#### **International Journal of Educational Excellence**

(2022) Vol. 8, No. 1, 65-77 ISSN 2373-5929

DOI: 10.18562/IJEE.074

# The Work-Life Balance and Turnover Intentions in South African Higher Education

Wiza Munyeka a, & Constance Khombomune Ngobeni a

Received: 12 April 2022 • Accepted: 27 June 2022

**Abstract:** The orientation of this research study is toward work-life balance and its effect on turnover intention in an institution of higher learning in South Africa. Work-life balance is a topic of interest for both researchers and management all over the globe. A quantitative research methodology was implemented in this study, and a descriptive research design was carried out. A stratified random sampling of 160 employees. Psychometric instruments were used to measure the variables: the work-life balance questionnaire (WLB Q) and the turnover intention questionnaire (TI Q). Correlational analysis was utilized to investigate the relationships between the two variables. The results suggest that work-life balance is essential for organizational survival and that the institution should promote it. Management should focus mainly on enhancing the work-life balance to retain their employees.

**Key Words:** work-life balance; turnover intention; higher education; management; universities; family.

#### 1. Introduction

As the world of work changes rapidly, work-life balance has gained currency with the view to protect family life in an increasingly competitive workplace and career-driven. Twaronite (2015) adds that several indicators

<sup>&</sup>lt;sup>a</sup> University of Venda (South Africa). Correspondence: Wiza Munyeka, Department of Human Resource Management and Labor Relations, University of Venda, Thohoyandou, South Africa, masterwiza2000@yahoo.com 0000-0003-2351-9860. Coauthor: Constance Khombomune Ngobeni 0000-0002-1493-6227.

present the current policy mix regarding work-life balance (WLB), i.e., health and safety at work, equality, flexible labour market, and international competitiveness. With the new policies introduced nowadays, men and women can balance work and life simultaneously because those policies force the organization to provide its employees with flexible work hours so that they can have time to spend with their families while managing even their work. A recent report by Ugwu, Enwereuzor, and Mazei (2022) noted that when the COVID-19 pandemic made its incursion into the world of work in early 2020, many employees were compelled to work from home to slow down the transmission of the disease and this had an impact on various employment aspects such as turnover and stress levels.

The Chartered Institute of Personnel and Development (2015) reports that in the 1980s, companies began introducing family-friendly policies such as telecommuting and flexible work scheduling. Those policies focused on women in practice, but they also accommodated even men's needs.

Work-life balance has been an important issue that gained currency among employees and employers over the past years all over the globe. According to O'Connell, Russell, Watson, and Byrne (2010), the economic downturn of 2008, increased competition, and evolving technology that continues in the world of work have put pressure on the employee's professions and institutional work-life issues globally. Furthermore, it affects organizational members' satisfaction, resulting in stress and job dissatisfaction, and subsequently makes them intend to leave their institutions or careers.

According to Kodikal (2017), the issue arises when employees leave the organization, decrease productivity, exhibit negative behavior toward their jobs or personal lives, or experience other problems that have an impact on work-life balance because they are not satisfied with their jobs or the workplace due to issues like motivation, job satisfaction, or stress.

This study will further investigate the main reason(s) why employees in an institution of higher learning keep on not availing themselves in the workplace and, together with the reason(s) why institutions of higher learning do not provide complete WLB initiatives regulated by the government to its employees.

#### 2. Literature Review

Over the past two decades, the boundaries between individuals' work and non-work life have become narrow (Kinnunen, Rantanen, Mauno, & Peeters, 2014). In the work environment, academics must work hard and fast to accomplish their numerous and complex tasks within a limited period (Bakker & Demerouti, 2017; Ingusci et al., 2021); hence, to accomplish their work, academics often work long hours and overtime (Houston, Meyer, &

Paewai, 2006). Work-life balance is a canopy term involving different social concepts, including work, life, family, home, balance, harmony, equilibrium, conflict, enrichment, and integration (Braun & Peus, 2018). More recently, the thinking is that the term work-life balance (WLB) has gained increasing popularity in the public discourse (Kelliher, Richardson & Boiarintseva, 2019). Over the past few years, the discourse around work-life balance (WLB) has gained widespread attention from researchers and management practitioners (Nicklin, Seguin & Flaherty, 2019; Kaya & Karatepe, 2020).

