Journal of Engineering, Project, and Production Management
2025, 15(2), 0008

Demographic Factors Mediating Organizational Commitment and Safety Performance at Ovid Construction

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Project Management
Received January 16, 2024; revised March 27, 2024; June 20, 2024; October 23, 2024; January 16, 2024; accepted April 15, 2024
Available online April 25, 2025

Abstract: This study aimed to investigate the mediating role of demographic characteristics between organizational commitment and occupational health and safety performance at, Ovid Construction PLC, a leading private company in Ethiopia. A cross-sectional study design was employed, and a sample of 370 workers was selected using systematic random sampling. A structured questionnaire was used to collect data, and both descriptive and multivariate analysis techniques were employed. The results showed that organizational commitment positively and significantly affects occupational health and safety performance, and demographic characteristics except age positively and significantly affect occupational health and safety performance. Moreover, except aga, demographic profiles (Education Level and Work Experience) significantly and partially mediate the relationship between the two Organizational Commitment variables (Safety Measures and Work Environment) and Occupational Accident. This study highlights the importance of considering demographic factors in organizational commitment and safety training programs to improve occupational health and safety outcomes.

Keywords: OHS; Construction; Ovid; Demographic; Management Commitment.

DOI 10.32738/JEPPM-2025-0008

1. Introduction

Occupational health and safety (OHS) in the construction industry is critically important due to the sector's inherent risks. Globally (Smith et al., 2018b). With no exception, in Ethiopia, the construction industry contends with a notable prevalence of health issues and safety incidents, necessitating proactive measures and robust interventions. Studies by Hinze et al. (2018) underscore the significance of a safety culture, emphasizing the need for leadership commitment, training programs, and comprehensive safety measures. However, despite global efforts, the construction industry, particularly in developing countries like Ethiopia, grapples with a high occurrence of accidents and injuries (Adekoya, 2019).

Within Ethiopia, the construction sector is a vital contributor to the economy, but the prevalence of occupational health issues remains a concern. Challenges encompass inadequate safety equipment, insufficient training, and a lack of awareness about occupational health practices. This is because the construction sites involve insufficient training, poor safety infrastructure, and limited access to personal protective equipment (PPE) (Ofori, 2018). Researchers have proposed organizational interventions, such as comprehensive safety training programs, stricter regulatory measures, Personal Protective Equipment (PPE) provision, and fostering a safety culture (Mwakapanda et al., 2020; Fantahun et al., 2023; and Berhan,2020a).

Ovid Construction PLC, which is one the renowned and leading private construction companies in Ethiopia, has demonstrated a consistent commitment to risk and disease mitigation, emphasizing three key organizational roles: creating a safe work environment, providing safety training, and implementing safety measures. Ovid Construction believes that a safe work environment is fundamental to reducing accidents and occupational diseases in construction works. Organizational commitment, highlighted by Hinze et al. (2013b) and Zohar (2014b), significantly influences overall safety performance. Effective organizational commitment starts with leadership fostering a safety culture. Research by Neal and Griffin (2006), Fantahun et al. (2023), and Berhan (2020a) emphasizes that organizational commitment is reflected in the implementation and enforcement of safety policies, contributing to the prevention of accidents and diseases at work. Several studies have shown that organizational commitment positively correlates with safety performance (NIOSH, 2016; Harvard Business

Review, 2017; Shen et al., 2017; Yorio and Willmer, 2010; Liberty Mutual, 2018; National Safety Council, 2017). For instance, a study by the National Institute for Occupational Safety and Health (NIOSH) found that the implementation of safety measures, such as PPE and fall protection, can reduce the risk of injuries by up to 90% (NIOSH, 2015). Another study by the International Labor Organization (ILO) found that the implementation of safety measures can reduce the risk of accidents by up to 70% (ILO, 2018). Worku and Yitayew (2019) assessed the effectiveness of existing regulations and cultural and environmental aspects in promoting occupational health and safety in Ethiopia, highlighting gaps in enforcement and the need for a more robust regulatory framework.

