-being. Nonetheless, cost cutting was a significant driver for open-plan offices as well, because the open-plan design is considered cheaper to construct and allows the accommodation of more employees in a given workspace area (Richardson *et al.*, 2017).

Most empirical research shows that open-plan offices decrease interaction, job satisfaction and productivity (Brennan *et al.*, 2002; Carlopio and Gardner, 1992; Danielsson and Bodin, 2009; De Croon *et al.*, 2005; Kim and De Dear, 2013). Moreover, they are associated with lower well-being, increased sickness absence, higher stress levels and distractions compared to cellular offices (Danielsson and Bodin, 2009; Evans and Johnson, 2000). Therefore, it is important to understand the pros and cons of open plan layout considering that office designers and companies want office space design that improves employees' well-being. Many organizations continue to adopt open-plan offices primarily because of the reduced costs in construction and maintenance associated with the office design (Brennan *et al.*, 2002).

However, these are the benefits around the structure of buildings, but consideration needs to be given to the employee experience and well-being at the same time. Studies also reported positive outcomes such as increased communication among co-workers and supervisors, higher judgments of aesthetic value and more group sociability (Brennan *et al.*, 2002; Gupta *et al.*, 2020; Roderick, 2016; Villanueva *et al.*, 2019). This has the potential to promote an environment that is conducive to improve employees' well-being.

Social and mental health and well-being

The importance of well-being has become increasingly significant for both individuals and organizations (Abe, Fields, and Abe, 2016; Moller and Rothmann, 2019). Workplace well-being encompasses the safety and quality of the work environment, employee perception and the workplace climate and organization [International Labour organization (ILO), 2017]. Despite this, there is no commonly accepted definition or understanding of what constitutes well-being. Scholars have approached the concept of well-being from various angles. Some have focused on defining the key components of well-being (Der Kinderen and Khapova, 2021; Huta and Waterman, 2014), exploring different dimensions of psychological well-being (Grant *et al.*, 2007; Ponting, 2020; Ryff, 1989), conceptualizing/operationalizing it (Ponting, 2020) and/or analyzing human resource practices (Guest (2017). The state of employee well-being is usually indicated by their physical and psychological health, as well as the quality of their social relationships at work. Social relationships in the workplace improve when individuals develop close relationships and feel a sense of community with one another (Deci and Ryan, 2011). Therefore, it is crucial to prioritize workplace well-being and provide support for it (Cvenkel, 2020; Der Kinderen and Khapova, 2021; Guest, 2017).

Organizations have introduced programs that will help support their employees more when it comes to well-being for a while now (Browne and Evans, 2018). They are investing more in these support programs because research has shown that it boosts employee morale and increases productivity among many other benefits (Pinker, 2014). Moreover, it also increases employees' turnover, work–life balance and job satisfaction (Bakker and Oerlemans, 2011; Keeman *et al.*, 2017). Both social and mental health are a crucial concern, and companies must address that employees are social creatures who require a supportive environment for healthy interaction and engagement with their colleagues. Although social well-being is an important aspect of the work environment, it has received less attention from scholars than other types of health (Bennett, 2018; Colenberg *et al.*, 2021; Fisher, 2014; Forooraghi *et al.*, 2020). Workers want to feel like they belong, that they contribute to the group and that they comprehend and are appreciated and accepted in their environment (Keyes, 1998). They want to feel connected to the community through relationships and meaningful interactions (Fisher, 2014). Besides social well-being, it is equally vital to prioritize mental well-being. The World Health Organization defined mental health as "a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community" (WHO, 2022).

When it comes to workers' health, there are two ways to approach it: salutogenic or pathogenic. The pathogenic view, elucidating a detrimental impact on health, suggests that individuals face persistent and inescapable stressors and that exerting excessive effort in their work may encounter short-term, reversible, or long-term, irreversible mental health challenges (Roskams and Haynes, 2019). Salutogenesis, on the other hand, outlines how health exists on a spectrum, and purpose-driven actions can foster a favorable, healthy condition aligning with Antonovsky's (1996) salutogenic model. This study takes this salutogenic approach to examine how open-plan offices impact the well-being of workers through perceptions of both positive and negative effects.

Employees' physical work environment interaction patterns are essential when thinking of employees' social and mental well-being. The physical setting of the work environment is important, and it affects employees' behavior (Lee, 2010). Organizations have pushed their employees to get out of individual and private territories and interact with one another through this form of office layout.