According to Munyeka (2021), work-life balance is about forming and preserving supportive and healthy work environments, enabling employees to balance work and personal responsibilities, thus strengthening employee loyalty and productivity. Maintaining work-life balance is crucial for their well-being and relationships, as it can improve efficiency in their work performance.

Downes and Koekemoer (2011) believed that organizations that invested heavily in work-life balance reported lower employee turnover. Bothma (2011) believes turnover intentions are a concept that does not function alone but occurs when employee(s) within the organization become influenced by personal, contextual factors such as employability and labor market conditions. Turnover intentions can be voluntary or involuntary. Rahman and Rahman (2013) define voluntary turnover as a type of turnover that occurs when employees willingly choose to vacate their jobs for various reasons, while involuntary turnover usually involves employees being let go for unsatisfactory performance or stress. Furthermore, Bothma (2011) reports that intentions to leave are positively related to actually leaving due to, for example, being unable to balance work and life domains.

Rahman and Rahman (2013) claim that employees leave their organizations because their employers do not encourage and help them to develop their careers or support them, for example, to balance their work and life roles. Jha (2014) further explains that their decision to leave their organization can negatively affect the business to the extent that the organization may find it challenging to achieve its goals. In addition, it will make the organization experience high costs associated with recruiting and hiring new employees.

#### 3. Materials and Methods

# 3.1. Theoretical framework of the study

Affective Events Theory (AET) of Weiss and Cropanzano (1996) provides a theoretical basis for explaining the antecedents and consequences of affective states at work and, in this case, turnover intentions. According to Erol Korkmaz (2010), AET focuses on the structure, causes, and consequences of affective experiences at work, and according to the theory,

events experienced at the workplace are the proximal causes of affective reactions of employees and these affective experiences, in turn, have a direct influence on the behaviors and attitudes of employees. Moreover, individual dispositions of the employees are proposed to influence both affective states experienced at work and affect-driven behaviors of the employees.

Erol Korkmaz (2010) added that AET suggests that events experienced at the workplace are the proximal causes of affective states of employees and these affective experiences directly influence employees' attitudes and behaviors. AET also considers time since affect levels fluctuate over time, and these affective states influence overall feelings about one's job and discrete behaviors at work. Furthermore, the theory considers the multidimensional structure of affective experiences and proposes that different psychological reactions, such as anger, frustration, joy, etc., have different behavioral implications.

# 3.2. Study objectives

The study's primary purpose is to investigate work-life balance and its effects, such as stress on the turnover intention on all the employees in an institution of higher learning: (a) To determine the relationship between work-life balance and turnover intention in a university setting; and (b) To determine the impact of stress, satisfaction, and production reduction on work-life balance on the employees in an institution of higher learning. In addition to these objectives, we put forward two hypotheses: H<sub>0</sub>: Work-life balance does not affect turnover intention in an institution of higher learning.; and H<sub>1</sub>: Life domain characteristics such as family role expectations can positively influence perceived work-life balance.

#### 3.3. Methodology

The approach for this study was quantitative research, and the research design used is experimental and survey research design. The methods for collecting data from the research participants will be questionnaires. The study used a non-probability sampling method. Non-probability method is a method in which the chance of selecting a sample is unknown. The convenience non-probability sampling method was used to select a sample size for the study.

The statistical analysis was conducted using IBM-SPSS Program SPSS 26 software (Statistical Package for the Social Sciences SPSS, 2016). The questionnaires consisted of two sections, and section I consisted of demographics like Gender, Age, Marital Status, and education or level of qualification, and section II included items to measure the perception of work-life balance.

#### 3.4. Data collection tools

This study consisted of two questionnaires, one for work-life balance and another for turnover intentions. Work-life balance was measured using the 5-point Likert scale in which the questions on work-life balance ranged from strongly disagree, disagree, neutral, agree, and strongly agree to get information from respondents making it easier for respondents to complete the questionnaire in time. Cronbach's alpha criterion was applied to test the reliability and validity of the questionnaires. Furthermore, 20 statements connected to work-life balance on employees in the institution of higher learning were analyzed to determine the underlying factors and their appropriateness.

On the other questionnaire, Sclale-6 was used to measure turnover intentions. Turnover intention scale-6 can importantly distinguish leavers from the stayers and again confirm the predictive criterion validity.