The other issue in OHS is the concept of workers' "profile" or "demography." The diverse demographic composition provides a comprehensive foundation for examining the potential relationships between these demographic characteristics and occupational health and safety performances within the construction sector. Further, the Social Cognitive Theory proposed by Bandura (1986), emphasizes the role of personal and environmental factors in shaping behavior. According to this theory, individual characteristics, such as demographic factors (e.g., age, gender, education), interact with the work environment to influence safety-related behaviors and outcomes. For instance, age, level of education, and work experience play a crucial role in shaping occupational health and safety outcomes (NIOSH, 2019; Berhan, 2020b; Foley and Stevens, 2017). To this effect, less-experienced workers tend to have higher accident rates, as they may lack familiarity with safety procedures, have limited knowledge of potential hazards, and be less skilled in hazard recognition and avoidance; conversely, more experienced workers often benefit from accumulated knowledge, skills, and better risk perception (Lingard and Rowlinson, 2005). Education levels influence safety knowledge and behaviors, with higher education correlating with better safety outcomes (LeBlanc and Kelloway, 2017).

Different demographic groups exhibit varying safety needs and behaviors, such as age-related risk propensity and gender-specific safety concerns (Zohar and Dori, 2013; Probst and Eikeland, 2017; Haines and Neumark-Sztainer, 2016). Older workers may face increased risks due to factors such as reduced physical capabilities, decreased sensory abilities, and changes in reaction times. On the other hand, younger workers may be more prone to accidents due to their relative lack of experience and risk perception (Hinze and Gamboa, 2012). The other demographic factor is age. As the sector is male-dominant, men may experience higher accident rates than their female counterparts due to factors such as risk-taking behavior, greater exposure to hazardous tasks, and differences in physical strength and endurance (Lingard and Rowlinson, 2005).

However, the major failures in many developing countries are a lack of scientific research and enforcement from the regulatory body and a loss of employee control at work. Ovid, which stands for "Our Vision is Development," is a prominent player in the Ethiopian construction sector, particularly in the field of housing development, with a successful track record spanning over ten years, distinguishing itself by upholding its commitment to the safety of its employees at all levels. Implementing strict control and follow-up, the company strives to create a safe working environment through its Health, Safety, and Environment (HSE) practices, providing appropriate safety signs. However, there is currently no scientific evidence suggesting that the efforts of Ovid Construction PLC are influenced by the diverse demographic profiles of its employees.

While extensive research addresses OHS in the construction sector and organizational commitment, a notable gap exists concerning the mediating role of DC in Ethiopia. This study seeks to address the extent and effectiveness of Ovid Construction's initiatives in mitigating and preventing occupational health issues and understanding the mediating role of demographic characteristics in diverse operational sites. This study aims to fill this gap by investigating the relationship between Organizational Commitment (OC) and Occupational Health and Safety Performance (OHSP), considering Demographic Characteristics (DC) as a mediating factor.

The developed research framework (Figure 1) and proposed hypotheses presented below show the relationship between OC, DC, and OHSP and the mediation or of DC. In this research framework and hypotheses, DCs are conceptualized as a mediating variable, following the conditions outlined by Baron and Kenny (1986). Accordingly, the framework was designed with the expectation that variations in levels of OC would explain variations in demographic characteristics, and variations in demographic characteristics would, in turn, account for variations in occupational health and safety performance (OHSP). Based on the research framework in Figure 1, the following hypotheses are developed. In this research framework, the proposed partial mediation (H4) indicates the presence of both direct effects (H1, H2, and H3) and indirect effects (H4). According to Baron and Kenny (1986), this implies that the mediating role of DC between OC and OHSP is accompanied by direct effects.

H1: Organizational Commitment (ST, SM and WE) affects Occupational Health and Safety Performance (OCD and OCA) positively.

H2: Organizational Commitment (ST, SM and WE) affects Demographic Characteristics (AGE, EDL, and EXP) positively.

H3: Demographic characteristics (AGE, EDL, and EXP) affect Occupational Health and Safety Performance (OCD and OCA) positively.

H4: Demographic Characteristics (AGE, EDL, and EXP) mediate the effect of Organizational Commitment (ST, SM and WE) on Occupational Health and Safety performances (OCD and OCA).

