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Research



Experiences & Tools



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# The relationship between organizational virtuousness, workplace diversity, and affective commitment: Mediating role of workplace inclusion

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✎ **ABSTRACT.** Questo studio indaga l'associazione tra virtù organizzativa, impegno affettivo e diversità tra i docenti universitari, considerando l'inclusione sul posto di lavoro come fattore di mediazione. L'obiettivo della ricerca è quello di esplorare come i comportamenti virtuosi all'interno di un'organizzazione siano associati all'attaccamento emotivo dei dipendenti e alla diversità. Allo studio ha partecipato un campione di 320 docenti universitari provenienti da università pubbliche e private di Islamabad, Rawalpindi, Lahore e Multan. L'analisi dei dati ha incluso statistiche descrittive, test di affidabilità, correlazione di Pearson, *t*-test, ANOVA a una via e analisi di mediazione tramite PROCESS Macro Model 4. I risultati indicano un'associazione positiva tra virtù organizzativa e impegno affettivo e diversità sul posto di lavoro. I limiti dello studio riguardano il suo disegno trasversale e il focus geografico che impediscono l'estensibilità dei risultati.

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✎ **SUMMARY.** This study investigates the association of organizational virtuousness, affective commitment and workplace diversity among university teachers, with workplace inclusion as a mediating factor. The objective of the research is to explore how virtuous behaviors within an organization are associated with employees' emotional attachment and diversity. A purposive convenient sample of 320 regular university instructors from public and private universities in Islamabad, Rawalpindi, Lahore, and Multan participated in the study. Data were collected using standardized and established instruments. Data analysis included descriptive statistics, reliability testing, Pearson's correlation, *t*-test, one way ANOVA, and mediation analysis via PROCESS Macro Model 4. The findings indicate a positive association between organizational virtuousness and both affective commitment and workplace diversity. The study limitations include its cross-sectional design and the geographical focus, which may limit the generalizability of the findings. The implications suggest that fostering a virtuous organizational culture can enhance employee commitment and diversity, thus creating a more inclusive work environment.

**Keywords:** Organizational virtuousness, Affective commitment, Workplace inclusion

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## INTRODUCTION

Diverse scholars are increasingly emphasizing workplace inclusion; however, most of the research has been restricted in scope and has lacked robust theoretical underpinnings (Lennox, Herlihy, Sharar & Robey, 2022). This study examines the relationship of organizational virtuousness defined as a set of positive organizational characteristics such as compassion, forgiveness, and integrity with affective commitment and workplace diversity in an educational setting. Affective commitment refers to employees' emotional attachment to, identification with, and involvement in the organization (Meyer & Allen, 1991), while workplace diversity involves the representation and inclusion of individuals from various backgrounds, which can influence organizational outcomes (Shen, Chanda, D'Netto & Monga, 2009). Workplace inclusion refers to the extent to which individuals feel valued, respected and integrated into the organization (Roberson, 2006).

The educational sector has received comparatively less attention than areas such as information technology and the industrial sector, which have been the primary focus of most research on this subject (Oztemel & Gursev, 2020). Guo and colleagues (Guo, Xue, He & Yasmin, 2023) emphasizes the importance of examining the factors that significantly impact affective commitment within the workplace.

However, while several studies have emphasized the importance of inclusion and diversity in western contexts, limited empirical research has explored how these dynamics operate within higher education institutions in Pakistan. This study aims to address this gap by exploring the relationship between organizational virtuousness, workplace inclusion, workplace diversity, and affective commitment among university teachers. Furthermore, there is a lack of research investigating how organizational virtuousness may foster workplace inclusion which in turn may enhance workplace diversity and affective commitment in the context of Pakistani academia.

Furthermore, there has been not enough attention on how organizational virtuousness, workplace diversity, and emotional commitment relate to relevant demographics like gender, ethnicity, and background in education. This study fills this gap by investigating an issue that has received little attention in previous research (Sabharwal, 2014; Shore, Cleveland & Sanchez, 2011): whether demographic characteristics are linked to differences in these organizational variables.

This study contributes to the understanding of relationships between organizational virtuousness, workplace inclusion, affective commitment, and workplace diversity in educational workplaces, building on the importance of investments in education to foster a supportive and inclusive environment. Organizations use strategies and policies to build a sense of positive attitudes and behaviors toward work to meet and achieve their goals effectively, increasing employee interest, performance, and outcomes (Albrecht, Bakker, Gruman, Macey & Saks, 2015; Podsakoff, MacKenzie & Podsakoff, 2009). In today's challenging and ever-changing environment, organizations also strive to build highly knowledgeable and skillful workers (Barney & Wright, 1998).

In essence, developing such a workforce is closely associated with the mandate of higher education institutions, which remain the principal source of competent personnel (Altbach, Reisberg & Rumbley, 2009). The role and influence of educational institutions have thus impacted organizational performance, largely through their contribution of intellectual capital (Delanty, 2001). Therefore, it is imperative to continue investing in and fostering the growth of educational institutions, particularly those in higher education, to guarantee their ability to adapt and flourish in a world undergoing rapid transformation.

At present, higher education institutions are engaged in developing operational strategies to aid instructors in establishing a welcoming learning environment. By fostering a virtuous work environment grounded in forgiveness and integrity, organizations can enhance productivity and satisfaction (Cameron, Bright & Caza, 2004; Zaheer, Breyer, Dumay & Enjeti, 2022). Mor Barak (2015) describes workforce diversity as the categorization of employees into distinct groups, influencing employment outcomes such as job opportunities, workplace interactions, and promotion prospects. Building on this understanding, inclusive and diverse workplaces recognize and value the unique needs, perspectives, and potential of their workforce (Roberson, 2019). This approach not only mitigates challenges associated with diversity but also fosters deeper employee trust and commitment (Shore, Cleveland & Sanchez, 2018). Consequently, inclusive workplace cultures lead to improved recruitment, employee loyalty, innovation, and performance (Cox, 1994; Sabharwal, 2014).



## Literature review

*Organizational virtuousness.* Cameron and colleagues (2004) defines organizational virtuousness as “the behaviors of individuals, collective activities, cultural qualities, or processes that encourage and maintain virtuousness within an organization” (p. 768). Virtue is a concept that is significant in organizations and can be defined as the embodiment of moral excellence, a beneficial impact on individuals, and an encouragement of societal improvement (Cameron et al., 2004). The evaluation of an organization’s virtuousness entails the examination of five fundamental components: optimism, trust, compassion, integrity, and forgiveness (Cameron et al., 2004). The presence of organizational virtuousness can enhance an organization ability to withstand challenges and achieve sustained success over time. The attribute is considered self-sustaining since the setting functions as a conductor of virtue, potentially motivating others to act virtuously (Meyer, 2018). In a broader sense, virtuousness in the workplace aims to create a setting that promotes self-esteem, improves the skills and abilities of employees, and increases their whole state of being (Cameron & Spreitzer, 2012).

Despite the ongoing debate regarding the existence of universal virtues and the precise nature of goodness, each society and culture maintains a unique set of characteristics that they consider to be virtuous (Peterson & Seligman, 2004). Cameron et al. (2004) have demonstrated that the presence of virtuousness in individuals and organizations enhances their ability to effectively navigate challenging circumstances, thereby fostering fortitude and resilience. As a result, it serves to protect the organization from the adverse consequences frequently associated with downsizing (Cameron & Dutton, 2003).

The fields of positive psychology (Seligman & Csikszentmihalyi, 2000) and positive organizational behavior (Luthans, 2002) have greatly enhanced our scientific knowledge of positive traits, virtues, emotions, and institutions that promote the well-being and success of individuals. Peterson and Seligman’s (2004) research focus on individuals, particularly through the development of the values in action classification of character strengths and virtues. This classification identifies and organizes essential human traits that contribute to individuals’ pursuit of happiness and well-being. Affective well-being has been found to considerably impact the association between organizational virtuousness and outcomes such as affective

commitment, work engagement, job performance, and organizational citizenship practices (Ahmed, Rehman, Ali, Ali & Anwar, 2018; Magnier-Watanabe, Uchida, Orsini & Benton, 2020; Singh, David & Mikkilineni, 2018).

*Organizational virtuousness and positive outcomes.* Employees who perceive their organization as ethically sound will likely experience positive emotions, such as happiness, joy, and contentment. These emotions, in return, amplify their commitment in their task (Sharma & Goyal, 2022). Rego and colleagues (Rego, Ribeiro & Cunha, 2010) found that organizational virtuousness enhances employees’ state of flow, engagement, and well-being by fostering positive social interactions that generate pleasant emotions. Ho and colleagues (Ho, Hou, Poon, Leung & Kwan, 2023) conducted a study that focuses on analyzing the individual components of collective appreciation, compassion, care, and forgiveness and this study highlights the impact of each of these elements on positive employee outcomes and enhances theoretical understanding by revealing the specific effects of individual components of organizational virtuousness on well-being and organizational commitment.

Additionally, organizational virtuousness contributes to creating an inclusive and respectful environment that values differences, thereby supporting the development of workplace diversity (Shore et al., 2018). Virtuous practices like fairness, compassion, and integrity promote psychological safety, which encourages diverse individuals to practice and thrive within organizations (Grimani & Gotsis, 2020). Thus, organizational virtuousness not only enhances affective commitment but also fosters a more diverse and inclusive workplace culture. Based on these relationships reported in the literature, the following hypotheses can be formulated.

H1: Organizational virtuousness is positively correlated with Workplace diversity among university teachers;

H2: Organizational virtuousness is positively correlated with the Affective commitment among university teachers.

*Organizational virtuousness and workplace inclusion.* Shore et al. (2018) discuss the relationship between organizational virtuousness and workplace diversity within the context of inclusive workplaces. The authors highlight that fostering organizational virtuousness, which involves principles such as integrity, compassion, and respect, is central to promoting inclusivity and effectively managing diversity. They propose that such practices enhance a supportive environment, enabling diverse employees to feel valued and engaged. This connection emphasizes that

organizational virtuousness not only supports moral and ethical behavior but also serves as a practical framework for achieving greater workplace diversity.

Nawaz and Laij (2021) study that organizational virtuousness plays a crucial role in enhancing organizational effectiveness within private universities by fostering a positive environment marked by trust, integrity, and compassion. Virtuous practices, such as ethical decision-making and supportive leadership, contribute to better professional development for faculty and staff, as well as improved student outcomes. This alignment of virtuousness with educational settings highlights its importance in creating resilient and inclusive institutional cultures that drive success in higher education contexts.

*Workplace diversity.* Building on the discussion of organizational factors that influence employee outcomes, it is also essential to consider the role of workforce diversity in shaping the workplace experience. The term diversity refers to the compositional distinctions among individuals within a work unit (Roberson, Ryan & Ragins, 2017). These discrepancies can lead individuals to perceive others as either like or different from themselves. Manoharan and Singal (2017) provide a comprehensive definition of workforce diversity as the heterogeneity and differences among employees in an organization in terms of race, age, ethnicity, cultural background, physical abilities, religion, gender, sexual orientation, language, education, lifestyle, beliefs, appearance, and economic status.

Simultaneously, organizations in a diverse array of sectors have begun to prioritize demographic and organizational diversity. Numerous researchers have proposed typologies for the classification of diversity attributes like Milliken and Martins (1996) distinguished between observable attributes (age, gender, and ethnicity) and latent attributes (education, functional background, and tenure). Harrison and colleagues (Harrison, Price & Bell, 1998) classified diversity into two categories: surface-level diversity and deep-level diversity.

Despite the utilization of distinct terminology, these classifications are intrinsically comparable. According to prior research (Webber & Donahue, 2001), diversity can be classified into two categories: task-oriented diversity (tenure, functional, and educational background) and relations-oriented diversity (age, gender, racial/ethnic). In conclusion, Webber and Donahue (2001) research has classified diversity into two primary categories: social categorization and informational diversity.

Workplace diversity plays a crucial role in shaping employee performance and organizational success, especially within the educational sector and workforce diversity introduces a variety of perspectives, skills, and experiences, fostering creativity and enhancing problem-solving capabilities (Radha & Aithal, 2024). It enables educational institutions to better understand and address the needs of diverse populations while also enriching academic and administrative functions (Sohail et al., 2019).

*Affective commitment.* Affective organizational commitment refers to the emotional attachment employees have toward their organization, reflecting the strength of their identification with and involvement in it (Meyer & Allen, 1997). When employees have strong relationships and trust in their organization, their commitment to the organization is increased (Klein, Cooper, Molloy & Swanson, 2014). Organizations can cultivate employees' emotional loyalty and confidence by offering a variety of incentives, including compensation, managerial support, and opportunities for professional development. Employees respond to these incentives by enhancing their affective attachment to the organization, trust, and commitment to achieving organizational objectives, as per social exchange theory (Kim, Roh, Dong & Lee, 2016).

Employees' experiences throughout their work life in an organization significantly influence their socialization process and overall effectiveness, which in turn impacts their emotional attachment to the organization (Saks & Gruman, 2014). Lee and colleagues (Lee, Carswell & Allen, 2000) exhibited that senior managers and leadership's open communication and support for employees foster affective commitment, thereby enhancing productivity and performance.

Affective commitment enhances the likelihood of employees engaging creatively and striving for organizational success (Fu, Ye & Law, 2014; Nazir, Shafi, Atif, Qun & Abdullah, 2019). Academic institutions, especially those in higher education, benefit from affective commitment as it positively influences organizational identification and individual innovation. Employees who feel emotionally attached to their workplace are more inclined to contribute to innovation, which is crucial in highly competitive and dynamic educational environments (Khaola & Coldwell, 2019).

*Workplace inclusion.* The concept of inclusion-exclusion in the workplace refers to the extent to which an individual feels thoroughly integrated into the organizational system.

This integration may take place through formal methods, such as having access to information and participating in decision-making processes, or through informal methods, such as engaging in casual conversations and lunch meetings where information is exchanged, and decisions are made less formally (Mor Barak, 2015). An individual must satisfy two interrelated needs to feel a sense of belonging within a workgroup: the need to maintain a sense of individuality and the need to feel a part of the group (Shore, Randel et al., 2011).

Ferdman and Deane (2014) defines inclusion as the extent to which organizations and their members effectively engage, utilize, and develop relationships with individuals from a variety of origins. Inclusion refers to a work environment that empowers individuals with diverse perspectives, backgrounds, and cognitive styles to collaborate effectively and leverage their full potential in achieving organizational objectives rooted in sound principles, as defined by Pless and Maak (2004). In recent decades, perceived inclusion has garnered attention in management research and has been developed in education and social work research (Tang, Zheng & Chen, 2017). Perceived inclusion is the phenomenon by which employees perceive that they are accepted and acknowledged in the workplace. According to academicians, inclusion is indicative of the psychological satisfaction and positive experiences of employees within the organization (Mor Barak, Cherin & Berkman, 1998).

Research in this field is concentrated on developing work environments that foster a sense of inclusion among individuals from various backgrounds (Bilimoria, Joy & Liang, 2008). Inclusion and diversity are inextricably linked, as gender consistently influences information networks and decision-making (Findler, Wind & Barak, 2007). The access and legitimacy paradigm emphasizes the alignment of workforce demographics with those of key groups to serve specialized organizations better, while the discrimination and fairness paradigm emphasizes equal opportunity, equitable treatment, recruitment, and compliance (Thomas & Ely, 1996). Social identity theory asserts that employees' perspectives regarding organizational actions and their affiliation with identity groups impact organizational policies (Cho & Mor Barak, 2008).

*Mediating role of workplace inclusion.* Workplace inclusion and diversity are interrelated and strongly supported by social exchange theory. Inclusive work environments encourage employees from diverse backgrounds to engage more freely in social exchanges without fear of bias or discrimination.

Shore et al. (2011) argues that inclusion results from the fair treatment of all employees, creating a positive cycle of trust and collaboration. When employees feel included, they reciprocate by contributing to a more diverse and harmonious workplace culture.

Moreover, workplace inclusion plays a pivotal mediating role in linking organizational virtuousness to both workplace diversity and affective commitment. Inclusion serves as the behavioral expression of organizational virtuousness, fostering an environment where diverse individuals feel psychologically safe and engaged (Nishii & Rich, 2013). When employees feel genuinely included, respected, valued, and integrated they are more likely to develop emotional bonds with their organization, reinforcing affective commitment (Ferdman & Deane, 2014; Shore et al., 2011). This inclusive climate enables the translation of virtuous values into tangible diversity outcomes and strong emotional commitment to the organization (Ashikali & Groeneveld, 2015). Based on these relationships reported in the literature, the following hypotheses can be proposed.

H3: Workplace inclusion mediates the relationship between Organizational virtuousness and Workplace diversity among university teachers;

H4: Workplace inclusion mediates the relationship between Organizational virtuousness and Affective commitment among university teachers.

*Gender differences in perspective of organizational setting.* Gender has long been recognized as a key factor influencing individuals' experiences and perceptions in an organizational setting. In academic institutions, gender-based disparities in access to opportunities, inclusion and perception of organizational values have been widely documented. Le and colleagues (Le, Palmer Johnson & Fujimoto, 2021) emphasized the gender plays a crucial role in how employees perceive workplace fairness, inclusion, and overall organizational support, particularly in diverse academic environments. Similarly, Shore et al. (2018) argued that gender diversity can shape both the interpersonal and structural dynamics of workplace, affecting levels of perceived inclusion and commitment. This study underlines that gender is not merely a demographic variable, but a social determinant that affects how employees engage with organizational cultural values. Therefore, gender is expected to significantly influence how university teachers perceive organizational virtuousness, workplace inclusion, workplace diversity, and affective commitment.

H5: There is a significant gender-based difference in Organizational virtuousness, Workplace inclusion, Workplace diversity, and Affective commitment among university teachers.

*Influence of educational qualification on organizational practices.* Educational qualification also influences an employee's perceptions and engagement with organizational settings. Higher levels of education are often associated with greater expectations for fairness, inclusion, and professional growth. Altbach et al. (2009) noted that individuals with advanced academic qualifications tend to have more nuanced understanding of organizational values and may seek more inclusive and supportive environments. Furthermore, Meyer and Allen (1997) theory of organizational commitment highlights that educational background can shape affective commitment by influencing how employees interpret organizational support and shared values. These findings suggest that individuals with varying educational qualifications may perceive and respond to organizational virtuousness, workplace inclusion, workplace diversity, and affective commitment in different patterns.

H6: There is a significant difference based on educational qualification in Organizational virtuousness, Workplace inclusion, Workplace diversity, and Affective commitment among university teachers.

*Impact of ethnicity on workplace perception.* Ethnic background plays a pivotal role in shaping workplace experiences, particularly in multicultural or multiethnic settings like Pakistan. Employees from different ethnic groups may perceive organizational policies and practices differently based on their cultural identity, which in turn can influence their sense of belonging, and trust in the organization. Mor Barak (2015) highlighted that ethnic identity is closely linked to perceptions of organizational justice and inclusion, which are foundational of affective commitment. Roberson (2019) emphasized that recognizing and valuing ethnic diversity within organization leads to higher organizational trust and positive work attitude. In academic institutions where ethnic identities intersect with professional roles, understanding how ethnicity shapes organizational perception becomes essential.

H7: There is a significant difference based on ethnic background in Organizational virtuousness, Workplace inclusion, Workplace diversity, and Affective commitment among university teachers.

## Research design

The investigation implemented a quantitative research design. Quantitative research necessitates the collection of data in a structured manner using survey methods and vast samples. Furthermore, a cross-sectional research approach was employed to gather data on the population at a specific point in time.

## METHOD

### Participants

A purposive convenient sample consisting of 320 regular university teachers was selected for the study. These teachers were employed across both public and private universities, ensuring a diverse representation of academic institutions. The sampling was conducted in specific geographical regions, namely Islamabad, Rawalpindi, Lahore, and Multan. These areas were targeted to capture a broad range of educational environments and teacher experiences from major cities in Pakistan, providing a balanced perspective on the study's subject matter. The purposive nature of the sampling allowed for the selection of participants who were most relevant to the research objectives. Participants in this study's sample needed to meet the criterion of having at least a master's degree (16 years of education), being permanent university teachers, and having one year of experience.

Table 1 represents gender, education level, and ethnicity as the demographic characteristics of the sample. The gender distribution within the sample shows a near-equal representation, with males slightly outnumbering (52.2%) than females (47.8%). Most participants (51.6%) possess a Ph.D, while those with an M.Phil. (32.2%) and an M.Sc. (16.3%) follow. Punjabis are the most numerous ethnic group (53.4%), followed by Sindhi (16.3%), Pashtuns (15.3%), and Saraiki (15.0%).

### Instruments

*Organizational virtuousness.* Organizational virtuousness was assessed using a 29-item Likert-type response scale developed by Cameron (2004). The scale encompassed five characteristics of organizational virtuousness: social



**Table 1** – Demographic profile of the sample (N = 320)

Demographics	<i>n</i>	%	Demographics	<i>n</i>	%
<i>Gender</i>			<i>Ethnicity</i>		
Male	167	52.2%	Punjabi	171	53.4%
Female	153	47.8%	Pashtun	49	15.3%
<i>Education</i>			Sindhi	52	16.3%
M.Sc.	52	16.3%	Saraiki	48	15%
M.Phil.	103	32.2%			
Ph.D	165	51.6%			

optimism, trust, compassion, integrity, and forgiveness. Cameron et al. (2004) demonstrated that the scale has a high level of internal consistency, with an estimate of  $\alpha = .92$ . The scale has a Likert-type rating system with five response categories, ranging from strongly disagree (1) to strongly agree (5), and items are like “We treat each other with respect”. The current score range for the scale extends from 29 to 145. A high score on this scale represents a significant occurrence of virtuous practices inside the organization, and a low score implies a low frequency of organizational virtuousness.

*Workplace inclusion.* Workplace inclusion means that people across varying identities feel valued, welcomed, respected, included, represented, and heard and that they entirely belong and can be authentic (Lennox et al., 2022). The study used the workplace inclusion scale developed by Lennox et al. (2022). The workplace inclusion scale designed included eight dimensions and showed trust, values, individual characteristics, personal work engagement, access to opportunity, fair rewards, cultural responsiveness, respect, and social acceptance as the most pertinent dimensions for analyzing inclusion. The reliability of the eight-item scale was estimated to be with a coefficient alpha of .91 (Lennox et al., 2022). The eight items of workplace inclusion are each scored on a Likert scale of 1-5 and range from 8-40. A high score on the scale stands for vital inclusion in the workplace and vice versa.

*Workplace diversity.* Workplace diversity refers to a workplace composed of employees of varying characteristics, such as different sexes, genders, races, ethnicities, sexual orientations, etc. Workplace diversity is measured using the diversity scale, which consists of 14 items and ranges between 14 and 70. The scale is a Likert 5-point scale, with being strongly disagreed (1) to being strongly agreed (5), and the alpha reliability of the scale is of  $\alpha = .84$  (Dastane & Esheghe, 2015). A high score stands for high diversity in the workplace and vice versa (Dastane & Esheghe, 2015).

*Affective commitment.* Affective organizational commitment is a robust indicator of the intensity of the relationship between employees and the organization, as it represents the emotional bond that employees feel towards their organization (Meyer & Allen, 1997). An eight-item scale devised by Meyer and Allen (1997) was employed to evaluate the affective commitment of participants to their institution in this study; four items are reverse items (4, 5, 6, and 8), and four items are positive (1, 2, 3, and 7) of the affective commitment scale. The alpha reliability was at  $\alpha = .91$  (Allen & Meyer, 1997). The Likert-type scale includes five response categories, ranging from strongly disagree (1) to strongly agree (7), with a potential score range of 8-56. Higher scores indicate greater affective commitment to the organization, whereas lower scores suggest a reduced level of commitment.

## Procedure

The questionnaires were completed by individuals, and the data was analyzed for reliability using statistical methods. To accomplish a variety of results and more effectively summarize the findings, various statistical analyses were implemented following the study's objectives. Participants were asked to complete the questionnaires within 10-15 minutes, following the provision of informed consent at the start of the survey. Informed consent, demographic sheets, and all study instruments were included in the face-to-face questionnaires. The participant was informed that all responses would be kept confidential and used exclusively for the study. Participants were advised that they had the option to disengage from the study at any time. However, they were strongly encouraged to participate with the utmost honesty and enthusiasm. Ultimately, the participants expressed their gratitude for the time and responses they provided.

## Ethical considerations

The survey aims to provide participants with a clear understanding of its objectives, the topics being explored, and the intended use of the collected data. Participation is entirely voluntary, and individuals have the right to withdraw at any stage without any repercussions. Steps have been taken to protect participants' data and ensure its confidentiality, preventing any unauthorized access. Additionally, the selection of participants is conducted fairly and impartially, ensuring equitable treatment for all. Every participant receives consistent information, care, and respect throughout the process.

## Data analysis

The data analysis for this study was conducted using IBM SPSS Statistics version 26. Various statistical methods were employed to test hypotheses and address the research objectives. To establish the psychometric properties of the scales used, descriptive statistics (mean, standard deviation) and reliability analysis (Cronbach's alpha) were calculated to ensure internal consistency. Additionally, correlation analysis was conducted using Pearson's correlation coefficient to explore the strength and nature of relationships among study

variables, including organizational virtuousness, workplace inclusion, workplace diversity, and affective commitment.

