

Ethical Leadership and Work Engagement: Examining the Moderating Effect of Employee Well-Being, AFRICAVER Study Case

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Abstract :

This study looks at ethical leadership and employee work engagement. Employee well-being is the moderating variable. The research happened at AFRICAVER. That's a glass production company in Jijel, Algeria. A structured questionnaire was used. The sample was 44 employees. Correlation analysis and multiple regression were the main tools. Pearson correlation results came back. Strong positive associations showed up. Between all three variables. The overall regression model was significant. $F = 14.808$. $p = 0.000$. $R^2 = 0.526$. So 52.6 percent of the variance in work engagement gets explained by the model. But there was a problem at first. Severe multicollinearity. VIF values above 14. Mean centering fixed that. After centering, employee well-being stood out. The only statistically significant predictor. $\beta = 0.609$. $p = 0.000$. Ethical leadership had a p of 0.801. Not significant. The interaction term had a p of 0.349. Also not significant. the findings point to -At AFRICAVER-, employee well-being drives work engagement more than anything else. Ethical leadership works indirectly. It helps create the conditions for well-being. Then well-being boosts engagement. Small sample size though. Only 44 people. So the results cannot be generalized too far.

Key Words: Ethical leadership, Work engagement, Employee well-being, Moderation, Organizational performance.

JEL Classification : M12, M54, J28

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Introduction:

The way leaders act in businesses is becoming a big reason why companies either succeed or fail these days. If a business ignores ethics or doesn't care much about employee well-being, trust and performance problems are going to show up sooner or later. So a lot of organizations are trying to build healthier workplaces. Places where leaders are fair, honest, and open. Where they actually support employees—both mentally and professionally. Because really, a company is just a group of people working toward common goals. And every employee brings their own experiences, expectations, and ways of thinking. If leaders don't handle those differences carefully, conflicts and disengagement can pop up fast. Beyond just getting paid and

finishing their tasks, employees want to feel respected, valued, and encouraged to grow where they work. From this point we can formulate our main question as follows: **“How can ethical leadership, moderated by employee well-being, influence work engagement?”**

This main question can be divided into several sub-questions, as follows:

- How can companies use ethical leadership to get their employees more involved?
- How does the well-being of employees help to make leadership more effective at getting people to work?
- How does the relationship between leadership and well-being affect levels of commitment, motivation, and performance?

As pre-answers to those sub-questions:

- Organizations can count on ethical leadership by making sure that decisions are made fairly, honestly, and with open communication.
- Employee well-being helps by lowering stress, increasing job satisfaction, and keeping employees motivated, which keeps them interested in their work.
- The relationship between leadership and well-being makes the workplace more supportive, which builds trust, resilience, and long-term engagement.

This article aims to achieve the following goals:

- To ascertain the function of ethical leadership in enhancing employee engagement.
- To emphasize the intermediary function of well-being in the correlation between leadership and engagement.
- To demonstrate the significance of amalgamating ethical leadership and employee well-being to maintain elevated levels of motivation and organizational success.

I- The concept of ethical leadership:

In this section we will highlight on the concept of ethical climate, ethical leadership, and the role of ethical leadership in HRM.

1- Ethical climate:

Nowadays, companies tend to keep an ethical environment so that their employees will be very motivated to do a good job. A good ethical environment is an important resource for an organization, and this can directly affect employee's work engagement. If employees think that their company values and rewards ethical behavior, they are more likely to feel like their work has more meaning for them because they know that their contributions are important and in line with their own values. Some employees are more aware of their moral duties than others in an organization. That's what we call an ethical environment. When the vibe at work is ethical, people naturally follow the rules—they want to be fair and take

responsibility. And that actually makes them better at their jobs. Leaders are the ones who set the tone and build those everyday habits. And the way they do that really shapes how ethical decisions get made. It also encourages people to act right and have a good attitude at work. Ethical environment is more affected by what people think will happen if they act ethically. When employees believe that involvement in ethical behaviour leads to positive benefits, they are likely to show actions that lead to positive feedback (Nelson & Bright, 2023).