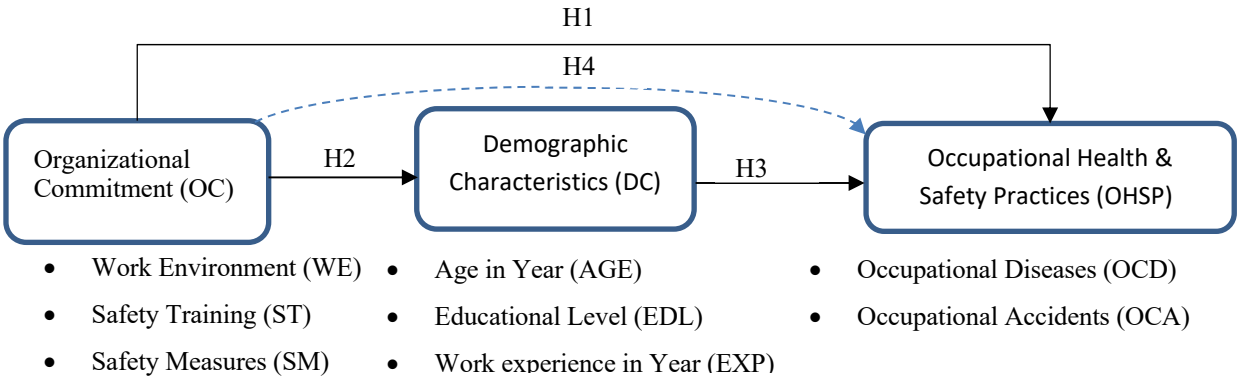

Figure 1. Conceptual framework of the study

2. Research Methodology

2.1. Study Type

This study employs a cross-sectional study design to capture a snapshot of occupational health and safety practices at Ovid Construction. This design allows for the collection of data at a specific point in time, providing insights into the current state of affairs. To arrive at a conclusive result regarding full, partial, or suppressive mediation, the research initially examined the direct relationships between OC and OHSP, as well as the direct relationships between OC and DC, and between DC and OHSP.

2.2. Sampling Strategy and Sample Size Determination

During the data collection, construction workers with a minimum of two years of experience and full-time tenure at Ovid Construction PLC during the questionnaire distribution time were randomly selected from all 10 sites. To ensure that each worker has an equal chance of being selected a systematic random sampling method was employed. The method helped to create a representative sample that reflects the diversity of Ovid Construction's workforce. The sample size was determined based on statistical considerations to achieve a balance between precision and feasibility. From the statistical computation, out of the total 6000 employees, the minimum sample size of 370 is set to ensure adequate representation and reliability of the collected data.

2.3. Data Collection Instruments

For data collection, a structured questionnaire with 31 closed-ended questions with 7-scale Likert scale responses (1=Strongly Disagree, 2= Disagree, 3=Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree) was developed by the researchers. The Likert scale questions will assess workers' perceptions of various organizational commitments of Ovid Construction plc and occupational health and safety practices. Some of the questions were adopted from previous research (Brhan 2020a,b) and modified for this research. Moreover, the five demographic chrematistics (age, gender, work experience, and education level) were also included in the questionnaire. Before the actual data collection, a pilot tests the questionnaire with a small group of workers to identify any potential issues with clarity, wording, or comprehensibility. Then, the questionnaire was refined based on feedback to ensure the reliability and validity of the instrument. During the data collection, 400 questionnaires were distributed, and only 370 were fully completed and returned, resulting in a response rate of 92.50%. The data collection processes were self-administrated. Some of the respondents were not able to complete and deliver the questionnaires. The major reason was some of the projects were completed and employees left the organization during the data collection period.

2.4. Data Collection Procedure

Conduct on-site surveys at each of the 10 construction sites for a period of two months From October 1, 2023, to December 30, 2023. The researchers tried to ensure that the surveys were administered consistently to maintain the reliability of the data. During the data collection, the research assistant provided a clear explanation of the study's purpose to participants and obtained informed consent. Anonymity and confidentiality in data collection time were ensured to encourage honest responses. During the data collection, to address any queries from participants the researchers used trained research assistants.

2.5. Data Analysis

In this research, both descriptive and multivariate analyses were conducted. The descriptive analysis summarizes demographic information and provides an overview of responses to Likert scale questions. For the multivariate analysis, a Structural Equation Modeling (SEM) using SMART-PLS Ver. 3.9 was used to analyze the direct and mediating relationship between the constructs. The researchers aim to evaluate how well the observed variables align with the hypothesized latent constructs and determine the adequacy of the proposed measurement model through Confirmatory Factor Analysis (CFA). To this effect, CFA is selected for this research to assess the measurement properties of a set of observed variables and examine the validity of the proposed measurement model. Then, the Confirmative Factor Analysis (CFA) of the proposed

model was conducted, and the construct validity, adequacy, and robustness of the model were assessed before fitting the overall data to the model. To obtain more reliable and robust results by accounting for sampling variability and providing a comprehensive assessment of the model's parameters a complete bootstrapping was selected during running the model. Complete Bootstrapping involves generating multiple random samples with replacements from the original dataset to create bootstrap samples. This process allows for estimating the sampling distribution of the model parameters and obtaining more accurate standard errors, confidence intervals, and p-values. To this effect, the model was run with a complete bootstrapping of 7000 subsamples on a corei7 12th generation HP laptop.