For mediation analysis, the SPSS Process Macro (Model 4) was utilized. This allowed for the examination of the indirect effects of predictors on outcomes through mediating variables, providing insights into the mechanisms underlying the relationships among the variables. To analyze mean differences, both independent samples *t*-tests and one-way analysis of variance (ANOVA) were applied. The *t*-test was used to assess differences between two groups (e.g., gender), while one-way ANOVA was employed for comparisons among multiple groups (e.g., ethnicity or education levels). Post hoc tests were conducted following ANOVA to identify specific group differences where significant results were observed.

## RESULTS

The descriptive statistics and alpha reliability coefficients for measures are presented in Table 2. It is generally acknowledged that a Cronbach alpha value of eight or higher indicates a region of satisfactory reliability (Kline, 2015). The alpha coefficients of all instruments are within the range of .72 to .93, as demonstrated. This range is not only acceptable but also suggests that all scales are reliable. It is also evident that the actual scores of all the instruments are within the potential range. The normality of the data is evaluated by calculating skewness and kurtosis. A skewness score between -1 and +1 is considered outstanding, while a value between -2 and +2 is considered acceptable. Skewness levels that exceed -2 and +2 suggest a high degree of normality. The range of values for kurtosis that is considered acceptable is  $\sqrt{2}$  to +2. Table 2 demonstrates that the values for all scales are within the permissible range, which suggests that the data is normal.

## Correlation between study variables

The Pearson correlation coefficients were calculated among the study variables using a sample of 320 participants. Organizational virtuousness, Workplace inclusion, Workplace diversity, and Affective commitment comprise the variables that were investigated. Significant correlations are denoted by  $p < .05$  and  $p < .01$ .

The correlation matrix among the study variables is

**Table 2** – Descriptive statistic and psychometric properties of the study instruments (N = 320)

Variables	K	$\alpha$	M	SD	Range		Skew	Kurtosis
					Actual	Potential		
Organizational virtuousness	29	.93	115.59	17.23	41-145	29-145	-.78	1.15
Workplace inclusion	8	.94	25.69	8.98	8-40	8-40	-.35	-.96
Workplace diversity	14	.92	46.04	11.86	14-70	14-70	-.72	.21
Affective commitment	8	.71	36.74	8.34	14-56	8-56	.04	-.45

*Legenda.* K = number of items; Skew = Skewness.

illustrated in Table 3. It demonstrated that Organizational virtuousness has a robust positive correlation with Affective commitment, Workplace diversity, and Workplace inclusion. Affective commitment and Workplace diversity are significantly correlated with Workplace inclusion. All the significant correlations are positive, indicating that the higher levels of one variable are correlated with higher levels of the other ones.

## Mediation analysis

SPSS Macroprocess 4 was used for mediation analysis, with workplace inclusion acting as a mediator between organizational virtuousness as predictors, and workplace diversity and affective commitment as outcome variables.

Table 4 illustrates the results of the mediation analysis, which is designed to examine the indirect relationship between organizational virtuousness and workplace diversity. The results indicate that workplace inclusion serves as a mediator in the relationship between organizational virtuousness and workplace diversity. The mediation is statistically supported by indirect effect ( $\beta = .06^{***}, p < .001$ ) whose confidence interval (.01, .11) does not include zero. Additionally, the workplace inclusion explains the relationship between organizational virtuousness and workplace diversity, as evidenced by the fact that the coefficient of direct effect ( $\beta = .03$ ) is less than the total effect ( $\beta = .09^*, p < .02$ ) while the indirect effect shows consistency in direction and significance. This finding

indicates that workplace inclusion plays a mediating role in the relationship between organizational virtuousness and workplace diversity. Figure 1 illustrates this mediating relationship.

Table 5 illustrates the results of a mediation study that examines the indirect relationship of organizational virtuousness on affective commitment. The investigation specifically concentrates on the mediation link of workplace inclusion. The findings suggest that workplace inclusion is a significant factor in the mediation of the relationship between affective commitment and organizational virtuousness. The direct effect coefficient ( $\beta = .10^{***}, p < .000$ ) is considerably smaller than the overall effect coefficient ( $\beta = .13^{***}, p < .001$ ), and upper and lower boundaries of the indirect effect in same direction (Positive) indicating that the mediator effectively explains the association between the predictor and the outcome. This evidence supports the hypothesis that workplace inclusion serves as a mediator in the relationship between organizational virtuousness and affective commitment. The mediating relationship is illustrated in Figure 2.

## Group differences

The mean differences of demographic variables are assessed using an independent sample *T*-test and One-Way ANOVA to determine the group mean differences among the study variables. Table 6 shows a significant mean difference

**Table 3** – Correlation matrix among study variables (N = 320)

Variables	1	2	3	4
1 Organizational virtuousness	—			
2 Workplace inclusion	.14*	—		
3 Workplace diversity	.13*	.66**	—	
4 Affective commitment	.27**	.45**	.39**	—

\* $p < .05$ ; \*\* $p < .01$

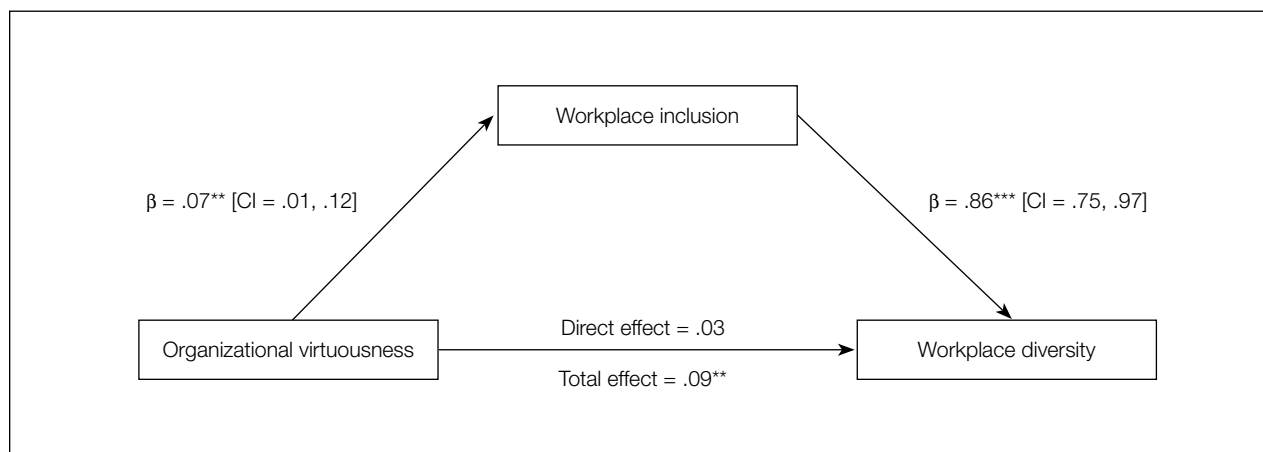
**Table 4** – Mediating role of workplace inclusion in the relationship between Organizational virtuousness and Workplace diversity among university teachers (N = 320)

Variables	$\beta$	SE	$t$	$p$	95%CI	
					$LL$	$UL$
<i>Direct effect</i>						
OV-WI	.07**	.02**	2.45	.01	.01	.12
WI-WD	.86***	.05***	15.28	.000	.75	.97
OV-WD	.03	.03	.914	.36	−.03	.08
<i>Indirect effect</i>						
OV-WI-WD	.06				.01	.11
Total effect						
	.09*	.04**	2.29	.02	.01	.16

*Legenda.* OV = Organizational virtuousness; WI = Workplace inclusion; WD = Workplace diversity.

\*\* $p < .01$ ; \*\*\* $p < .001$

**Figure 1** – Mediating role of Workplace inclusion between Organizational virtuousness and Workplace diversity (N = 320)



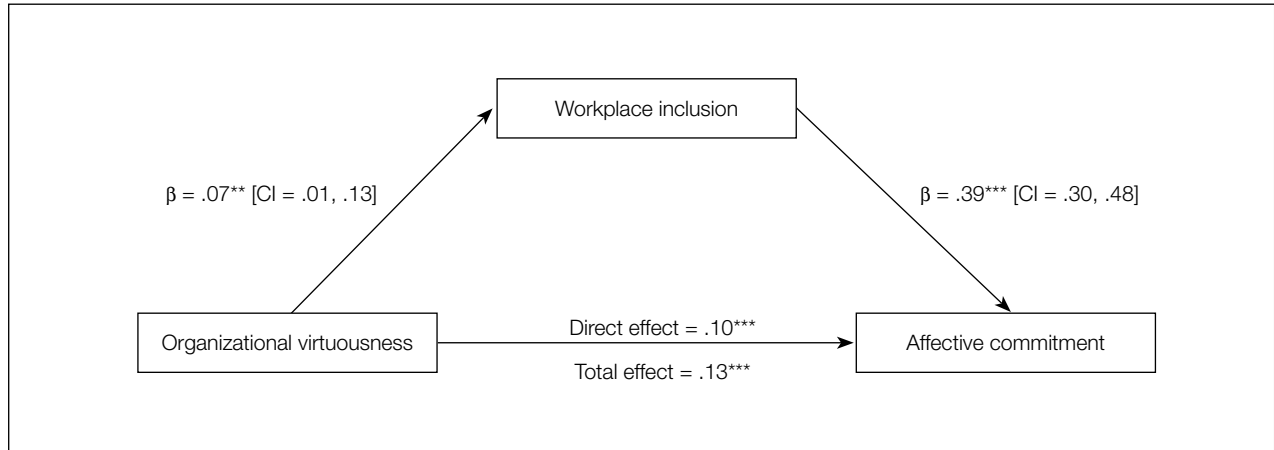
**Table 5** – Mediating role of Workplace inclusion in the relationship between Organizational virtuousness and Affective commitment among university teachers (N = 320)

Variables	$\beta$	SE	<i>t</i>	<i>p</i>	95%CI	
					<i>LL</i>	<i>UL</i>
<i>Direct effect</i>						
OV-WI	.07**	.03**	2.45	.01	.01	.13
WI-AC	.39***	.05***	8.63	.000	.30	.48
OV-AC	.10***	.02***	4.31	.000	.06	.15
<i>Indirect effect</i>						
	.10				.05	.14
<i>Total effect</i>						
	.13***	.02***	4.99	.000	.08	.18

*Legenda.* OV = Organizational virtuousness; WI = Workplace inclusion; AC = Affective commitment.

\*\* $p < .01$ ; \*\*\* $p < .001$

**Figure 2** – Mediating role of Workplace inclusion between Organizational virtuousness and Affective commitment (N = 320)



**Table 6** – Mean differences in study variables across gender (N = 320)

Variables	Gender				<i>t</i> (318)	<i>p</i>	95%CI		Cohen's <i>d</i>
	<i>Males</i>		<i>Females</i>						
	<i>(n = 168)</i>		<i>(n = 152)</i>				<i>UL</i>	<i>LL</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
OV	113.29	17.55	118.14	16.55	−.74	.46	2.34	−5.16	−.08
WI	25.56	8.62	25.84	9.41	.27	.42	1.72	−2.27	.03
WD	47.18	10.70	44.79	12.94	1.78	.03	4.99	−.21	.20
AC	36.01	8.08	37.55	8.58	1.63	.24	.31	−3.37	.18

*Legenda.* OV = Organizational virtuousness; WI = Workplace inclusion; WD = Workplace diversity; AC = Affective commitment.

in workplace diversity between male and female faculty. No significant mean difference is found between male and female faculty in organizational virtuousness, workplace inclusion, and affective commitment. First, *t*-test is used to detect gender differences, with female teachers obtaining lower scores in workplace diversity compared to their male colleagues. In contrast, male instructors exhibit lower levels

of organizational virtuousness, workplace inclusion, and affective commitment compared to their female counterparts.

Table 7 analysis highlights notable disparities in organizational virtuousness across different educational qualifications. Specifically, individuals with Master's and M.Phil./MS degrees demonstrated significantly higher levels of organizational virtuousness compared to those



**Table 7** – Mean differences in study variables across education (N = 320)

Variables	M.Sc.		M.Phil.		Ph.D		<i>F</i> (317)	<i>p</i>	η <sup>2</sup>	Post Hoc
	<i>(n</i> = 52)		<i>(n</i> = 103)		<i>(n</i> = 165)					
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
OV	119.25	16.09	118.32	13.97	112.74	18.93	4.84	.01	.03	1>3 2>3
WI	25.90	9.69	26.39	9.07	25.19	8.73	.58	.56	.00	—
WD	47.85	12.25	44.85	12.58	46.22	11.25	1.14	.32	.00	—
AC	38.63	7.57	35.66	8.59	36.82	8.35	2.23	.11	.00	—

*Legenda.* OV = Organizational virtuousness; WI = Workplace inclusion; WD = Workplace diversity; AC = Affective commitment.

holding Ph.D. degrees. The analysis did not reveal significant differences in the other variables under study, indicating that educational level may not heavily influence factors like workplace inclusion, workplace diversity, or affective commitment.

Table 8 shows that Punjabi, Sindhi, and Pashtun teachers have higher organizational virtuousness than Saraiki university teachers. Teachers who speak Punjabi and Sindhi have more outstanding affective commitment than those who speak Pashtun and Saraiki. University teachers with Punjabi ethnicity represent higher mean differences than those with Pashtun, Sindhi, and Saraiki ethnicity on organizational virtuousness. Sindhi-speaking teachers have more mean differences in affective commitment than Punjabi, Pashtun, and Saraiki-speaking teachers.

## DISCUSSION

In the present study, the role of workplace inclusion is examined as a mediator in the intricate relationships between organizational virtuousness, workplace diversity, and affective commitment among university faculty members.

This investigation underscores the significance of virtuous behavior in the promotion of the diverse and inclusive work environment and commitment by investigating how workplace inclusion influences relationships.

The correlation analysis supported Hypothesis 1, indicating that organizational virtuousness among university teachers is positively correlated with workplace diversity. Vallett (2010) provides evidence of a substantial correlation between organizational virtuousness and a diverse workplace. According to Cameron and Dutton (2003), organizational virtuousness is associated with what individuals and organizations aspire to be when they are at their very best and the best of the human condition (Cameron et al., 2004). It affects how a group defines itself, the values it upholds, and how those values are translated into actions. Organizational diversity is a collection of fundamental beliefs or assumptions that are cultivated as an organization adjusts to its environment and internal integration in higher education (Schein, 2010). This workplace diversity is characterized by its structure, environment, and values (Chaffee & Tierney, 1988).

Organizational diversity within the academic environment, therefore, operates not only as a contextual

**Table 8** – Mean differences in study variables across ethnicity (N = 320)

Variables	Punjabi		Pashtun		Sindhi		Saraiki		F (316)	p	η <sup>2</sup>	Post Hoc
	(n = 171)		(n = 49)		(n = 52)		(n = 48)					
	M	SD	M	SD	M	SD	M	SD				
OV	117.32	16.09	116.89	18.03	114.13	17.61	109.69	18.97	2.71	.04	.03	1>4 2>4
WI	25.33	8.96	25.84	9.79	26.08	9.53	26.39	7.70	.22	.88	.00	
WD	45.15	12.27	47.86	12.56	47.13	10.52	45.19	11.55	.76	.52	.00	
AC	36.29	8.38	37.20	9.43	39.12	7.78	35.31	7.24	2.11	.09	.02	3>1 3>4

*Legenda.* OV = Organizational virtuousness; WI = Workplace inclusion; WD = Workplace diversity; AC = Affective commitment.

setting but rather as a dynamic of collective beliefs and practices that impinge upon the way the universities deal with and respond to certain external and internal challenges (Schein, 2010). This was marked by its frameworks, settings, and value systems that set about turning the workplace into a suitable environment for germinating diverse views (Chaffee & Tierney, 1988). A positive correlation was observed indicating that organizational virtuousness substantially is associated with diverse workplace in higher education institutions, leading toward better service to a progressively more diverse culture and workplace.

The analysis also demonstrated a substantial correlation between organizational virtuousness and affective commitment among university teachers, thereby supported Hypothesis 2. Employees who perceive their organization as virtuous are more inclined to experience positive emotions, including pleasure, contentment, happiness, and pleasantness. This, in turn, can possibly result in increased levels of commitment and engagement in their work (Sharma & Goyal, 2022). The positive emotions that result from positive social interactions foster a state of continuous and effortless performance, active involvement,

and overall satisfaction among employees, which is a result of organizational virtuousness (Rego et al., 2010). Ho et al. (2023) investigate the contributions of various components of corporate virtuousness, such as collective gratitude, compassion, caring, and forgiveness, to the promotion of positive employee outcomes.

The mediation analysis indicates a substantial role of workplace inclusion as mediator between organizational virtuousness and workplace diversity, indicating that a higher level of organizational virtuousness is associated with more workplace diversity, supported Hypothesis 3. It suggests that organizations that demonstrate greater levels of virtuous behavior are more likely to cultivate a more inclusive work environment. Additionally, there is a well-established correlation between workplace diversity and workplace inclusion, indicating that enhanced workplace inclusion is significantly associated with increased workplace diversity. Nevertheless, the relationship between organizational virtuousness and workplace diversity does not seem to be significant, indicating that the level of organizational virtuousness does not directly influence workplace diversity. These findings contribute to the literature by providing

evidence from Pakistan's university faculty and findings suggest that, although organizational virtuousness is also correlated with workplace diversity, the mediation analysis indicates that this relationship is indirect, operating through workplace inclusion.

This mediation posits that an organization's inclusive environment is fostered by the implementation of virtuous behaviors, including ethical practices, compassion, integrity, and collective flourishing, and that workplace inclusion, in turn, enhances diversity. The hypothesis that virtuous organizational behaviors have a positive impact on workplace diversity is supported by the overall impact of organizational virtuousness on workplace diversity, including the mediation effect. Cameron and Spreitzer's (2012) study the advantageous effects of organizational virtuousness on a variety of workplace outcomes, such as inclusion and diversity.

Hypothesis 4 is supported by mediation analysis and is consistent with the growing body of literature that emphasizes the importance of positive organizational behaviors and their impact on employee attitudes and outcomes. Organizational virtuousness encompasses the behaviors and practices that foster moral excellence and well-being within organizations. Cameron et al. (2011) have discovered that it fosters an advantageous organizational environment. As a mediator in this connection, workplace inclusion is essential. Inclusion is the degree to which individuals are acknowledged and accepted in their professional setting (Shore et al., 2011). Belongingness has the potential to enhance the emotional connection between employees and their organization, thereby increasing their affective commitment.

The critical role of workplace inclusion is emphasized by the substantial direct effect it has on affective commitment in this study. Increased perceptions of organizational inclusion have a positive impact on social identity, affective commitment, and willingness to perform of employees (Marique, Stinglhamber, Desmette, Caesens & De Zanet, 2013; Raineri, 2017). Additionally, the substantial indirect effect implies that organizational virtuousness initiatives can result in a more substantial affective commitment by first enhancing workplace inclusion. This mediating role of inclusion is consistent with research that indicates that inclusive practices foster engagement and loyalty, which in turn benefit individuals and contribute to broader organizational success (Nishii, 2013).

The results presented in Table 6 partially support Hypothesis 5 which highlights a gender difference in

various study variables within the context of Pakistani culture. Females were found to score significantly higher than males in organizational virtuousness. Conversely, no significant difference was found between males and females regarding workplace inclusion, workplace diversity and affective commitment. These findings suggest that females in Pakistani culture may be more engaged in organizational virtuousness which aligns with the existing literature (Smith & Johnson, 2020) indicating that females tend to engage more deeply in these tasks. This pattern could be rooted in cultural norms and gender roles prevalent in Pakistani society, where females might be socialized to be more conscientious and ethically driven, whereas males might have different attitudes or experiences concerning workplace commitment.

Table 7 presents the mean differences in the scores of the study variables across participants with different educational qualifications (M.Sc., M.Phil., and Ph.D), with education being the grouping variable. The results reported partially support Hypothesis 6, as only the difference in organizational virtuousness is statistically significant. Post hoc analysis revealed that both M.sc and M.Phil holders scored significantly higher than Ph.D holders. The findings of the study indicate that higher educational attainment is associated with lower perceptions of Organizational virtuousness can be understood through several theoretical reasons.

First, individuals with higher educational qualifications, such as Ph.D holders, often possess a more critical and analytical mindset. This heightened critical perspective may lead them to have stricter standards and expectations regarding organizational behavior (Morrison & Milliken, 2000). As a result, they may perceive organizational virtues less favorably compared to those with lower educational qualifications, who might have a more pragmatic and less critical viewpoint (Chun, 2005). Second, organizational behavior literature suggests that higher education levels often correlate with increased awareness of complex organizational dynamics and potential ethical dilemmas (Brown & Trevino, 2006). Ph.D holders, due to their extensive academic training, are more likely to recognize subtle organizational issues and shortcomings that others might overlook.

Conversely, M.Sc. and M.Phil. holders might be more involved in the practical aspects of their roles, leading to a more positive perception of their immediate organizational environment (Podsakoff et al., 2009). They may also have less exposure to the highest levels of organizational decision-

making where more complex ethical dilemmas arise, resulting in more favorable evaluations of organizational virtuousness. The lack of significant differences in the workplace inclusion, workplace diversity, and affective commitment suggests that these attributes are more uniformly distributed and less influenced by educational attainment aligning with the idea that inclusivity, diversity, and affective commitment are foundational aspects of professional conduct, irrespective of one's level of academic achievement (Meyer & Allen, 1997; Shore et al. 2011).

In conclusion, the study's results suggest that higher educational attainment fosters a more critical perspective and heightened awareness of organizational issues, leading to lower perceptions of organizational virtuousness among Ph.D holders compared to those with M.Sc. and M.Phil. qualifications. This aligns with previous research indicating that higher education levels can sometimes lead to more critical perspectives on organizational practices (Smith & Brown, 2020). The lack of significant differences in workplace inclusion, workplace diversity, and affective commitment suggests that these traits may be relatively stable across different educational levels, which is consistent with literature suggesting that personality traits and workplace perceptions are less influenced by educational attainment (Meyer, Stanley, Herscovitch & Topolnysky, 2002).

Table 8 presents the mean differences in the score of the study variables across ethnic groups. The results reported partially support Hypothesis 7, as only the difference I organizational virtuousness is statistically significant. This study examines cultural differences among Punjabi, Pashtun, Sindhi, and Saraiki ethnic groups in Pakistan. Organizational virtuousness scores were highest among Punjabi participants and lowest among Saraiki participants. Post hoc analysis revealed that Punjabi participants scored significantly higher than Saraiki participants, and Pashtun participants also scored significantly higher than Saraiki participants. These findings align with previous research suggesting that cultural and ethnic backgrounds can influence perceptions of organizational virtuousness (Smith, 2020).

The study's findings on the differences in organizational virtuousness Punjabi, Pashtun, Sindhi, and Saraiki ethnic groups in Pakistan can be theoretically explained through the lens of cultural and socio-economic factors. Punjabi participants scoring the highest in organizational virtuousness may be attributed to the Punjab region's relatively advanced industrial and educational development, which fosters a more

structured and virtuous organizational culture (Rehman, Khan, Khan, Ullah & Khan, 2024). In contrast, the Saraiki region, being less developed economically and educationally, may not prioritize or have the means to cultivate the same level of organizational virtuousness, thus explaining their lower scores.

## Limitations and suggestions

In the present study, a limitation to consider is cross-sectional design, which does not allow for the examination of causal relationships between the variables. The sample was limited to university teachers, and given the variations in structure and culture, it is important to exercise caution when applying the findings to other institutions. Job and performance evaluation systems range across various occupational settings and might have varying effects on employees' behavioral and attitudinal reactions. Moreover, the study's findings may be influenced by cultural disparities between private and public sector universities. An analysis of public and private sector universities could yield significant insights regarding the influence of environmental disparities.

## CONCLUSION

This research tries to explain the interrelated roles of organizational virtuousness, affective commitment, workplace diversity, and workplace inclusion within the context of university instructors, emphasizing the mediation of these associations by workplace inclusion. Findings showed that organizational virtuousness is essentially fostering workplace inclusion and is important for the enhanced morale and commitment of faculty members in universities.

The correlation analyses lead to results in line with the hypotheses of the study, organizational virtuousness was correlated positively with workplace inclusion, diversity, and affective commitment. Thus, these findings support the notion that organizational virtuousness leads to more committed employees due to a core value orientation toward respect and understanding, possibly conducive to improving the academic work environment. These findings are critical for higher education institutions seeking ways to enhance workplace dynamics and organizational growth. Universities

can leverage such insights by adding interventions like diversity training programs, workshops, and inclusive leadership policies that clearly show commitment to change. Institutions will then be able to track and fine-tune their strategies based on inclusion and diversity of metrics over

time. In return, institutions of higher education will appreciate the inculcation of these principles in their systems as it fosters an environment that encourages not only diversity in talents but also improves institutional morale and dedication to a sustainable and performing academic community.

