

Searching for Meaning at Work: Evidence From an Agricultural Research Organization

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ABSTRACT

Emerging research on work meaningfulness shows that growing number of workers are lacking meaningfulness at work. This paucity of essential element of job performance is adversely affecting their performance and productivity. This adverse experience at workplace is not uniform across all ages and work experience groups as prior studies suggest. Thus, this study intends to explore the differences in meaningfulness at work among various age and professional work experience groups of knowledge workers working in agricultural research organizations. The study respondents were selected using stratified random and proportionate sampling techniques. Data were collected from 350 respondents. Data were collected by employing structured questionnaires having questions about work meaningfulness and demographic variables. Collected data were analyzed utilizing descriptive statistics, reliability analysis, the Kruskal–Wallis test, and Bonferroni-adjusted pairwise comparisons. The study findings show that there are significant differences in meaningfulness among knowledge workers based on their age and professional experience group. Younger knowledge workers have more meaningfulness at work than older knowledge workers. Similarly, knowledge workers having less professional experience has more meaningfulness than more experienced knowledge workers. Pairwise comparisons were also statistically significant for most of the comparisons. The study reveals that work meaningfulness decrease as workers become aged and more experienced. Organizations should introduce policies that help seasoned and aged groups of workers so that they can have meaningful experience at workplace.

Keywords: Work meaningfulness, research organizations, work experience, age, knowledge workers.

INTRODUCTION

Emerging research on organizations and human resource management indicate that work meaningfulness has become an important topic (Fasbender, 2026; Growney et al., 2025; Hart & Turesky, 2026). Individuals as workers spend considerable amount of time at workplace. This affects not only their professional life but also their personal life (Ackerman & Kanfer, 2020; Allan, 2017). Workplace experience has lasting impact on workers' wellbeing and organizational effectiveness and productivity. If they perceive their work as positive and meaningful, this positively impacts their social wellbeing and other health related outcomes in a positive way. In construct their think that their work is boring and had no meaning in their lives, this negatively affects their performance and productivity. They become less engaged and committed with their work and organizations they are working for (Anthon & Innstrand, 2016; Bailey et al., 2018; Boumans et al., 2011).

Intellectual abilities and capabilities are part and parcel of knowledge producing organizations and enterprises (Burmeister et al., 2019; Dhanpat et al., 2025). Basic aim of their organizations is innovation,

discovery, novelty, and producing of new knowledge (Hoole & Bonnema, 2015; Johnson et al., 2023; Laaser & Karlsson, 2021). These organizations solve complex and complicated problems related to research and innovation. Agricultural research organizations are good case in point (Lips-Wiersma et al., 2016; Lopez & Ramos, 2017). They create knowledge about the growth progress of plants, their changing patterns of outputs (Lorente et al., 2018).

Prior studies has identified several factors that are associated with work meaningfulness (Hoole & Bonnema, 2015; Johnson et al., 2023; Laaser & Karlsson, 2021; Lips-Wiersma et al., 2016; Lopez & Ramos, 2017). They may be personality characteristics, leadership styles, work ethics, values, orientations to work, financial benefits and opportunities for promotion (Fasbender, 2026; Grownney et al., 2025; Hart & Turesky, 2026). One important factor that is associated with work meaningfulness is personal characteristics of workers. Past research indicate that age and professional work are two significant background variables that are associated with having meaningful experiences at work (Lorente et al., 2018; Lysova et al., 2019; Mori et al., 2023). Age and professional experiences form and shape individual views and perspectives about work. Career goals are not monolithic and stagnant. They keep changing with age and increasing professional experience. Workers have different work values and work paradigms at different stages of their jobs. New workers tends to seek new opportunities and are very enthusiastic. Seasoned workers focus on social contribution and personal fulfilment. Similarly, workers having more professional experience tend to view their work as not just sources of money but important for contributing to organization and society at large (Johnson et al., 2023; Laaser & Karlsson, 2021; Lips-Wiersma et al., 2016; Lopez & Ramos, 2017).