3. Results and Discussion

The demographic profiles of Ovid Construction PLC's workforce**,** presented in Table 1**,** provide valuable insights into potential implications for Occupational Health and Safety (OHS). The workforce exhibits educational diversity, with a significant portion holding at least a high school diploma (29.2%), and a substantial number possessing a degree (35.1%). This diversity suggests a range of safety knowledge and behaviors, potentially contributing to varied OHS outcomes. In terms of gender, the majority of the workforce is male (78.6%), highlighting the need to consider gender-specific safety concerns and behaviors in OHS programs to address the distinct needs of male and female workers.

Table 1. Demographic characteristics of respondents

Demographic Profiles	Frequency	Percent
Education Level (EDL)		
literate	55	14.86
Elementary	69	18.65
High School	108	29.19
Degree	130	35.14
Master	8	2.16
Gender (GEN)		
Male	291	78.65
Female	79	21.35
Experience in years (EXP)		
less than 3 years	184	49.73
4-5 years	165	44.59
greater than 6 years	21	5.68
Age in years (AGE)		
Less than 20	34	9.19
21 to 30	176	47.57
31 to 40	132	35.68
Greater than 40	28	7.57

The distribution of experience is, that a substantial percentage of having less than 3 years (49.73%), between 4-5 years (44.59%) of experience, and a few proportion is greater than 6 years (5.68%). Experience often correlates with hazard recognition and safety-conscious behavior, influencing OHS performance. The age distribution is varied, with a significant proportion falling within the 21 to 40 age range accounting for a total of over 79%. Different age groups may exhibit varying risk propensities and safety behaviors, impacting OHS outcomes. Understanding these demographic characteristics is crucial for tailoring OHS programs to address the specific needs and behaviors of different segments of the workforce. Ultimately, this understanding contributes to the development of targeted strategies to enhance occupational health and safety outcomes within Ovid Construction PLC. The result of the CFA presented in Table 2, includes factor loads, Cronbach's Alpha, Composite reliability, Average Variance Extracted (AVE), and Variance Inflation Factor (VIF) values.

The reliability and validity measures of the constructed research framework's latent variables were assessed to ensure the robustness of the measurement model. The adequacy of measurements indicated that the Cronbach Alpha (CA) is considered acceptable when exceeding 0.70 (Nunnally, 1978; Cronbach, 1951). Composite Reliability (CR) values should surpass 0.70 for reliable constructs (Bagozzi and Yi, 1988). Average Variance Extracted (AVE) values above 0.50 indicate satisfactory convergent validity (Fornell and Larcker, 1981a). Variance Inflation Factor (VIF) values under 5 signify the absence of multicollinearity issues (Hair et al., 2010). To this effect, for Occupational Accident (OCA), the Cronbach Alpha of 0.823 and Composite Reliability (CR) of 0.870 indicate good internal consistency, while the Average Variance Extracted (AVE) of 0.492 is slightly below the recommended threshold. Similarly, Occupational Diseases (OCD) exhibit very excellent internal consistency with a Cronbach Alpha of 0.891 and satisfactory CR and AVE values. Safety Measures (SM), Safety Training (ST), and Work Environment (WE) maintain good internal consistency and satisfactory CR and AVE values,

although their Cronbach Alpha is slightly below the desired level. However, none of the items exhibits lower than 0.60. The Variance Inflation Factor (VIF) values within acceptable limits across all constructs confirm the absence of multicollinearity concerns (Bagozzi and Yi, 1988; Fornell and Larcker, 1981a; Hair et al., 2010).