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# LMX and TMX as resources for work engagement and performance: Gender inequalities in the hybrid work context

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✎ **ABSTRACT.** Nel 2022, con la fine della pandemia di Covid-19, il telelavoro da casa ha gradualmente lasciato il posto al lavoro ibrido. Questo studio mira a comprendere in che modo gli scambi leader-membro (LMX) e gli scambi membro-membro (TMX), influenzano gli indicatori della qualità della vita sul lavoro: a tale scopo è stato distribuito un questionario online in una Pubblica Amministrazione francese. Sono state analizzate complessivamente 570 risposte, di cui 170 provenienti da uomini e 398 da donne, utilizzando un modello di equazioni strutturali multigruppo tramite Mplus. Per le donne, i risultati mostrano che la qualità degli scambi con il manager influenza la loro soddisfazione riguardo all'equilibrio tra vita lavorativa e vita privata e al loro impegno sul lavoro. Al contrario, per gli uomini, è la qualità delle relazioni con gli altri membri del proprio team a determinare una maggiore soddisfazione in questi ambiti.

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✎ **SUMMARY.** In 2022, with the end of the Covid-19 pandemic, home-based teleworking has gradually given way to hybrid working. This research aims to understand how socio-organizational resources, namely leader-member exchanges (LMX) and team-member exchanges (TMX), influence indicators of quality of life at work, such as work engagement, satisfaction with work-life balance, and perceived individual performance at work. An online questionnaire was distributed in a large French public administration in 2022. A total of 570 responses, including 170 men and 398 women, were analyzed using a multi-group structural equation model via Mplus. For women, the results show that the quality of exchanges with the manager influences their satisfaction with work-life balance and work engagement. In contrast, for men, the quality of relationships with other members of their team has a higher effect on satisfaction with work-life balance, work engagement, as well as on perceived individual performance, compared to the women's group. Finally, by discussing theoretical and practical issues, we highlight that an HR policy that has not been explicitly designed to ensure equality of resources can have a deleterious impact on hybrid workers, especially women.

**Keywords:** Hybrid work, Gender equality, Public organization

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## INTRODUCTION

In France, March 2020 marked the onset of the Covid-19 pandemic and the nationwide lockdown measures. During this period, home-based teleworking allowed approximately 25% of French employees to maintain professional activity, ensuring continuity for many organizations (DARES, 2020). By December 2020, this figure had risen to 27%, with 70% of teleworkers working remotely on a regular basis, compared to just 4% in 2019 (DARES, 2022b). In 2021, over 4,000 teleworking agreements were signed, ten times more than in 2017, highlighting organizational recognition of the cost-saving and structural benefits of remote work (DARES, 2022a).

This period of sudden and widespread teleworking evolved into a more structured model in 2022, with the implementation of permanent hybrid work agreements. These structural changes have introduced new challenges regarding quality of life at work, particularly in terms of gender equality (Çoban, 2022) and professional relationships (Bezak et al., 2022).

This study investigates gender disparities in access to these socio-organizational resources in the context of a French public organization. While remote and hybrid work arrangements have the potential to enhance employee well-being, they may also amplify existing inequalities. Drawing on the Job Demand-Resources Model (JD-R; Bakker & Demerouti, 2017; Demerouti, Nachreiner & Schaufeli, 2001), this research examines how leader-member exchanges (LMX) and team-member exchanges (TMX) – two key socio-organizational resources grounded in Social Exchange theory (Blau, 2017) – are associated with work engagement (Schaufeli, Salanova, González-Romá & Bakker, 2002), satisfaction with work-life balance (Valcour, 2007), and perceived individual work performance (Griffin, Neal & Parker, 2007). In addition, the study considers psychological detachment from work (Sonnentag & Fritz, 2007), as an individual resource that may mediate these relationships, following the principles of Conservation of Resource theory (COR; Hobfoll, 2011).

While previous research has explored the impact of teleworking on quality of working life, few studies have addressed the issue of the link between gender and access to social and organizational resources in a hybrid work context (van der Lippe & Lippényi, 2020) surprisingly little empirical evidence supports that it decreases work-family conflict. In this paper we examine the role of a supportive organizational context in making working from home facilitate the

combination of work and family. Specifically, we address to what extent perceptions of managerial support, ideal worker culture, as well as the number of colleagues working from home influence how working from home relates to work-family conflict. By providing insight in the role of the organizational context, we move beyond existing research in its individualistic focus on the experience of the work-family interface. We explicitly address gender differences since women experience more work-family conflict than men. We use a unique, multilevel organizational survey, the European Sustainable Workforce Survey conducted in 259 organizations, 869 teams and 11,011 employees in nine countries (Bulgaria, Finland, Germany, Hungary, Netherlands, Portugal, Spain, Sweden, United Kingdom). The present study adopts a gender-informed perspective, focusing on the influence of socially constructed gender roles and norms in shaping access to work resources and experiences in the context of hybrid work. By doing so, it provides actionable insights for HR professionals and policy-makers aiming to promote both gender equality and sustainable work conditions in the evolving landscape of hybrid work.

## Literature review

*Quality of leader-member exchange and hybrid work.* The quality of leader-member exchange (LMX) is a concept first proposed in 1975 and formalized in the work of Graen and Uhl-Bien (1995). This concept assumes that the managerial relationship is a unique exchange relationship whose evolution over time makes it possible to define the roles of each person. In 2006, Golden surveyed 294 American teleworkers in a large company to determine the role of professional relationships on job satisfaction. He finds a positive, linear relationship between LMX and the number of hours of teleworking reported by the respondent, but no tests are carried out to identify potential gender differences (Golden, 2006). A few years later, de Vries and colleagues (De Vries, Tummers & Bekkers, 2019) show that a high-quality LMX relationship reduces the risk of isolation among teleworkers. Similarly, Kim and colleagues (Kim, Phillips, Park & Gully, 2023), after surveying 342 employees of an oil refining company in South Korea, show that people receiving high-quality LMX are also more inclined to share their knowledge with other team members. Finally, Toscano and colleagues (Toscano, Zappalà & Galanti, 2022) observe that LMX is not

only a significant predictor of work performance, but is also negatively associated with perceived work-family conflict among teleworkers. Although gender was controlled for in this study, the authors did not find significant differences between men and women. Considering the JD-R model, high-quality LMX, as a socio-organizational resource, should lead to improved work engagement (Demerouti et al., 2001).

H1: Leader-member exchanges are positively and significantly related to work-life balance satisfaction (a), work engagement (b) and perceived individual work performance (c) in both groups (women vs. men);

H2: Leader-member exchanges are positively and significantly related to perceived work performance by mediating work-life balance satisfaction (a) and work engagement (b) in both groups.

*Quality of team-member exchange and hybrid work.* The quality of team-member exchanges (TMX) plays an integral role in the social support process. Seers and colleagues (Seers, Petty & Cashman, 1995, p. 21) define the quality of exchange between team members as an assessment of “the reciprocity between a member and his or her team in terms of the member’s contribution of ideas, comments and assistance to other members and, in return, the member’s receipt of information, help and recognition from other team members”. In 2006, Golden found a significant, linear and negative relationship between teleworking intensity and TMX quality, without controlling the effect of gender. In times of pandemic, Liebermann and colleagues (2021) explain that workers must devote more effort and thought to communicate with their colleagues, and yet their communication is often ineffective (Wang, Liu, Qian & Parker, 2021). However, without controlling gender effects, it is not possible to conclude from these two studies that there are differences. In addition to communication constraints, there is a lack of social relations between colleagues and teleworkers (Stempel & Siestrup, 2021), which threatens the quality of TMX for both men and women. This increase in the complexity of professional relations is also associated with a reduction in performance at work (Catana, Toma, Imbrisca & Burcea, 2022).

High-quality TMX, involving positive relationships and mutual support within the team, can also lead to work-life balance satisfaction. From the point of view of the JD-R model (Demerouti et al., 2001) and the COR theory (Hobfoll, 2011), high-quality TMX are major socio-organizational resources. These resources enable better communication,

mutual support between colleagues and better collective absorption of workload and responsibilities. In fact, Love and Dustin (2014) highlight the positive link between high-quality TMX and an individual’s propensity to take charge at work. By extension, TMX enables personal resources to be retained through social support, making the remaining resources available for personal life and improving work-life balance. This is in line with the theory of role balance (Marks & MacDermid, 1996), according to which team members who collaborate effectively can adapt more easily to the needs of their colleagues, thereby reducing conflict between professional and personal roles.

H3: Team-member exchanges are positively and significantly related to work-life balance satisfaction (a), work engagement (b) and perceived individual work performance (c) in both groups;

H4: Team-member exchanges are positively and significantly related to perceived individual work performance by mediating work-life balance satisfaction (a) and work engagement (b) in both groups.

*Psychological detachment at work as mediator.* Psychological detachment from work is defined as the ability not to be actively or passively involved in work outside conventional working hours, as well as the ability not to connect mentally with everything to do with work (Sonnentag & Fritz, 2007). This psychological detachment plays an essential role as a mediator between the resources and demands of work and their effects (Demerouti et al., 2001). The use of information and communication technologies (ICTs), which define the practice of teleworking, and the constant availability they allow, make it even more difficult to maintain this psychological detachment, even though it promotes recovery (Santuzzi & Barber, 2018).

High-quality LMX are perceived as positive social exchange relationships, in which workers receive support, recognition and development opportunities from their leader (Blau, 2017). This support can reduce perceived work demands, facilitating psychological detachment during rest time. This psychological detachment makes it possible to spend quality time with family, friends or to recharge one’s batteries individually, thus improving satisfaction with work-life balance.

H5: Leader-member exchange is positively and significantly related to psychological detachment at work in both groups;

H6: Psychological detachment at work and work-life

balance satisfaction are two mediators between leader-member exchange and perceived individual work performance in both groups.

*Gender inequity in hybrid work context.* Back in 2003, gender biases and stereotypes already accompanied the introduction of hybrid working, with 64% of women needing their manager's approval to telework, compared with only 37% of men (Tremblay, 2003). In 2022, Abendroth and colleagues report that women face more obstacles in their ability to telework from home, notably due to a lack of acceptance from managers, especially when they have children, compared to men with or without children. The literature points out that women feel they miss out on professional opportunities when they telework, unlike their male counterparts who do not (CohenMiller & Izekenova, 2022).

Men have expectations of professional success and cultural pressures to fulfil their role as the breadwinner of the household (Kågesten et al., 2016). On the other hand, women face 'triple days' (Giovanis, 2018), which increases conflicts between family, personal and professional activities, and makes psychological detachment from work more challenging. The contradictions in the empirical studies on this subject do not allow us to conclude which of the two, women or men, find it easier to detach themselves psychologically from work (Dolce, Ghislieri, Molino & Vayre, 2024).

Since the pandemic, many studies have highlighted gender disparities in work-life balance satisfaction. Studies show that women take on more responsibilities than men, making it difficult to achieve a satisfactory balance (CohenMiller & Izekenova, 2022; Giovanis, 2018). The temporality and spatiality of these roles seem to make psychological detachment from work more complicated for women than for their male counterparts in a health crisis context (van der Lippe & Lippényi, 2020).

We hypothesize that men and women will have differentiated relationships to socio-organizational resources (TMX and LMX), implying unequal relationships to work engagement, work-life balance satisfaction and perceived individual work performance in a post-pandemic context.

H7: Women have less frequent access to high-quality socio-organizational resources (LMX and TMX), which are negatively and directly related to work engagement (a), work-life balance satisfaction (b) and perceived individual work performance (c).

We consider that the lower quality of LMX among women, compared to men, leads to weaker psychological

detachment from work. This lower psychological detachment from work has a negative and indirect relationship with work-life balance and perceived individual work performance;

H8: Women have a lower score for psychological detachment from work than men, which is negatively and indirectly related to work-life balance and perceived individual work performance.

*Research model.* The research hypotheses are presented in Figure 1.

## METHOD

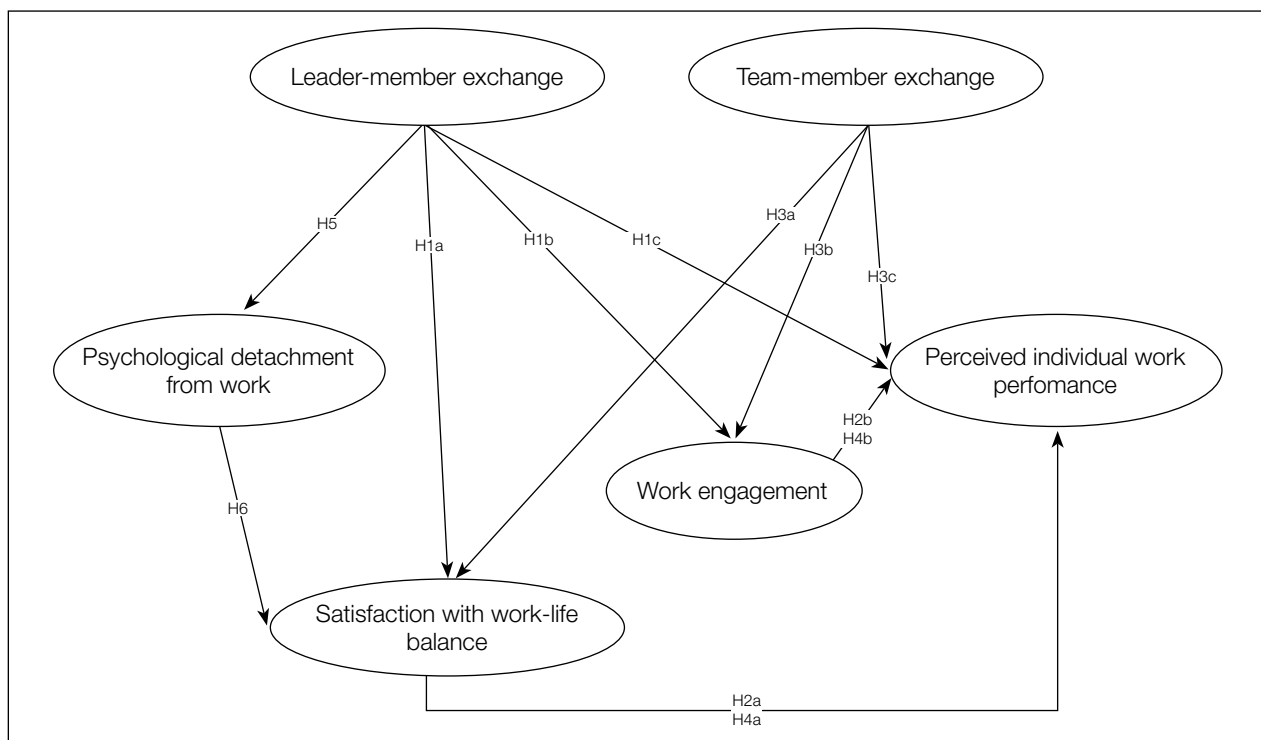
### Participants and procedure

An online questionnaire was used to collect a total of 738 responses from a large French Public Administration, in 2022, after successive waves of stop-and-go measures, in a stabilized context. To remember timetable for French restrictions during the pandemic period: first confinement, March 17 to May 11, 2020; second confinement, October 30 to December 15, 2020; third lockdown, April 3 to May 3, 2021. Government restrictions, not involving total confinement, have also been put in place until March 14, 2022 (date of complete lifting of restrictions).

Considering only people in hybrid work, the sample is made up of 570 participants. Participants responded directly to Lime Survey. Informed consent was requested from all participants prior to completing the questionnaire. Information regarding the aims of the research, the use of the data and the anonymous nature of the data collection was explained to the participants before the first research questions. All participants declared they had read and understood the information. Once the questionnaire was completed, the database was extracted and cleaned.

Of the 570 respondents, 30.2% have managerial responsibilities. 69.8% were women, and 32.5% had at least one dependent child aged 12 or under. The average age is 45 ( $SD = 10.4$ ). 85.1% work full-time, the average tenure within the organization is 12.7 years ( $SD = 10.3$ ) and in their position is 6 years ( $SD = 6.2$ ). Finally, of the respondents, .4% have a diploma higher than Bac +5, 39.5% have a diploma at Bac +5 level, 43.4% have a diploma between Bac +2 and Bac +4, and the remaining 16.7% have either a professional diploma, the baccalaureate, or no diploma.



**Figure 1** – Research model

*Note.* Hypotheses H7 and H8 concern only inter-group differences (Women vs Men) and are not shown in the figure. They will be tested using a multi-group analysis (MG-SEM,  $N_F = 398$ ;  $N_M = 170$ ).

Among men ( $N = 170$ ), 49.4% have at least one child. 41.8% had managerial responsibilities. The average age of the men was 46 ( $SD = 9.622$ ). The men have an average tenure within the organization of almost 13 years ( $SD = 10.72$ ) and in their position of around 6 years ( $SD = 6.12$ ). The level of qualification of the men is such that .6% have a diploma higher than Bac +5; 34.7% have a diploma at Bac +5 level; 46.4% have a diploma between Bac +2 and Bac +4, and finally the remaining 18.2% have a professional diploma, the baccalaureate, or no diploma.

Among women ( $N = 398$ ), 55.8% have at least one child. 25.1% had managerial responsibilities. The average age of the women was 44 ( $SD = 10.49$ ). Women have an average tenure within the organization of around 12 years ( $SD = 10.26$ ) and in their position of almost 6 years ( $SD = 6.17$ ). The level of qualification of the women is such that 0.3% have a diploma higher than Bac +5; 41.7% have a diploma at Bac +5 level; 41.7% have a diploma between Bac +2 and Bac +4, and finally the remaining 16.4% have a professional diploma, the baccalaureate, or no diploma.

## Measures

The following items and variables were used to meet our research objectives.

*Perceived individual work performance (PERF)* was measured with the scale by Griffin and colleagues (2007) which consists of 9 items on Likert scale from 1 to 6 (1 = Strongly disagree to 6 = Strongly agree). The scale is divided into three dimensions: competence (“I perform my essential tasks well using the correct procedures”), adaptability (“I adapt well to changes in work procedures”) and individual proactivity (“I come up with new ideas to improve the way I do my job”).

*Work engagement (ENG)* was assessed using the Schaufeli and colleagues (Schaufeli, Bakker & Salanova, 2006) scale in 7 items. Three dimensions make up this scale: enthusiasm (“When I get up in the morning, I want to go to work”), dedication (“I am passionate about my work”) and absorption (“I am happy when I am captivated by my activity”). Respondents were given a 7-point Likert scale (0 = Never to 6 = Always).

*Satisfaction with work-life balance (WLB)* was assessed using the unidimensional scale validated by Valcour (2007). This 5-item scale includes a Likert scale response mode with 1 = Not at all satisfied and 6 = Very satisfied. An example item is: “How satisfied are you with the way you divide your time between work and personal or family life?”.

The *quality of leader-member exchange (LMX)* is assessed using a unidimensional 7-item scale (Graen & Uhl-Bien, 1995) Each participant is asked to respond to the items on a 5-point Likert scale, scored from 1 = Strongly disagree to 5 = Strongly agree. An example item is “I can count on my superior to support me if I really need it”.

The *quality of team-member exchange (TMX)* is assessed using a unidimensional scale (Seers et al., 1995) with 10 items. The responses are organized on a Likert scale (5 points) with 1 = Strongly disagree to 5 = Strongly agree. An example item is: “When my colleagues have a positive influence on my work, I let them know”.

For *psychological detachment from work (DET)*, a 4-item scale (e.g. “I distance myself from my work”) from Sonnentag & Fritz (2007) is used. The last item on the scale

(“I can’t manage to detach myself from my work concerns”) is constructed as a negation, and is then coded in the opposite direction to the other items on the scale. The responses are given on a 5-point Likert scale (1 = Totally disagree to 5 = Totally agree).

Some socio-demographic information was collected using close-ended questions at the end of the questionnaire.

## Data analysis

General descriptive analyses and analyses of each sub-sample were carried out using IBM SPSS 29.0.0.0. Correlation indices were calculated to assess the relationships between the different variables used. Cronbach’s alpha coefficients were calculated to ensure the validity of the variables (see Table 1). Comparisons of means by *t*-tests were carried out to compare the female and male sub-samples.

We tested the assumption of multicollinearity among the predictor variables. We examined the correlation matrix,

**Table 1** – Correlation matrix, Cronbach’s alpha, means and standard deviations for each variable for women (N = 398) and men (N = 170)

Variables	1.	2.	3.	4.	5.	6.
(1) Team-member exchange	<i>.83/.83</i>	.42**	-.116	.43**	.177*	.46**
(2) Leader-member exchange	.20**	<i>.95/.95</i>	-.136	.34**	.08	.36**
(3) Psychological detachment from work	.003	.18**	<i>.84/.88</i>	-.16*	.47**	.021
(4) Work engagement	.24**	.25**	-.06	<i>.87/.88</i>	.24**	.42**
(5) Work-life balance satisfaction	.09	.27**	.50**	.20**	<i>.94/.96</i>	.23**
(6) Perceived individual work performance	.27**	.19**	.12*	.35**	.30**	<i>.92/.89</i>
<i>M</i> (female)	3.61	3.99	3.26	4.79	4.39	5.16
<i>SD</i> (female)	.64	.97	1.01	1.05	1.19	.67
<i>M</i> (male)	3.59	4.05	3.14	4.79	4.41	4.97
<i>SD</i> (male)	.62	.89	1.11	1.07	1.24	.66

*Note.* Correlations for women are below the diagonal, correlations for men are above the diagonal. Values in italics and bold are the Cronbach’s alphas of the samples for women/men respectively.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

variance inflation factor (VIF), and tolerance values. All pairwise correlations were below the .90 threshold (Field, 2024). VIF values ranged from 1.136 to 1.478, which is well below the commonly accepted cutoff of 5 (Hair, 2019), and tolerance values ranged from .677 to .880, exceeding the minimum acceptable threshold of .20. These results confirm that multicollinearity is not a concern in our models.

In order to address the research hypotheses, a multi-group structural equation model (MG-SEM) was performed using Mplus 8.10 software (Muthén & Muthén, 2017). The Maximum Likelihood estimation method was used. To ensure the fit of the tested theoretical model to the emerging model in the data, the criteria of acceptable fit indices such as:  $\chi^2$  fit ( $\chi^2/df \leq 3$ ); root mean square error of approximation (RMSEA  $\leq .08$ ); fit comparison index (CFI  $\geq .90$ ); Tucker-Lewis

index (TLI  $\geq .90$ ); and standardized root mean square residual (SRMR  $\leq .08$ ) are considered (Hu & Bentler, 1999).

For reasons of parsimony, the parceling technique was used on the *Perceived individual work performance* dimension items as well as on the TMX. The measurement model was also tested using a confirmatory multi-group factor analysis (MG-CFA), which reported an acceptable fit to the data [ $\chi^2$  (770, F: N = 398, M: N = 170) = 1711.87,  $p < .001$ ; RMSEA = .07 (.062, .070); CFI = .924; TLI = .920; SRMR = .07]. Finally, to test the mediation hypotheses and indirect effects, a bootstrap procedure was used (2000 new samples). To test the indirect effects of the model, the bootstrapping method with 2000 replications was used (Preacher & Hayes, 2008). The significance of mediation is confirmed when the confidence interval does not include zero (see Table 2).

**Table 2** – Indirect effects for the sample of men (N = 170) and women (N = 398)

Indirect effects - male sample	Bootstrap			
	Est.	S.E.	<i>p</i>	CI (95%)
DET → WLB → PERF	-.003	.057	.963	(-.127; .102)
LMX → DET → WLB → PERF	.000	.008	.970	(-.015; .020)
LMX → WLB → PERF	.000	.011	.989	(-.019; .021)
LMX → ENG → PERF	.038	.213	.857	(-.017; .126)
TMX → WLB → PERF	-.001	.032	.968	(-.082; .048)
TMX → ENG → PERF	.149	.354	.683	(.044; .267)
<b>Indirect effects - female sample</b>				
DET → WLB → PERF	.110	.035	.002	(.045; .185)
LMX → DET → WLB → PERF	.020	.008	.016	(.007; .040)
LMX → WLB → PERF	.044	.017	.013	(.013; .081)
LMX → ENG → PERF	.068	.022	.002	(.028; .113)
TMX → WLB → PERF	.020	.014	.148	(-.005; .050)
TMX → ENG → PERF	.068	.022	.002	(.027; .112)

*Legenda.* DET = Psychological detachment from work; WLB = Work-life balance satisfaction; PERF = Perceived individual work performance; LMX = Leader-member exchange; TMX = Team-member exchange; ENG = Work engagement.

*Note.* Bootstrapping (2000 replications), the indirect effect is significant when the CI interval (95%) does not include zero.

