

Received: February 2024
Accepted: December 2024
DOI: 10.7862/rz.2024.hss.39

Abimbola A. AKANNI¹
Choja A. ODUARAN²

ENHANCING WORKPLACE SAFETY BEHAVIOUR THROUGH SAFETY CULTURE AMONG BREWERY WORKERS: THE MEDIATING ROLE OF WORK-LIFE BALANCE

Past studies have established the association between safety culture and workplace behavior, yet the possible effect of work-life balance on this association has not been explored. This study investigates the mediating effect of work-life balance in the link between safety culture and workplace safety behavior among brewery workers. A sample of 250 ($F = 36.2\%$; mean age = 24.94, $SD = 4.96$) brewery workers responded to three scales viz: Safety Culture Scale (SCS), Work-Life Balance Scale (W-LBS), and Workplace Safety Behaviour Scale (WSBS). Correlational analyses showed that safety culture was negatively related to work-life balance but positively related to workplace safety behavior among brewery workers. From the mediation analyses, safety culture and work-life balance independently predicted workplace safety behavior while work-life balance had an indirect effect on the association between safety culture and workplace safety behavior. The study concludes that efforts at sustaining safety culture that supports employees' capacity to attain work-life balance may enhance the safety behavior of brewery workers.

Keywords: Brewery workers, safety culture, work-life balance, workplace safety behaviour.

1. INTRODUCTION

Brewery workers are often exposed to hazardous work environment which might pose significant challenges to their health, wellbeing and that of the organisation at large. Reported cases of injuries and accidents due to unsafe behaviour threatens workers' health (Harsini et al., 2020). Employees' ability to engage in appropriate workplace safety behaviour is inevitably required to reduce increasing spate of accidents and injuries. Workplace safety behaviour, which is a preventive behaviour carried out to avert negative consequences, are engaged either overtly or covertly, under certain situations, in order to forestall feared consequences (Salkovskis, 1991). These outcomes may be detrimental to organisational growth and costly to the organisations as the United Nations Global

¹ Abimbola A. Akanni, Compres Entity, Northwest University, Potchesfroom, South Africa; Obafemi Awolowo University, Ile-Ife, Nigeria; e-mail: bimakanni@gmail.com (corresponding author). ORCID: 0000-0002-9238-7315.

² Choja A. Oduaran, Compres Entity, Northwest University, Potchesfroom, South Africa; e-mail: choja.oduaran@nwu.ac.za. ORCID: 0000-0001-8815-3930.

Compact (2022) estimated that 2.78 million workers die every year through occupational accidents and illnesses. This interprets to have implication on the affected organisation's budget and manpower. Previous studies have identified factors as risk perception, safety training and leadership styles as predictors of safety behaviour (Hamidah, 2019; Baraei et al., 2022). Incidentally, studies on safety behaviour among brewery workers are still scanty within the context of Nigeria. Available studies on safety behaviour at work among employees within the context of Nigeria have concentrated on workers in the oil and gas, banking and construction ((Ehiaguina, Moda, 2020; Akanni et al., 2021; Afuye et al., 2022; Zailani et al., 2022) sectors of the economy. Therefore, this current study investigates the relationship between safety culture and workplace safety behaviour through work-life balance among brewery workers.

2. LITERATURE REVIEW

2.1. Safety culture and workplace safety behaviour

Safety culture is described as organisational beliefs, attitudes, values, and norms that defines appropriate conduct, danger, and risk of hazardous operations which are shared among workers (Cooper, 2000). These shared values and norms, according to Vinodkumar, Bhasi (2010; 2011) are comprised in safety rules, regulations and procedures for high-risk industry that have been found to relate to safety behaviour. The development of safety culture has positive implications for employees need satisfaction and improved safety performance (Bautista-Bernal et al., 2024). Similarly, Al-Bayati (2021) argues that safety culture characterizes the activities of top management team which contributes to safety behaviour. In other words, leadership style plays important role in safety culture and subsequently workplace safety behaviour. Equally, productivity has been reported to be on the increase when employees adhere to safety rules, regulations and procedures (Windapo, Oladapo, 2012). Few previous related studies confirmed that safety culture predict safety behaviour and performance (Asamani, 2020; Ehiaguina, Moda, 2020; Bautista-Bernal et al., 2024). However, failure to adhere to safety measures by stakeholders in any organisation could lead to preventable accidents and injuries which may consequently increase the costs of production as well as affect the profit margin of the company (Olatubi, M.I., Olatubi, V.I., 2017). However, leadership pattern has been reported to boost safety behaviour in the workplace (Hamidah, 2019). Grounded on the aforementioned positions in literature, we therefore, hypothesized that:

***Hypothesis 1:** Safety culture will significantly predict safety behaviour.*

2.2. Work-life balance and workplace safety behaviour

Work-family balance describes an attainment of equilibrium between work demands and other life role expectations. Scholars have continued to affirm that both employees and organisations profit from successful achievement of balance between work and life roles (Hammer et al., 2005; Greenhaus, Powell, 2006). Previous studies have established an association between work-life balance and perceived health and safety of workers, mental health as well as safety behaviour (Chan, 2020; Kotera et al., 2020; Al-Bayati, 2021). Employees with good work and life balance are likely to encounter less injury rates compared to those with poor work-life balance (An et al., 2020). In the Nigerian banking sector, Okeya et al. (2020) established a substantial association between work-life balance and employees' health and well-being. Also, employees who achieves adequate balance between work and life demands will experience lower personal burnout at work (Schwartz

et al., 2018). We therefore, propose that employees who accomplish an equilibrium between work and life roles will engage more in safety behaviour at workplace. Thus, it is hypothesized that:

Hypothesis 2: *work-life balance will significantly predict safety behaviour.*

2.3. Mediating effect of work-life balance

We posit that safety culture will influence brewery workers' safety behaviour through work-life balance. A culturally safe workplace strengthens the employees' capacity to engage safety behaviour as well efficient service delivery (Windapo et al., 2012; Al-Bayati, 2021; Bautista-Bernal et al., 2024). It is evidence of managerial priority for safety performances (Al-Bayati, 2021). Also, work-life balance and safety culture were reported to be related (Schwartz et al., 2018; Nwagbara, 2020). Factors such as fatigue, inadequate staff strength, meagre remuneration, deficient safety training, indifference, and high-risk tolerance have been adjudged to impede safety behaviour (Efiok et al., 2015).

Although, previous studies have not covered the indirect effect of work-life balance in the association between safety culture and safety behaviour, its mediating effects on several behavioural outcomes at the workplace have been explored. For instance, it was reported that the association between work-family conflict and life satisfaction (Tasdenlen-Karckay, 2017), job engagement and intention to quit (Jaharuddin, Zainol, 2019), conditions of work and employee engagement (Dinh, 2020), job resources and job satisfaction (Rashmi, Kataria, 2021), self-identified leadership and perception of leadership (Tran et al., 2021) as well as employee intention to stay (Samroodh et al., 2023) were mediated by work-life balance. These findings have established the cushioning impacts of work-life balance in strengthening positive behavioural outcomes and dampen unpleasant behaviour at workplace. We therefore hypothesized that:

Hypothesis 3: *work-life balance will significantly mediate the association between safety culture and safety behaviour.*

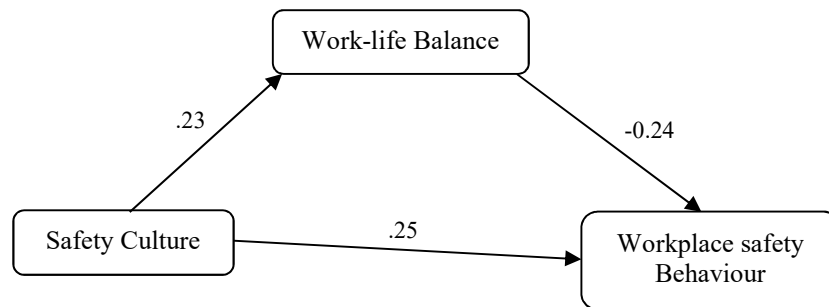


Figure 1. The Study hypothesized Model

Source: own study based on data collected from participants.