Table 2. Factor Loading and Reliability

Variables with descriptions 1. OHS Performance	FL*	CA	CR	AVE	VIF
1.1. Occupational Accident (OCA)		0.823	0.870	0.492	
OCA_1 Scaffolding or ladder collapse	0.806				2.131
OCA_2 Injuries from Falling objects/debris	0.772				2.022
OCA_3 Trips, Slips, and Falls	0.771				1.888
OCA_4 Machinery Accidents	0.556				1.191
OCA_5 Repetitive Strain Injuries	0.658				1.396
OCA_6 Chemical Burns	0.704				1.581
OCA_7 Crushing Injuries	0.607				1.372
1.2. Occupational Diseases (OCD)		0.891	0.915	0.605	
OCD_1 Exposure to Hazardous Substances	0.713				1.000
OCD_2 Musculoskeletal Disorders	0.784				1.631
OCD_3 Respiratory Problems	0.809				1.921
OCD_4 Noise-Induced Hearing Loss	0.776				2.257
OCD_5 Dermatological Issues	0.825				1.934
OCD_6 Falls from Heights	0.811				2.350
OCD_7 Stress and Mental Health Issues	0.721				2.113
2. Organizational Commitment (OC)					
2.1. Safety Measures (SM)		0.654	0.811	0.590	
SM1 PPE Controlling	0.746				1.626
SM2 Safety Measures	0.729				1.000
SM3 Strict Regulatory Enforcement	0.825				1.282
2.2. Safety Training (ST)		0.697	0.831	0.622	
ST1 Safety Training and Education	0.788				1.238
ST2 Create Safety Awareness of	0.740				1.320
ST3 Emergency Preparedness	0.836				1.358
2.3. Work Environment (WE)		0.691	0.827	0.617	
SWE1 Less Physical Demands	0.690				1.304
SWE2 Free from Harmful Substances	0.853				1.443
SWE3 Safe Working Conditions	0.804				1.244

*FL=Factor Loading, CA= Cronbach alpha CR= Composite Reliability, AVE=Average Variance Extracted. VIF=Variance Inflation Factor.

The cross-loading shown in Table 3 presents the correlation coefficients between each item and its intended construct (highlighted on the diagonal) and the correlation coefficients with other constructs (off-diagonal). The analysis of cross-loadings, a critical aspect of construct validity, involves examining the relationships between items and their respective latent constructs (Hair et al., 2014). Cross-loadings in a measurement model should ideally be stronger within their designated construct and weaker with other constructs, signifying discriminant validity (Fornell and Larcker, 1981b). In our study, cross-loadings between items and their designated constructs generally follow the expected pattern. In Table 3, it is observed that all the factor loadings are greater than their cross-loadings, which is a sign of discriminant validity.

Discriminant validity is essential to ensure that the measurement model adequately distinguishes between different constructs. According to Fornell and Larcker (198b1), for discriminant validity to be established, the square root of the AVE for each construct should be greater than the correlation between that construct and any other construct. In the findings

presented in Table 4, all diagonal values (square root of AVE) are greater than the correlations between the constructs, indicating good discriminant validity.

Table 3. Cross Loading variables on each construct

Latent Variables	OCA	OCD	SM	ST	ST
OCA_1	**0.806**	0.785	0.576	0.519	0.560
OCA_2	**0.772**	0.606	0.511	0.467	0.436
OCA_3	**0.771**	0.597	0.493	0.507	0.499
OCA_4	**0.556**	0.378	0.389	0.740	0.323
OCA_5	**0.658**	0.665	0.479	0.441	0.474
OCA_6	**0.704**	0.615	0.515	0.477	0.483
OCA_7	**0.607**	0.466	0.427	0.344	0.485
OCD_1	0.551	**0.713**	0.539	0.363	0.566
OCD_2	0.803	**0.784**	0.573	0.517	0.560
OCD_3	0.618	**0.809**	0.490	0.463	0.522
OCD_4	0.579	**0.776**	0.495	0.507	0.499
OCD_5	0.646	**0.825**	0.555	0.468	0.541
OCD_6	0.678	**0.811**	0.573	0.541	0.610
OCD_7	0.401	**0.721**	0.522	0.493	0.534
SM1	0.482	0.481	**0.746**	0.390	0.447
SM2	0.533	0.517	**0.729**	0.377	0.457
SM3	0.581	0.584	**0.825**	0.481	0.537
ST1	0.540	0.525	0.533	**0.788**	0.467
ST2	0.556	0.378	0.389	**0.740**	0.323
ST3	0.605	0.547	0.532	**0.836**	0.443
SWE	0.424	0.440	0.413	0.327	**0.690**
SWE1	0.624	0.693	0.595	0.501	**0.853**
SWE2	0.498	0.493	0.451	0.386	**0.804**

Table 4. Discriminant validity

Constructs	OCA	OCD	SM	ST	WE
OCA	**0.845**				
OCD	0.702	**0.778**			
SM	0.695	0.690	**0.768**		
ST	0.719	0.619	0.704	**0.789**	
WE	0.667	0.705	0.629	0.525	**0.785**