## RESULTS

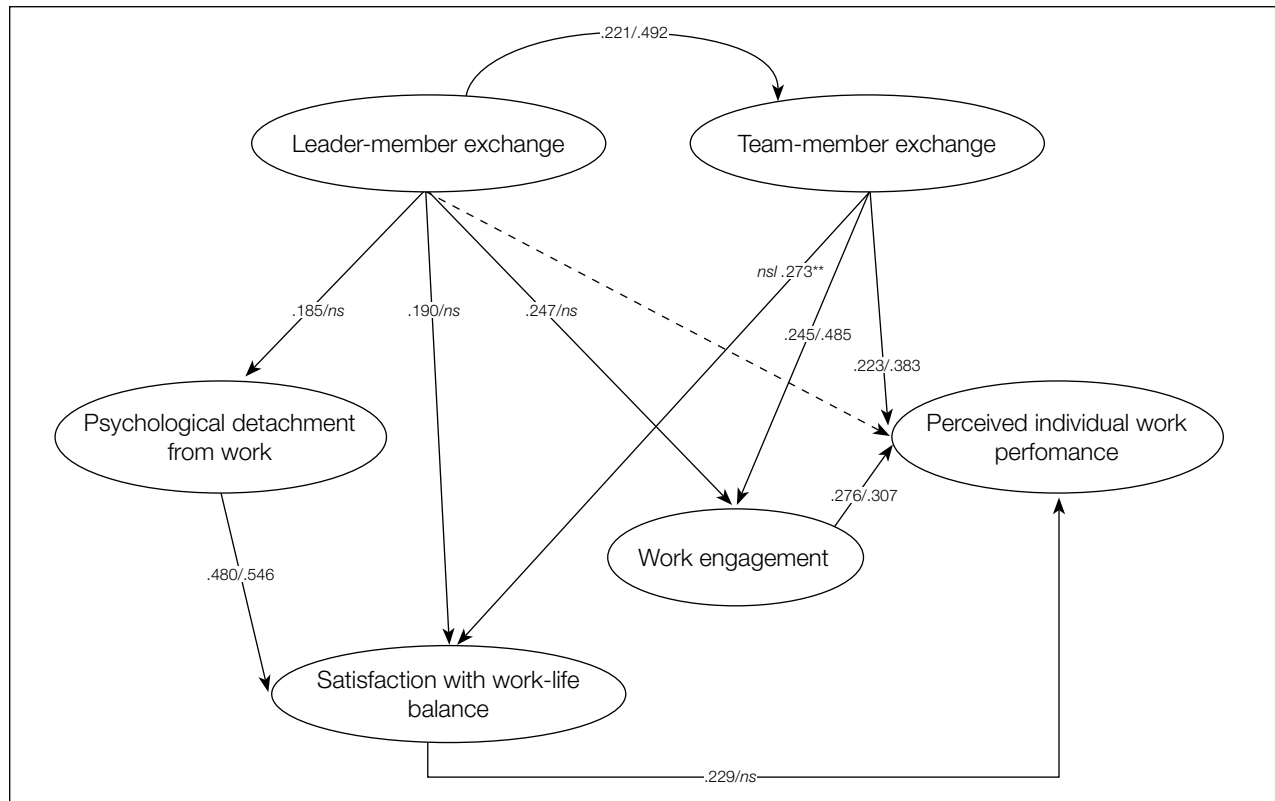
Before proceeding with the model analyses, comparisons of means were carried out in order to identify differences between men and women on the variables of interest. The analyses showed that women had a significantly higher level of detachment ( $M = 3.26$ ,  $SD = 1.01$ ), compared with the men in the sample ( $M = 3.14$ ,  $SD = 1.11$ ) [ $t(566) = 4.18$ ,  $p < .05$ ]. Regarding the variables of work engagement, TMX, LMX, perceived individual work performance and satisfaction with work-life balance, no significant differences were found between men and women in this sample.

The MG-SEM of the research model tested has acceptable fit indices [ $\chi^2(772, F: N = 398, M: N = 170) = 1563.44$ ,  $p < .001$ ; CFI = .94; TLI = .93; RMSEA = .06 (.06; .07); SRMR = .07]. Two covariance relationships were added to improve the fit index, between two items on the work-life balance satisfaction scale and two items on the work engagement scale (see Figure 2).

To conclude on the direct relationships of our research hypotheses, Hypothesis 1a states that LMX is directly and positively related to work-life balance satisfaction in both subgroups. The results show that this relationship is significant for women [ $\beta = .190$ ,  $p < .001$ ], but not for men [ $\beta = .030$ ,  $p > .05$ ]. The hypothesis that LMX is directly and positively related to work engagement (1b) and perceived individual performance (1c) reveals respectively a significant link only for women [ $F: \beta = .247$ ,  $p < .001$ ;  $M: \beta = .125$ ,  $p > .05$ ], and no significant link for either women or men [ $F: \beta = -.011$ ,  $p > .05$ ;  $M: \beta = .146$ ,  $p > .05$ ]. This result partially refutes Hypothesis 7.

Hypothesis 3a is partially confirmed since TMX is significantly related to work-life balance satisfaction only for men [ $M: \beta = .273$ ,  $p < .01$ ], but not for women [ $F: \beta = .087$ ,  $p > .05$ ]. On the other hand, Hypotheses 3b and 3c, according to which TMX is directly and positively related to work engagement [ $F: \beta = .245$ ,  $p < .001$ ;  $M: \beta = .485$ ,  $p < .001$ ] and perceived individual performance [ $F: \beta = .223$ ,  $p < .001$ ;  $M: \beta = .383$ ,  $p < .001$ ], are fully confirmed.

**Figure 2** – Model tested in multi-group structural equation model (MG-SEM)



**Legenda.** Dotted lines indicate a non-significant relationship in both groups.

\*\* $p < .01$ ; ns  $p > .05$

$\beta = .383, p < .001$ ], are confirmed in both groups. These results fully invalidate Hypothesis 7.

Hypothesis 5 assumes a direct and positive influence of LMX quality on psychological detachment from work. This relationship is significant only for women [ $F: \beta = .185, p < .001$ ;  $M: \beta = -.116, p > .05$ ]. This hypothesis is partially confirmed.

For Hypothesis 8, the direct effect of psychological detachment from work on work-life balance satisfaction is significant in both groups [ $F: \beta = .480, p < .001$ ;  $M: \beta = .546, p < .001$ ]. On the other hand, when psychological detachment from work is considered as a mediator of the relationship between LMX and work-life balance satisfaction and perceived individual performance, this relationship is significant for women [.007; .040], but not for men [−.015; .020]. These results invalidate Hypothesis 8.

A significant mediation is present in the men's group, namely the mediation of engagement between LMX and perceived individual performance [.044; .267] (Hypothesis 4b). In the women's group, it is possible to conclude that satisfaction with work-life balance mediates the relationship between psychological detachment from work and performance [.045; .185], as well as the dual mediation of psychological detachment from work and work-life balance satisfaction between LMX and perceived individual performance [.007; .040] (Hypothesis 6). LMX and performance are also mediated by satisfaction with work-life balance [.013; .081], as well as by work engagement [.028; .113] for women (Hypotheses 2a and 2b). Finally, mediation by engagement is confirmed for women when LMX is replaced by TMX [.027; .112], but not by work-life balance satisfaction [−.005; .050] (Hypotheses 4a and 4b). These results partially confirm hypotheses 2, 4 and 6.

## DISCUSSION

The hypothesis which postulated a direct and positive relationship between the quality of LMX and satisfaction with work-life balance was partially confirmed for women, but not for men. This suggests that LMX may play a more important role in work-life balance satisfaction for women than for men. These results differ from previous research that found no significant gender difference in the relationship between LMX and work-life balance satisfaction (Dolce et al., 2024). One possible explanation for this discrepancy is that the study mentioned was conducted during the pandemic, a

period characterized by crisis and increased need for support among both women and men. In less urgent circumstances, this need for support may remain significant for women but diminish for men, who tend to find it easier to balance work and family responsibilities, often due to greater reliance on women, who consequently shoulder more domestic duties (Nguyen, 2021). Thus, the need for them to have hierarchical support and a good relationship with their manager in order to face these multiple roles satisfactorily is understandable. However, this interpretation should be approached with caution and requires further investigation in future research.

The lack of empirical results on the effects of LMX on engagement and the role of gender in this relationship prevents any comparison with existing data. However, the importance of LMX for women can be explained as a means of combating discrimination and legitimizing their teleworking presence. This is consistent with Lott and Abendroth (2020) findings that one of the main reasons women don't telework is fear of stigmatization compared to men who don't telework due to lack of feasibility. In the case, where women do want to telework, they are more likely than men to need their supervisor's approval to telework (Tremblay, 2003). Women are therefore more attentive in their relations with their managers to counterbalance a lower degree of freedom. This should attract the attention of HR departments, to ensure that egalitarian practices are implemented.

Finally, the direct relationship between LMX and individual performance has not been confirmed. This suggests that LMX may not be a direct predictor of perceived individual performance in a hybrid work context, even though this relationship has been proven in a traditional office (Martin, Guillaume, Thomas, Lee & Epitropaki, 2016).

The results indicate that TMX is only significantly related to work-life balance satisfaction for men but not for women. This finding contradicts studies suggesting that women are more socialized to value interpersonal relationships (Kågesten et al., 2016). One possible explanation for this result is the emergence of stereotypes towards teleworkers during the health crisis. Indeed, Teo and Lim (1998) showed that men who telework consider the gaze of others, the resentment of colleagues and the negative perception of the neighborhood towards them to be more important than women. One plausible explanation is that men's traditional role as the breadwinner of the household makes them more concerned about how others perceive them when they telework from home.

On the other hand, when they have a quality relationship, men benefit more from the social support and positive aspects of TMX. High-quality TMX help men to establish stronger social ties with their colleagues, giving them a sense of belonging and support. This support can help men better manage the boundaries between their professional and personal lives and reduce the stress associated with work-family conflict. Contrariwise, women do not benefit from such support, even when their relationships are satisfactory.

Hypotheses 3b and 3c, according to which TMX has a positive influence on work engagement and perceived individual performance, were confirmed for both groups. These results suggest that TMX is a predictor of engagement and perceived individual performance, regardless of gender. In line with the JD-R model (Demerouti et al., 2001), TMX provides workers with the social support and resources they need to perform their jobs effectively. This support helps workers to feel more motivated and committed to their work, leading to improved performance.

Hypotheses involving psychological detachment from work as a mediator contradict some empirical findings, which found no significant gender differences between LMX and psychological detachment from work (Sonnentag & Schiffner, 2019). To explain the results of this study, it is possible that men consider LMX less important for psychological detachment from work, as they are less likely to experience role conflict (Anderson & Kelliher, 2020). In addition, men are more likely to have access to other resources, such as spousal support, that can help them manage their work and family lives, compared to women (Soubelet-Fagoaga, Arnoso-Martínez, Guerendiain-Gabás, Martínez-Moreno & Ortiz, 2021).

Research suggests that several factors contribute to psychological detachment from work, which may help to explain gender differences in this process. Among these factors, positive affect during or after the workday is positively associated with recovery experiences, including psychological detachment (Sonnentag, Cheng & Parker, 2022). Secondly, the perception of having worked well is strongly associated with greater psychological detachment and relaxation (Sonnentag et al., 2022). Further empirical research could be conducted to determine whether women perceive these two factors more strongly. Finally, if women receive greater support from their managers, this could explain their greater ability to detach themselves from work compared with men (Sonnentag et al., 2022). In addition, Fonner and Stache (2012)

have highlighted the differences between men's and women's strategies for segmenting and integrating work and non-work life. Women tend to use segmentation strategies, while men are more likely to integrate activities from one sphere to another without deploying any particular strategy. Women take on a greater share of domestic and family responsibilities (Hilbrecht, Shaw, Johnson & Andrey, 2008). As a result, they must take care of other activities, which disengages them psychologically and automatically from their work.

## Research limitations

In this section, we present the main limitations of the study. This study uses a cross-sectional design, which has inherent methodological limitations. One of the main constraints of cross-sectional studies is the impossibility of establishing cause-and-effect relationships between variables. As the data are collected at a single point in time, it is impossible to determine whether changes in the independent variables precede changes in the dependent variables, or vice versa. Furthermore, this model does not capture temporal fluctuations in key factors such as LMX, TMX or satisfaction with work-life balance, which can vary from day to day. To address these limitations, longitudinal or diary studies would be more appropriate, as they would track changes over time and provide a more nuanced understanding of the relationships between variables. In addition, this study relies exclusively on self-reported measures, which also introduce potential methodological biases.

Furthermore, there is a clear imbalance in the sample sizes of the groups tested. The women's group comprised 398 respondents, compared with only 170 for the men's group. This significant disparity in sample size may affect the robustness of the statistical analyses, particularly when using structural equation models, as pointed out by Bentler and Chou (1987).

Finally, the gender of the manager was not controlled in the study. While the effect of the worker's gender on the perception of the quality of exchanges between workers and managers was tested, the influence of the manager's gender on this relationship could not be evaluated. However, the experimental study by Milner and colleagues (Milner, Katz, Fisher & Notrica, 2007) showed a significant effect of the manager's gender on the perception of the quality of exchanges.



## Theoretical implications

The results of this study reveal significant conclusions about the differential impact of interpersonal relationships at work according to gender. Firstly, the quality of exchanges between leaders and members (LMX) seems to have a particularly beneficial effect on women's satisfaction with work-life balance and work engagement. For men, on the other hand, it is relations with colleagues (TMX) that play a predominant role. This distinction underlines the importance of considering gender as a crucial moderator in the LMX and TMX models highlighting the need to further investigate the gendered relational dynamics of individuals.

In addition, psychological detachment from work emerges as a key mediator between the quality of LMX relationships and work-life balance satisfaction, especially among women. This finding adds to existing theories by highlighting the importance of psychological detachment in the management of relational resources and its impact on quality of life at work and outside work.

Finally, the study highlights the existence of gender biases in the distribution and effectiveness of socio-organizational resources. This observation suggests that organizational theories need to integrate a gender perspective to better understand how to optimize relational resources and support policies to reduce inequalities and particularly the invisibility of the double - triple - workload of women - mothers (Clar-Novak, 2024). These results encourage further exploration of the mechanisms underlying gender differences in access to and use of socio-organizational resources, opening avenues for future research into the management of labor relations and equality at work.

## Practical implications

The results of this study indicate that the quality of exchanges between leaders and members (LMX) is

particularly significant for women, who face stereotypes and discrimination in their access to teleworking (Lott & Abendroth, 2020; Tremblay, 2003). It is essential to set up regular meetings between managers and teleworkers to discuss support and communication, as well as training managers to address the gender bias that can persist in teleworking. Encouraging two-way feedback, even when teleworking, is also an area for improvement (Jansson & Kangas, 2024), to be pointed out by the human resources department. In addition, work organizations introducing hybrid working should include gender awareness modules in training and information programs on teleworking and establish specific support policies. Equality and telework charters are often implemented separately from each other, whereas it is relevant to include gender awareness directly in telework charters and agreements. Finally, to promote psychological detachment from work, it is recommended that after-hours disconnection policies be implemented, including clear guidelines on out-of-hours work emails, and regular leave and breaks be actively encouraged.

## CONCLUSION

To conclude, this study examines gender inequalities in the disposition of socio-organizational resources and how it affects the quality of work life and performance of teleworkers. The quality of exchanges with the manager in the women's group influenced their work-life balance satisfaction and work engagement. In contrast, in men's group, the quality of relationships with their team had a higher effect on work-life balance satisfaction, work engagement, as well as perceived individual performance at work, compared with the women. Future research could monitor the impact of the gender of managers and work teams on these relationships, or explore the effects of hybrid working involving other types of workspace.

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# Media exposure and self-esteem of young Indian adults: The mediating role of body dissatisfaction

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**ABSTRACT.** Lo studio mira a indagare il ruolo di mediazione dell'insoddisfazione corporea nella relazione tra l'esposizione ai media e l'autostima dei giovani adulti indiani. Un totale di 217 partecipanti ha preso parte volontariamente a questo studio. L'esposizione mediatica alla rappresentazione dell'immagine corporea ideale è stata valutata utilizzando la scala Thin Ideal Media Exposure (TIME); il questionario Body Shape Questionnaire (BSQ-16-B) è stato utilizzato per valutare le preoccupazioni dei partecipanti relative al proprio corpo, mentre il questionario Rosenberg Self-Esteem è stato impiegato per misurare l'autostima dei partecipanti. I risultati hanno dimostrato un effetto indiretto significativo di  $b = -.041$ ;  $t = 5.85$ ; CI, LB =  $-.057$ ; UB =  $-.027$ ;  $p = .001$ , a sostegno dell'ipotesi che l'immagine corporea media la relazione tra l'esposizione ai media e l'autostima. Inoltre, i risultati hanno anche mostrato che l'effetto diretto dell'esposizione ai media sull'autostima in presenza dell'immagine corporea è significativo ( $b = -.032$ ;  $t = 2.66$ ; CI, LB =  $-.056$ ; UB =  $-.010$ ;  $p = .006$ ). I programmi di alfabetizzazione mediatica possono essere fondamentali per promuovere le capacità di pensiero critico e ridurre l'impatto negativo delle rappresentazioni dei media sull'immagine corporea nei paesi non occidentali come l'India.

**SUMMARY.** Diverse media platforms exert significant influence in ubiquitously promoting standardized beauty norms across individuals from diverse cultures, delineating the criteria for an ideal body norm. Consequently, they play a pivotal role in shaping body image and exerting an impact on an individual's self-esteem. The study aims to investigate the mediating role of body dissatisfaction in the relationship of media exposure and self-esteem of young Indian adults. A total of 217 participants voluntarily participated in this study. Media exposure to ideal body image portrayal was assessed using the Thin Ideal Media Exposure (TIME) scale. Body Shape Questionnaire (BSQ-16-B) was used to assess the body preoccupations of the participants, and Rosenberg Self-Esteem questionnaire was employed to measure the self-esteem of the participants. The results demonstrated a significant indirect effect of  $b = -.041$ ;  $t = 5.85$ ; CI, LB =  $-.057$ ; UB =  $-.027$ ;  $p = .001$ , hence supporting the hypothesis that body image mediates the relationship between media exposure and self-esteem. Furthermore, the results also showed that the direct effect of media exposure on self-esteem in the presence of body image is significant ( $b = -.032$ ;  $t = 2.66$ ; CI, LB =  $-.056$ ; UB =  $-.010$ ;  $p = .006$ ). Body dissatisfaction partially mediates the relationship between media exposure and self-esteem of young Indian adults. Media literacy programs can be instrumental in fostering critical thinking skills and reducing the negative impact of media portrayals on body image in non-Western countries like India.

**Keywords:** Body dissatisfaction, Body image, Self-esteem, Media exposure

## INTRODUCTION

The concept of beauty is subjective in nature. Its perception depends on how one constructs, experiences, and appreciates it. Among many other factors, for example, past experiences, education, current circumstances, aesthetics dictated by fashion mandates of that age (Dimitrov & Kroumpouzou, 2023), and culture have a significant impact on one's perception of beauty (Madan, Basu, Ng & Ching Lim, 2018). Culture establishes standards for what is beautiful, and self-perceptions of beauty and attractiveness are heavily influenced by those standards (Kaziga, Muchunguzi, Achen & Kools, 2021). Every culture fosters idealized images for its males and females to classify them as worthy members of their respective genders. For example, the American beauty standard is to maintain youth, while the European standard is to promote and appreciate naturally flawless skin. In Africa, a larger and fuller form of body is appealing, whereas in China, upper-class ladies would have their feet tied tightly and painfully, so that their growth could be restricted to a paltry 3 or 4 inches, which were thought attractive and elegant. The Padaung ladies (Burmese migrants to Thailand) have a tradition of wearing rings around their necks, which causes their necks to elongate. This is viewed as highly attractive in their culture. The Indian beauty ideal has always regarded a body with gentle contours as attractive.

There are explanations available in the current literature about why people strive to maintain an ideal body shape. For example, the evolutionary perspective asserts that people consider an idealized body shape an important attribute for attracting a reproductively potential future mate (Bovet, 2019). Physical body cues that restore this potential are portrayed as important determinants of attractiveness, and deliberate attempts are made to fit in this 'idealised body model', more so by both genders, but mainly by females, to look and maintain attractiveness in order to fulfil those societal expectations (Baghel, Parthasarathy & Gupta, 2014; Wade, Shanley & Imm, 2004). The perceived ideal images constitute a crucial component of our body image. Body image refers to the way we think, feel, and behave with regard to our physical traits (Grogan, 2016). In today's technology-centric era, mass media have served as an important channel for propagating ideal body image representations among the common people. It promotes the message that an ideal body signifies health and success (Chatterjee & Rastogi, 2021; Grabe, Ward & Hyde, 2008;

Hesse-Biber, Leavy, Quinn & Zoino, 2006). For females, it promotes a thin-ideal body shape, and for males, it promotes a muscular body shape. Due to the advent of many social networking sites over the past one and a half decades, the pressure to conform to these ideal body standards has increased manifold. Consistent representation of the ideal body image in the media makes people identify it as normative. Most of the time, the media influencers promote such unrealistic body shapes that are difficult to achieve. Utilising various software applications and image editing methods, they portray a certain body shape and attribute that to specific exercise regimens, dietary plans, or gym products that they are paid to endorse (Abbas & Dodeen, 2021; Harriger, Evans, Thompson & Tylka, 2022).

The sociocultural perspective of body image (Tiggemann, 2012) indicates that exposure to media may cause body dissatisfaction through two pathways: (a) internalization of the ideal body shapes portrayed through different media, and (b) social comparison – comparing one's body shape with the ideal body shapes (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). In the context of body image, internalization is said to have occurred when an individual starts to endorse, believe in, and take actions in order to achieve that socially approved body shape (Thompson & Stice, 2001). In this connection, Stice (2002) reported that people do not internalize ideal body standards at the same level. The more the internalization of the ideal standards, the greater is the risk for developing body dissatisfaction, which in extreme cases, leads to eating disorders (Stice, 2002). According to Social Comparison Theory (Festinger, 1954), the second pathway through which media exposure causes body dissatisfaction, people have an innate tendency to compare themselves with others so that they can determine their progress in different spheres of their lives (in this case, their physical attractiveness). There could be upward comparisons, where the comparison is made with people who are better off than oneself, or downward comparisons, where the comparison is made with people who are worse off than oneself. Upward comparison would lead to negative consequences, whereas downward comparison would lead to positive consequences. Leahey and Crowther (2008) reported that during upward comparison, if people feel they are not close to the ideal body shape, they would be highly dissatisfied with their own body shape. Negative body image in both males and females can lead to a wide range of self-destructive behaviours such as fad dieting, disordered eating

patterns, over consumption of steroids and overindulgence in physical exercises (Schaefer et al., 2015).

The standardisation of an aesthetic ideal and the marketing of homogeneous beauty standards can indeed be a sufficient explanation for the recent finding of increased prevalence of body dissatisfaction and its correlates penetrating deep into non-Western cultures in the last few decades, thus making it a global phenomenon. Research studies have also identified the process of acculturation, which is marked by cultural change subsequent to the recognition of a peripheral culture with a more central and dominant one, to be at the core of finding body image issues in non-Western cultures, especially in the Low- and Middle-Income countries (LMICs) (Hannerz, 1989).

Body dissatisfaction or the negative perception and evaluation of one's physical body play an important role in decelerating our mental health outcomes like self-esteem (Shang, Xie & Yang, 2021; Tiggemann & Slater, 2013). According to a study, self-esteem is higher when it is based on more abstract factors such as values and distinguishing traits of one's personality rather than on tangible attributes such as physical appearance (Stapleton, Crighton, Carter & Pidgeon, 2017). The Tripartite Influence Model (TIM) holds a three-way mediational mechanism, postulating that the societal, interpersonal and intrapersonal factors collectively influence an individual's body image and self-esteem (Thompson, Coovet & Stormer, 1999). The interrelationship between these components is complex and dynamic. Individuals with low self-esteem may be more susceptible to the negative effects of societal and interpersonal influences, while heightened body dissatisfaction can further erode self-esteem. Longitudinal

studies have supported the TIM framework by demonstrating how these factors interact over time, reinforcing the idea that societal, interpersonal and intrapersonal elements are intricately linked in shaping body image and self-esteem (Bearman, Presnell, Martinez & Stice, 2006).

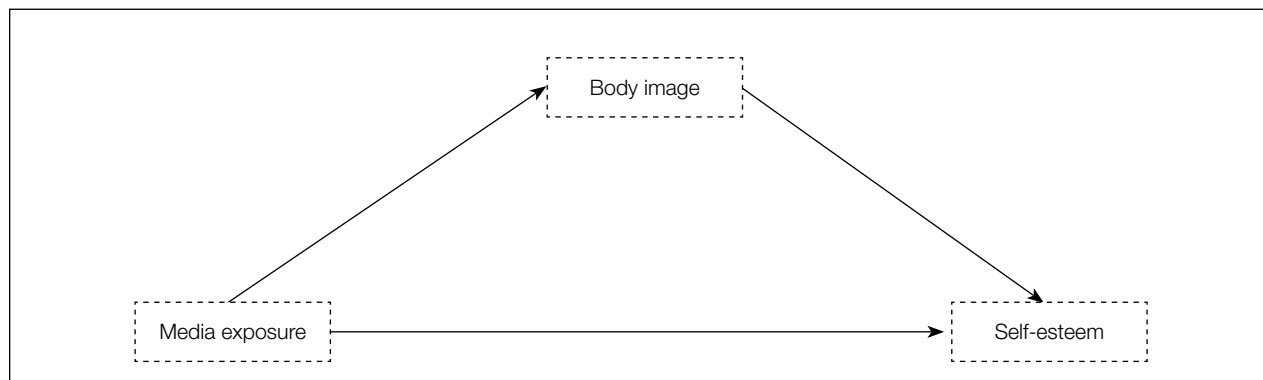
Studies have explored how the portrayal of idealized body standards in the media can lead to negative body image perceptions among viewers (Castellanos Silva & Steins, 2023; Fardouly & Vartanian, 2016; Jiotsa, Naccache, Duval. Rocher & Grall-Bronnec, 2021). Other studies have investigated the relationship between heightened body dissatisfaction and lowered self-esteem. In the current study, it is hypothesized that prolonged exposure to ideal body shapes through different channels of media would lead to heightened dissatisfaction with one's body, which would eventually result in lowered self-esteem among the young Indian adults. In other words, the relationship between media exposure and self-esteem would be mediated by one's body image. The hypothetical mediational model is represented in Figure 1.