#### 3.5. Procedures

Data were collected voluntarily, and informed consent was obtained from each participant. Participants of the study completed two questionnaire packages two weeks apart. Measures on demographic information and work attitudes (i.e., turnover intentions) were collected at Time 1. To avoid response sets, items from different scales were presented in a mixed format. Work events, affective reactions to work events, and affective states and behaviors (i.e., work-life balance) were measured at Time 2. Due to the longitudinal nature of the study, the two questionnaires filled out by a participant needed to be matched through a mechanism that would still ensure anonymity.

A total of N=160 academic staff members and a sample size of n=114 was drawn from the population, calculated at a 95% confidence level, and it is assumed that there will be a 50% response rate, as shown below. In the equation, n is the sample size, N is the population size, and e is meticulousness.

$$n = N$$

$$1 + N(e)^{2}$$

$$n = 160$$

$$1 + 160(0.05)^{2}$$

$$n = 114$$

#### 3.6. Ethical considerations

Questionnaires have been requested from the participants; consent was distributed to the participants for data gathering. The participants completed

# Wiza Munyeka, & Constance Khombomune Ngobeni, *International Journal of Educational Excellence*, (2022) Vol. 8 No. 1, 65-77. ISSN 2373-5929 DOI: 10.18562/IJEE.074

the questionnaires based on anonymity for personal purposes. For ethical reasons, a permission letter was submitted to the consent University requesting permission to conduct the study. After the approval of the letter and permission was given, the questionnaire was distributed among employees.

### 3.7. Data analysis

The preliminary analysis involved the calculation of frequency distributions to describe the sample. The Pearson product correlation moment was utilized to test the relationship between work-life balance and turnover intentions, and mean scores were also used. The Statistical Package for Social Sciences Version 26 (SPSS 26) was used for statistical analysis.

### 3.8. Reliability and validity

Cronbach's Alpha criterion will be applied to test the reliability and validity of the questionnaires. The work–life balance was measured in the form of the work-to-family conflict (WFC—three items,  $\alpha = 0.79$ ) and family-to-work conflict (FWC—three items,  $\alpha = 0.72$ ) with the abbreviated version of the measure of work–family conflict developed by Matthews and Barnes-Farrell (2010).

On the other questionnaire, turnover intentions Sclale-6 will be used to measure turnover intentions, and Bothman and Roodt (2013) claim that TIS-6 is a reliable and valid measure that can be used to measure turnover intentions and predict actual turnover.

#### 3.9. Bias

This study chose the stratified random sampling method because Andale (2015) that the method reduces the potential bias of the research participants when they are selected for the sample size for the study reported it. Furthermore, Andale (2015) indicates that when the sample has been selected, it becomes representative of the population being studied because of the inclusion of different participants.

#### 3.10. Participants and response rate

The target population for this study is 160 employees and a sample of 114 from the institution of higher learning (HRM department staff and HRM and Labor Relations lectures). Furthermore, the level of confidence in selecting a sample was 90%.

For characteristics and response rate of participants (See Tables 1 and 2 respectively).

Item	Category	Frequencies	Percentage (%)		
Gender	Female	57	57		
	Male	43	43		
Age	18 to 24 years	13	13		
	25 to 31 years	13	13		
	32 to 38 years	13	13		
	39 to 45 years	14	14		
	46 to 60 years	20	20		
	61 and older	27	27		
Position	Lecturers	100	100		

Table 1. Characteristics of the Participants (N = 100).

A response rate of 88 percent was achieved from the appropriate sample of 114, which was reflected by the 100 responses from the questionnaires.

Category	Frequency			
Sample	100			
Unusable responses	1			
Usable responses	100			
Total responses	100			
Response Rate (%)	88			

*Table 2*. Response Rate (N=100).

# 4. Results

4.1 Correlation Between Work-life balance and turnover intentions

Correlation results in Table 3 show a significant direct relationship between turnover intentions and power culture (r = 0.274\*; p = 0.042) because the p-value is less than 0.05. Consequently, the study rejects the hypothesis (H<sub>0</sub>) that work-life balance does not affect turnover intentions. (See Table 3).