Collaboration, interaction and sense of belonging in open plan offices

Prior theory and empirical evidence are mixed on the effect of removing spatial boundaries on human behavior in the workspace. On the one hand, sociological theory presents a strong argument that removing spatial boundaries to bring more people into contact should increase collaboration and collective intelligence. The notion is that proximity predicts social interaction, leading to the formation of social ties. Therefore, information exchange and collaboration are the most robust findings in sociology (Bernstein and Turban, 2018). Interaction is a necessary foundation for collective intelligence, a form of distributed intelligence that arises from the social interaction of individuals and that predicts, more so than the intelligence of individual members, a group's general ability to perform a wide variety of tasks (Bernstein and Turban, 2018).

In addition, the social facilitation hypothesis suggests that the performance of routine tasks will improve in non-private areas and that employees who find their jobs boring may find that contact with other people provides a source of stimulation. Therefore, working in an open-plan workspace may help employees see each other as a source of stimulation to conduct work (Brennan *et al.*, 2002). Previous studies indeed show that open-plan offices with high visibility have caused increased interaction of employees; this has played a significant role in setting and improving organizational climate. The organizational climate affects productivity, motivation and employee behavior by creating unity and a shared office culture, which drives the employees towards a common goal (Rashid *et al.*, 2009).

Belonging is a subjective feeling of being part of a community or work environment (Hagerty *et al.*, 1992). It is a fundamental need that almost everyone seeks to satisfy (Deci and Ryan, 2000; Leary and Kelly, 2009). However, there has yet to be a consensus on how to measure belonging and how individuals can satisfy this need, as it affects people differently (Allen and Bowles, 2012). The need for belonging is deeply rooted in our biology (Slavich and Cole, 2013), and it is essential for human survival and is linked to well-being. The quality of human relationships and surroundings is critical (Boyd and Richerson, 2009; Hanh, 2017). Employees feels a sense a belonging when there is meaningful interaction and relationships in the work place. However, because there is no consensus on the measurement, we will measure it based on employees' perception.

Employees within an open-plan office want to feel a sense of belonging, being part of the group and that their presence and what they do matters to other employees (Keyes, 1998). Therefore, the relationships and interactions employees can have in an open-plan office environment matter in building a sense of connection (Fisher, 2014). The design of open-plan offices should facilitate these interactions and relationship building. Therefore, the interviews contained questions on collaboration/interaction preferences and a sense of belonging in these open spaces.

Challenges with open-plan offices and coping strategies

Besides positive experiences of interaction and belonging in open-plan offices, there are also unintended consequences like mental deterioration, constant distractions and general frustration (Colenberg *et al.*, 2021). Studies report negative findings such as decreased performance, lower judgments of functional efficiency, lower levels of psychological privacy and environmental dissatisfaction (Brennan *et al.*, 2002; Charles and Veitch, 2002), fewer friendship opportunities, supervisor feedback, privacy, increased noise, increased disturbances and distractions and increased feelings of crowding (Brennan *et al.*, 2002). At the same time, the success of interaction in open-plan offices is less evident than various authors have denoted. Easily accessible workspaces are not necessarily correlated with easy interactions among workers (Lee, 2010). In addition, Kim and De Dear (2013) argued that

privacy is an environmental stressor in an open-plan office. Social contact can exceed an optimum level, causing a worker to feel crowded, especially in areas with minimal privacy. As a result of crowding, discomfort may occur, affecting employees' well-being. This will, in turn, affect both privacy and job satisfaction (De Croon *et al.*, 2005). There are also theories supporting this pathogenic effect of open layouts. For example, privacy regulation theory (grounded in the person–environment fit theory) poses that a person–environment relationship shapes this person's appraisal of the workplace, and this thus differs between different kinds of workers, based on perceived control over personal information and over stimuli from other people (Weber *et al.*, 2021). Similarly, the job demands–resources model from Demerouti *et al.* (2001) also poses that the workplace can provide resources but can also pose additional demands to workers.

Smollan and Morrison (2019) and Jahncke *et al.* (2011) argued that noise is the leading problem in open-plan offices. Some employees avoid interaction with their colleagues as it yields more disturbance (Smollan and Morrison, 2019; Bernstein and Turban, 2018) as a way to cope with noise in open-plan offices. But, an open-plan office environment offers individuals different options for coping with their challenges. Their preferences for coping strategies are often based on their personalities and traits (Colenberg *et al.*, 2020). As more businesses adopt open plan layouts, it is crucial to understand how to manage unwanted disturbances. Employees should establish their own "survival strategies" and ground rules that the team can agree on (Knight, 2018).