## METHOD

### Participants

All the students enrolled in various Master's and PhD programs of the University were informed through official emails about the data collection process of this research study and were requested to voluntarily participate in the study. A total of 217 participants voluntarily turned up to participate

**Figure 1** – Hypothetical mediational model



in this study. Out of 217 participants, 120 were males whose age range was 20-32 years ( $M = 24.45$ ;  $SD = 2.32$ ), and the remaining 97 were female participants whose age ranged between 21-33 years ( $M = 24.26$ ;  $SD = 2.65$ ). The data was collected by employing a convenience sampling technique.

## Sample size

For determining the sample size, an a priori power analysis using G\*Power 3.1 (Faul, Erdfelder, Lang & Buchner, 2007) was done. In order to achieve a power of .95 at an alpha level of .05, it is recommended a sample size of 209 for an effect size of  $f^2 = .075$  (which lies between small and medium effect sizes), using a linear multiple regression, fixed model,  $R^2$  deviation from zero. Thus, the sample size of 217 was found to be more than adequate for achieving the objectives of this study.

## Measures

*Media exposure.* To assess the degree of media exposure of the participants to thin/muscular ideal media (in terms of number of hours in an average week), Thin Ideal Media Exposure (TIME) scale by Stice and colleagues (Stice, Schupak-Neuberg, Shaw & Stein, 1994) was used. It measures the number of hours participants spent – reading fashion and fitness magazines (for example: ‘how many hours do you spend reading fashion magazines in an average week?’; ‘how many hours do you spend on social media sites in an average week?’) As per their exposure to different types of media in an average week, the participants indicate their respective number of hours which ranges from 0 to 168 hours. With the advent of social media and the popularity of reality shows, two more items were added to the original scale by Davis LA (2015) (for example: ‘how many hours do you spend on social media sites in an average week?’). TIME scale demonstrated a test-retest reliability of .76 in the original study by Stice et al. (1994). However, the internal consistency for this measure in the Davis LA study was relatively low, with a Cronbach’s alpha of .41. An updated version of the scale, which included two additional items, produced a slightly higher alpha coefficient of .46. Given the low internal consistency observed in both versions, Davis conducted principal components factor analysis on the modified 8-item version of the measure. Items with eigenvalues  $\geq 1.0$  and factor loadings  $\geq .60$  were retained,

while those not meeting these criteria were excluded, as they did not meaningfully contribute to the construct. The refined version demonstrated improved internal consistency, yielding a Cronbach’s alpha of .72.

*Self-esteem.* The Rosenberg Self-Esteem scale developed by Rosenberg (1965) was used to assess the global self-esteem of the participants. It is a Likert-type 10-item scale where responses could be given on a 4-point scale ranging from ‘strongly agree’ to ‘strongly disagree’. Sample items include ‘On the whole, I am satisfied with myself’ and ‘I feel that I have a number of good qualities’. Some of the items on the scale are reverse scored. A high score on this scale indicates high self-esteem, and a low score indicates low self-esteem. The scale has demonstrated a good reliability ( $\alpha = .88$ ) (Tylka & Sabik, 2010).

*Body image.* In order to assess the body preoccupations of the participants, the *Body Shape Questionnaire (BSQ-16-B)* (Evans & Dolan, 1993) was used. It is a self-report measure that includes 16 items and assesses negative self-appraisal of body image. The questionnaire includes items like: ‘Have you ever been afraid that you might become fat?’ and ‘Have you felt excessively large and rounded?’. The score of each item ranges from 1 to 6, with Never = 1, Rarely = 2, Sometimes = 3, Often = 4, Very often = 5, Always = 6, in which a sum score of all items indicates the body image concerns of the participants. A sum score of 66 or more indicates marked body shape concern, while a score below 38 indicates no body shape concern. The alpha value of the questionnaire lies in the range of .93 to .96, and test-retest reliability is .88, and internal consistency is .95.

## Procedure

An email invitation requesting voluntary participation in the study was sent to all the students enrolled in different Master’s and PhD programs of the selected University. Prior to the engagement of the participants, the investigators presented the research proposal of this study to the research progress committee that monitors the flow of research for ethical and standard compliance. The participants were also given a brief introduction about the purpose of the study. The above-mentioned questionnaires were administered to the participants on a one-to-one basis in an offline mode. Data were collected from 244 students in total, but because of outliers, data from 27 participants were not included in the



final analysis. At the end of data collection, all the responses were re-coded and scored according to the scoring manuals given for each questionnaire. Statistical analysis of the data was performed by using SPSS Statistics 26.0 and SPSS AMOS 23.0 software programs.

## RESULTS

To test the hypothesized mediation model, the researchers performed a Structural Equation Modelling (SEM) with the maximum likelihood method by using AMOS 23.0. The direct and indirect effects were tested in a path analysis of SEM. The bootstrapping estimate was used to assess the significance of the indirect effect. After that, multi-group SEM was used to examine whether the proposed mediation model showed a significant difference between male and female participants. The path-by-path comparisons were determined using critical ratios for differences (CRD) to examine whether significant differences existed in each structural path across the two groups.

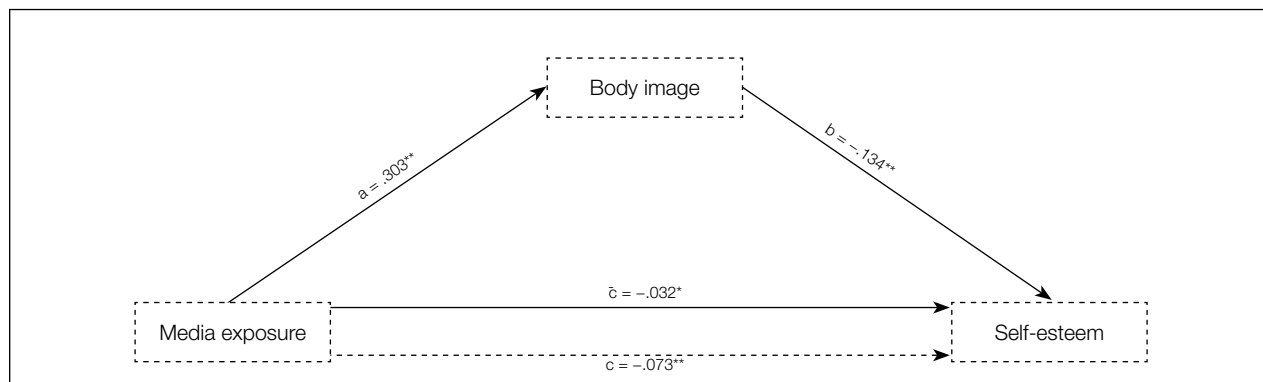
### Path analysis of SEM

Path analysis was used to examine the direct effect (C-path) between the independent variable (IV), i.e., media exposure and dependent variable (DV), i.e., self-esteem in the

absence of the mediating variable (MV), i.e., body image; the indirect effect of the IV over DV via MV, referred to as a\*b-path; and the total effect of the IV over DV in the presence of MV. In other words, the total effect is the effect of an IV on the DV through the direct path, i.e., C-path and an indirect path, i.e., a\*b-path (see Figure 2). For assessing the significance of mediation, recommendations by Collier (2020) with respect to the unstandardized bootstrap confidence intervals (CIs) were followed. The bootstraps CIs in the present study, are based on 5,000 samples. Mediation is deemed to be present if 95 % lower bound (LB) and upper bound (UB) CI do not include zero, and the p-value is less than .05 (Collier, 2020).

The total number of distinct sample moments in the current path model is six, and the number of distinct parameters to be estimated is also six. Hence, the model has zero degrees of freedom. Such a model is often called as a saturated or just-identified model. After performing SEM with the maximum likelihood method, the result of  $\chi^2$  goodness of fit is also zero (i.e.,  $\chi^2 = .000$ ,  $df = 0$ ). Just-identified models do not test a theory because the circumstance determines their fit, which means that there are just enough degrees of freedom to estimate all free parameters (Hair et al., 2010). Thus, traditional fit indices such as  $\chi^2/df$ , CFI and RMSEA are not reported, as they are not informative in this case (i.e.,  $\chi^2/df = 0$ , CFI = 1.000, RMSEA = .446). In the case of a just-identified model, for a good model fit, if the value of  $\chi^2$  is zero, the model perfectly fits the data (Collier, 2020; Kline, 2016).

**Figure 2** – Results of the mediation model



*Legenda.* The path values represent unstandardized Beta coefficients.

\* $p < .05$ , \*\* $p < .01$

## Test for mediation

The results revealed that when body image is not included in the analysis as a mediating variable, the value of the direct effect (C-path) is  $b = -.073$ ;  $t = 6.63$ ; CI, LB =  $-.096$ ; UB =  $-.051$ ;  $p = .001$ , indicating that media exposure has a significant negative effect on self-esteem (see Figure 2). Path a of Figure 2 shows that media exposure has a significant positive effect on body image,  $b = .303$ , which indicates that as media exposure of young Indian adults increases, their body dissatisfaction also increases. Further, path b of Figure 2 shows that body dissatisfaction has a negative effect on self-esteem  $b = -.134$ , which indicates that as body dissatisfaction of young Indian adults increases, their self-esteem decreases. The results demonstrated a significant indirect effect of  $b = -.041$ ;  $t = 5.85$ ; CI, LB =  $-.057$ ; UB =  $-.027$ ;  $p = .001$ , thereby supporting our hypothesis that body image mediates the relationship between media exposure and self-esteem. Furthermore, the results also showed that the direct effect of media exposure on self-esteem in the presence of body image is significant ( $b = -.032$ ;  $t = 2.66$ ; CI, LB =  $-.056$ ; UB =  $-.010$ ;  $p = .006$ ). This indicates that when body image is included as a mediating variable in the analysis, the value of the direct path, now C-path changes from  $-.073$  to  $-.032$ , hence, body image partially mediates the relationship between media image and self-esteem among young Indian adults. A summary analysis of the mediation is also presented in Table 1. Overall, the full sample model accounted for 23.8% of the variance in body image and 28.7% of the variance in self-esteem.

## Test of group differences

Group differences by gender were determined using multi-group analysis in SEM (see Table 2). The CRD test reveals no significant differences between males and females for the structural path from media exposure to body image ( $\Delta\chi^2/1df = 1.165$ ,  $p = .280$ ). Thus, the two groups are very similar in this relationship. In addition, no significant group differences were found in other structural paths from body shape to self-esteem ( $\Delta\chi^2/1df = 1.221$ ,  $p = .269$ ) and media exposure to self-esteem ( $\Delta\chi^2/1df = 2.904$ ,  $p = .088$ ).

## DISCUSSION

This study was conceptualized to investigate the mediating role of body dissatisfaction in the relationship between media exposure and the self-esteem of young Indian adults. With respect to the direct path, i.e., C-path as shown in the observed model (see Figure 2), the results of the present study indicate a substantial negative impact of media exposure on self-esteem, emphasizing the potential harm that extensive media exposure can inflict on the self-esteem of young Indian adults. Available empirical research, spanning across various media forms such as social media, traditional advertising, and online platforms, has also consistently demonstrated the detrimental effect of media exposure on self-esteem, particularly among young adults (Fardouly, Diedrichs, Vartanian & Halliwell, 2015; Nagar & Virk, 2017; Perloff, 2014; Tiggemann & Slater, 2014;).

**Table 1** – Summary of mediation analysis

Relationship	Direct effect	Confidence interval		p-value	Indirect effect	Confidence interval		p-value	Conclusion
		Lower	Upper			Lower	Upper		
ME → BI → SE	-.032	-.056	-.010	.006	-.041	-.057	-.027	.001	Partial mediation

*Legenda.* ME = media exposure; BI = body image; SE = self-esteem.

**Table 2** – Summary of group differences by gender

Path	Male			Female			$\Delta\chi^2/1df$
	$\beta$	SE	CR	$\beta$	SE	CR	
ME to BS	.269***	.035	7.598	.269***	.035	7.598	1.165
BS to SE*	-.129***	.023	-5.636	-.176***	.035	-5.061	1.221
ME to SE	-.019	.012	-1.505	-.063***	.024	-2.680	2.904

*Legenda.* ME = media exposure; BS = body shape; SE\* = self-esteem;  $\beta$  = standardised regression weight; SE = standard error; CR = critical ratio;  $df$  = degree of freedom;  $\Delta\chi^2/1df$  = group differences.

\*\*\* $p < .001$

With respect to the indirect path, i.e.,  $a*b$ -path, the first component ( $a$ -path) revealed a significant effect of media exposure on body dissatisfaction, which indicates that increased media exposure corresponds with heightened body dissatisfaction among the participants. The available scientific literature has also indicated that media portrayals, especially those promoting unrealistic body standards, can contribute to negative body image perceptions. This aligns with the findings of Tiggemann and McGill (2004), who documented that exposure to idealized body images in the media is associated with an increased sense of body dissatisfaction among women. Similarly, many other studies have asserted that exposure to thin-ideal media content exacerbates the cultivation of unrealistic body standards, especially among women. This exposure contributes substantially to the formation of negative body image perceptions and even mood disturbances, thereby fostering the development of psychopathologies within this demographic. The findings collectively substantiate the pervasive negative consequences of media exposure on body image, emphasizing the reinforcing nature of such exposure in perpetuating adverse outcomes (Fardouly et al., 2015;

Fredrickson & Roberts, 1997; Grabe et al., 2008; Huang, Peng & Ahn, 2020).

The second component of the indirect path, i.e., the  $b$ -path of the observed model, reveals that body dissatisfaction has a negative effect on self-esteem. This suggests that as young Indian adults experience heightened body dissatisfaction, their self-esteem diminishes. The negative beta-coefficient and its significance underscore the mediating role of body image in the relationship between media exposure and self-esteem, providing valuable insights into the psychological processes through which media exposure impacts individuals. This finding of the study aligns with an extensive body of research that elucidates the negative impact of body dissatisfaction on self-esteem, particularly among young adults (Cash, Morrow, Hrabosky & Perry, 2004; Stice, Hayward, Cameron, Killen & Taylor, 2000; Tiggemann & Lynch, 2001).

Furthermore, the multi-group analysis in SEM reveals that there are no significant differences in these relationships between male and female young adults. This suggests that the mediation model operates similarly across genders, implying that both males and females are equally influenced by media exposure in shaping their body image and subsequent self-

esteem. The absence of gender difference highlights that contemporary media is increasingly affecting both genders equally, unlike earlier research that often emphasised female vulnerability to media exposure (Grabe et al., 2008; Tiggemann & McGill, 2004).

The underlying factor responsible for the results of the current study could be that the young adults use media for a variety of reasons, including browsing celebrity images, online shopping, fashion magazines, and accessing social networking sites. All such media have a very high potential of containing, promoting and propagating ideal body images. After repeated exposure to such content, they internalize the ideal body standards (Roberts, Maheux, Hunt, Ladd & Choukas-Bradley, 2022) and engage in comparison processes in which they tend to compare their own physical appearance with idealised body shapes (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). Media portrayals of idealised body shapes serve as the reference point with which people compare their own body shapes. During comparison, if one feels there is a wide gap between their own body shape and the ideal body shape, then they are susceptible to body dissatisfaction (McComb & Mills, 2021). As people begin to compare themselves to idealized, advertised, attractive beauty standards, satisfaction towards their own attractiveness decreases (Richins, 1991). Another line of thought is from the perspective of social media, one of the most popular mediums of media of the current times. In an attempt to boost their self-esteem, people seek validation and reassurance from others by posting updates about themselves, which are most often accompanied by their photos. They expect to get likes and positive feedback (comments) from the virtual social world. In case they don't get a sufficient number of likes and positive comments, their self-esteem is lessened (Valkenburg, Peter & Schouten, 2006). The results of the current study also align with the Tripartite Influence Model (Thompson et al., 1999), which states that the media plays a major role in shaping the body image perceptions of people. The findings of the current study support the model's proposition that exposure to media, portraying ideal body shapes, has a direct impact on individuals, influencing their internalization of societal beauty standards and, consequently, impacting the perception of their body image. Moreover, the study's identification of body image as a partial mediator in the relationship between media exposure and self-esteem adds depth to our understanding of these complex dynamics. This mediation suggests that the influence of media exposure on

self-esteem is, in part, channelled through its impact on body shape dissatisfaction. As individuals compare themselves to idealized bodies in the media, the resultant dissatisfaction with their own bodies becomes a pathway through which self-esteem is negatively affected.

Mitigating the impact of media exposure on body image, particularly in non-Western countries like India, necessitates multifaceted interventions informed by empirical evidence. Media literacy programs can be instrumental in fostering critical thinking skills and reducing the negative impact of media portrayals on body image. Perloff (2014) argues that promoting media literacy can enhance individuals' ability to critically evaluate and challenge unrealistic beauty standards depicted in the media, thereby mitigating the adverse effects on body image. Advocacy for the implementation of body image resilience programs that focus on enhancing individuals' capacity to resist societal pressures and promote positive body image can also be an effective intervention (Becker, Diedrichs, Jankowski & Werchan, 2013).

## CONCLUSION AND FUTURE DIRECTIONS

Exposure to ideal body shapes through various media channels leads to heightened body dissatisfaction, thus resulting in lower self-esteem among young Indian people. Further, body dissatisfaction partially mediates the relationship between media exposure and self-esteem. Future research could clinically categorise body dissatisfaction within the sample and see the relation with media exposure and self-esteem. Additionally, other mediators and moderators, such as individual differences in susceptibility to media influence, can be explored. Furthermore, longitudinal studies can provide a more nuanced understanding of the temporal dynamics of these relationships across different life stages and also enhance our understanding of the directionality among media exposure, body dissatisfaction, and self-esteem. This will further help determine whether media exposure leads to increased body dissatisfaction and reduced self-esteem, or whether individuals with pre-existing body dissatisfaction and low self-esteem are more likely to engage with idealized media content. Establishing causal pathways will enhance our understanding and inform more targeted interventions. The present study utilised a convenience sample drawn from a single university. Although the diversity of students

from different regions provides a foundational basis for understanding trends among young Indian adults in higher education, future research should aim to include participants from rural areas, varied socio-economic backgrounds, and lower educational levels to achieve a more comprehensive and representative overview of media influence and body image across India.

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*Informed consent* - Informed consent was obtained from all individual participants included in the study.

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# Personality as determinants of cyberslacking behaviors among IT professionals: Moderating role of perceived technostress and self-regulation

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✎ **ABSTRACT.** Questo studio mira a esaminare in che modo i tratti della personalità influenzano i comportamenti di cyberslacking tra i professionisti IT e come l'autoregolazione e lo stress tecnologico moderano queste relazioni. È stato utilizzato un disegno trasversale, raccogliendo dati da 450 professionisti IT di età compresa tra i 25 e i 54 anni attraverso un campionamento mirato. Le misure includevano le sottoscale coscienziosità e nevrosi del Big Five Inventory, il Technostress Creators Inventory, la Self-Regulation Scale e la Social Cyberloafing Scale. I risultati hanno indicato che la coscienziosità e l'autocontrollo predicono negativamente i comportamenti di cyberslacking, mentre il nevroticismo e lo stress tecnologico percepito predicono positivamente tali comportamenti. L'autocontrollo rafforza la relazione tra coscienziosità e cyberslacking, fungendo da cuscinetto tra nevroticismo e cyberslacking. Inoltre, lo stress tecnologico percepito rafforza la relazione tra nevroticismo e cyberslacking, mentre agisce da antagonista tra coscienziosità e cyberslacking.

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✎ **SUMMARY.** *Cyberslacking, a challenge to productivity in digital workplaces, has grown as work and leisure boundaries blur. This study aims to examine how personality traits influence cyberslacking behaviors among IT professionals, and how self-regulation and technostress moderate these relationships. A cross-sectional design was used, collecting data from 450 IT professionals aged 25-54 through purposive sampling. Measures included Conscientiousness and Neuroticism subscales from the Big Five Inventory, Technostress Creators Inventory, Self-Regulation Scale, and Social Cyberloafing Scale. Moderation analysis tested the role of self-regulation and technostress in moderating personality traits' effects on cyberslacking. Findings revealed that conscientiousness and self-regulation negatively predicted cyberslacking, whereas neuroticism and perceived technostress were positive predictors. Self-regulation acted as a buffer for neuroticism's impact on cyberslacking and strengthened conscientiousness's influence. Perceived technostress intensified neuroticism's effect on cyberslacking while weakening the influence of conscientiousness. MANOVA analysis indicated that with longer tenure, managerial employees showed higher conscientiousness and self-regulation but lower technostress and cyberslacking, whereas technical employees of both genders experienced increased technostress and cyberslacking alongside reduced self-regulation. These findings highlight the importance of understanding personality and stressor dynamics in mitigating cyberslacking in IT workplaces.*

**Keywords:** Personality traits, Cyberslacking behaviors, Self-regulation, Perceived technostress, Digital revolution

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## INTRODUCTION

Digitalization is critical for the economic growth of emerging economies through the effective use of information and communication technologies (ICT) (Jamil, 2021). While ICT provides substantial benefits, such as real-time connectivity and efficient decision-making (Onunka, Orikpete & Daraojimba, 2023), it also presents challenges, including increased stress, reduced work-life balance, and potential security risks. The impact of digitalization on employee well-being is particularly evident in fast-paced industries like software, which are crucial to both national and global economies (Khalil & Taj, 2021). High demands and standards in these environments can affect employee well-being, while integrating technologies like generative AI has intensified role-related stress (Kaya et al., 2024). As technology pressures increase, employees may experience strain on both tangible and intangible resources, sometimes resulting in deviant behaviors like technostress and data theft (Abdullah & Al-Abrow, 2023).

The growing integration of technology in the workplace has also expanded opportunities for counterproductive work behavior (CWB). In high-demand fields like software, understanding the interaction of personal traits and psychological resources is essential for comprehending these behaviors. This line of research can reveal root causes of behaviors impacting productivity (Ahmad & Begum, 2020). One such behavior, cyberslacking has emerged as a significant concern. Terms like cyberloafing, cyberslacking, and personal web usage are often used interchangeably to describe non-work-related computing at work (Lim & Teo, 2024). Cyberslacking has been conceptualized from two contrasting perspectives within organizational and cyberpsychology literature. On one hand, it is viewed as a counterproductive or deviant behavior that undermines employee performance, organizational norms, and information security (Askew et al., 2014). As a counterproductive behavior, cyberslacking refers to using the internet or technology during work for non-work-related activities that divert attention and reduce productivity. Excessive cyberslacking can lead to financial costs, decreased worker efficiency, network security risks, legal liabilities, and can cause mental strain and emotional detachment from work. It is often viewed negatively by organizations because it wastes work time and resources. Cyberslacking can also lead to network bandwidth issues and heightened security vulnerabilities, thereby impacting organizational efficiency

and security (Batabyal & Bhal, 2020).

On the other hand, emerging research has recognized cyberslacking as a coping strategy that allows employees to temporarily detach from work demands, restore mental resources, and alleviate perceived stress (Koay et al., 2017). It can facilitate psychological withdrawal that is restorative rather than harmful. The present study integrates these perspectives by proposing that the function of cyberslacking is contingent upon individual personality traits and aims to understand these behaviors to improve employee well-being and organizational performance.

## Theoretical basis of the present study

Employees' involvement in cyberslacking behaviors can be explained by neutralization theory (Sykes & Matza, 1957), which posits that individuals rationalize deviant actions by convincing themselves that their behavior is excusable, thereby reducing guilt. According to this theory, individuals employ cognitive techniques to reconcile their internal contradictions, allowing them to engage in ethically questionable actions without experiencing significant guilt or self-condemnation. Initially focused on delinquency, neutralization theory has since been applied to various forms of workplace deviance, including cyberslacking and misuse of personal computers (Zhou & Zhang, 2022). Employees use techniques like denying responsibility, minimizing harm, or appealing to higher loyalties to justify their deviant actions (Sarfraz, Khawaja, & Um-E-Farwah, 2023). These neutralization techniques enable employees to engage in cyberslacking behavior (Batabyal & Bhal, 2020).