2- Definition of Ethical leadership:

Ethical leadership can be defined as : « the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication reinforcement and decision makings » (Adeoye, 2021).

Therefore, ethical leaders must show fairness, truthfulness, integrity, liberty, responsibility, and honesty in personal and professional affairs. Ethical leaders are upright and show concern for and care for others, including their following and society. The key features of ethical leadership, such as concern for others, ethics, honesty, trustworthiness, fairness, and concern for others, are also important components of other leadership styles (Muhammad, et al., 2024).

Hence, ethical leadership as a kind of leadership in which the leader tries to follow normatively acceptable behavior in his actions, communication and cooperation. Ethical leadership is also the display of socially acceptable behaviour through one's behaviour, contact with others, and exposure of such behaviour or trait to followers. Ethical leadership ensures long-term survival by considering environmental, social, and economic effects that boosts employee involvement and retention. Recent studies stress the huge role of ethical leadership on growth of business sustainability (Christian & Dorothy, 2024).

Furthermore, Ethical leadership is built on the ideals of justice, integrity, and mutual respect. It entails the exhibition of normatively proper behaviour by leaders via personal acts and interpersonal interactions, which generates a climate of mutual trust between supervisors and their subordinates. Ethical leaders not only model ethical conduct themselves but also encourage such behavior in others by actively fostering open communication, responsibility, and the fair treatment of employees (Ahadiat & Dacko-Pikiewicz, 2020).

3- Ethical leadership and trust:

When you've got leaders who actually care about being fair and honest—like, really mean it—people start trusting them. Not because they have to, but because those leaders walk the walk. They listen. They treat everyone decently. And that makes folks believe in 'em. Once that trust is there, the leader just naturally becomes more effective. It's weird how that works. And then everyone else in the company starts following suit—acting more ethical, you know? But here's the kicker: trust doesn't just come from ethical leadership. It also feeds back into it. Makes it stronger. So when employees trust their boss, they're more willing to do what's asked, they actually care about doing the right thing, and they stick around. So trust is both the result and the thing that keeps the whole cycle going. (Gladys, 2025).

Trust is huge. It's the whole reason the leader-employee thing even works. Without trust, ethical leadership doesn't really go anywhere. So when leaders actually do the right thing—like, they're fair, they're honest, they don't hide stuff—people start feeling safe. Like, "okay, I can trust this person." And once you feel that, you're not constantly worried or second-guessing everything. That makes the whole relationship stronger. So trust basically opens the door for people to speak up, to help each other without being asked, and to actually care about the same things the leader cares about. And when that happens, ethical leadership just works better. Simple as that. (Noorizan & Nomahaza, 2024).

4- The role of Ethical Leadership in HRM:

These days companies are getting watched a lot more closely. So HR, they've been leaning on ethical leadership to help with decisions. I mean, it's really just about making sure companies follow some basic moral rules and keep the workplace from becoming a total mess. Take leaders who actually care about honesty and fairness. They end up shaping HR policies and the whole culture, almost without trying. So this research? It's looking at the ideas behind ethical leadership in HRM. We want to see how decisions based on values can change the way organizations work. Now, ethical leadership in HR isn't just about following company rules. You also have to make moral choices as you go. Leaders who put ethics first? They'll make sure hiring is fair, pay is fair, training is fair, and even the way managers talk to people is fair. Basically everything should be open and respectful. And that kind of leadership builds trust between employees and management. (Dr. Hiresh & Mr. Shivprasad, 2025).

II- Relation between Ethical leadership, Employee's Well-Being and Work engagement:

In this section we will talk about workplace well-being, work engagement, ethical leadership and employees' well-being, the effect of ethical leadership on work engagement, and the moderating role of wellbeing in the effect of ethical leadership on work engagement.