Past research has produced findings that are mutually contradictory and not conclusive. Some studies indicate that seasoned workers lack meaningfulness (Lorente et al., 2018; Lysova et al., 2019; Mori et al., 2023); others show that meaningfulness is not related to demographic variables (Weeks & Schaffert, 2019; Zhang et al., 2026; Zhang & Farndale, 2021). Past research revealed limited or weak correlation between demographic variable and meaningfulness at work (Tan et al., 2023; Taneva et al., 2016; Veld & Heres, 2021). These inconsistencies in prior research suggest that relationship between demographic variables and meaningfulness at work may be explained through organizational context and occupational settings (Shilo-Levin et al., 2021; Sousa-Ribeiro et al., 2024; Stuer et al., 2019). There is no to very limited research on knowledge workers working in agricultural research organizations. Although, they play critical role in the socioeconomic development of the country, they are underexplored in research.

Pakistan's agricultural research organizations employ professionals from diverse age groups and varying levels of experience (Batoool et al., 2023; Shahzad et al., 2023; Shahzad, Batoool, Anjum, et al., 2024). These knowledge workers perform scientific, technical, and administrative tasks that require continuous learning and collaboration (Shahzad, Batoool, & Sajid, 2024; Shahzad et al., 2025). Thus, examining differences in meaningfulness across demographic groups can help agricultural policy makers understand the needs of different knowledge workers. Therefore, this study examines whether work meaningfulness differs across age groups and professional experience groups among knowledge workers in an agricultural research organization.

LITERATURE REVIEW

The extent to which an individual find their work meaningful, enriching, valuable, and personally fulfilling may be termed as work meaningfulness (Ackerman & Kanfer, 2020; Allan, 2017; Anthun & Innstrand, 2016). In simple words, it means workers' beliefs about their work. Workers whose work is meaningful do something beyond their defined work (Burmeister et al., 2019; Dhanpat et al., 2025; Fasbender, 2026). Meaningful work serves an important purpose and contribute towards organization's productivity and workers' fulfilment. Workers who have meaningful work are more satisfied, committed, motivated, and are less alienated from their work (Hart & Turesky, 2026; Hoole & Bonnema, 2015; Johnson et al., 2023). Prior studies show that workers whose work is internally

meaningful are loyal and productive towards their work and organization (Dhanpat et al., 2025; Fasbender, 2026).

Past studies suggest that meaningfulness at work is developed through complex and complicated interaction of personality values and experiences work have at workplace (Hoole & Bonnema, 2015; Johnson et al., 2023; Laaser & Karlsson, 2021). Workers consistently make evaluations and assessments of the alignment between their work and personal values, beliefs and attitudes. A thick body of past research indicate that if there is alignment between work and personal values and attitudes of workers, there are high chances that workers will be more purpose oriented (Bailey et al., 2018; Boumans et al., 2011; Burmeister et al., 2019; Dhanpat et al., 2025; Fasbender, 2026; Grownney et al., 2025). When they find personally purposeful and meaningful work, they are more inclined to face work related and other challenges they may undermine their performance and productivity. There is large volume of studies that show that workers who lack meaningful work must face frustration, disengagement, and work alienation (Peng, 2022; Popaitoon, 2022; Shahzad, Batool, Anjum, et al., 2024; Shahzad, Batool, & Sajid, 2024; Shilo-Levin et al., 2021; Sousa-Ribeiro et al., 2024; Stuer et al., 2019).