Employee attitudes toward work are influenced by perceptions of the work environment, which shape their thoughts and behaviors (Abdullah & Al-Abrow, 2023). Certain personal attributes may increase the likelihood of using neutralization techniques that help reduce dissonance between actions and moral beliefs. For example, individuals might justify their actions by denying responsibility, minimizing harm, or condemning others, thereby creating a mental buffer that facilitates deviant behaviors (Moore, 2015). Environmental factors, including both risks and protective elements, further impact the interplay between personality, cognition, and behavior. By neutralizing guilt, individuals maintain a morally positive self-image while acting contrary to ethical standards, temporarily suspending

moral constraints and enabling behaviors like cyberslacking and other workplace misconduct.

## Literature and hypotheses development

*Neuroticism and cyberslacking behaviors.* Neuroticism, characterized by emotional instability and a tendency to perceive situations as threatening, is recognized as a key determinant of cyberslacking behaviors. It influences individuals' responses to workplace stress and technology use. Neurotic traits can lead to maladaptive coping mechanisms, as individuals high in neuroticism may avoid ethical considerations and struggle with stress management, especially in high-pressure, tech-driven environments where they have autonomy over their work time (Montag, Sindermann, Becker & Panksepp, 2020). For employees high in neuroticism, cyberslacking may represent a maladaptive coping mechanism, a way to escape or regulate negative affect. While some evidence, such as Szostek and Wysocki (2022), suggests that neuroticism may not directly influence certain forms of workplace deviance, it is often considered a motivating factor for cyberslacking behaviors (Venkatesh, Davis & Zhu, 2023). Abro and colleagues (Abro, Ali & Khan, 2021) further suggest that the negative emotions and anxiety associated with neuroticism can drive individuals to seek immediate gratification through online activities. This form of escapism temporarily alleviates discomfort but can lead to counterproductive behaviors (Sheikh, Aghaz & Mohammadi, 2019). Research indicates that neurotic individuals are more likely to engage in non-work-related online activities, supporting a positive relationship between neuroticism and cyberslacking (Gaiseanu, 2021).

H1: Neuroticism positively predicts cyberslacking behaviors among IT professionals.

*Conscientiousness and cyberslacking behaviors.* Conscientiousness, a personality trait linked to reliability and adherence to organizational goals, acts as a safeguard against counterproductive behaviors such as cyberslacking (Mammadov, 2021). Conscientious employees are well-suited to manage the demands of a digital workplace, balancing multiple tasks while resisting non-work-related online activities. This trait promotes responsibility and commitment to work goals, thereby reducing the likelihood of cyberslacking (Varghese & Barber, 2017). The self-control

inherent in conscientious individuals helps them remain focused and avoid deviant workplace behaviors (Sutin, Stephan, Luchetti & Terracciano, 2021).

Research generally finds a negative correlation between conscientiousness and deviant behaviors, indicating that disciplined and reliable individuals are less inclined toward such activities (Özcan & Koç, 2023). Individuals high in conscientiousness who typically adhere to organizational norms and self-discipline, are less likely to engage in cyberslacking for recovery purposes; when they do, such behavior reflects deviation from their normative work ethic, aligning more with counterproductive or deviant tendencies. Conscientiousness is a key predictor of positive work behavior in remote or distributed environments, where this trait helps individuals refrain from cyberslacking and maintain productivity (Varghese & Barber, 2017). Supporting this, Sheikh et al. (2019) found that organized and responsible individuals are less likely to engage in non-work-related activities online during work hours. Marumpe and Maphosa (2023) also reported that conscientiousness reduced cyberslacking among students, reinforcing its protective role against deviant technology use.

H2: Conscientiousness negatively predicts cyberslacking behaviors among IT professionals.

*Perceived technostress as moderator.* In an era where constant connectivity is expected and technology grows increasingly complex, the risk of technostress rises. Technostress refers to any negative impact on attitudes, beliefs, behaviors, or physiology resulting from technology use, either directly or indirectly (Marchiori, Mainardes & Rodrigues, 2018). It has become more prevalent in the digital age due to the cognitive and social demands of adapting to new technologies (Nastjuk, Trang, Grummeck-Braamt, Adam & Tarafdar, 2024). Technostress manifests through dimensions such as techno-overload (pressure to work harder and faster), techno-complexity (challenges in learning technology), techno-invasion (technology intruding on personal time), techno-uncertainty (discomfort with constant updates), and techno-insecurity (fear of job loss to technology). These factors can lead to emotional exhaustion, pushing employees toward deviant behaviors. For example, techno-overload or techno-invasion may drive employees to seek relief by engaging in non-work-related internet use (Yao & Wang, 2022).

Studies highlight technostress's moderating role in workplace relationships; Tanyildizi and Habip (2023) found it

weakens the link between over-qualification and innovative behavior, while Jaiswal and Singh (2024) observed that it diminishes trust's positive effects on performance in virtual work settings. Technostress, a burden due to technology's demands, also impacts cognition. Cyberslacking may act as a coping mechanism, helping employees manage technostress-related strain (Gügerçin, 2020), even in those who typically maintain self-control and high conscientiousness. Furthermore, technostress can exacerbate tendencies toward cyberslacking in individuals high in neuroticism, as the increased discomfort and threat perception drive them toward this coping strategy (Gaiseanu, 2021). Hence, the proposed hypotheses are:

H3(a): The relationship between neuroticism and cyberslacking is moderated by perceived technostress such that the relationship strengthens when perceived technostress is high;

H3(b): The relationship between conscientiousness and cyberslacking is moderated by perceived technostress such that the relationship weakens when perceived technostress is high.

*Self-regulation as moderator.* Self-regulation has been a significant topic in psychology, emphasizing its role in managing thoughts, emotions, and behaviors to achieve goals (Akinyi & Oboko, 2020). It is essential for handling stressors and enhancing work efficiency (Akinyi, Oboko & Omwenga, 2024). Research indicates that self-regulation is critical in preventing modern issues such as internet and smartphone addiction. Van Deursen and colleagues (Van Deursen, Bolle, Hegner & Kommers, 2015) found that self-regulation helps individuals manage behavior effectively, reducing the risk of developing addictive behaviors. This capability is especially relevant in managing work-related conflicts and maintaining proper conduct.

Individuals with high self-regulation can control excessive media use and focus on long-term goals, such as professional success, rather than immediate gratification (Khan & Khan, 2019). This ability helps employees stay productive and maintain well-being despite distractions, thus supporting work-life balance (Perone, Inguglia & Coco, 2021). In contrast, those with low self-regulation often struggle with immediate rewards, leading to increased strain and decreased performance (Wise, Alhabash & Park, 2011). For conscientious individuals, self-regulation is robust, allowing them to prioritize long-term goals over short-term rewards (Sutin et al., 2021). However, low self-regulation,

combined with high neuroticism, impairs impulse control, increasing cyberslacking tendencies (Khan, Kock & Stadtler, 2014). Cyberslacking may be more prevalent among neurotic employees when work stress is high, but self-regulation can act as a buffer, helping them control impulses and reduce such behavior. Thus, self-regulation may mitigate cyberslacking in highly neurotic individuals. This study proposes that self-regulation functions as a protective factor against cyberslacking, with the following hypotheses:

H4(a): The relationship between neuroticism and cyberslacking is moderated by self-regulation, weakening the relationship when self-regulation is high.

H4(b): The relationship between conscientiousness and cyberslacking is moderated by self-regulation, strengthening the relationship when self-regulation is high

The rationale for this study centers on the growing issue of cyberslacking in technology-intensive workplaces, particularly software houses. With the global increase in human-computer interaction, cyberslacking has emerged as a deviant behavior that can undermine productivity and organizational security (Nguyen & Luu, 2020). This study has three main objectives. Firstly, while previous research has explored the link between personal factors and cyberslacking, it often overlooks the combined effect of organizational factors, such as technostress and individual traits (Tarafdar, Gupta & Turel, 2015). By examining personality traits and their interactions with perceived technostress and self-regulation, this study aims to provide a more comprehensive view of the antecedents that influence cyberslacking among IT professionals. Secondly, this research adopts a novel approach by examining technostress as a contextual variable rather than a direct predictor of cyberslacking. This perspective provides a deeper understanding of how technostress affects the relationship between factors like personality traits and cyberslacking behavior. Additionally, the study considers self-regulation as a resource, as individuals with lower self-control may be more susceptible to cyberslacking. Understanding these factors could inform effective policies and interventions to enhance productivity and security in software houses. Thirdly, focusing on IT professionals is essential due to their unique technological work environment. While cyberslacking has been studied among other professions in Pakistan, research on IT professionals remains limited. IT workers' frequent interactions with advanced technological tools may influence their cyberslacking behaviors differently from other groups (Khan et al., 2021). Additionally, cultural norms

and socioeconomic conditions in Pakistan play a significant role in shaping employee behaviors, including cyberslacking tendencies. This study can provide insights into the cultural attitudes toward technology use in workplaces, as well as the socioeconomic factors that impact internet usage among IT employees, who often have higher access to internet-enabled devices and greater technological proficiency. It is important to note that only two personality dimensions (conscientiousness and neuroticism) were included, while extraversion, openness, and agreeableness were excluded. These dimensions were selected because prior research indicates they are most strongly related to cyberslacking behaviors (Ekinci, 2023). Also conscientiousness was conceptualized as a protective factor, whereas neuroticism was considered a risk factor in relation to cyberslacking behaviors. This focus is supported both theoretically and empirically (Koronzai, Kökönyi, Griffiths & Demetrovics, 2019). These two traits were therefore prioritized, given their strong theoretical and empirical links with cyberslacking behaviors, while the remaining three dimensions were excluded to maintain focus and reduce participant burden.

## METHOD

### Sample

A purposive sample of ( $N = 450$ ) consisting full-time IT professionals from different software houses of Rawalpindi, Islamabad and Lahore were selected for this study. The inclusion criteria required participants to have at least one year of employment in their current organization and a minimum of two years of overall job experience. Organizations included in the study were required to have a minimum of 15 employees to ensure a focus on sufficiently staffed workplaces. To ensure consistency, the study focused exclusively on in-office employees and excluded remote workers. The sample predominantly consisted of men (71.3%,  $n = 321$ ) and women (28.7%,  $n = 129$ ). Educational backgrounds of the participants varied, with 64.4% ( $n = 290$ ) holding graduate degrees, 35.4% ( $n = 159$ ) having post-graduate qualifications. Most participants were employed in technical roles (69.1%,  $n = 311$ ), while 30.9% ( $n = 139$ ) held managerial positions. Participants' ages ranged from 25 to 54 years, with a mean age of 32.78 years ( $SD = 5.87$ ). Most participants were in the industry with experience of 2 to 18

years, with an average of 8.67 years ( $SD = 4.55$ ).

The majority of participants were employed in private organizations (75.3%,  $n = 339$ ), while 24.2% ( $n = 109$ ) worked in government sectors. Participants' working hours were diverse: 7.6% ( $n = 34$ ) worked 4-6 hours per day, 47.1% ( $n = 212$ ) worked 6.1-8 hours, 38.7% ( $n = 174$ ) worked 8.1-10 hours, and 6.7% ( $n = 30$ ) worked more than 10 hours daily. On average, participants worked approximately 7.9 hours per day. Reasons for personal internet use at work included improving work skills (35.1%,  $n = 158$ ), personal business (22.4%,  $n = 101$ ), socialization (22.2%,  $n = 100$ ), and reducing work stress (20%,  $n = 90$ ). Time spent on personal internet use varied such as 22% ( $n = 99$ ) respondents used it for less than 1 hour, while 30% ( $n = 135$ ) respondents use it for 1-2 hours, 18.2% ( $n = 82$ ) for 3-4 hours, and 29.3% ( $n = 132$ ) for 4 or more hours.

### Measures

*Conscientiousness subscale and neuroticism subscale of the Big Five Inventory.* To assess these personality traits, the Conscientiousness and Neuroticism subscales from the Big Five Inventory were used. Each subscale consisted of 8 items. Responses were recorded on a 4-point Likert scale, ranging from (1 = Strongly agree to 4 = Strongly disagree). The scoring range for each subscale was 8 to 32, with higher scores reflecting higher levels of conscientiousness and neuroticism. The internal consistency of the subscales was demonstrated to be excellent, with Cronbach's alpha reliability coefficients reported as  $\alpha = .84$  for the Neuroticism subscale and  $\alpha = .82$  for the Conscientiousness subscale (John & Srivastava, 1999). In this study, the Neuroticism subscale achieved an alpha coefficient of .82, while for the Conscientiousness subscale, a high reliability was observed for the subscale, with an alpha coefficient of .85.

*Technostress Creator's Inventory.* Technostress was assessed using the Technostress Creator's Inventory (Ragu-Nathan, Tarafdar, Ragu-Nathan & Tu, 2008), which comprises 23 items divided into five subscales: techno-overload (5 items), techno-invasion (4 items), techno-complexity (5 items), techno-insecurity (5 items), and techno-uncertainty (4 items). Responses were given on a 4-point Likert scale, from (1 = Strongly agree to 4 = Strongly disagree). The possible scores ranged from 23 to 92, with higher scores reflecting higher perceptions of technostress. The scale demonstrated

excellent internal consistency with  $\alpha = .84$  (Ragu-Nathan et al., 2008). In the current study, the overall scale achieved an alpha coefficient of .87, with subscales demonstrating the following reliability: techno-overload ( $\alpha = .73$ ), techno-invasion ( $\alpha = .78$ ), techno-complexity ( $\alpha = .74$ ), techno-insecurity ( $\alpha = .72$ ), and techno-uncertainty ( $\alpha = .70$ ).

*Self-Regulation Scale.* Self-regulation was assessed using a 10-item self-report scale developed by Schwarzer and colleagues (Schwarzer, Diehl & Schmitz, 1999), which focused on attention control during goal pursuit. Participants responded on a 4-point Likert scale, from (1 = Not at all true to 4 = Exactly true) with possible range of 10-40. The scale has been shown to have excellent internal consistency, with a Cronbach's alpha of  $\alpha = .82$  (Schwarzer et al., 1999). In this study, the reliability analysis of the scale revealed Cronbach's alpha coefficient of .85.

*Social Cyberloafing Scale.* Cyberslacking behaviors were measured using a scale adapted by Wu and colleagues (Wu, Mei, Liu & Ugrin, 2020) from Andreassen et al. (Andreassen, Pallesen & Griffiths, 2014), which focuses on the use of social networks for personal purposes during work hours. This scale includes 7 items rated on a 4-point Likert scale, ranging from (1 = Rarely to 4 = To a great extent). Scores on the scale ranged from 7 to 28, with higher scores indicating a greater tendency to engage in cyberslacking behaviors. The scale demonstrated excellent internal consistency, with a reported Cronbach's alpha of  $\alpha = .84$  (Wu et al., 2020). In the present study, the scale established an alpha coefficient of .85.

## Procedure

The study was conducted with IT employees from various software houses in Pakistan. The survey was administered between October 2023 and March 2024. Participants were recruited mostly from organizations based in Islamabad, Rawalpindi and Lahore. Approval was obtained from software houses and relevant authorities across various cities in Pakistan, and permission was sought from HR departments to conduct surveys on-site. Recruitment of participants commenced only after receiving the necessary approvals from the respective HR departments. The data were collected using paper-based surveys. Before the survey administration, participants were briefed about the general purpose of the study, and informed consent was obtained from each participant. Participants were assured of the

anonymity and confidentiality of their responses, with all data securely stored and accessible only to the research team. Questionnaire booklets were distributed to participants and they were encouraged to provide as much information as they felt comfortable with and were free to withdraw from the study at any point. To assist the respondents, both written and verbal instructions were provided for completing the questionnaires. After data collection, respondents were thanked for their valuable information and their precious time.

## Data analysis

Data were analyzed using SPSS version 26. Prior to analysis, data were screened for missing values and assumptions (normality, multicollinearity, etc.). Descriptive statistics were calculated for all variables. To test the hypotheses, correlation, hierarchical regression analysis, *t*-tests, MANOVA, moderation/mediation analysis were performed. Statistical significance was set at  $p < .05$ .

## RESULTS

Results in Table 1 indicate the correlation pattern among the study variables. The results show that neuroticism is positively related to perceived technostress and cyberslacking behaviors. However, it is inversely correlated with conscientiousness and self-regulation. Conscientiousness is positively associated with only self-regulation; whereas, it is negatively correlated with all other variables. Thus, it shows that neuroticism, perceived technostress, and cyberslacking behaviors are positively correlated with each other while they are negatively correlated with conscientiousness and self-regulation.

Table 2 presents the results of the regression analyses examining predictors of cyberslacking behaviors. In step 1, conscientiousness and neuroticism explained 30% of the variance in cyberslacking behaviors, indicating that approximately 30% of the variance in the outcome variable can be accounted for by these two traits. In step 2, the inclusion of self-regulation increased the explained variance up to 46% and the value of  $\Delta R^2$  increased from step 1 to step 2, indicating that the addition of self-regulation accounted for an additional 16% of the variance in cyberslacking behaviors.

**Table 1** – Correlation among study variables (N = 450)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Neuroticism	22.36	5.92	—	-.57**	.37**	-.37**	.51**
2. Conscientiousness	19.07	4.74		—	-.40**	.19**	-.45**
3. Perceived technostress	72.45	11.15			—	-.31**	.57**
4. Self-regulation	23.33	7.05				—	-.56**
5. Cyber slacking	15.84	5.09					—

\*\* $p < .01$ , \*\*\* $p < .001$

**Table 2** – Hierarchical multiple regression analysis predicting cyberslacking behaviors (N = 450)

Criterion variable: cyberslacking behaviors							
Variables	B	95% CI for B		SE	β	R <sup>2</sup>	ΔR <sup>2</sup>
		LL	UL				
<i>Model 1</i>						.30	.30***
Constant	12.62***	9.52	16.00	1.71			
Conscientiousness	−.20***	−.28	−.12	.04	−.24***		
Neuroticism	.41***	.31	.51	.05	.38***		
<i>Model 2</i>						.46	.16***
Constant	23.61***	20.09	27.13	1.79			
Conscientiousness	−.22***	−.28	−.14	.04	−.25***		
Neuroticism	.23***	.13	.32	.05	.21***		
Self-regulation	−.31***	−.36	−.25	.03	−.43***		
<i>Model 3</i>						.54	.08***
Constant	10.51***	6.19	14.83	2.20			
Conscientiousness	−.13***	−.20	−.06	.03	−.16***		
Neuroticism	.18***	.09	.27	.04	.17***		
Self-regulation	−.26***	−.31	−.21	.02	−.36***		
Perceived technostress	.15***	.12	.18	.01	.33***		

\*\* $p < .01$ , \*\*\* $p < .001$

In step 3, with the further inclusion of perceived technostress, the predictors collectively explained 54% of the variance in cyberslacking behaviors. The increase in  $\Delta R^2$  from step 2 to step 3 suggests that perceived technostress contributed an additional 8% to the explained variance in the dependent variable.

## Moderating role of perceived technostress

To examine the moderating effect of self-regulation on the relationship between personality traits and cyberslacking behaviors, a moderation analysis was conducted. In the first path, moderating role of perceived technostress was examined in predicting cyberslacking behaviors from neuroticism, and then in the second path, moderating role of

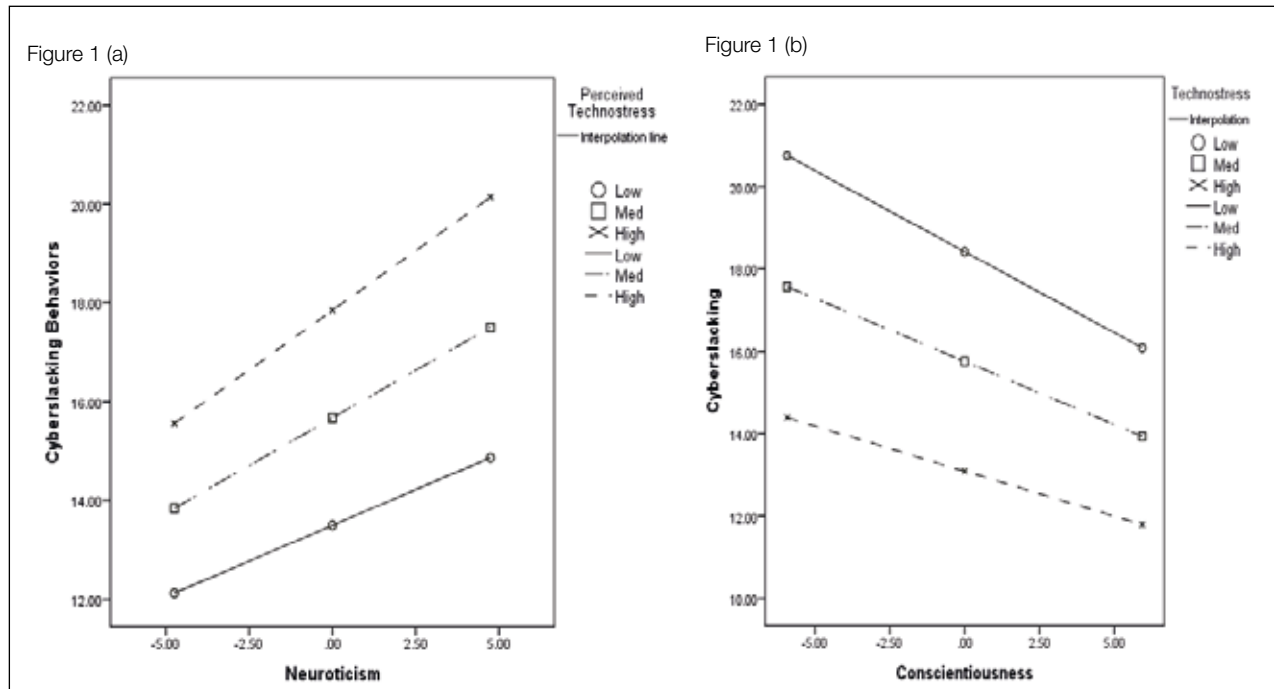
perceived technostress was tabulated to predict cyberslacking behaviors from conscientiousness (see Table 3).

As shown in Figure 1(a), a significant moderation effect was found, indicating that perceived technostress strengthens the positive relationship between neuroticism and cyberslacking behaviors. Specifically, the impact of neuroticism on cyberslacking becomes more pronounced at higher levels of technostress. In contrast, Figure 1(b) illustrates the moderation effect of perceived technostress on the relationship between conscientiousness and cyberslacking behaviors. A significant moderation effect was observed, indicating that perceived technostress weakens the negative relationship between conscientiousness and cyberslacking. At higher levels of technostress, the ability of conscientiousness to reduce cyberslacking is diminished. Results indicated that perceived technostress plays an antagonistic role in the relationship between conscientiousness and cyberslacking behaviors.

**Table 3** – Moderating role of perceived technostress in predicting cyberslacking behaviors from neuroticism and conscientiousness (N = 450)

Criterion variable: cyberslacking behaviors				
Predictors	$\beta$	$p$	95% CI	
			LL	UL
Constant	15.67	.00	15.29	16.05
Neuroticism	.38	.00	.30	.4
Perceived technostress	.20	.00	.17	.24
Neuroticism $\times$ perceived technostress	.01	.01	.00	.02
$R^2 = .44$ $\Delta R^2 = .01$ $F = 115.04$		.00		
Constant	15.60	.00	15.19	15.99
Conscientiousness	-.24	.00	-.31	-.17
Perceived technostress	.20	.00	.16	.24
Conscientiousness $\times$ perceived technostress	-.01	.00	-.15	.00
$R^2 = .40$ $\Delta R^2 = .01$ $F = 97.48$		.00		

**Figure 1** – Perceived technostress as a moderator between personality traits and cyberslacking behaviors (N = 450)



## Moderating role of self-regulation

To examine the moderating effect of self-regulation on the relationship between neuroticism and cyberslacking behaviors, and conscientiousness and cyberslacking behaviors, a moderation analysis was conducted. In the first path, moderating role of self-regulation was examined in predicting cyberslacking behaviors from neuroticism, and then in the second path, moderating role of self-regulation was tabulated to predict cyberslacking behaviors from conscientiousness (see Table 4).

Figure 2(a) demonstrates the moderating effect of self-regulation on the relationship between neuroticism and cyberslacking behaviors. The positive association between neuroticism and cyberslacking is strongest when self-regulation is low, indicating that individuals with high levels of neuroticism are more likely to engage in cyberslacking when they have poor self-regulation skills. However, as self-regulation increases, the influence of neuroticism on cyberslacking behaviors weakens. Results indicated that self-regulation acts as a buffer in the relationship between

neuroticism and cyberslacking behaviors, thereby acting as a shield against negative impacts of neuroticism.

Figure 2(b) illustrates that self-regulation enhances the negative relationship between conscientiousness and cyberslacking behaviors. When self-regulation is low, conscientious individuals are already less likely to engage in cyberslacking. However, as self-regulation increases, the ability of conscientiousness to further reduce cyberslacking behaviors is strengthened. At higher levels of self-regulation, this negative relationship becomes more pronounced, indicating that individuals who are both highly conscientious and possess strong self-regulation skills are significantly less likely to engage in cyberslacking.