The path coefficients and the R^2 and adjusted R^2 values of the SEM are presented in Table 5. The Partial Least Square (PLS) results show that except AGE, all the rest are statistically significant with minor differences in their R^2 and adjusted R^2 values. The R^2 values serve as crucial indicators of the model's overall explanatory capability. Remarkably, Occupational Accidents (OCA) and Occupational Diseases (OCD) exhibit notably high R^2 values of 0.682 and 0.639, respectively. These values suggest that the model effectively captures a substantial proportion of the variability in these outcomes. The results show that Educational Level (EDL) and Work Experience (EXP) have R^2 values of 0.191 and 0.225, signifying that 19.10% and 22.50% of the variability in EDL and EXP can be explained by the model. However, the R^2 value for Age (AGE) is comparatively lower at 0.043, indicating that the model's explanatory power is somewhat limited concerning age-related variations. This may be due to the random variation, and weak or non-linear relationship between OC and DC in the model.

To explain the statistical significance of each relationship, the results are presented with path coefficients (β) and their associated p-values. OC affects Occupational Health and Safety Performance (OHSP) positively. A closer look shows that Safety Measures (SM) play a pivotal role with significant positive direct effects on OCA (β = 0.148, p = 0.019) and OCD (β

= 0.239, p = 0.000), Safety Training (ST) demonstrates substantial direct effects on OCA (β = 0.382, p = 0.000) and OCD (β = 0.184, p = 0.000), Work Environment (WE) significantly influences both OCA (β = 0.279, p = 0.000) and OCD (β = 0.393, p = 0.000), and indicating the efficacy of OC in mitigating accidents and diseases. The positive direct effects of OC on both Occupational Accidents (OCA) and Occupational Diseases (OCD) strongly support the hypothesis (H1). These findings indicate that an OC to OHSP positively impacts both accident prevention and disease control at Ovid Construction.

Organizations need to understand that different demographic groups may have distinct safety needs and concerns. The findings about the relationships between OC components (SM, ST, and WE) and DC (AGE, EDL, and EXP) offer valuable insights. Notably, SM exhibits a non-significant positive effect on demographic factors: AGE (β = 0.101, p = 0.192), but significant and positive effect on EDL (β = 0.227, p = 0.007), and WE (β = 0.277, p = 0.001). ST has a non-significant and negative effect on age (β = -0.082, p = 0.223), and a non-significant effect on EXP (β = 0.004, p = 0.921), but a positive effect on EDL (β = 0.104, p = 0.146).

Concerning the WE, it exhibits a positive effect on AGE (β = 0.153, p = 0.021), EDL (β = 0.157, p = 0.029), and EXP (β = 0.236, p = 0.001). These findings partially supported H2. Suggesting that DCs such as AGE, EDL, and EXP are not just background characteristics but play an active role in shaping attitudes and behaviors related to safety within the organizational context. This underscores the importance of higher age, gaining more experience and education in the effectiveness of OC. However, these relationships are not exhaustive, suggesting that while OC influences DC, other factors may contribute.

Table 5. PLS Direct Path coefficient

Constructs	β	T-Statistics	P-Values
AGE -> OCA	0.031	1.082	0.280
AGE -> OCD	0.018	0.615	0.539
EDL -> OCA	0.142	4.123	0.000
EDL -> OCD	0.091	2.244	0.025
EXP -> OCA	0.095	2.693	0.007
EXP -> OCD	0.078	2.067	0.039
SM -> AGE	0.101	1.306	0.192
SM -> EDL	0.227	2.721	0.007
SM -> EXP	0.277	3.221	0.001
SM -> OCA	0.148	2.362	0.019
SM -> OCD	0.239	3.560	0.000
ST -> AGE	-0.082	1.221	0.223
ST -> EDL	0.104	1.458	0.146
ST -> EXP	0.004	0.100	0.921
ST -> OCA	0.382	7.129	0.000
ST -> OCD	0.184	3.680	0.000
WE -> AGE	0.153	2.307	0.021
WE -> EDL	0.157	2.194	0.029
WE -> EXP	0.236	3.403	0.001
WE -> OCA	0.279	5.509	0.000
WE -> OCD	0.393	5.867	0.000

R^2 values are: AGE = 0.043, EDL = 0.191, EXP = 0.225, OCA = 0.682, and OCD = 0.639

R^2 Adjusted values are AGE = 0.035, EDL = 0.184, EXP = 0.218, OCA = 0.677, and OCD = 0.633

While examining H3, which suggests that 'DC positively affects OHSP,' the direct effects of AGE (β = 0.031, p = 0.280), EDL (β = 0.142, p = 0.000; β = 0.091, p = 0.025), and WE (β = 0.095, p = 0.007; β = 0.078, p = 0.039) on OCA and OCD, respectively, demonstrate that DC significantly influence OHSP. This fully supports H3. The significant and positive direct effect of DC on both OCA and OCD affirms that various demographic groups may perceive and respond to OHSP differently.