Individuals have a natural ability to manage their thoughts and behaviors to deal with stressful situations both internally and externally (Folkman and Moskowitz, 2004). This is a voluntary and conscious decision that individuals make. Depending on their personality type, individuals may be reactive or proactive in coping with stressful situations. Reactive individuals tend to do better in unpredictable environments, while proactive individuals tend to do better in stable environments. There are different categories of coping mechanisms, including problem-focused, emotion-focused, meaning-focused and social coping (Folkman and Moskowitz, 2004). Individuals will choose a coping strategy that is most suitable based on the situation. Using the wrong coping strategies can lead to poor outcomes such as disengagement, avoidance and emotional suppression (Compas *et al.*, 2017).

One primary coping strategy employee's use is approaching their co-workers and addressing the problem (Knight, 2018). They can ask their colleagues to "keep it down", sometimes the approach can be conversational so that one does not come across as overly sensitive. The conversation helps the problem to be discussed in context and reach a positive outcome. Experts sometimes recommend that employees purchase headphones if their work requires maximum concentration. Employees can listen to white-noise noise, classical music or anything that will help them shut distractions around them and enable them to perform at their best (Knight, 2018). Another option is to move around. Most open-plan offices have those discrete spaces employees can use. Empty conference rooms, semi-private cubicles and quiet alcoves are those discrete spaces that employees can use to avoid commotion (Kreamer, 2018). The solution to open-plan offices has yet to be concluded; in the meantime, employees must work around finding ways to co-work with colleagues in the same office space. Some people chose coping strategies that do not necessarily lead to increased productivity (Colenberg *et al.*, 2020).

So, although arguments exist that open-plan offices provide collaborative and flexible workspaces (Richardson *et al.*, 2017), open-plan office spaces can also instigate work environment-induced social and mental well-being deterioration (Colenberg *et al.*, 2021). There is still no consensus around the advantages and disadvantages of open workspaces

toward employees' mental health and social well-being. However, as more organizations adopt an open layout, it is critical to understand how to deal with unwanted disturbances and discuss challenges and coping behaviour in more detail with their employees.

Methodology

The research was conducted in Johannesburg Metropolitan Municipality, located in Gauteng Province. This city is considered the capital of the country, as it is home to 74% of corporate headquarters and other commercial organizations. A request was sent to all 13 government departments located in the city, from which five agreed to participate in the study. To protect the confidentiality of the departments, their names are not disclosed. Each department's contact person was responsible for recruiting participants who worked in an open-plan office, as the researchers did not have access to employees' contact details. The study focused on workers who worked in an open office space with shared workstations, printing machines, a kitchen and bathrooms. The selected departments use open-plan office layouts, except for officials in management positions. The configuration of space varies per department, wherein in most departments, each unit/section shares an open-plan office with cubicles for each employee. Each floor also shares common areas like meeting rooms, restrooms, printing machines, etc. In some offices, there are plants, but no green buildings were involved.

In terms of the validity and reliability of the result, specific instructions were given to the people responsible for assisting with data collection to target the right workers. Data was collected between May and September 2021. At that time, few employees were allowed in offices, and in some instances, it was only essential workers because of COVID-19 restrictions. Therefore, a group of 54 experienced and knowledgeable government employees who normally worked in an open-plan office layout were selected. At that point, saturation could for sure be reached for meaningful analysis of the data. Due to COVID-19 restrictions, the researchers opted for open-ended online interviews to gather the data. The department assisted in distributing the interview format to the employees, and a thematic analysis was conducted using Atlas.ti software for coding and analysis.

The respondents were asked a series of questions regarding their communication preferences and practices in the workplace. The questions included the preferred mode of interaction with colleagues (phone, email, face-to-face), along with the reasons for choosing that mode. They were also asked to provide feedback on any visual or audial distractions they encountered in the workplace and how they managed them. Furthermore, the respondents shared their coping strategies for working in an open-plan environment and any sense of belonging they felt within the workspace. Employees' satisfaction with their social and mental well-being was asked as well. Respondents answered the questions based on their current situation wherein they were in the office during the pandemic. The researchers first familiarized themselves with the data and then started coding. Initial coding included workplace challenges, workplace issues, communication, coping strategies/personal and professional development. After this, themes were generated and reviewed before deciding on the major themes for reporting. Common themes were found that affect both mental and social well-being in open-plan offices. Therefore, it is crucial to examine these intersections and analyze how they affect employees as a whole. This was achieved by sorting the themes into positive and negative outcomes of open-plan workspaces and identifying strategies that employees use to overcome challenges (coping).