## Group differences

Table 5 represents that there is significant difference between private sector and government sector employees on perceived technostress as well as self-regulation. However, no significant differences exist between the two categories in



**Table 4** – Moderating role of self-regulation in predicting cyberslacking behaviors from neuroticism and conscientiousness (N = 450)

Criterion variable: cyberslacking behaviors				
Predictors	B	p	95% CI	
			LL	UL
Constant	15.72	.00	15.34	16.11
Neuroticism	.39	.00	.31	.47
Self-regulation	-.33	.00	-.39	-.27
Neuroticism × self-regulation	-.01	.04	-.02	.00
R <sup>2</sup> = .42      ΔR <sup>2</sup> = .01      F = 108.54		.00		
Constant	15.59	.00	15.19	15.99
Conscientiousness	-.31	.00	-.30	-.17
Self-regulation	-.39	.00	-.44	-.35
Conscientiousness × self-regulation	-.01	.00	.00	.02
R <sup>2</sup> = .44      ΔR <sup>2</sup> = .01      F = 117.92		.00		

neuroticism, conscientiousness and cyberslacking behaviors.

A factorial MANOVA was performed to assess the combined effects of Gender, Job nature, and Work experience on five dependent variables. The multivariate effect was significant, Pillai's trace = .604,  $F(70, 2150) = 4.22$ ,  $p < .001$ , partial  $\eta^2 = .12$  (see Table 6 and Table 7).

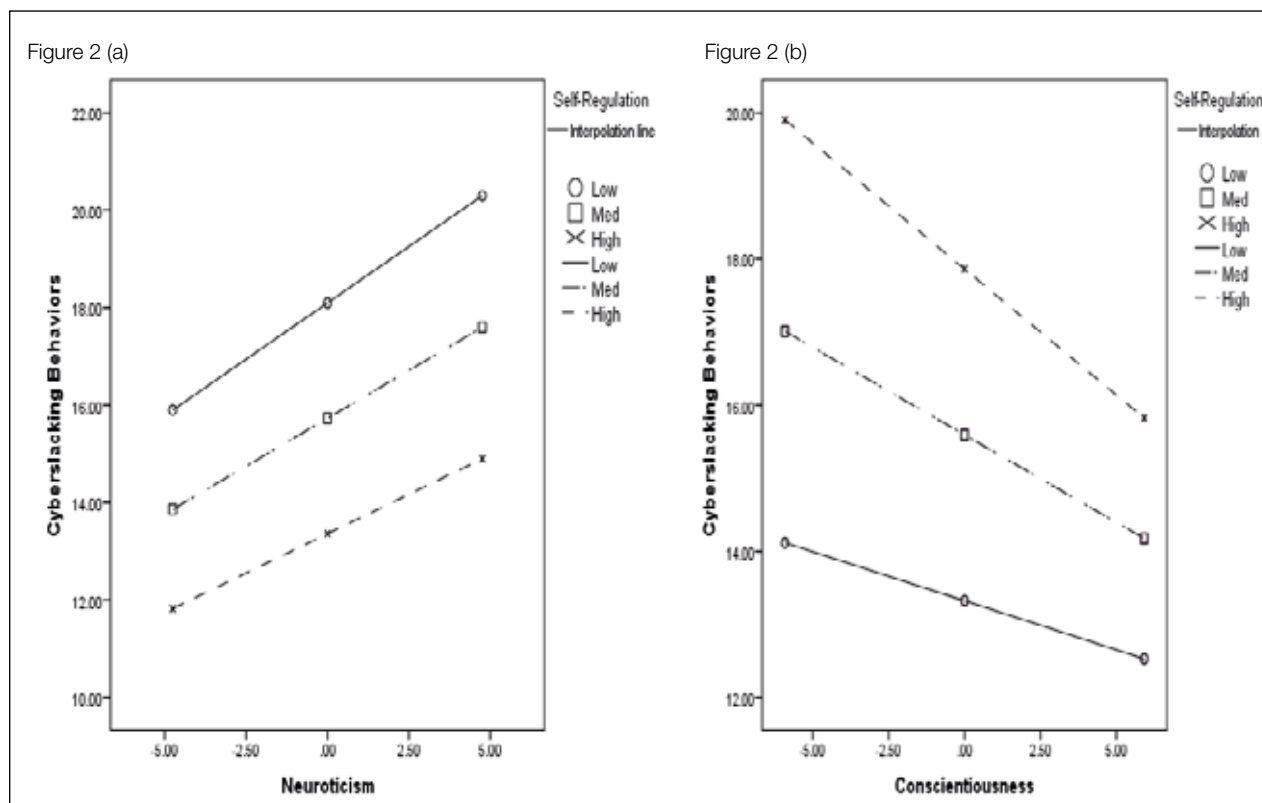
## DISCUSSION

The current research was designed to determine the relationship of personality traits with cyberslacking behaviors with perceived technostress and self-regulation acting as risk and protective factors. Research aimed to investigate how neuroticism and conscientiousness affects an employee's

involvement in cyberslacking behaviors and how perceived technostress make them more susceptible to get involved in such behaviors and how self-regulation reduces the chances of such involvement. Research also aimed at exploring the effects of demographic variables such as gender, education, job nature, job tenure, time spent on non-work internet use and reasons for that.

It was hypothesized that higher level of neuroticism would be correlated to higher levels of cyberslacking behaviors. The study's findings demonstrate that neuroticism positively predicts cyberslacking behaviors among IT employees, consistent with earlier studies (Liani, Baidun & Rahmah, 2021; Ventakesh et al., 2023). Neuroticism is characterized by emotional instability, anxiety, and a tendency to experience negative emotions. To cope with these uncomfortable

**Figure 2** – Self-regulation as a moderator between personality traits and cyberslacking behaviors (N = 450)



**Table 5** – Organization of nature differences along study variables (N = 450)

Variables	Govt. sector (n = 109)		Private sector (n = 339)		t (df)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Neuroticism	19.55	5.24	18.90	4.58	1.16 (446)	.21	-.46	1.76	–
Conscientious	21.75	7.20	22.56	5.46	-1.07(446)	.21	-2.29	.68	–
Technostress	69.85	12.07	73.31	10.69	-2.84(446)	.00	-5.85	-1.07	.30
Self-regulation	22.24	5.30	23.69	7.52	-2.21(443)	.02	-2.73	-.16	.22
Cyberslacking	16.60	4.97	15.61	5.11	1.77(445)	.07	-.11	2.09	–

*Legenda.* Conscientious = conscientiousness; Technostress = perceived technostress; Cyberslacking = cyberslacking behaviors.

**Table 6** – MANOVA analysis for variables of study (N = 450)

Variables	Men (n = 318)											
	Managerial (n = 138)						Technical (n = 307)					
	1-5 years (n = 232)		5.1-10 years (n = 148)		10.1 & above years (n = 65)		1-5 years (n = 232)		5.1-10 years (n = 148)		10.1 & above years (n = 65)	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Neurotic.	19.43	4.50	19.09	4.54	17.23	5.58	19.20	4.07	18.13	4.68	20.50	5.16
Conscient.	20.62	4.86	23.03	6.09	23.82	6.80	21.93	5.85	23.60	6.80	21.40	5.93
Techstress	76.74	9.81	72.09	10.9	69.94	13.4	69.63	11.02	71.15	10.51	74.13	14.0
Regulation	21.28	5.37	23.75	6.90	25.29	7.78	23.58	6.08	22.79	6.89	21.13	7.05
Cyberslac.	18.22	5.08	15.56	5.16	13.94	4.50	15.69	4.97	14.91	4.87	16.72	4.44
Variables	Women (n = 127)											
	Managerial (n = 138)						Technical (n = 307)					
	1-5 years (n = 232)		5.1-10 years (n = 148)		10.1 & above years (n = 65)		1-5 years (n = 232)		5.1-10 years (n = 148)		10.1 & above years (n = 65)	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Neurotic.	21.82	3.95	23.00	3.84	12.25	5.32	20.82	4.18	18.73	4.13	20.83	2.40
Conscient.	20.04	5.07	21.90	5.68	27.70	5.65	20.56	4.62	23.76	5.39	21.33	3.98
Techstress	77.13	14.15	70.63	12.86	73.15	6.35	75.73	8.20	74.61	11.77	82.66	4.84
Regulation	20.91	4.92	20.54	3.64	37.50	9.24	22.82	4.57	20.50	4.96	19.67	8.57
Cyberslac.	19.91	4.75	16.09	2.94	9.40	5.22	16.95	4.46	16.23	4.05	18.50	2.25

*Legenda:* Neurotic. = neuroticism; Conscient.= conscientiousness; Regulation = self-regulation; Techstress = perceived technostress; Cyberslac. = cyberslacking behaviors.

**Table 7** – Tests of between-subjects effects for gender × job nature × work experience

Dependent variables	F	$df_1$	$df_2$	$p$	Partial $\eta^2$
Neuroticism	2.52	14	430	.002	.08
Conscientiousness	13.45	14	430	<.001	.31
Perceived technostress	8.51	14	430	<.001	.22
Self-regulation	2.86	14	430	<.001	.08
Cyberslacking behaviors	7.06	14	430	<.001	.19

*Legenda.*  $df$  = degree of freedom; Partial  $\eta^2$  = effect size estimates.

*Note.* Reported F statistics are based on the three-way interaction (gender × job nature × work experience).

emotions, neurotic individuals may resort to cyberslacking, using the internet during work hours to engage in personal activities and thus alleviate stress (Liani et al., 2021). The internet provides a readily available escape, enabling neurotic individuals to avoid confronting work-related tasks and instead seek solace in non-work-related online activities (Venkatesh et al., 2023).

It was also hypothesized that higher level of conscientiousness would be correlated to lower levels of cyberslacking behaviors. The results suggest that in contrast to neuroticism, conscientiousness is negatively associated with cyberslacking behaviors. Conscientious individuals are characterized by a strong sense of duty, responsibility, and goal orientation. They are more disciplined and focused on achieving work-related goals, which makes them less likely to engage in personal internet use during work hours (Ibrahim & Helay, 2022). Although even conscientious individuals might occasionally engage in some personal internet use, their high level of self-regulation typically prevents excessive engagement in such behaviors (Li, 2022).

Two critical moderators in the relationship between neuroticism and cyberslacking are perceived technostress and self-regulation. Perceived technostress is a significant moderator as it strengthens the relationship between neuroticism and cyberslacking behaviors. Technostress, which encompasses the stress and strain associated with the use of technology, particularly under conditions

of constant connectivity and multitasking, can lead to increased cyberslacking as individuals seek to escape the overwhelming demands. High levels of technostress can make it difficult for employees to concentrate on their work tasks, prompting them to turn to social media and other non-work-related online activities as a coping mechanism (Li & Liu, 2022). Technostress factors like techno-invasion and techno-overload further compound this problem by creating a stressful environment that encourages the use of cyberslacking as a means of escape, reducing efficiency and productivity (Gügerçin, 2020).

On the other hand, self-regulation serves as a protective factor, enabling individuals to manage their impulses and maintain focus on their goals, thus reducing the likelihood of cyberslacking. Strong self-regulation skills help individuals stay committed to their tasks and resist the distraction of non-work-related online activities, effectively mitigating the impact of neuroticism on cyberslacking. Individuals with high self-regulation are better equipped to control their emotional responses and stay focused, which reduces the tendency to cyberslack even when they experience stress or discomfort.

The relationship between conscientiousness and cyberslacking is similarly influenced by perceived technostress and self-regulation. High levels of perceived technostress can undermine the typical self-discipline of conscientious individuals, potentially leading to occasional

lapses in cyberslacking as a way to cope with stress. While conscientiousness generally protects against cyberslacking, excessive technostress might still pose a challenge, though to a lesser extent compared to individuals with lower conscientiousness (Li & Liu, 2022). Conversely, self-regulation strengthens the negative relationship between conscientiousness and cyberslacking. Conscientious individuals who possess strong self-regulation skills are highly effective in managing their time and responsibilities, which acts as a robust buffer against engaging in non-work-related online activities (Tanriverdi, 2021). Thus, self-regulation enhances the protective effect of conscientiousness against cyberslacking. Importantly, the moderation analysis demonstrated that perceived technostress and self-regulation significantly moderated these relationships, although the interaction effect was relatively small ( $\beta = .01$ ,  $\Delta R^2 = .01$ ). This suggests that technostress and self-regulation alter the strength, but not the direction, of the associations between personality traits and cyberslacking. These findings are consistent with prior research showing that moderation effects for cyberslacking behaviors tend to be small yet theoretically meaningful (Nweke, Jarrar & Horoub, 2024). In line with Aguinis and colleagues (Aguinis, Edwards & Bradley, 2017) and Frazier et al. (2004), such effects typically account for 1-3% of the variance ( $\Delta R^2 \approx .01-.03$ ) as observed in the current study.

The findings on group differences indicate meaningful sectoral differences in employees' experiences of technostress and self-regulation. Private-sector employees reported significantly higher levels of technostress than their counterparts in the government sector. This pattern may be attributed to the greater technological integration, performance pressures, and rapid digital transformations common in private organizations. These environments often demand constant connectivity and multitasking, which can heighten perceptions of overload and invasion, leading to elevated technostress (Stadin et al., 2021). Interestingly, despite facing higher technostress, private-sector employees also demonstrated stronger self-regulation. This may reflect the adaptive mechanisms cultivated in dynamic and competitive work environments, where employees are required to manage their time effectively, control impulses, and maintain productivity under pressure. Enhanced self-regulation could serve as a coping resource that enables employees to manage the stress associated with technological demands.

The factorial multivariate analysis reveals that gender, job nature, and job tenure significantly impact neuroticism, conscientiousness, self-regulation, technostress, and cyberslacking. Men increase in neuroticism with longer tenure as managers but show decreased neuroticism with longer tenure in technical roles. Managerial roles may induce stress and require emotional regulation over time, influencing neuroticism differently by role (Schmitt, Den Hartog & Belschak, 2021). Women tend to have higher neuroticism in early career years, especially overall or in managerial tracks, but tend to have decreased neuroticism with tenure in managerial roles, reflecting development of emotional stability over time. In technical roles, women's neuroticism remains relatively stable without large differences by tenure (Chapman, Duberstein, Sørensen & Lyness, 2007). The general gender difference in neuroticism, with women scoring higher than men, is consistent across ages and roles but modulated by job tenure and role type (Weisberg, Deyoung & Hirsh, 2011).

Gender and role influence conscientiousness development, with managerial roles tending to enhance conscientious behaviors whereas technical roles maintain consistent conscientiousness levels across tenure for both men and women (Opstad, Karevoll, Lewicka & Årethun, 2024; Russo & Stol, 2020). Technostress increases with tenure for technical men and women but decreases with tenure for managerial men and women (Kumar, 2024; Zhang, Ye, Qiu, Zhang & Yu, 2022). Women in technical roles experience higher technostress levels, likely related to greater strain with digital demands and gender-related stereotypes in technology use.

Self-regulation appears higher among men and managerial staff, increasing with tenure, suggesting regulatory control develops with experience and professional maturity. Research supports that self-regulation or emotional regulation tends to increase with longer tenure among men and women in managerial roles, linked to growing professional maturity, experience, and the need to manage complex interpersonal and organizational dynamics. On the other hand, technical men and women tend to show a decrease in regulation over tenure, possibly due to different job demands and stressors that affect their emotional resources and coping strategies differently than management roles. Cyberslacking behaviors, such as personal internet use at work, are more frequently reported by men in managerial roles and women in technical roles,

often as coping mechanisms for stress, and increase with job tenure (Hernández et al., 2016; Vitak, Crouse & Larose, 2011). Among women, managerial roles exhibit less cyberslacking than technical roles, with managerial women's cyberslacking decreasing with tenure due to growing regulatory control and professional norms. In contrast, technical women show increasing cyberslacking with tenure, possibly as a coping response to persistent technostress in technical positions.

## Limitations and suggestions

The study did not employ precise time-tracking tools or software to measure the exact duration of non-work internet use, relying instead on self-reported data. This reliance may have led to inaccuracies, as employees might not accurately recall or may intentionally underreport their non-work internet use to avoid negative consequences. Additionally, the time spent on cyberslacking can vary depending on factors such as the time of day, workload, and personal circumstances. A single measurement or snapshot may not accurately capture the dynamic nature of cyberslacking over a typical workweek. The study also did not account for potential confounding variables, such as organizational culture, management practices, and individual differences in work-life balance, which could influence cyberslacking behaviors. Future research should utilize digital tools or software to accurately track the amount of time employees spend on non-work-related internet use, offering more objective measurements. Longitudinal studies are recommended to better identify causal relationships and changes over time. Additionally, future studies should consider contextual factors, including job role, workload, and organizational culture, to better understand the reasons and extent of cyberslacking behaviors.

## Implications of the study

The study offers several implications for organizations navigating digital adaptation challenges. To reduce cyberslacking, companies should implement clear internet usage policies and support workload management to enhance employee well-being and productivity. Since individuals high in neuroticism are more vulnerable to technostress, organizations should implement stress management

interventions, such as mindfulness sessions, emotional regulation training, and supportive supervision, to help employees cope with technology-related strain. For highly conscientious employees, who may experience pressure to remain constantly productive, managers can promote balanced workload structures and digital breaks to prevent burnout and ensure sustained efficiency. Given that conscientiousness emerged as a protective factor, organizations can leverage this trait by fostering environments that encourage responsibility, goal-setting, and autonomy. For instance, providing structured work routines, clear performance expectations, and recognition systems may help conscientious employees maintain focus and reduce the likelihood of cyberslacking. Reducing technostress is crucial and can be achieved through training on efficient technology use, promoting breaks, and offering resources to help employees adapt to technological changes. Policymakers should advocate for ethical internet usage guidelines and mental health support in the workplace, providing adaptive training and digital literacy programs to those more susceptible to stress. Employees can benefit from focusing on self-awareness and personal development, including mindfulness and time management, to manage cyberslacking and improve job focus. Effective organizational strategies, training, and supportive policies are essential for enhancing employee well-being and productivity in the digital age.

## CONCLUSION

This study underscores the importance of addressing cyberslacking and technostress in the workplace through targeted interventions, clear policies, and employee support programs. Beyond these general measures, a key contribution of this research lies in demonstrating the relevance of personality characteristics, specifically conscientiousness and neuroticism, in understanding employees' susceptibility to these challenges. Conscientiousness emerged as a protective factor, indicating that employees high in this trait are more likely to self-regulate and resist cyberslacking, while neuroticism functioned as a risk factor, heightening vulnerability to technostress and counterproductive online behaviors.

The added value of incorporating personality evaluation into workplace strategies is twofold. First, it allows organizations to identify employees who may be at greater

risk and to provide them with tailored resources, such as stress-management training or digital well-being programs. Second, it enables the design of preventive measures that leverage existing strengths by promoting responsibility,

structured task management, and recognition systems. Thus, personality-informed interventions can enhance both individual well-being and organizational productivity in the digital era.

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# Digital MBSR training for TIN\* individuals

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**ABSTRACT.** Questo studio confronta gli effetti della formazione MBSR (Mindfulness Based Stress Reduction) nelle persone TIN\* con quelli nelle persone cisgender. 236 soggetti sono stati divisi in un gruppo sperimentale TIN\* (n = 34) e un gruppo cisgender (n = 202), entrambi sottoposti a formazione digitale nello studio longitudinale. Tutti i soggetti hanno compilato questionari sulle loro capacità di mindfulness (Mindful Attention and Awareness Scale – MAAS), sulla soddisfazione di vita (Fragebogen zur allgemeinen Lebenszufriedenheit – FLZ) e sullo stress e il recupero (RESTQ) prima e dopo la formazione. Gli individui TIN\* hanno anche completato la Utrecht Gender Dysphoria Scale (UGDS) in due momenti. La consapevolezza, la soddisfazione di vita rispetto alla salute e la stanchezza sono migliorate in modo simile durante il training sia negli individui TIN\* che in quelli Cis. La formazione MBSR digitale è efficace per le persone TIN\*. Non sono stati riscontrati effetti differenziali rispetto alle persone Cis, ma le persone TIN\* hanno riportato livelli di stress più elevati e minore soddisfazione di vita, indicando la necessità di interventi personalizzati.

**SUMMARY.** A mindfulness-based online intervention can be as effective as face-to-face training in Cisgender persons. This study compares MBSR training effects in TIN\* individuals to Cis persons. 236 subjects were divided into a TIN\* experimental group (n = 34) and a Cis group (n = 202), both receiving digital training in the longitudinal study. All subjects completed questionnaires on their mindfulness skills (Mindful Attention and Awareness Scale – MAAS), life satisfaction (Fragebogen zur allgemeinen Lebenszufriedenheit – FLZ), and stress and recovery (RESTQ) before and after training. TIN\* individuals also completed the Utrecht Gender Dysphoria Scale (UGDS) at two points. Mindfulness, life satisfaction with health, and fatigue improved similarly over the training in TIN\* and Cis individuals. Gender dysphoria remained unchanged. TIN\* individuals reported more stress, lower life satisfaction, and mindfulness than Cis individuals, independent of MBSR training. Digital MBSR training is effective for TIN\* people. Differential effects compared to Cis persons weren't found, but TIN\* persons reported higher stress and lower life satisfaction, indicating a need for tailored interventions.

**Keywords:** TIN\* individuals; Life satisfaction; Mindfulness

## INTRODUCTION

TIN\* individuals (trans, intersex, and non-binary people) represent a vulnerable and marginalized group (Anderssen, Sivertsen, Lønning & Malterud, 2020; Dolotina & Turban, 2022; Wolf & Bos, 2023). The health care situation for TIN\*

individuals is of particular importance due to their specific needs. However, current specific health care services are often insufficient and in need of improvement (Przybyl & Stang, 2024; Stang, 2023; Stang, 2024). Mindfulness focuses on the intentional, present-moment awareness and a non-judgmental form of attention (Kabat-Zinn, 2013; Kaluza,

2018; Michalak, Heidenreich, Ströhle & Nachtigall, 2008; Shapiro, Carlson, Astin & Freedman, 2006). Through practice, mindfulness skills can be developed, promoting an attitude characterized by kindness, openness, and acceptance (Johnson et al., 2023; Michalak et al., 2011; Osama, Rabea & Abdelrahman, 2023; Stang et al., submitted). The targeted application of mindfulness can be understood as a beneficial and health-promoting technique, exerting a relaxing effect on psychological and physical processes (Lehrhaupt & Meibert, 2010). Mindfulness-Based Stress Reduction (MBSR) (Kabat-Zinn, 2013; Lehrhaupt & Meibert, 2010) is such a mindfulness training but requires a significant time commitment. Therefore, Demarzo et al. (2017) developed a four-week mindfulness-based intervention that shows similar efficacy to the classic MBSR. There are research gaps regarding the effects of the MBSR course on stress and life satisfaction, specific samples, including TIN\* individuals, and the efficacy of an online format.

The current assessment guidelines of the German medical service (Medizinischer Dienst des Spitzenverbandes Bund der Krankenkassen [MDS], 2020) for the assessment of gender reassignment measures for cost coverage by health insurance companies influences psychotherapists, as TIN\* people currently still have to demonstrate a certain number of hours of psychotherapy before gender-modifying measures (transition measures) as a last resort (Stang, 2023, 2024). This does not result in a specific indication for psychotherapy. In terms of health-promoting measures, other interventions beyond psychotherapy can also have positive health-related effects. Stang (2023) already pointed out a gap in research on the effectiveness of counselling and health psychology services, such as prevention courses, for TIN\* persons.

As a preliminary study, Stang and Rico-Dresel (2023) conducted a synchronous online course on MBSR with a sample of Cis persons. This revealed significant differences between the experimental and control group (without intervention) as well as between the first and second measurement time points on mindfulness and life satisfaction (Stang, 2023).

A systematic literature search found a small number of relevant studies on the effectiveness of an MBSR course for TIN\* persons. In general, studies with TIN\* persons have small sample sizes, short follow-up periods or outdated data sets (Sun et al., 2023). It should be noted here that the population of TIN\* persons is rather small (Kost, 2024). A systematic review (Sun, Nardi, Loucks & Operario, 2021)

confirms the research activity on the use of mindfulness-based and mindfulness-informed interventions in people of sexual and gender minorities. A total of 769 studies were reviewed and 13 studies, including 6 randomized controlled trials, were included in the review. Only one study targeted transgender and gender non-conforming people; transgender women living with HIV (Hunter-Jones et al., 2021). Both Cis and transgender women were very satisfied with the mindfulness-based cognitive therapy and showed an improvement in depressive and stress symptoms. It was concluded for future research that more high-quality studies in this context are needed. With reference to the minority stress model, a study (Iacono, 2019) examined the effectiveness of mindfulness-based interventions on the mental health of sexual and gender minority youth. Initial findings from a case study suggest that future research should focus on mindfulness-based interventions for sexual and gender minority youth. The study by Bigelow (2023) examines the acceptance of mindfulness meditation programs among transgender and gender-diverse adolescents and young adults (TGDY). Two focus groups with ten participants each aged 14 to 24 years were conducted in an urban health center for transgender adolescents. Participants experienced a 10-minute guided mindfulness meditation and provided feedback. In addition, participants' anxiety was measured before and after the meditation using the State-Trait Anxiety Inventory (STAI). The main results are: TGDY are interested in mindfulness as an additional self-care method. Many participants found silent meditation unsuitable and rejected this exercise. Guided meditation, on the other hand, was perceived as calming and connecting. From future programs, the subjects wanted sensory stimulation, a pressure-free environment and, if possible, transgender instructors. The STAI results showed a significant reduction in anxiety after group meditation. Mindfulness meditation programs may in principle provide valuable support for TGDY. Mindfulness-based programs are a method for promoting mental health in TGDY.