1- Well-Being:

Workplace well-being? The entire sentiment of workers is significantly impacted. I mean, it's about how people see their work environment and how it makes them feel inside. So you've got job satisfaction. You've got what they experience mentally. And then there's good feelings and bad feelings tied to their job. Now if someone feels anxious a lot at work? That can wear them out emotionally. They lose motivation. Their job performance goes down too. Being worn out like that means they've drained their emotional tank. This engenders negative emotions, such as self-doubt, anger, or sadness. Occasionally, employees get excessively anxious about their ability to do their duties or fulfill expectations. This exacerbates their discontent and diminishes their concern. Additionally, several individuals experience anxiety with the implications of exceeding their employment requirements. That unease sticks with them and makes their overall work happiness drop. And when employees feel like they're not really getting anywhere or hitting their goals? That sense of accomplishment disappears. And then their well-being at work gets even worse. (Jingtao, Yijing, & Yazhen, 2020).

So lately, people have been paying more attention to workplace well-being. In academic research and in actual business practice. It's now seen as a pretty important part of sustainable HR. A number of studies have proven that when people are performing well, nice things happen within firms. If well-being is high, job performance goes higher. That includes the jobs individuals are required to complete, but also extra stuff—like assisting colleagues or going above what's expected. On top of that, well-being at work is tied to fewer bad behaviors that can hurt the organization. Employees who feel good at work? They tend to have more energy. They're more social. More motivated. Emotionally smarter too. They adapt better, pay more attention, and come up with new ideas. All of those traits help a company perform better and bounce back from problems. (Pilar & Maria, 2025).

2- Employee's Work Engagement:

Work engagement can be defined as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Wibawa & Takahashi, 2021).

This is about how much someone cares about their work emotionally and mentally. You can see it in their excitement. Their focus. Whether they feel a real sense of purpose. Employees who are engaged? They usually have a lot of energy. They're dedicated. And they stay focused. That helps them feel better about themselves. Helps the company too. This isn't just job satisfaction. It's more than that. It's about how strong their drive is. How committed they really are to what they do. (Ali, Lubna, Rana, & Bilal, 2023).

Numerous organizational studies have shown a significant reduction in trust and employee engagement within the workforce. job engagement was initially defined as a condition in which people are totally interested in their job by putting their physical, mental, and emotional energy into it. On the other hand, disengagement occurs when people separate themselves from all of these levels while they are working. An employee's level of engagement is mostly determined by their perception of the significance of their task, the psychological safety associated with self-expression in the workplace, and their individual ability to be present and dedicated, in other words: the degree of work engagement or disengagement depends on the employees' answers to three questions: "(1) How meaningful is it for me to bring myself to this performance? (2) How safe is it to do so? and (3) How available am I to do so?" (Nosheen, Omar, & Waqas, 2020).

3- Ethical Leadership and Employees' Well-Being:

There's research on this. Employee well-being stuff. And it shows that what leaders do? Yeah, that matters. Like being fair. Honest. Sharing power. Being clear about their role. All that can really change how employees feel and their overall well-being. So ethical behavior from leaders? It's a big part of keeping employees happy. (Ammara, Muhammad, Muhammad, Muhammad,, & Mohsin, 2024). Ethical leaders? They lead by example. Just acting morally, you know. That makes the workplace feel better. Cuts down on bad behavior. Makes employees happier too. Plus it helps them deal with stress. And lowers the chance of burnout. (Suzanne & Ingild, 2025). When leaders make fair decisions. Honest ones. Respectful too. That creates an environment where people can do well. Personally and professionally. Both. (Tegegn, 2025). Employees trust their leaders more if they think they're honest. That makes them happier at work. Lowers stress too. And it boosts motivation. Gets them more engaged (Sunita, 2025). Ethical leadership? It just makes the workplace better. Encourages good feelings. Happiness. Job satisfaction. Builds trust. Lowers stress. And that? That makes people more committed. More productive too. (Dália, Ivo, & Ana, 2024). Ethical leadership helps with stuff too. Lowers stress. Keeps people going, you know? Motivated and engaged. How does that happen? Justice. Respect. Trust. Just being open with each other. That kind of thing makes the

atmosphere supportive. Which is good for overall well-being (Jiajia, Lianying, Yuan, Haiyan, & Shaoping, 2022).