		Turnover	Turnover	Turnover	Turnover	Turnover
Work-	R-value	1	.248*	176	.023	.281*
life	p-value		.043	.134	.867	.042
balance	_					
Turnover	R-value	.274*	.038	229	510**	1
	p-value	.048	.723	.076	.011	

<sup>\*.</sup> Correlation is significant at the 0.05 level (2-tailed).

Table 3. Correlation between Work-life balance and turnover intentions.

# 4.2. Descriptive Statistics and Intercorrelations

Table 4 reported the descriptive statistics and intercorrelations among the study variables. All the personal variables (i.e., gender, marital status, number of children, and age) did not significantly correlate with WLB, and they were, thus, dropped from subsequent analyses. All the key variables significantly correlated with WLB Specifically, stress (r=-0.50, p<.001) and home demands (r=-0.46, p<.001) were negatively correlated with WLB. (See Table 4).

Variable	M	SD	1	2	3	4	5	6
Gender	-	-	-					
Marital	-	-	0.01	-				
Status								
No. of	-	-	-	0.89**	-			
children			0.01					
Age	44.55	5.56	-	0.56**	0.79**	-		
-			0.11					
Stress	42.26	4.87	-	0.04	-0.06	0.02	-	
			0.03					
Home	33.19	3.81	-	0.01	-0.03	0.01	0.46**	-
demands			0.11					
Work-life	8.91	1.23	0.01	-0.04	-0.01	-	-0.50**	-0.48**
balance						0.03		

N=100. \*\*\*=p <.001 (two-tailed). Gender was coded 0=male was coded 1, female was coded 2, marital Status was coded: 1=single, 2=married; no. of children was coded based on the actual number of children that each participant has such that higher scores represent a more significant number of children; age was coded using the number of years, such that higher scores represent older age. The remaining variables were coded such that higher scores represent higher values of the particular construct.

Table 4. Means, Standard Deviations, and Correlations among the Study Variables

Hypothesis (H<sub>1</sub>) was accepted as life domain characteristics such as family role expectations can positively influence perceived work-life balance. Houston and Waumsley (2003) believe that the more conflict that arises between work and personal life, the more employees will struggle to maintain a balance and eventually quit their jobs. Waumsley (2010) says this also holds

<sup>\*\*.</sup> Correlation is significant at the 0.01 level (2-tailed).

for staff without caregiving duties. Hughes and Bozionelos (2005) state that the consequences could be costly to organizations that neglect such practices. On a more positive note and the contrary, work-life friendly arrangements are rewarded with direct financial benefits, lower turnover ratios, and better recruitment options through employing highly skilled employees who cherish flexibility.

#### 5. Discussion

The study's primary purpose is to determine the relationship between work-life balance and turnover intention in a university setting. The results showed that work-life balance affects turnover intention at the University of Venda. This means that lecturers at the university perceive the work-life balance practices at the University of Venda to be supportive and regard the university as caring and valuing them and their contribution making the employees more engaged and committed. This is consistent with a study conducted by Fontinha, Van Laar, and Easton (2008) on academic staff and researchers in the UK. The results show that Job and Career Satisfaction (JCS) are significantly related to Employee Engagement (ENN) among permanent workers but not among temporary workers. The absence of Stress at Work (SAW) is a strong predictor of GWB for permanent workers compared to temporary workers. Furthermore, a balanced HWI is negatively related to EEN. However, EEN is positively related to General Well-Being (GWB). The permanent status of the job has a significant impact, as seen in the current study.

The effects of occupational stress influence an individual employee and the organization. Beheshtifar and Nazarian (2013) assert that the consequences of occupational stress on an organization can be grouped into two; the symptoms and the costs. The symptoms refer to poor morale among the workforce, performance/ productivity losses, low-quality products, and services, poorer relationships with clients, suppliers, regulatory authorizes, losing customers, bad publicity, high accident rates, high labor turnover, increased sick leave, loss of valuable staff, more internal conflicts and dysfunctional workplace climate. Beheshtifar and Nazarian (2013) add on to say that, the costs to the company are related to costs of reduced performance/ productivity, high replacement costs in connection with labor turnover, increased sick pay, increased health-care costs and disability payments, higher grievance and compensation costs and costs of equipment damage.