Results and discussion

Positive outcomes for mental and social well-being

Collaboration and interaction. All participants identified collaboration and communication as a positive aspect of an open-plan workspace. "*It does not really disturb instead it teaches you to be able to interact with colleagues and improve your communication skills" [R 50].* Other participants also emphasized the element of team building through collaborations and better communication found in open-plan workspace. *"It helps in building a workplace team as colleagues will understand each other better and will be able to complement each other where there are knowledge or exposure gaps"* (R 47). Also:

> Face to face interaction allows you to become aware of the thoughts and feelings of colleagues. It also enhances productivity, builds trust and allows discussion flows to reach better conclusion (R 26).

This supports the sociological theory on increased interaction and collaboration when spatial boundaries are removed (Bernstein and Turban, 2018) and previous studies on interaction and collaboration among open-plan office employees (Bernstein and Turban, 2018; Smollan and Morrison, 2019; Roderick, 2016; Gupta *et al.*, 2020; Villanueva *et al.*, 2019). However, during the COVID-19 pandemic, the forms of communication might have significantly been reshaped, with 30 of the respondents mentioning that they preferred using emails and 23 preferring phone calls over face-to-face interaction when communicating. There were 25 respondents preferring more than one mode of communication whereas 29 prefer this single mode of communication.

The findings also shows that 40 respondents indicated that working in open-plan offices can encourage spontaneous conversations and idea-sharing, which promotes their social well-being. "*Engaging with other colleagues on a daily basis may reduce a lot of pressure. To hear and understand how other people are handling the other conditions they are facing may also assist and up performance knowing you are not alone for"* (R 26). In addition, a respondent said:

> I can express myself and my feelings and the colleagues can see my expression and determine the situation. It helps me to maintain the relationship because we talk almost every time [. . .] (R 8).

Overall, this can lead to increased job satisfaction and a stronger sense of belonging (Bernstein and Turban, 2018; Brennan *et al.*, 2002). Colleagues who interact positively with each other can help to reduce their stress levels. In line with the social facilitation hypothesis, working in an open-plan office seems to provide the necessary stimulation mentioned in previous studies (Brennan *et al.*, 2002).

It is also noteworthy that people have different work preferences and productivity styles. As Richardson *et al.* (2017, p. 46) put it "A 'one size fits all' approach does not suffice," which applies to this sample too. Some respondents indicated to thrive in open, collaborative environments, while 22 respondents preferred quiet and focused spaces. When referring to collaboration in open-plan office, one respondent added that although it is good for collaboration, "One *can be distracted when those who don't have much to do want to come and sit in your office, I just manage them by continuing with my duty, the person will realise that there is no time for socialization"* (R 2). This implies that while open-plan offices provide worker interaction and collaboration opportunities through spatial layout, the actual outcomes can be complex. The outcome of this study shows that there still needs to be a consensus around collaboration and communication among employees. This has to do with individual employee's preferences, and as a result, employees' mental and social well-being is affected differently. It is important to note that communication, collaboration and

interaction within the public sector differ from those within the private sector. The interviews conducted clearly show that there is more employee interaction, which is not necessarily aimed at meeting targets or deadlines. This might be because the public sector provides services to the public and does not focus so much on profit, creating a more relaxed environment that encourages social interaction.

The findings suggested that accessibility and approachability played a crucial role in shaping employees' social and mental well-being in open-plan offices. Interviewees pointed out how both factors influence how they interact with each other, how comfortable they feel in their work environment and how they perceive their overall experience. One respondent said *"It helps me to maintain relationships because we talk almost every time, there is no silence in the office, there is always good mood even when I am feeling down, but once I am with my colleagues the mood changes, I become happy again"* (R 8]. Employees in an open-plan layout are more accessible and visible to each other. This leads to employees feeling more comfortable or seeking feedback, which can foster a more inclusive, trustworthy and transparent work culture. For instance, R 24, R 26 and R 27 highlighted that face-to-face interaction with colleagues enhances interaction and sharing of information and ideas and creates a sense of awareness of other's feelings, which can boost the teams' morale. As a result, it was perceived to enhance productivity, build trust and allow discussion flows to reach better conclusions (R 26), more understanding (R 27) and assist in dealing with stressful work (R 24).