4- The Effect of Ethical Leadership on Work engagement:

Ethical leadership gets people more engaged at work. How? By treating them fair and with respect, you know. That shifts how employees see things. It's not just about money anymore. It becomes more of a social thing. A give and take. So they end up putting in more attention. Getting more involved in their job (Wahno & Ferryal, 2023). Trust in the leader, created by ethical behavior, enhances employees' desire to contribute completely and go beyond official work requirements, since strong trust corresponds with improved engagement and knowledge exchange (Amos, Gardielle, & Bright, 2017). Ethical leaders promote engagement by entrusting people with duties, delivering developmental assistance, and establishing a feeling of psychological meaningfulness that feeds motivation and effort (Jen, Shu, Jyh, & Yu, 2014). Ethical leaders build trust. That makes people willing to be a little vulnerable, you know? In a good way. Because they expect things to work out. And that? That gets them engaged. Dedicated to their work (Shafira & Fetty, 2025). Give people stuff at work. Like autonomy. Feedback. Chances to learn. That helps them focus more. And they get motivated from the inside, you know? Which leads to them being more engaged (Ezgi, Canan, & Serdar, 2020). Ethical leaders set clear expectations. Give guidance. Create a supportive atmosphere. That improves commitment. Drive. Productivity. And all that? It encourages engagement too (Jin, 2024). Work engagement? It also does better when leaders bring out good emotions in people. Give them a sense of purpose. Support meaningful work—stuff employees actually see as important and valuable to others (Jeffrey & Riani, 2022).

5- Moderating role of wellbeing in the effect of ethical leadership on work engagement:

Ethical leadership, It's been shown to really drive employee well-being. Lots of studies prove it. There's a clear link between ethical leadership and employees trusting management. And their psychological health too. Leaders who are fair, honest, and actually care about their people? They create environments that support well-being. That leads to more pleasant working experiences. Research shows ethical leadership affects well-being in two ways—direct and indirect. Some studies say it's fully mediated by things like lower anxiety about going above and beyond at work. And here's the thing. Well-being itself is strongly tied to job engagement. People with better psychological well-being have more energy. More dedication. They pay better attention at work. So this really shows that well-being isn't just a side effect of

ethical leadership. It's a key way that ethical leaders can boost engagement. And in the end? Better performance too (Kan, et al., 2022).

Employee well-being covers a lot. How people see things. How they feel. Their psychological states tied to job satisfaction. Things like self-acceptance. Personal growth. Having a purpose in life. Good relationships with others. Being able to handle your environment. And autonomy too. Ethical leaders they really help with all that. By keeping communication open. Showing they actually care about what employees need. Handling problems fairly and honestly. That kind of leadership creates good feelings. It cuts down on bad stuff like worry or irritation. And it makes people feel like they matter. Like they belong. So as well-being goes up, employees start showing more energy. More commitment. More absorption in what they do. Those are the big pieces of job engagement, you know. Ethical leaders also push this along by giving social support. Helpful feedback. Autonomy. Chances to learn. All of those things are work resources. They keep people driven from the inside. So ethical leadership doesn't just boost well-being because that's a nice thing to have. It uses well-being as a doorway. A way to get deeper, more lasting employee engagement. (Kaleem-Ullah, Saima, & Muhammad, 2022).

III- Research Methodology:

This section provides an overview of the research design, target population the research instrument, data analysis, validity and reliability.

1- Target Population:

The population of relevance consists of a group of subordinates, working in a Glass Production Company in the province of Jijel in Algeria, this is the biggest glass production company in Algeria. The number of the population is 160 employees

2- Calculating the simple's size:

For the research, we used a probability sampling method. Simple random sampling, to be specific. That meant every person in the population had the same chance of being picked. We ended up choosing 48 out of 160 employees—so 30 percent of the workforce. That was our sample. Simple random sampling gives you an unbiased representation. Everyone gets an equal shot, which makes the results more valid and easier to generalize. We decided on 30 percent for a practical reason. Big enough to capture a good range of ideas and experiences across the company, but small enough that data collection and analysis wouldn't be too difficult.