As to whether life domain characteristics, such as family role expectations, can positively influence perceived work-life balance, the results showed that work-life predicts employee stress at a higher education institution. Given the hectic schedules of academics nowadays, they have to lecture, attend conferences, and conduct academic research. It is even more

stressful for females as they have overlapping roles, perform home chores, and have a lecturing career. This is in contrast to a study conducted in Nepal by Biswakarma (2015), where there were lower levels of stress at work in the non-financial sector than in the financial sector. In the literature, Easton, Van Laar, and Marlow-Vardy (2013) stated that stress had been recognized as a substantial issue for employees and employers.

In as much as the academics are not working in financial institutions, the stress is natural in academic institutions, and the WHO (2004) mentions that the home-work interface includes issues like conflicting demands of work and home. Although the sample was small for the current study and only focused on one university, it is significant because it reflects the perceptions of an essential sub-group of academics in the country.

#### 6. Conclusion

The study investigated if there is a connection between work-life balance and turnover intentions in a higher education institution in South Africa. This study has two grounding objectives finding the relationship between work-life balance and turnover intentions. The findings imply that maintaining a work-life balance is crucial for an organization's survival, and the organization should concentrate on doing so. To keep personnel, management should pay special attention to improving the work-life balance. Research results support attempts to enhance models that depict the association between work-life balance and intention to leave a job.

Based on this study's outcomes and findings, the following recommendations are made: (a) Management and practice: The university management should take work-life balance seriously to enhance or alter the turnover intentions of their employees. (b) For future research: The study used only a small sample at the university, an exploratory study; therefore, it is recommended that a longitudinal study be conducted to cover other faculties/schools and other universities to provide conclusive results about the university and the academic fraternity in general. Furthermore, a broader study is proposed, which could use mixed methods approaches.

#### References

Awang, M. M., Kutty, F. M., &Ahmad, A. R. (2014). Perceived social support and well-being: First-year student experience in university. *International Education Studies*, *7*(13), 261-270. doi: 10.5539/ies. v7n13p261

- Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, 22(3), 273-285. doi: 10.1037/ocp0000056.
- Beheshtifar, M., & Nazarian, R. (2013). Role of occupational stress in organizations. *Interdisciplinary Journal of Contemporary Research in Business*, 4(9), 648-657. doi: 10.1108/s1479-355520150000013010
- Biswakarma, G. (2015). "When small things are impressive" tourist satisfaction towards homestay in Nepal. *Asian Journal of Research in Social Sciences and Humanities*, 5(11), 52-74. doi: 10.5958/2249-7315.2015.00247.6
- Bothma, F. C. (2011). *The Consequences of Employees' Work-Based Identity*" (Unpublished doctoral thesis). The University of Johannesburg, Johannesburg, South Africa.
- Bothma, F.C. & Roodt, G. (2013). The validation of the Turnover Intention Scale. *Journal of Human Resource Management*, 11(1), doi: 10.4102/sajhrm. v11i1.507.
- Braun, S., & Peus, C. (2018). Crossover of work-life balance perceptions: Does authentic leadership matter? *Journal of Business Ethics*, *149*(4): 875-893. doi: 10.1007/s10551-016-3078-x
- Chartered Institute of Personnel and Development (CIPD). (2015). *Learning to Work: Survey Report March 2015*. London: CIPD
- Downes, C., & Koekemoer, E. (2011). Work-life balance policies: Challenges and benefits associated with implementing flexitime. *Journal of Human Resource Management*, 9(1), 1-13. doi: 10.4102/sajhrm.v9i1.382
- Easton, S., Van Laar, D., & Marlow-Vardy, R. (2013). QWL *Management*, *3*(3), 135-141. doi: 10.17265/2159-5542/2013.10.006
- Erol Korkmaz, H. T. (2010). The Relationship of Categories of Work Events to Affective States and Attitudes in the Workplace: A Test of the Affective Events Theory (Unpublished doctoral thesis). Middle East Technical University, Ankara, Turkey.
- Fontinha, R., Van Laar, D. & Easton, S. (2008). Comparing Temporary and Permanent Workers in Academia: Analysing their Implication for general Well-Being. Portsmouth Business School: University of Portsmouth.
- Houston, D., Meyer, L. H., & Paewai, S. (2006). Academic staff workloads and job satisfaction: Expectations and values in academe. *Journal of Higher Education Policy and Management*, 28(1), 17-30. doi: 10.1080/13600800500283734.
- Hughes, J. & Bozionelos, N. (2005). Work-life balance as source of job dissatisfaction and withdrawal attitudes. *Personnel Review*, *36*(1), 145 154. doi: 10.1108/00483480710716768
- Houston, D. & Waumsley, J. (2003). Attitudes to Flexible Working and Family Life. New York: JRF Policy Press.