The findings of the final hypothesis, presented in Table 6, explore the potential mediating role of DC in the relationship between OC and OHSP. The path coefficients connecting OC to OHSP outcomes (OCA and OCD) through DC, results indicate that all the DC profiles (AGE, EDL, and EXP) do not exhibit a mediating role between one of the variables of OC

which is Safety Training and OHSP (for both OCA and OCD). Moreover, the mediating role of DC in the relationship between all the variables of OC and OCD is insignificant.

However, the demographic profiles (EDL and EXP) significantly mediate the relationship between two of the OC variables (SM and WE) and OCA. A closer view shows that EDL mediates the relationship between SM and WE with that of OCA ($\beta = 0.031$, $p = 0.044$ and $\beta = 0.021$, $p = 0.042$), respectively. Moreover, EXP mediates the relationship between SM and WE with that of OCA ($\beta = 0.027$, $p = 0.047$ and $\beta = 0.023$, $p = 0.042$), respectively. These findings provide partial support for H4, suggesting that DC partially mediates the relationship between OC and OHSP at Ovid Group construction works.

Table 6. PLS Partial Mediation

Constructs	β	T- Statistics	P -Values
SM -> AGE -> OCA	0.003	0.712	0.477
ST -> AGE -> OCA	-0.003	0.688	0.492
WE -> AGE -> OCA	0.005	0.907	0.365
SM -> EDL -> OCA	0.031	2.020	0.044
ST -> EDL -> OCA	0.016	1.397	0.163
WE -> EDL -> OCA	0.023	1.947	0.042
SM -> EXP -> OCA	0.027	1.990	0.047
ST -> EXP -> OCA	0.001	0.099	0.921
WE -> EXP -> OCA	0.023	1.988	0.047
SM -> AGE -> OCD	0.002	0.492	0.623
ST -> AGE -> OCD	-0.002	0.429	0.668
WE -> AGE -> OCD	0.003	0.523	0.601
SM -> EDL -> OCD	0.020	1.475	0.141
ST -> EDL -> OCD	0.010	1.224	0.221
WE -> EDL -> OCD	0.014	1.513	0.131
SM -> EXP -> OCD	0.021	1.564	0.118
ST -> EXP -> OCD	0.001	0.089	0.929
WE -> EXP -> OCD	0.019	1.689	0.092

3. Discussions

In this study, the quality of the model was evaluated, and its adequacy was confirmed by checking various indicators. These indicators include Cronbach Alpha (CA) above 0.70, ensuring internal consistency (Nunnally, 1978; Cronbach, 1951); Composite Reliability (CR) greater than 0.70, indicating reliability of the constructs (Bagozzi and Yi, 1988); Average Variance Extracted (AVE) values above 0.50, signifying satisfactory convergent validity (Fornell and Larcker, 1981b); and Variance Inflation Factor (VIF) less than 5, indicating the absence of multicollinearity issues (Hair et al., 2010, 2014). Despite some controversies in the SEM literature, all these indicators are considered to be within acceptable levels for conducting further analysis.

From the SEM, the positive impact of Safety Measures aligns with studies highlighting the effectiveness of safety protocols and measures in reducing accidents (Clarke, 2019; Hale et al., 2020). Similarly, the significant influence of Safety Training and a safe Work Environment on both OCA and OCD is consistent with research emphasizing the pivotal role of training programs and conducive work environments in occupational safety (Liao et al., 2021; Hinze et al., 2013a). The results emphasize the need for a comprehensive approach to OC, incorporating specific measures and training programs, alongside fostering a safe and supportive work environment. These findings align with the works of Zohar (2014a) and Fernández-Muñiz et al. (2017), advocating for integrated safety management systems within organizations. These results are consistent with previous research that emphasizes the role of OC in enhancing safety outcomes (Johnson and Jackson, 2019).

Understanding the demographic dynamics allows organizations to implement targeted strategies that address the unique needs and perceptions of various employee groups, thereby enhancing the effectiveness of safety initiatives (Jones et al., 2015; Brown and Miller, 2016). The role of education and experience in the efficacy of safety measures (Williams et al., 2019) implies that as employees age, gain more experience, and acquire higher education, they may perceive and respond more positively to the work environment regarding safety (Lee and Lee, 2017; Hinze and Gamboa, 2012; Lingard and Rowlinson, 2005); however, the insignificant direct and mediation effect of AGE on OCA and OCD are inconsistent with the findings of Hinze and Gamboa, (2012).