3- Used tools:

In order to achieve the goals of the study we used the “Questionnaire” which is a set of printed or written questions with a choice of answers, devised for the purposes of a survey or statistical study.

In addition, to determine the answers we used likert’s fourhanded scale, and the SPSS software (STATISTICAL PACKAGE FOR SOCIAL SCIENCE), in order to analyze the questionnaire’s data, and get the best results.

4- Results, Discussion, and interpretation of findings:

In this section we will present the analyzed results, and make discussion and interpretation of these results.

4-1- Response rate:

Of the 48 distributed questionnaires, 44 questionnaires were received, and 04 not received.

The questionnaires were hand-delivered to glass production company in Jijel’s province. The response rate was 91.67%.

Table (01): Alpha Cronbach

N° of items	Alpha Cronbach’s Value
25	0.962

Source: SPSS Results

From **Table (01)** we see that the questionnaire has an acceptable degree of reliability with items having an acceptable level of inter-item consistency. Cronbach’s Alpha > 0.7, reveal that the scale is very reliable.

4.2. Sex distribution of the respondents:

Table (02): Sex distribution of the respondents

Sex	Frequency	Percent
Male	38	86.4
Female	06	13.6
Total	44	100

Source: SPSS Results

From **Table (02)** we see that 38 (86.4%) were males as opposed to females, who constituted only 06 (13.6%) of the respondents. This presupposes that there is a big margin between male and female in the glass production company. The reason of this gender disparity is that the nature of work in the glass production company requires physical force and endurance, which typically attracts more male employees.

4-3 Job distribution of the respondents:

Table (03): Job distribution of the respondents

Job	Frequency	Percent
Professional worker	33	75
Administrative Employee	11	25
Total	44	100

Source: SPSS Results

From **Table (03)** we see that most of the simple's respondents are Professional workers with a rate of 75 % from the total number of the sample, equivalent to 33 individuals of the study sample. However Administrative Employees were 11 individuals, with a rate of 25 % of the study sample. ensuring representation of both operational and administrative roles within the company.

4-4- Age distribution of the respondents:

Table (04): Age distribution of the respondents

Age	Frequency	Percent
20 years to 29 years	05	11.4
30 years to 39 years	09	20.5
40 years to 49 years	14	31.8
more than 50 years	16	36.4
Total	44	100

Source: SPSS Results

Table (04) shows the age breakdown. Most respondents are older. More than two-thirds of the sample are over 50 years old, at 36.4 percent, or between 40 and 49, at 31.8 percent. Younger employees? Not as many. Only 20.5 percent are between 30 and 39. And only 11.4 percent are between 20 and 29. This pattern tells us the company relies heavily on long-time, experienced staff. That can help with stability. Keeping knowledge in house. Building skills. But the lack of younger workers? That could mean not enough new people coming in. Which might hurt innovation down the road. And the long-term health of the workforce if things don't get balanced out.

4-5- Experience distribution of the respondents:

Table (05): Experience distribution of the respondents

Experience	Frequency	Percent
Less than 5 years	07	15.9
05 years to 10 years	01	02.3
more than 10 years	36	81.8
Total	44	100

Table (05) shows that most of the people who answered the question had a lot of work experience. In fact, 81.8% of them have worked for the firm for more than 10 years. Only 15.9% have fewer than 5 years of experience, and only 2.3% have between 5 and 10 years of experience. This means that most of the staff have a lot of experience, which shows that the firm is stable and has a lot of knowledge. But only a small number of employees have 05 to 10 years of experience. That might mean there were problems in the past. Trouble keeping staff or hiring them. And that could make it hard to keep the same generation of employees around.

4-6- Correlation between study's variables:

This research aims to look at how ethical leadership affects work engagement. With employee well-being acting as a moderating factor. But before we dive into that direct effect and the moderating role, we need to look at something else first. The connections between ethical leadership, well-being, and the dependent variable. Plus the link between ethical leadership and well-being itself.