Sense of belonging. The open nature of the workspace can contribute to a sense of community and camaraderie among employees. Respondents pointed out that being in an open plan office enabled them to witness each other's work, achievements and challenges, fostering a shared experience:

> It promotes friendship. At this point of time, we've managed to share the office for approximate 3 full months, I don't see any bad challenges, everything seems to be going well in our relationships, we even share food (R 51).

> Similarly, R 8 said *"Yes, I know when I am in the office, I interact with my colleagues, so I am always happy and know that I belong to this office"* (R 10). As a result, it can enhance team cohesion, mutual support and trust and a feeling of belonging within the organization. As one respondent puts it, "*It helps when it comes to getting to know each other as colleagues and building trust between each other"* (R 46). This aligns with Keyes's (1998) theory on social well-being. In addition, it shows that a sense of belonging is a basic human need as necessary for promoting health and survival.

Nonetheless, some had a different view about sharing food to show belongingness:

> Another distraction is the culture of eating together as a group. I try to be disciplined and excuse myself after interacting with colleagues for a specific time that I pre-determine based on the tasks I have to achieve for work and based on private stuff that I may have planned to do during my lunch time (R 44).

This indicates that individuals have different work preferences and productivity styles. Some individuals thrive in open, collaborative environments, while others may prefer quiet and focused spaces (Colenberg *et al.*, 2020).

Negative outcomes for mental and social well-being

Privacy and personal space. Open-plan offices often lack personal space and privacy. Thirty-six respondents pointed out that although an open plan has some benefits, it can also be challenging regarding constant visibility and reduced personal autonomy. The findings

corroborate other studies that found that lack of privacy is the leading cause of most dissatisfaction among open-plan office employees (Brennan *et al.*, 2002; Charles and Veitch, 2002; Danielsson and Bodin, 2009). For instance, respondents complained that the absence of private spaces for confidential conversations or personal phone calls created discomfort and hindered the development of trust and open communication. "*You become stressed if you want to do a personal call in the office because there is someone around* (R 49). Furthermore, the discomfort of being in an open-plan workspace was heightened during the COVID-19 pandemic, which required social distancing:

> There are lot of us at the same time at the workplace, there is no rotation or working from home (R 10). I am scared that one day I can contract this virus and die because I am working in an environment that has a lot and different people (R 8).

Older studies already found that congestion or crowding has negative physiological and behavioral stress symptoms despite a pandemic situation, such as increased stress levels, social withdrawal, decreased satisfaction, turnover intentions and low task performance (Brennan *et al.*, 2002; Charles and Veitch, 2002).

The findings further indicated that the absence of privacy and personal space leads to discomfort, stress and a reduced sense of autonomy, which can impact employees' well-being. The absence of private areas can also limit opportunities for personal reflection, reducing overall well-being and job satisfaction. These findings align with Kim and De Dear (2013), who classified privacy as an environmental stressor of open plan space, pointing out that enclosed private offices acquired the highest overall workspace satisfaction score. Similarly, De Croon *et al.* (2005) found that working in open workplaces reduces privacy and job satisfaction. Some respondents cope with the situation by building good relationships with colleagues. "*Generally being a good colleague, respecting other people's differences and spaces, and doing the best that you could*" (R 4). However, this study shows that employees can manage this situation to their advantage by having boundaries and respecting other employees' boundaries to boost each other's well-being. It is important to note that the public sector's space configuration is often not designed for privacy and personal space, especially for employees who directly serve the public.