3. METHODOLOGY

3.1. Participants and procedure

Necessary approvals to conduct this study were secured from appropriate Institutional Review Board and authorities. Data were sourced from employees of a brewery company. The rationale for the study was explained to the participants and those who thereafter gave

their consent took part in the study. The convenience sampling technique was adopted in sample selection by virtue of availability and willingness to participate in the study. The participants were ensured of confidentiality and anonymity of their responses as well as voluntary withdrawal of their participation from the study. Questionnaire administration was conducted during break time at the site of the study. Participants who requested to go with the questionnaire and return the following day were allowed to do so. Out of the 280 copies of the questionnaire that were distributed only 250 (F=36.2%; mean age = 24.94, SD= 4.96) copies were found useable.

3.2. Measures

Workplace safety behaviour: Brewery workers' safety behaviour was assessed using the 8-items questionnaire by Vinodkumar and Bhasi (2010). The scale was developed to measure safety compliance and participation components of safety behaviour at workplace. The response pattern ranged from 1 = strongly disagree through to 5 = strongly agree. The sum total of the responses was generated to indicate participant's safety behaviour. The Cronbach alpha coefficient for this study was .87.

Safety culture: Information on safety culture was accessed through the safety culture scale developed by Jon and Erick (2009). It has 13 items with the response format that ranges from 1 (strongly disagree) to 5 (strongly agree). Responses generated were added together to arrive at a global safety culture scores for the respondents. The Cronbach internal consistency of $\alpha = .75$ was reported for the current study.

Work-life balance: The 4-items Work-Life Balance scale developed by Brough and Timms (2009) was utilized to assess information on the Brewery workers capacity to balance work and life roles. A global work-life balance scores was generated by summing the responses from the respondents. The Cronbach internal consistency of .65 was recorded for the current study.

3.3. Results

Data that were generated for the study were analysed using the Pearson Product Moment Correlation (PPMC) and Hayes PROCESS Macro analytical tools. An initial data examination were conducted to check for the normality of the data via the establishment of the skewness and kurtosis (see Table 1). Specifically, the PPMC was used to examine the intercorrelation among the study variables. Hayes PROCESS Macro Model 4 was utilized to conduct the direct and indirect effects analyses.

Table 1. Correlational matrix with mean and standard deviation

Variables	Mean	SD	1	2	3	4
1.Age	24.94	4.96	1			
2.Safety Culture	50.68	6.97	-.27**	1		
3 Work-Life Balance	13.66	2.23	.16*	-.20**	1	
4 Workplace Safety Behaviour	31.95	4.14	-.36**	.42**	-.22**	1
Kurtosis	-	-	-	.77	.30	.90
Skewness	-	-	-	.52	.46	.93

Source: own study based on data collected from participants.

From Table 1, results showed that age of employees had a significantly negative association with safety culture ($r = -.27, p < 0.05$) and workplace safety behaviour ($r = -.36, p < 0.05$) but positively significantly associated with work-life balance ($r = .36, p < 0.01$). Also, safety culture had a significantly negative association with work-life balance ($r = -.20, p < 0.05$) but moderately positive with workplace safety behaviour ($r = .42, p < 0.05$). The link between work-life balance and workplace safety behaviour was significantly negative ($r = -.22, p < 0.05$). This suggests that efforts at balancing work and family roles may hamper the capacity to meet the standard workplace safety behaviour expectation among brewery workers.

3.4. The mediation analysis

Results on table 2 revealed a statistically significant total safety culture effect on workplace safety behaviour ($\beta = 0.25, SE = .04, p < .001$) and a significant direct effect of safety culture ($\beta = 0.23, SE = .04, p < .001$) and work-life balance ($\beta = - 0.24, SE = .11, p < .001$) on workplace safety behaviour. These results showed that safety culture and work-life balance independently predicted workplace safety behaviour. Also, the standardized indirect effect of work-life balance in the association between safety culture and workplace safety behaviour was significant ($\beta = 0.03, SE = .01, 95\% CI = [0 .005, .056]$). The overall amount of the total effect was 42%.