In summary, the current state of research can be interpreted to suggest that mindfulness-based interventions can support TIN\* individuals regarding mental health. Our study builds on the aforementioned studies by addressing this apparent research gap regarding an MBSR course for TIN\* people by collecting initial results. Stang and Rico-Dresel (2023) conducted a controlled study on an MBSR course in  $n = 120$  Cis persons (experimental group:  $n = 80$ ; control group:  $n = 40$ ) and were able to show that a MBSR

course significantly increased both general life satisfaction and, among other things, satisfaction with health, one's own person and sexuality. Since gender dysphoria is characterized by discomfort related to an incongruence between a person's gender identity and their assigned gender, it is hypothesized in the context of existing studies that an MBSR course may be effective for people with gender dysphoria (Bigelow, 2023; Hunter-Jones et al., 2021; Iacono, 2019; Sun et al., 2021).

## Aim

The research project presented here aims to evaluate an MBSR course as an online prevention course specifically for TIN\* people. In addition, it will be evaluated whether an online MBSR course can have a significant effect on TIN\* people in terms of increasing mindfulness and life satisfaction and reducing stress and gender dysphoria. The research question is: 'What is the impact of a digital online MBSR course on TIN\* individuals?'. We compare the results of the TIN\* sample to the results of a Cis sample, expecting a similar effect on both groups.

## Hypotheses

H1: Mindfulness-based training positively affects participants' mindfulness skills in TIN\* and Cis persons.

H2: Mindfulness-based training positively affects participants' life satisfaction in TIN\* and Cis persons.

H3: Mindfulness-based training positively affects participants' stress and recovery in TIN\* and Cis persons.

H4: Mindfulness-based training positively affects gender dysphoria in TIN\* persons.

## METHOD

### Sample

The sample consisted of  $n = 202$  Cis persons and  $n = 34$  TIN\* persons undergoing a four-week MBSR training. Mean age was 29.48 ( $SD = 14.56$ ) years with no significant difference between Cis and TIN\* persons ( $t(50.66) = 1.22, p = .227$ ). In the Cis sample, 61% were female and 39% male. In the TIN\* sample,  $n = 26$  were ascribed female gender identity at birth,

and  $n = 8$  male gender identity. Of those TIN\* persons who gave information on their present gender status ( $n = 20$ ), 85% reported a nonbinary gender identity. Of the whole sample, 46% ( $n = 108$  persons) were students or underwent vocational training, and 39% ( $n = 91$  persons) were in employment ( $n = 9$  attending school,  $n = 8$  working in own household,  $n = 5$  retired,  $n = 7$  unemployed,  $n = 8$  missing).

## Materials

We used an online questionnaire on demographic data, a personal code, *Mindful Attention and Awareness Scale* (MAAS) (Michalak et al., 2011), *General Life Satisfaction Questionnaire* (FLZ) (Fahrenberg et al., 2000), the *Recovery-Stress Questionnaire* (RESTQ; Kallus & Kellmann, 2016), and the *Utrecht Gender Dysphoria Scale* (UGDS) (Cohen-Kettenis & van Goozen, 1997; McGuire et al., 2020; Steensma, McGuire, Kreukels, Beekman & Cohen-Kettenis, 2013).

The *Mindful Attention and Awareness Scale* (MAAS; Michalak et al., 2011) measures the frequency of mindful states over time by 15 items (e.g., "I find it difficult to stay focused on what's happening in the present.") on a 6-point Likert scale (1 = almost always to 6 = almost never). The scale shows strong psychometric properties and has been validated with a variety of samples. Reliability (Cronbach's alpha) in our sample was .89.

The questionnaire on life satisfaction (German: *Fragebogen zur Lebenszufriedenheit*, FLZ; Fahrenberg, Myrtek & Brähler, 2000) is a multidimensional instrument assessing life satisfaction by 49 items on a 7-point Likert scale (1 = very dissatisfied to 7 = very satisfied). For this study, we investigated life satisfaction concerning seven topics: Satisfaction with Health ( $\alpha = .85$ ), with Finance ( $\alpha = .88$ ), with Housing ( $\alpha = .73$ ), with Leisure activities ( $\alpha = .87$ ), with one's Own person ( $\alpha = .86$ ), Sex ( $\alpha = .86$ ), and with Friends ( $\alpha = .73$ ), and the Overall life satisfaction ( $\alpha = .94$ ). The FLZ is a reliable and valid instrument that is used widely in German speaking countries.

The *Recovery-Stress Questionnaires* (RESTQ; Kallus & Kellmann, 2016) is a valid, reliable, and objective instrument for assessing stress symptoms and recovery activities. It consists of 48 items with a 7-point Likert scale (1 = never to 7 = all the time), representing seven stress related scales and five recovery related scales: General stress ( $\alpha = .83$ , e.g., "... everything became too much for me"), Emotional stress ( $\alpha = .77$ , "... I was irritable"), Social stress ( $\alpha = .64$ , "... I got

annoyed with others”), Conflicts/pressure to perform ( $\alpha = .64$ , “... I was under pressure to perform”), Fatigue ( $\alpha = .82$ , “... I was irritable”), Lack of energy ( $\alpha = .83$ , “... I could only do my work slowly”), Somatic stress ( $\alpha = .75$ , “... I had physical complaints”), Success ( $\alpha = .68$ , “... I was successful”), Social recovery ( $\alpha = .82$ , “... I laughed”), Somatic recovery ( $\alpha = .82$ , “... I felt physically relaxed”), General well-being ( $\alpha = .90$ , “... I was in good spirits”), and Sleep quality ( $\alpha = .77$ , “... I fell asleep satisfied and relaxed”).

The *Utrecht Gender Dysphoria Scale* (UGDS; Cohen-Kettenis & van Goozen, 1997; McGuire et al., 2020; Steensma et al., 2013) consists of twelve items that assess the extent of experienced gender dysphoria using a 5-point Likert scale (1 = strongly agree to 5 = strongly disagree). Persons who were ascribed to male gender at birth fill in different items than persons who were ascribed to female gender at birth (e.g., version GDM “I feel unhappy because I have a male body” for ascribed male gender vs version GDF “I hate menstruating because it makes me feel like a woman” for ascribed female gender). Sum scores range from 12 to 60, with higher values indicating stronger gender dysphoria. The UGDS is an established, validated instrument with good to excellent reliability (in our sample, Cronbach’s alpha = .92 for the GDF and .90 for the GDM version).

## Procedure

*Intervention.* The MBSR course comprised weekly, two-hour sessions over a period of four weeks. The content, methods and techniques used as an intervention were based on Demarzo et al. (2017) and Stang and Rico-Dresel (2023). The structure of the course was as follows:

- the first session covered the theory of mindfulness, followed by the practical exercise of the raisin experience;
- the second session focused on emotions and thoughts during mindfulness practice and included a breathing exercise as a practical application;
- in the third session, the first and second suffering were explained theoretically, followed by the practical exercise of the body scan;
- the final fourth session was dedicated to the integration of mindfulness into everyday life and included a walking meditation as a practical exercise.

At the first measurement time point (T1), all participants completed the questionnaires provided before the start of the

treatment. The second measurement point (T2) took place after the last session.

*Design.* The research design was a quantitative longitudinal study with two measurement points (T1 and T2) in the sense of a pre-post measurement. We compared two experimental groups who both received MBSR training: Test subjects for both samples were recruited via social media, public advertisements and email distribution lists. The MBSR trainings of both groups were fully standardized with regard to the training elements according to Stang and Rico-Dresel (2023), with the exception that in the TIN\* group care was taken to ensure that the training was conducted in a safe space. Trainers in the TIN\* group were Cis female ( $n = 2$ ) and nonbinary ( $n = 1$ ).

According to the self-assessment of the Joint Ethics Committee of Bavarian Universities (Gemeinsame Ethikkommission der Hochschulen Bayerns [GEHB], 2022), no risks or harm were to be expected for the participants as a result of taking part in the survey. The study did not include patients but members of the general population. In addition, the basic ethical principles of the professional psychological associations DGPs and BDP were adhered to in the research project and the study was conducted in accordance with the Declaration of Helsinki. The study was preregistered with “as predicted” ([www.aspredicted.org](http://www.aspredicted.org), 157614).

## RESULTS

For data analysis, we used descriptive statistics, paired *t*-tests, and mixed ANOVAs via SPSS, Version 29. Normal distribution of the dependent variables in both subgroups and both measurement points was tested and confirmed by Shapiro-Wilks-tests (all tests  $p > .05$ ).

### Mindfulness and life satisfaction

Table 1 and Table 2 summarise the descriptive data and the results of the mixed ANOVA for the comparison of the two training groups. An improvement over time was shown for the MAAS ( $F(1,226) = 5.71$ ,  $p = .018$ , partial  $\eta^2 = .024$ ) and life satisfaction with health ( $F(1,226) = 5.85$ ,  $p = .016$ , partial  $\eta^2 = .025$ ) scales. Overall, the Cis training group had higher values on all scales, compared to the TIN\* group (see Table 1), which was reflected in a significant group effect on

**Table 1** – Descriptive data of Cis and TIN\* training group on mindfulness (MAAS) and life satisfaction (FLZ)

	<i>M(SD)</i> Cis ( <i>n</i> = 198)	<i>M(SD)</i> TIN* ( <i>n</i> = 30)	<i>M(SD)</i> Cis ( <i>n</i> = 198)	<i>M(SD)</i> TIN* ( <i>n</i> = 30)
	t1		t2	
MAAS	3.77 (.87)	3.40 (.75)	3.91 (.81)	3.55 (.71)
FLZ health	4.76 (1.22)	4.56 (1.00)	5.02 (1.27)	4.65 (1.08)
FLZ finance	5.07 (1.20)	4.53 (.93)	5.16 (1.16)	4.53 (.96)
FLZ housing	5.53 (.96)	5.27 (.66)	5.46 (1.01)	5.40 (.75)
FLZ leisure activities	4.73 (1.25)	4.46 (.91)	4.76 (1.22)	4.44 (.83)
FLZ own person	5.15 (1.02)	4.69 (1.09)	5.25 (1.07)	4.77(1.07)
FLZ sex	4.92 (1.12)	4.81 (1.12)	5.00 (1.15)	4.86 (1.13)
FLZ friends	5.06 (.86)	4.82 (.74)	5.12 (.94)	4.88(.83)
FLZ overall life satisfaction	5.02 (.75)	4.73 (.61)	5.10 (.83)	4.79 (.68)

*Legenda.* MAAS = *Mindful Attention and Awareness Scale*; FLZ = *Fragebogen zur allgemeinen Lebenszufriedenheit*.

**Table 2** – Mixed ANOVA results (Group: Cis vs TIN\* training group) (Time: t1 vs t2) on mindfulness (MAAS) and life satisfaction (FLZ)

	Time		Group		Time*group	
	<i>F(df = 1,226)</i>	<i>p</i>	<i>F(df = 1, 226)</i>	<i>p</i>	<i>F(df = 1, 226)</i>	<i>p</i>
MAAS	5.71	.018	5.85	.016	.004	.947
FLZ health	5.85	.016	1.55	.214	1.51	.221
FLZ finance	.50	.482	7.33	.007	.39	.532
FLZ housing	.15	.704	.86	.356	1.72	.191
FLZ leisure activities	.003	.956	1.78	.183	.072	.789
FLZ own person	1.64	.202	6.02	.015	.02	.895
FLZ sex	.81	.370	.34	.561	.07	.797
FLZ friends	.88	.350	2.23	.137	.00	.999
FLZ overall life satisfaction	2.31	.130	4.22	.041	.07	.799

*Legenda.* *df* = degree of freedom; MAAS = *Mindful Attention and Awareness Scale*; FLZ = *Fragebogen zur allgemeinen Lebenszufriedenheit*.

the scales MAAS ( $F(1,226) = 5.85, p = .016$ , partial  $\eta^2 = .026$ ), FLZ finance ( $F(1,226) = 7.33, p = .007$ , partial  $\eta^2 = .031$ ), FLZ own person ( $F(1,226) = 6.02, p = .015$ , partial  $\eta^2 = .026$ ), and FLZ overall life satisfaction ( $F(1,226) = 4.22, p = .041$ , partial  $\eta^2 = .018$ ). None of the scales analysed showed a significant interaction effect (see Table 2): therefore, mindfulness and life satisfaction of TIN\* and Cis individuals thus changed in a similar way over the course of the training. Figure 1 illustrates the results for the MAAS.

## Stress and recovery (RESTQ)

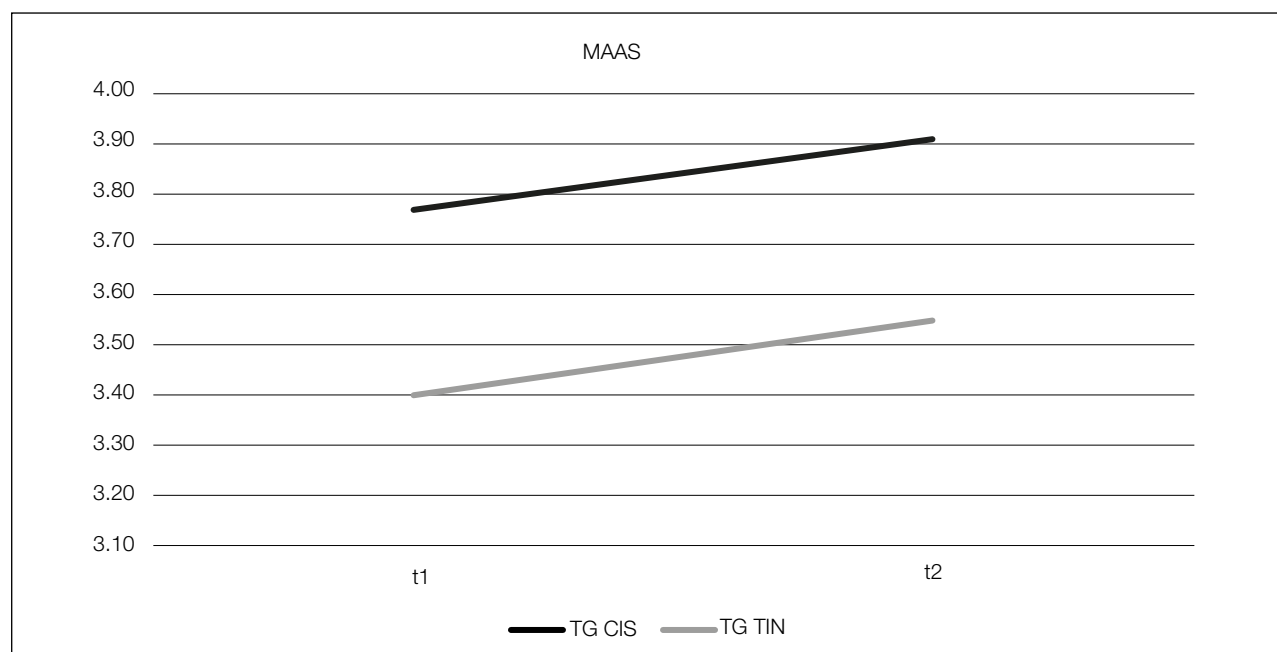
Concerning RESTQ data on stress and recovery, we found group effects on several subscales (general stress, social stress, emotional stress, pressure to perform, lack of energy, social recovery, somatic recovery, general wellbeing, sleep), indicating more stress and less recovery in the TIN\* sample.

Moreover, descriptive data show an improvement in stress and recovery after MBSR training (see Table 3). However, this change over time only reached statistical significance on the fatigue subscale ( $F(1,226) = 4.43, p = .036$ , partial  $\eta^2 = .020$ ). Mixed ANOVAs did not reveal significant interactions between group and time, indicating that TIN\* and Cis persons did not develop differently over time concerning stress and recovery (see Table 4).

## Gender dysphoria

UGDS data indicate a higher gender dysphoria in TIN\* persons born with a female gender identity ( $n = 26, M = 43.81$ ), compared to TIN\* persons born with a male gender ( $n = 8, M = 39.13$ ) before MBSR training. The UGDS mean values did not change significantly over the training period (see Table 5).

**Figure 1** – Changes in mindfulness (MAAS mean values) over time in the Cis and TIN\* training group



*Legenda.* MAAS = Mindful Attention and Awareness Scale.



**Table 3** – Descriptive data of Cis and TIN\* training group stress and recovery (RESTQ)

	<i>M(SD)</i> Cis ( <i>n</i> = 198)	<i>M(SD)</i> TIN* ( <i>n</i> = 30)	<i>M(SD)</i> Cis ( <i>n</i> = 198)	<i>M(SD)</i> TIN* ( <i>n</i> = 30)
	t1		t2	
General stress	2.85 (1.30)	3.46 (1.27)	2.77 (1.33)	3.38 (1.09)
Social stress	2.85 (1.13)	3.48 (.89)	2.84 (1.11)	3.32 (.78)
Emotional stress	2.92 (1.21)	3.38 (.76)	2.87 (1.19)	3.26 (.80)
Pressure to perform	3.29 (1.15)	3.72 (.99)	3.23 (1.10)	3.58 (.92)
Fatigue	3.59 (1.50)	3.88 (.93)	3.41 (1.30)	3.45 (1.22)
Lack of energy	3.20 (1.28)	3.69 (1.06)	3.10 (1.15)	3.55 (1.15)
Somatic stress	3.03 (1.27)	3.38 (.89)	2.96 (1.21)	3.26 (.92)
Success	3.50 (1.08)	3.20 (1.05)	3.61 (1.17)	3.28 (.81)
Social recovery	4.36 (1.27)	3.63 (.78)	4.28 (1.32)	3.53 (1.00)
Somatic recovery	3.89 (1.25)	3.26 (1.01)	3.96 (1.21)	3.54 (1.14)
General wellbeing	4.62 (1.21)	3.63 (.93)	4.65 (1.23)	3.79 (1.12)
Sleep	4.59 (1.33)	4.05 (.95)	4.79 (1.30)	4.22 (1.25)

## DISCUSSION

This study examines the effects of a four-week MBSR training on mindfulness, life satisfaction, stress and recovery in a TIN\* sample compared to a Cis sample. As the general effectiveness of the training has already been shown in comparison to an untreated control group (Stang & Rico-Dresel, 2023), and as the recruitment of a large TIN\* sample is difficult, we did not recruit a TIN\* untreated control group but instead focused on the comparison of Cis and TIN\* individuals who underwent MBSR training.

Our results show a significant improvement in mindfulness and some aspects of life satisfaction and stress in both subsamples. However, most life satisfaction and stress/recovery scales did not improve significantly over time, even if the descriptive values indicated positive developments.

Gender dysphoria as a TIN\* specific outcome variable did not improve during the MBSR training. Therefore, results indicate that a short MBSR training improves its core outcome – mindfulness – but does not lead to substantial changes in broader aspects of life such as life satisfaction, stress, and recovery. Our results confirm the prior results by Stang and Rico-Dresel (2023). We did not find any time by group interaction effects which means that MBSR training is equally effective in Cis as in TIN\* persons. TIN\* people were specifically included in the training to focus on a safe place and awareness of individual needs. The results can also be interpreted to mean that a training exclusively for TIN\* persons worked well.

However, we did find that TIN\* persons reported less mindfulness, satisfaction with life and recovery and more stress than Cis persons. This observation applies to almost

**Table 4** – Mixed ANOVA results (Group: Cis vs TIN\* training group) (Time: t1 vs t2) on stress and recovery (RESTQ)

	Time		Group		Time*Group	
	<i>F(df = 1,226)</i>	<i>p</i>	<i>F(df = 1, 226)</i>	<i>p</i>	<i>F(df = 1, 226)</i>	<i>p</i>
General stress	.49	.484	7.10	<.008	.01	.979
Social stress	.71	.399	8.94	<.003	.56	.455
Emotional stress	.60	.441	4.67	<.032	.12	.731
Pressure to perform	.86	.356	4.25	<.040	.12	.735
Fatigue	4.43	.036	.52	<.470	.70	.403
Lack of energy	1.21	.273	5.11	<.025	.03	.859
Somatic stress	.83	.364	2.35	<.127	.09	.771
Success	.74	.392	2.78	<.097	.02	.895
Social recovery	.41	.523	12.81	<.001	.00	.952
Somatic recovery	2.61	.108	6.12	<.014	1.03	.310
General wellbeing	.85	.357	19.75	<.001	.41	.523
Sleep	2.25	.135	6.21	<.013	.01	.913

*Legenda.* *df* = degree of freedom.

**Table 5** – Comparison of gender dysphoria (UGDS) before (T1) and after training (T2)

	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> statistic
	t1		t2		
UGDS MGDF ( <i>n</i> = 26)	43.81	10.30	42.81	9.71	<i>t</i> (25) = 1.25, <i>p</i> = .224
UGDS MGDM ( <i>n</i> = 8)	39.13	8.64	43.00	11.03	<i>t</i> (7) = -1.79, <i>p</i> = .117

*Legenda.* UGDS = *Utrecht Gender Dysphoria Scale*.

all scales of our questionnaires. Other researchers have pointed out the stressors and challenges in the lives of TIN\* persons (Anderssen et al., 2020; Budge, Adelson & Howard, 2013; Dolotina & Turban, 2022; Hatzenbuehler, 2009; Meyer, 1995). A short-term MBSR training may be used as a tailored low-level intervention to prevent psychological distress and promote mental and physical health.

MBSR courses could be increasingly included in general and specialist healthcare. If, due to changes in the healthcare system (e.g. digitalization, changes to the German MDS assessment guidelines for trans\* people; Medizinischer Dienst des Spitzenverbandes Bund der Krankenkassen [MDS], 2020; etc.), other healthcare services in addition to traditional psychotherapy are also recognized as a prerequisite for transition measures and these provide empirical evidence of effectiveness, the persons concerned would be more self-determined in their choice of interventions. In the case of health measures, such as MBSR courses, it can already be assumed that they are basically effective, as our study shows. Psychotherapists could also provide information on psychotherapy independently of the assessment guidelines. Politically, there is an urgent need for reform both at a legal level (Transsexuals act vs Self-determination act) and in the context of healthcare (Medizinischer Dienst des Spitzenverbandes Bund der Krankenkassen [MDS], 2020; Stang, 2024).

## Strengths and limitations

The strength of the work lies in the successful implementation of an evaluation study on a specific group of people, TIN\* people, who can be regarded as marginalized and vulnerable. There have only been a few studies on this group of people to date.

The TIN\* sample was still quite small compared to the Cis sample, resulting in low statistical power. As TIN\* persons are a small demographic group, recruitment of a large TIN\* sample will take more time and will have to focus on larger regions than we could manage in our study. The prevalence of trans identity varies internationally and within Germany, with estimates of .8-1% for trans\* men and .6-.8% for trans\* women (Kost, 2024). Recent studies show an increase in these frequencies, particularly among young people, as in a North American study in which 600 out of 100.000 young people under the age of 21 were identified as transgender (Sun et al., 2023). In line with this limitation, we did not recruit an

untreated TIN\* control group – therefore, we cannot rule out that improvement over time could be influenced by other factors than the MBSR training, although similar effects were found in a Cis sample compared to a Cis control group (Stang & Rico-Dresel, 2023). As we are conducting an ongoing project on MBSR training in different target groups (Cis persons, TIN\* persons, older persons, children and young people, etc.), we will be able to assess the effects of MBSR training in a more specific way in the future.

## CONCLUSION, IMPLICATIONS, AND FUTURE DIRECTIONS

We investigated an MBSR course in TIN\* people in contrast to cis people in a longitudinal study. In principle, we were able to confirm the effectiveness of MBSR in TIN\* people. Our finding that the effectiveness of MBSR is also influenced by certain personal variables, such as gender identity (TIN\* vs Cis), confirms and extends the previous state of research (Johnson et al., 2023; Osama et al., 2023). It would also make sense to investigate specific areas of application, e.g. in certain medical fields such as orthopaedics versus psychiatry or oncology or in working with specific age groups such as children, adolescents or the elderly. Current findings already indicate that MBSR can have different effects depending on the population. A targeted study of these specific groups could help to further differentiate the applicability and effectiveness of MBSR and develop tailored interventions.

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**Ethical approval:** The study complied with the Declaration of Helsinki. In addition, a pre-registration, the clarification of legal and ethical objections by the self-assessment of the Joint Ethics Committee of the Bavarian Universities (GEHB) and the Bavarian Chamber of Psychotherapists took place. In addition, the basic ethical principles of the professional psychological associations DGPs and BDP were adhered to in the research project. **Informed consent statement:** Informed consent was obtained from all subjects involved in the study. **Data availability statement:** Access to the data is only possible under data protection restrictions. The type and scope of use are determined by the data providers. An individualized contract between data providers and subsequent users is required. The data is classified as particularly sensitive as it contains personal data on gender diversity and well-being. **Conflict of interest statement:** There are no conflicts of interest.

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