Reduced concentration and productivity. The constant noise, interruptions and visual distractions in open-plan offices were mentioned by 41 respondents as distractions that contributed to reduced concentration and productivity. Respondents pointed out that stressors leading to reduced concentration and productivity include constant background noise, conversations, phone calls and office equipment, which contribute to elevated noise levels. For instance, some responses named the source of distractions as "*Noisy colleagues" (R 9), "distractive conversations with colleagues" (R 29), "Group lunches" (R 44), "Noisy printing machine" (R 52) and "Loud old machines used by cleaning service department" (R 1).*

Additionally, the findings indicate that prolonged exposure to excessive noise led to difficulty concentrating and stress, which impacted productivity and overall well-being. For instance, when respondents were asked how their workplace sharing affected their work performance, 17 responded that they produced average productivity. "*Concentration is hard in office where there is always people. Sharing workspace when working under pressure can lead to distractions that lead to losing focus and appearing to be less organized* (R 24). R 26 also pointed out that sometimes she cannot help but join or listen to other colleagues' conversations thus affecting her concentration. As a result, R 47 showed that the distractions in the open plan workspace have affected his achievement in terms of personal set targets and overall performance. The findings conform studies like Jahncke *et al.* (2011) and Smollan and Morrison (2019) when mentioning that noise is a major environmental

stressor in open offices, resulting in lower concentration levels during work time. Other studies also argued that noise, privacy concerns and distractions could offset the positive effects of interaction, potentially weakening collaboration (Kim and de Dear, 2013) within open-plan environments.

Concerning the findings above, the lack of concentration, which may lead to less productivity, caused much stress to five respondents. One respondent said, *"it makes me stressed, I cannot concentrate on my work, and it gives me pressure to work while I am stressed.* The *work become more, and I do not finish on time"* (R 8), while another, *"The pressure is making me more stressed, making me anxious of the long-term effects of this"* (R 27). The stress associated with lack of concentration was even more prevalent on employees who do tasks that need a lot of concentration. R 4 complained that *"The work I do needs a lot of concentration as I deal with serialized items. When there are a lot of distractions, I cannot concentrate which makes me stressed, especially when serial numbers are not matching, or time is not sufficient to complete certain tasks"* (R 4). Workers handling complex tasks should prioritize avoiding distractions over social interactions. Privacy is crucial for sustaining attention, particularly in tasks demanding concentration.

The study also found that stress could even lead to more serious health and social well-being issues as pointed out by a respondent *"I feel the stress has caused anxiety and depression, substance use problems, sleep problems and pains I have"* (R 20). For others, it affected their mental health, *"I can work well with pressure but stress and concentration affect my mental state"* (R 19). While these results align with previous studies, one unique finding is the lack of sick leave taken by employees despite experiencing stress and fear of falling sick. This is surprising, especially because the data was collected during a tough lockdown period in an open-plan office setting.

Coping strategies. Respondents 7 and 27 coped with noise by using their earphones to block out any distractions and concentrate, while R 26 coped by turning off all mobile devices and relocating to a quiet space. The findings support previous studies wherein noise, co-workers' conversations and lack of speech privacy emerged as complaints in open-plan offices (Colenberg *et al.*, 2021; Brennan *et al.*, 2002; Kim and De Dear, 2013; Smollan and Morrison, 2019; Jahncke *et al.*, 2011). However, it is interesting that employees have developed different coping mechanisms to increase their mental and social well-being. For instance, Respondent 4 said:

> By concentrating on your tasks and if it is noise that is destructive, then ask people politely to tone it down . . .. it goes down to leadership qualities an individual might have. Depending on what the distractions could be. Hopefully, an individual can circumvent the situation positively instead of the distractions or negative impact. Working in an open office with other colleagues and doing different things means people come into the office for an assessment of help, and avoiding means concentrating on what you do instead of being distracted. Generally being a good colleague, respecting other people's differences and spaces, and doing the best that you could (R 4).

This respondent finds a way to maintain concentration to get some work done despite a distraction. He engages with colleagues and also respects that their preferences are different. This supports the privacy regulation theory grounded in the person–environment fit, which proposes that respondents may withdraw or seek interaction (Weber *et al.*, 2021).

Overall, this shows that open-plan offices have both positive and negative outcomes and need to be coped with by some, as mentioned in previous studies. On the one hand, they encourage collaboration and increased interaction (Bernstein and Turban, 2018; Smollan and Morrison, 2019; Roderick, 2016; Gupta *et al.*, 2020; Villanueva *et al.*, 2019), idea-sharing (Bernstein and Turban, 2018; Brennan *et al.*, 2002) and a sense of community (Keyes, 1998)

among employees. On the other hand, they pose challenges to individual work preferences and productivity styles (Colenberg *et al.*, 2020; Richardson *et al.*, 2017), lack of personal space and privacy (Brennan *et al.*, 2002; Charles and Veitch, 2002; Danielsson and Bodin, 2009; Kim and De Dear, 2013), congestion or crowdedness (Brennan *et al.*, 2002; Charles and Veitch, 2002), constant noise, interruptions and visual distractions (Colenberg *et al.*, 2021; Brennan *et al.*, 2002; Kim and De Dear, 2013; Smollan and Morrison, 2019; Jahncke *et al.*, 2011).