Table 2. Mediating effect of work-life balance in the safety culture – workplace safety behaviour link

Predictors	Consequent Factors												
	Mediator Model			Dependent Variable Model									
				Total effect			Direct effect			Mediating effect I.E (95% Boot C.I)			
Variables	β	SE	p	β	SE	P	β	SE	P	β	SE	LL	UL
Constant	17.00	1.03	0.001	19.27	1.78	0.001	23.32	2.57	.001	-		-	
SC	-.07	.02	0.001	.25	.04	0.001	.23	.04	.001	-		-	-
WLB	-	-	-	-	-	-	-.24	.11	.031	.03	.013	.005	.056
	F(1,242)=10.48, p<.001 R=.20, R ² =.04			F(1,242)=52.18, p<.001 R=.42, R ² =.18			F(2,241)=28.84, p<.005 R=.43, R ² =.19						

Note: I.E = Indirect effect, C.I = Confidence Interval, Boot = Bootstrapping, SC = Safety Culture; WLB =Work-Life Balance.

Source: own study based on data collected from participants.

4. DISCUSSION

This current paper examined the relationship between safety culture and workplace safety behaviour and investigated the mediating effect of work-life balance in the association between safety culture and workplace safety behaviour among brewery workers. All the three hypotheses that were formulated for the study were confirmed.

We found that safety culture predicted workplace safety behaviour among brewery workers. This suggests that shared organisational beliefs, values and norms that is reflected in proper conduct help employees to comport themselves in safe manners at work. Past studies have confirmed an association between safety culture and safety behaviour (Asamani, 2020; Ehiaguina et al., 2020) and other outcomes such as increased productivity (Windapo et al., 2012; Asamani, 2020; Ehiaguina et al., 2020; Al-Bayati, 2021; Bautista-Bernal et al., 2024). Company policies and management team of brewery companies emphasizes safety rules and its enforcement among stakeholders. This may be responsible for the findings of the current study.

Similarly, work-life balance was also established to predict of workplace safety behaviour. Capacity to achieve an equilibrium between work and life demands could have implications for safety behaviour at work. Past studies have reported that work-life balance, perceived health and safety of workers were related (Chan, 2020; Okeya et al., 2020) as well as other related concerns as mental health (Kotera et al., 2020) and safety behaviour (Al-Bayati, 2021). Employees with good work-life balance experience less injury rates compared to those with poor work-life balance who commit more errors on the job (An, et al., 2020). Furthermore, our findings confirmed the indirect effect of work-life balance in the association between safety culture and workplace safety behaviour among brewery workers. This is in agreement to prior studies (Jaharuddin et al., 2019; Rashmi et al., 2021; Samroodh et al., 2023) which have reported that work-life indirectly mediated the link among various workplace behavioural outcomes such as work engagement, intention to stay, job satisfaction among others. This implies that employees who are able to balance work and life demands may find it easier to adjust to safety culture that facilitate workplace safety behaviours among brewery workers.

The study recommends that employees should be exposed to more training on safety culture and practices periodically. This will enable them to be adept at safety expectations in their workplaces and emerging issues on safety practices. Similarly, policies that support work-life balance should be projected more in other to facilitate better balance and safety. Workers, particularly those on shift schedules, should constantly have access to the company's policies on work-life balance. This knowledge and access could assist them in planning programmes to strenghten their family and liesure engagements.

The study has a number of limitations. There is need for caution in generalizing the findings of this study to other Food, Beverages and Tobacco Industries as only workers in Breweries were sampled. Thus, further studies may be needed to be conducted in other firms within the Food, Beverages and Tobacco Industries and other companies for expanded coverage. Longitudinal study and mixed methods approach may even enhance the robustness of data on safety behaviour among employees in Food, Beverages and Tobacco companies in Nigeria.