Table (06): Correlation table (Pearson)

Dependent Independent	Work engagement	Employee Well-Being
Ethical Leadership	0.578**	0.816**
Employee Well-Being	0.718**	1.000

Source: SPSS Results

So the correlation study shows this. Ethical Leadership goes with Work Engagement. Correlation of 0.578. $p < 0.05$. And with Employee Well-Being. That's 0.816, also $p < 0.05$. Employees who see their leaders as ethical are more into their jobs and feel better overall. Well-Being and Work Engagement have a correlation of 0.718, $p < 0.05$. Employees who feel good mentally are more focused, enthusiastic, and dedicated. All three are tied together closely. Ethical leadership helps well-being and engagement. And well-being helps engagement too.

4-7- Effect of Ethical Leadership on Work Engagement:

In this section, we will examine whether ethical leadership has an impact on employees' work engagement, while also considering the moderating role of employee well-being.

a- Hypotheses: Our study's hypotheses are:

H0a: Ethical Leadership, Employee Well-Being, and their interaction ($EL \times WB$) do not have a significant combined effect on employees' work engagement.

H1a: Ethical Leadership, Employee Well-Being, and their interaction ($EL \times WB$) have a significant combined effect on employees' work engagement.

H0b: Ethical leadership has no significant effect on employees' work engagement.

H1b: Ethical leadership has a significant effect on employees' work engagement.

H0c: Employee well-being does not significantly affect employees' work engagement.

H1c: Employee well-being significantly affects employees' work engagement.

H0d: The interaction between ethical leadership and employee well-being has no significant effect on employees' work engagement.

H1d: The interaction between ethical leadership and employee well-being has a significant effect on employees' work engagement.

To test these hypotheses, we applied ANOVA and a multiple regression model.

b- Normality Test: In order to know whether the data is suitable for regression analysis, we must apply The skewness and kurtosis values for all four variables: Ethical Leadership, Wellbeing, the interaction between ethical leadership and wellbeing, and Work Engagement, and the results are:

Table (07): Normality Test

Variables	Skewness	Kurtosis
Ethical Leadership	0.278	-1.067
Wellbeing	0.152	-1.418
interaction between ethical leadership and wellbeing	-0.511	-0.418
Work Engagement	0.676	-0.959

Source: SPSS Results

Looking at the descriptive statistics, the skewness values for all variables sit inside the allowed range of -3 to $+3$. And the kurtosis values come in under 7. So what this tells us is that the distributions for Ethical Leadership, Well-Being, Work Engagement, and the interaction term (which we call ELxWB) don't really stray far from normal. In other words, the data is roughly normal. That means we can go ahead and use parametric statistical analyses—like regression—to test our hypotheses, which is acceptable given these numbers.

c- Findings: In this section we will analyze the ANOVA and regression model results.

c1- ANOVA:

Table (08): ANOVA results

df	Sum of Squares	Mean Square	F calculated value	F critical value	P. value
3	9.460	3.153	14.808	2.80	0.000

Source: SPSS results

From **Table (08)** we can see that the absolute value of F calculated is |14.808| and we can clearly notice that it is bigger than F critical value which is 2.80. Additionally, the results are statistically significant because the p-value of 0.01 is lower than the specified significance level (0.05). These results means that we can reject H_0^a and therefore accept H_1^a , which means that *Ethical Leadership, Employee Well-Being, and their interaction (EL $\times$ WB) have a significant combined effect on employees' work engagement.*

c2- Regression model:

Table (09): Regression Model results

	Constant α	Coefficient β	T critical	T calculated	P value	R ²	VIF	Tolerance
Ethical Leadership	1.938	-0.316	1.680	-0.906	0.370	0.526	14.927	0.067
Well-Being		0.134		0.896	0.349		15.120	0.066
EL x WB		0.320		0.947	0.376		44.681	0.022