It is interesting to note from this study that the experience of employees from open-plan offices in the public sector in a developing country like South Africa is similar to such studies in more developed countries. This is a significant finding, as many would expect a developing country's public sector to have a different outcome. However, there needs to be consensus around collaboration and communication among employees based on their personal preferences, as it can affect their mental and social well-being differently. In addition, essential differences can be observed from the responses too. Although there is communication, collaboration and interaction within the public sector, there are some differences from the private sector. Employees within the public sector are actively engaging with each other, which is not necessarily aimed at meeting targets or deadlines in most cases. This is probably because the public sector provides services to the public and focuses less on profit, creating a more relaxed environment that encourages social interaction. There is also variation depending on the type of service rendered within the department. Some departments render services directly to the public, whereas some focus on support services. Therefore, further studies are needed to focus on departments rendering similar services to understand social and mental well-being issues clearly. Moreover, the study found that employees did not report absenteeism, which contradicts previous research and warrants further investigation.

Conclusion

In modern workplaces, open-plan offices are often seen as a way to increase productivity. However, employees working in these environments may face social and mental health challenges that can negatively impact their productivity and well-being. While open-plan offices have their advantages, they can also have drawbacks for employees. Recent research has shown that mental and social well-being are closely linked. Positive social interactions are essential for building strong relationships, which can improve employees' well-being. Conversely, poor interactions and relationships can have negative effects on both work and well-being. Furthermore, the open-plan office environment fosters interaction but can also cause visual and auditory distractions that lead to loss of focus and delays. Employees in open-plan offices must demonstrate tolerance and emotional intelligence to remain focused and optimistic. A sense of belonging is critical to coping with the workplace. This can help employees establish a support system, reduce vulnerability and increase resilience. However, the study also suggests that open-plan workspaces can contribute to the deterioration of some employees' social and mental well-being. While these offices are cost-effective for companies, their design must balance productivity with employees' well-being to prevent them from becoming sources of anxiety rather than productivity.

This study contributes to the ongoing conversation surrounding the impact of open-plan offices on the mental and social well-being of employees. Despite the touted benefits of teamwork, communication, accessibility and inclusivity, the design of open-plan offices has been found to have a negative effect on employees' perceptions of their workplace's social and mental health. These results align with previous studies, indicating that South African organizations are not exempt from this trend. As the space configuration and line of

business of the public sector differ from the private sector, there are noticeable differences in their approaches. While private sector employees focus on generating profit, public sector employees are more focused on rendering services to the public. This creates a more relaxed work environment in the public sector. However, it also means that employees' social and mental well-being may be impacted differently in the public sector than in the private sector. However, given the subjective nature of mental and social well-being, employees may develop coping strategies that work for them in an open-plan environment. Interestingly, absenteeism was not reported by employees in this study, which contradicts previous research and warrants further investigation.

For those in the field of space design, this research holds significant value, as it aims to create workspaces that are both functional and customized to the unique needs of different companies. With advancements in technology, designers are challenged to think creatively about how to design open-plan workspaces. The availability of wireless internet, mobile tools like laptops and call reception allows for greater flexibility and mobility, freeing employees from the confines of their workstations, whether in an open or private setting. However, not all employees thrive in open-plan workspaces, as they can be distracting and lack privacy. Some workers need occasional retreats to enhance their focus, suggesting the need for secluded workstations where employees can withdraw from the crowd and recharge before returning to work.

Given that this study exclusively examined the public sector, it is crucial to explore whether comparable dynamics are present in both private and public sectors. This is due to the fact that the public sector functions differently from the private sector, which places greater emphasis on profit and competition. In addition, despite the extensive sample size for interview studies, a much larger sample with a different method (e.g. surveys) could identify further generalizable findings, plus identify individual differences and factors that cause such differences. Future studies should also explore coping mechanisms in diverse contexts and examine additional strategies used by employees who report satisfaction despite the challenges. And, as we are just all getting used to hybrid working, it would be interesting to repeat the study in a few years.

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