In conclusion, safety culture plays significant roles in brewery workers' workplace safety behaviours. This is based on the fact that the study validated the hypothesis that safety culture will predict workplace safety behaviours. The current study advances the broad body of knowledge not only by buttressing the role of safety culture in predicting workplace safety behaviour was possible via work-life balance. Thus, a preliminary study to establish a mediating effect of work-life balance in the link between safety culture and workplace safety behaviour, especially among brewery workers.

REFERENCES

- Afuye, O., Aina, O., Oladimeji, O., Mohammed, T. (2022). *Perceptions of safety behaviour-modifying techniques in construction firms: Insights from Lagos, Nigeria*. "Acta Structilia", 29(1). DOI: 10.18820/24150487/as29i1.3.
- Al-Bayati, A.J. (2021). *Impact of construction safety culture and construction safety climate on safety behaviour and safety motivation*. "Safety", 7(41). DOI: 10.3390/safety7020041.
- An, J.M., Kim, J., Yoon, S., Woo, K.H., Cho, S.Y., Kim, K., Jo, H.R. (2020). *Association of work-life balance with occupational injury and work-related musculoskeletal pain among Korean workers*. "Annals of Occupational and Environmental Medicine", 30(32). DOI: 10.35371/aoem.2020.32.e20. PMID.
- Asamani, L. (2020). *Promotes safety culture and enhance safety performance through safety behaviour*. "European Journal of Business & Management", 5(4). DOI: 10.24018/ejbmr.2060.5.4.405.
- Baraei, B., Mahmoodi, H., Rahmani, K., Ponnet, K., Pashaei, T. (2022). *Predictors of safety behaviors among cement factory workers*. "International Journal of Occupational Safety and Ergonomics", 28(4). DOI: 10.1080/10803548.2021.1976482.
- Bautista-Bernal, I., Quintana-García, C., Marchante-Lara, M. (2024). *Safety culture, safety performance and financial performance. A longitudinal study*. "Safety Science", 172. DOI: 10.1016/j.ssci.2023.106409.
- Chan, A.P.C., Chiang, Y., Wong, F.W., Abidoeye, F.A. (2020). *Work-life balance for construction workers*. "Journal of Construction Engineering and Management", 146(5). DOI: 10.1061/(ASCE)CO.1943-7862.0001800.
- Cooper, D. (2000). *Towards a model of safety culture*. "Safety Science", 36(2).
- Dinh, L. N. (2020). *Determinants of employee engagement mediated by work-life balance and work stress*. "Management Science Letters", 10.
- Efiok, J.N., Oluseye, O., Uduak, T., Olalekan, R. (2015). *Safety Culture, Policies and Practices in Nigeria Maritime Industry: The Exxon – Mobil Experience*. "Open Journal of Safety Science and Technology", 5.
- Ehiaguina, E., Moda, H. (2020). *Improving the Safety Performance of Workers by assessing the impact of safety culture on workers' safety behaviour in Nigeria Oil and Gas industry: A pilot study in the Niger Delta Region*. "International Journal of Medical and Health Sciences", 14(6).
- Greenhaus, J.H., Powell, G.N. (2006). *When Work and Family Are Allies: A Theory of Work-Family Enrichment*. "Academy of Management Review", 31(1).
- Hammer, L.B., Neal, M.B., Newsom, J.T., Brockwood, K.J., Colton, C.L. (2005). *A longitudinal study of the effects of dual-earner couples' utilization of family-friendly workplace supports on work and family outcomes*. "Journal of Applied Psychology", 90(4).
- Hamidah, N. U. (2019). *Improving Safety Behaviour in the Workplace*. "Advanced in Economics, Business and Management Research", 154.
- Harsini, A.Z., Ghofranipour, F., Sanaeinasab, H. et al. (2020). *Factors associated with unsafe work behaviours in an Iranian petrochemical company: perspectives of workers, supervisors, and safety managers*. "BMC Public Health", 20. DOI: 10.1186/s12889-020-09286-0.
- Jaharuddin, N.S., Zainol, L.N. (2019). *The impact of work-life balance on job engagement and turnover intention*. "The South East Asian Journal of Management", 13(1). DOI: 10.21002/seam.v13i1.10912.