Source: SPSS results

From results shown in **Table (09)** and given the high correlation between Ethical Leadership and Employee Well-Being at 0.816, a collinearity diagnostic was run. The results showed substantially elevated Variance Inflation Factor values for all predictors. Those VIFs were 14.927, 15.120, and 44.681. That indicates severe multicollinearity. This is actually a structural issue researchers often see in moderation models. The interaction term—EL times WB—is mathematically derived from its own constituent variables, so it makes sense. To fix this, mean centering was applied to both independent variables before computing the interaction term. That gave us centered variables: EL_c, WB_c, and ELxWB_c. This procedure is a standard fix recommended in the moderation analysis literature by Aiken and West back in 1991. It does not change the overall model fit. R² and F stay the same. But it does cut down on multicollinearity a lot and lets us interpret individual predictor effects more reliably.

Table (10): Regression Model results with Mean Centering

	Constant α	Coefficient β	T critical	T calculated	P value	R ²	VIF	Tolerance
Ethical Leadership	2.510	-0.040	1.680	-0.254	0.801	0.526	3.051	0.328
Well-Being		0.609		3.822	0.000		3.021	0.331
EL x WB		0.134		0.947	0.376		1.127	0.887

Source: SPSS results

From results shown in **Table (10)** it's clear that the centered regression model of our study is:

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3$$

Knowing that :

y : Work Engagement

x1 : Ethical Leadership (centered: *EL_c*)

x2 : Well-Being (centered: *WB_c*)

x3 : Interaction (*EL_c* × *WB_c*)

We replace the α & β s by the values obtained in **Table (10)**, our regression model will be:

$$y = 2.510 - 0.040x_1 + 0.609x_2 + 0.134x_3$$

And because R^2 is 0.526, this means that the study's model explains 52.6% of the factors affecting Work Engagement, while the remaining 47.4% represents other factors that are not present in our study's model, but they affect the Work Engagement.

c3- Examining the impact of Ethical Leadership on Work Engagement (centered): From **Table (10)**, the calculated T value is negative 0.254. The T critical value is 1.680. Since the absolute value of negative 0.254 is less than 1.680, and the p-value is 0.801 which is above 0.05, the result is **not statistically significant**. So we accept H_{0b} . The conclusion is that Ethical Leadership, when looked at independently from Well-Being, has no significant direct impact on Work Engagement. What this suggests is that ethical leadership does not operate by itself. Its effect on engagement gets channeled through employee well-being.

c4- Examining the impact of Well-Being on Work Engagement (centered): From **Table (10)**, the calculated T value is 3.822. The T critical value is 1.680. The absolute value of 3.822 is greater than 1.680. The p-value is 0.000. This is below 0.05. **The result is statistically significant**. So H_{0c} gets rejected. H_{1c} is accepted instead. Employee Well-Being? It has a significant positive impact on Work Engagement. Beta coefficient of 0.609. What that means is, for every one-unit increase in well-being, work engagement goes up by 0.609 units. This is while holding other variables constant. Well-Being ends up being the main driver of Work Engagement in this model.

c5- Examining the impact of the interaction (EL × WB) on Work Engagement (centered): From **Table (10)**, the calculated T value is 0.947. The T critical value is 1.680. The absolute value of 0.947 is less than 1.680. The p-value is 0.349. That's above 0.05. So the result is **not statistically significant**. H_{0d} gets accepted. What that mean? The moderating effect of Employee Well-Being on the relationship between Ethical Leadership and Work Engagement is not statistically confirmed in

this study. But this result should be interpreted with caution. The sample size is limited. Only 44 people. That reduces statistical power to detect interaction effects. Let's look at the centered model. **It confirms overall significance.** The F statistic is 14.808. The p value is 0.000. That's well below 0.05. The R squared is 0.526. That means about 52.6 percent of the variance in work engagement is explained by the model, and it is not bad.

Now, looking at each predictor on its own. Employee Well-Being stands out clearly. It's the only statistically significant variable. The p value is 0.000. **So well-being is the central mechanism here.** What does that mean? It means that if you want to explain why employees are engaged at work, their well-being is the key factor. Everything else seems to work through it.