- Ingusci, E., Signore, F., Giancaspro, M. L., Manuti, A., Molino, M., Russo, V., Zito, M., & Cortese, C. G. (2021). Workload, techno overload, and behavioral stress during COVID-19 emergency: The role of job crafting in remote workers. *Frontiers in Psychology, 12*, 655148. doi: 10.3389/fpsyg.2021.655148.
- Kelliher, C., Richardson, J., & Boiarintseva, G. (2019). All of work? All of life? Reconceptualising work life balance for the 21st century. *Human Resource Management Journal*, 29(2), 97-112. doi: 10.1111/1748-8583.12215
- Jablin, F. M. (1982). Organizational communication: An assimilation approach. In M. Roloff & C. Berger (Eds.), *Social Cognition and Communication* (pp. 255-286). Beverly Hills, CA: Sage.
- Jha, S. (2014). Determinants of employee turnover intentions: A review. *Management Today*, 9(2), 01-13.
- Kaya, B., & Karatepe, O.M. (2020). Attitudinal and behavioral outcomes of work–life balance among hotel employees: the mediating role of psychological contract breach, *Journal of Hospitality and Tourism Management*, 42, 199-209. doi: 10.1016/j.jhtm.2020.01.003
- Kinnunen, U., Rantanen, J., Mauno, S., & Peeters, M. (2014). Work-family interaction. In M. Peeters, J. de Jonge, & T. Taris (Eds.), An Introduction to Contemporary Work Psychology (pp. 267–290). New York: Wiley-Blackwell.
- Kodikal, H.U. (2017). Impact of employee work related attitudes on job performance. *British Journal of Economics, Finance and Management Sciences*, 13(2), 98-120. doi: 10.32038/mbrq.2019.09.03
- Matthews, R. A., & Barnes-Farrell, J. L. (2010). Development and initial evaluation of an enhanced measure of boundary flexibility for the work and family domains. *Journal of Occupational Health Psychology*, *15*, 330–346.
- Munyeka, W. (2021). Work-Life Balance: A Case of Female Information and Communication Technology Professionals at a Telecommunications Company (Unpublished thesis). The University of KwaZulu-Natal, Pietermaritzburg, South Africa.
- Nicklin, J. M., Seguin, K., & Flaherty, S. (2019). Positive work–life outcomes: exploring self-compassion and balance, *European Journal of Applied Positive Psychology*, 3(6): 397-7116.
- O'Connell, P. J., Russell, H., Watson, D., & Byrne, D. (2010). *The Changing Workplace: A Survey of Employees' Views and Experiences*. Dublin: National Centre for Partnership and Performance.
- Rahman M. H. & Rahman A. (2013) Employee perception towards effective training program: A study on some selective private commercial banks. *European Journal of Business and Management*, 5(12), 62-74.

# Wiza Munyeka, & Constance Khombomune Ngobeni, *International Journal of Educational Excellence*, (2022) Vol. 8 No. 1, 65-77. ISSN 2373-5929 DOI: 10.18562/IJEE.074

- Twaronite, K. (2015) Global Generations: A Global Study on Work-Life Challenges across Generations. London: EY.
- Ugwu, F. O., Enwereuzor, I. K., & Mazei, J. (2022). Is working from home a blessing or a burden? Home demands as a mediator of the relationship between work engagement and work-life balance. *Applied Research in Quality of Life*, 1-24. doi: 10.1007/s11482-022-10084-6
- Waumsley, J. (2010). What about us? Measuring the work-life balance of people who do not have children. *Review of European Studies*, 2(2), 3-17. doi: 10.5539/res.v2n2p3
- World Health Organization (2004). *Work Organization & Stress*. Geneva, Switzerland: World Health Organization.



© 2022 Munyeka & Ngobeni; licensee International Journal of Educational Excellence, Universidad Ana G. Méndez (UAGM). This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.