- Jonathan, G.J., Mbogo, R.W. (2016). *Maintaining health and safety at workplace: Employee and employer's role in ensuring a safe working environment*. "Journal of Education and Practice", 7(29).
- Kotera, Y., Green, P., Sheffield, D. (2020). *Work-life balance of UK construction workers: relationship with mental health*. "Construction Management and Economics", 38(3). DOI: 10.1080/01446193.2019.1625417.
- Moda, H.M., Dama, F.M., Nwadike, C., Alatni, B.S. Adewoye, S.O., Sawyerr, H. et al. (2021). *Assessment of workplace safety climate among healthcare workers during the COVID-19 Pandemic in low and middle income countries: A case study of Nigeria*. "Healthcare", 9(661). DOI: 10.3390/healthcare9060661.
- Nwagbara, U. (2020). *Institutions and organisational work-life balance (WLB) policies and practices: Exploring the challenges faced by Nigerian female workers*. "Journal of Work-Applied Management", 12(1).
- Okeya, O.E., Ajayi, O.S., Awoniyi, M.O. (2020). *Effects of Work-Life Balance on Health and Wellbeing of Employees in the Nigeria Banking Industry*. "International Journal of Research and Review", 7(7).
- Olatubi, M.I., Olatubi, V.I. (2017). *Ensuring a safe working environment in Nigeria: Reality or Myth*. "American Journal of Environmental and Resource Economics", 2(3).
- Rashmi, K., Kataria, A. (2021). *The mediating role of work-life balance on the relationship between job resources and job satisfaction: perspectives from Indian nursing professionals*. "International Journal of Organisational Analysis". DOI: 10.1108/IJOA-04-2021-2722.
- Samroodh, M., Anwar, I., Ahmad, A., Akhtar, S., Bino, E., Ali, M.A. (2023). *The indirect effect of job resources on employees' intention to stay: A serial mediation model with psychological capital and work-life balance as the mediators*. "Sustainability", 15. DOI: 10.3390/su15010551.
- Schwartz, S.P., Adair, K.C., Bae, J., Rehder, K.J., Shanafelt, T., Profit, J., Sexton, J.B. (2018). *Work-life balance behaviours cluster in work settings and relate to burnout and safety culture: A cross-sectional survey analysis*. "BMJ Quality & Safety", 28.
- Tasdenlen-Karckay, A., Bakalim, O. (2017). *The mediating effect of work-life balance on the relationship between work-family conflict and life satisfaction*. "Australian Journal of Career Development", 26(1). DOI: 10.1177/1038416216682954.
- Tran, Y., Liao, H.H., Yeh, E.H., Ellis, L.A., Clay-Williams, R., Braithwaite, J. (2021). *Examining the pathways by which work-life balance influences safety culture among healthcare workers in Taiwan: path analysis of data from a cross-sectional survey on patient safety culture among hospital staff*. "BMJ Open", 11(11). DOI: 10.1136/bmjopen-2021-054143.
- United Nations Global Compact (2022). *A safe and healthy working environment*. Access on the internet: <https://unglobalcompact.org/take-action/safety-andhealth>.
- Vinodkumar, M.N., Bhasi, M. (2010). *Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation*. "Accident Analysis and Prevention", 42.
- Vinodkumar, M.N., Bhasi, M. (2011). *A study on the impact of management system certification on safety management*. "Safety Science", 49.
- Windapo, A., Oladapo, A. (2012). *Determinants of construction firms' compliance with health and safety regulations in South Africa* [In:] Smith, D.D., ed., *Process 28th Annual ARCOM conference, 3-5 September 2012, Edinburgh, UK*. "Association of Research in Construction Management".

Zailani, B.M., Moda, H., Ibrahim, Y.M., Abubakar, M. (2022). *Improving the antecedents of non-compliance to safety regulations toward an optimized self-regulated construction environment in Nigeria*. "International Journal of Occupational Safety and Ergonomics". DOI: 10.1080/10803548.2022.2115657.