What about Ethical Leadership? Theoretically, it's important. A lot of research says so. But in this model? No statistically significant independent effect. Its p value is above 0.05. So what's going on? **The influence of ethical leadership on engagement is indirect.** Most likely, ethical leadership works by first improving employee well-being. Then well-being boosts engagement. So the effect gets channeled through well-being.

Then there's the interaction term. The one that tests moderation. It stays non-significant. The p value is above 0.05. So the moderating hypothesis? Conceptually, it makes sense. The idea that well-being strengthens the link between ethical leadership and engagement. But statistically, it could not be confirmed. Not with this sample. That could be a power issue. Small samples make interaction effects hard to detect.

So what do these findings tell us overall? At AFRICAVER, which is a glass production company in Jijel, the workforce has some specific characteristics. Mostly experienced employees. Mostly male. In this context, employee well-being sits between ethical leadership and work engagement.

Conclusion:

This study looked at the relationship between ethical leadership and work engagement. The employees were from AFRICAVER, a glass production company in Jijel, Algeria. Employee well-being was included as a hypothesized moderating variable. What the findings show is a nuanced picture. It both confirms and complicates the original theoretical framework.

The overall regression model was statistically significant. $F = 14.808$, $p = 0.000$, $R^2 = 0.526$. That means ethical leadership, employee well-being, and their interaction together explain 52.6 percent of the variance in work engagement. But then mean centering was applied. This was done to address multicollinearity. After centering, VIF values dropped from above 14 to below 3.1 for all predictors. A clearer picture emerged.

Employee well-being turned out to be the dominant predictor. It was statistically significant. $\beta = 0.609$, $p = 0.000$. The independent effect of ethical leadership? Not statistically significant. $p = 0.801$. The interaction term, which is EL_c times WB_c, was also not significant. $p = 0.349$. So the moderating hypothesis could not be confirmed. Not within the limits of this study.

What does this mean in context? AFRICAVER has a specific workforce. Mostly experienced employees. 81.8 percent have over ten years of experience. The production environment is physically demanding. In this setting, employee well-being operates as the central mechanism driving work engagement. It does not act as a boundary condition that amplifies the effect of ethical leadership. Ethical leadership remains important. Theoretically and practically. But its influence on engagement appears to be indirect. It gets channeled through the well-being it helps create. Not as a direct independent force.

From this study, here are the main results:

First, employee well-being is the primary driver of work engagement in this context. The effect is strong and positive at 0.609. That means when employee well-being goes up, engagement goes up directly and substantially.

Second, ethical leadership does not have a statistically significant independent effect on work engagement. Not once well-being is already accounted for in the model. So its role is upstream. It shapes the conditions that enable well-being. It does not directly produce engagement.

Third, the moderating effect of employee well-being was not statistically confirmed. But this finding should be interpreted carefully. The sample size was only 44 people. That is a limitation. Also the specific sector context matters. Glass manufacturing in Jijel is unique.

Now for the recommendations: Organizations in industrial sectors should prioritize employee well-being programs. Treat them as a direct investment in workforce engagement. Why? Because well-being proved to be the strongest predictor in this study. Practical interventions matter. Workload management. Psychological safety. Health support. These are likely to yield measurable returns in employee engagement.

Managers and executives need to understand something. Ethical leadership creates the conditions for well-being. It does not produce engagement directly. Fair decision-making helps. Honest communication helps. Respectful treatment of employees helps. These things build trust and psychological safety. And that allows well-being to flourish.

Future studies should replicate this research with larger samples. Ideally over 100 respondents. That would provide enough statistical power to properly test moderation effects. The present sample of 44? It gave valuable insights. No doubt. But it limits how much the findings can be generalized. Also the reliability of interaction term estimates is affected.

The glass production sector in Algeria is understudied. Not much research exists on organizational behavior in this context. Further investigation would help. Look at sector-specific factors. Physical work conditions. Gender composition. Workforce seniority. How do these things moderate the leadership-engagement relationship? That would contribute meaningfully to the literature.

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