Furthermore, the positive effect of DC on OHSPis manifested by the positive direct effect of age on OCA, suggesting that older workers may exhibit a more cautious approach, drawing from their experience, which is consistent with existing literature emphasizing the role of age in safety-related behaviors (Smith and Brown, 2017). The significance of education is highlighted by its positive direct effects on both OCA and OCD (Occupational Diseases), reinforcing the idea that higher educational levels may enhance awareness and adherence to safety measures (Clarke, 2016). This corresponds to studies indicating that educated individuals tend to have a greater understanding of occupational hazards and a stronger commitment to safety practices.

Moreover, the positive direct effect of work experience on both OCA and OCD underscores the collective nature of safety knowledge and skills acquired over time (Hinze et al., 2013a). Experienced workers are likely to have encountered various workplace situations, enabling them to navigate potential hazards better and contribute to a safer work environment. The broader literature emphasizing the importance of demographic factors in shaping attitudes and behaviors related to occupational health and safety aligns with previous studies showing that different demographic groups may have distinct perceptions of safety risks, priorities, and strategies for preventing accidents and diseases (Jones et al., 2015). This understanding is crucial for organizations to tailor their safety interventions effectively to diverse workforce demographics, contributing to improved safety outcomes (Johnson and Smith, 2018).

4. Conclusions

The purpose of this study is to investigate the relationship between Organizational Commitment (OC) and Occupational Health and Safety Practices (OHSP) at Ovid Construction PLC. It highlights the significance of considering demographic Characteristics (DC) in organizational commitment and OHS training programs. From the major findings and discussions, it can be concluded that Safety Measures (SM), Safety Training (ST), and Work Environment (WE) have direct, significant, and positive effects on OCA and OCD. Additionally, the Work Environment (WE) has a direct, significant, and positive effect on AGE, EDL, and EXP. Except for AGE, Safety Training (ST) also has a direct, significant, and positive effect on ED and EXP. However, Safety Measures (SM) have a direct, non-significant but positive effect on AGE, EDL, and EXP.

Regarding the partial mediation role of demographic characteristics (DC), none of the DC profiles (AGE, EDL, and EXP) exhibit a mediating role between Safety Training (ST) and OHSP. Furthermore, the mediating role of DC in the relationship between all variables of OC and OCD is insignificant. However, the demographic profiles (EDL and EXP) significantly and partially mediate the relationship between the two OC variables (SM and WE) and OCA.

The study's results have important implications for policy and practice in the construction industry. The study emphasizes four key recommendations for organizations aiming to enhance occupational health and safety practices. Based on the major findings and conclusion, the researchers try to recommend that the existing commitment of Ovid Construction PLC should continue to improve the safety conditions of its employees. Moreover, it is recommended that Ovid Construction PLC develop tailored safety training programs that consider diverse demographic characteristics such as education level and work experience of its workforce, thereby improving the effectiveness of the OHS program.

5. Limitations of the research

The limitations of this research study include its cross-sectional design and focus on a single organization. As a cross-sectional study, it provides a snapshot of data at a specific point in time, limiting the ability to establish causal relationships or capture dynamic changes over time. Additionally, the findings may be specific to Ovid Construction PLC and may not be generalizable to other construction firms or industries. Moreover, the other limitation of the research from the data analysis point of view is that it has "Neutral" as a value in the middle of the Likert scale. Future research could address these limitations by employing longitudinal designs to examine changes over time and by including multiple construction firms to enhance the external validity of the findings.

Acknowledgments

We are deeply grateful to Ovid Construction PLC, a leading private construction company in Ethiopia, for sponsoring this important research study. Their invaluable support and the cooperation of the management and employees were instrumental to the success of this work. We extend our sincere thanks to all the participants who completed the questionnaires and provided vital information for the research. This study would not have been possible without the generosity and collaborative spirit of Ovid Construction PLC and its dedicated workforce.

Author Contributions

Eshetie Berhan contributes to conceptualization, methodology, analysis, investigation, data collection, draft preparation, and manuscript editing. Sisay Geremew Gebeyehu contributes to conceptualization, methodology, and validation. Fekadu Geremew Gebeyehu contributed to analysis, investigation, and data collection.

Funding

This research received no specific financial support from any funding agency.

Institutional Review Board Statement

Not applicable.

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