Previous studies has reported that demographic factors are potentially variable and that they affect the work meaningfulness (Burmeister et al., 2019; Dhanpat et al., 2025; Fasbender, 2026). Previous research has indicated that workers' values and attitudes keep changing throughout their career development (Hart & Turesky, 2026; Hoole & Bonnema, 2015). Younger workers tend to focus on opportunities, training, seminars, career development, and achievement. Older workers emphasize legacy, contribution and real impact of their work on organization and society at large. As workers gets older, their work values and ethics also got changed. However, some studies show that age-based differences in work meaningfulness are exaggerated (Burmeister et al., 2019; Dhanpat et al., 2025; Fasbender, 2026). There are no real differences in work meaningful based on demographics factors especially age (Laaser & Karlsson, 2021; Lips-Wiersma et al., 2016; Lopez & Ramos, 2017). Thus, there is no conclusive evidence that suggest that age is definitive determinant of changing work meaningfulness. Thus, the first hypothesis proposes that work meaningfulness differs across age groups.

Previous research findings indicate that work meaningfulness may also be affected by professional experience of workers (Dhanpat et al., 2025; Fasbender, 2026; Grownney et al., 2025). Prior research suggest that seasoned workers have greater amount of knowledge and confidence (Laaser & Karlsson, 2021; Lips-Wiersma et al., 2016). They are adept in understanding the goals set by organization and can easily recognize the long-term impact of the projects they work on. Their work experience accumulated over years can form their identity and personality. Past research indicate that these factors are potential variables that may increase the sense of purpose and value (Shilo-Levin et al., 2021; Sousa-Ribeiro et al., 2024; Stuer et al., 2019). However, some studies conclude that low level of experience of new workers is potential hurdle in forming their professional identity (Taneva et al., 2016; Veld & Heres, 2021; Weeks & Schaffert, 2019). Hence, new workers have relatively low level of work meaningfulness.

Past studies show that agricultural knowledge workers perform hard and demanding tasks (Taneva et al., 2016; Veld & Heres, 2021; Weeks & Schaffert, 2019; Zhang et al., 2026). They perform tasks and roles that are quite different from manual tasks. Their work involves a lot of intellectual work to create new and innovative ideas. They must conduct research and design difficult experiments for agricultural development. Their work requires coordination and cooperation among several departments and sectors. With increasing professional experience, workers become more aware of their contribution to organization. Their contribution may potentially make their work purposeful mad meaningful. Nevertheless, past studies have not consistently supported this line of argument (Popaitoon, 2022; Shilo-Levin et al., 2021; Sousa-Ribeiro et al., 2024). Hence, additional research is needed to support the assumptions that increased professional experience enhances meaningfulness at work. Thus, the second hypothesis proposes that work meaningfulness differs across professional experience groups.

METHODOLOGY

The population of the study is knowledge workers working in various attached wings that work under the agriculture department of the Government of Punjab. Thirteen attached wings work under this department. Each wing works on a specific area of agriculture. For example, the Soil Survey of Punjab conducts regular surveys to assess the quality of soil for crops. Agricultural Information, Punjab is responsible for the dissemination of the latest agricultural research. The research wing named Ayub Agricultural Research Institute Faisalabad (AARI) is tasked with researching various crops that are grown in Punjab. The target population of the study is all knowledge workers working in agricultural research institutes that fall under the umbrella of the agricultural research wing of Punjab, Pakistan. These institutes research various crops. These institutes are in various regions of the Punjab province.

The sampling frame for this study consists of a list of research institutes from which the sample was drawn. This sampling frame has all knowledge workers working in agricultural research institutes that make up the agricultural research wing of Punjab. These research institutes include a variety of specialized research institutes. Each research institute contributes a specific number of knowledge workers to the sampling frame. For instance, the Agricultural Biotechnology Research Institute in Faisalabad contributed 20 respondents, while Rapid Soil Fertility Research Institute, Lahore provided the largest number, with 124 knowledge workers. Smaller institutions like the Potato Research Institute in Sahiwal had as few as six respondents. This diverse frame includes institutes working on various crops, soil sciences, and 71 environmental research. This sampling frame provides thorough coverage of knowledge workers employed in agricultural research institutes located across Punjab. Sample frame of all knowledge workers was obtained from the Main Library and IT Department AARI, Faisalabad. This department maintains data about workers employed in various agricultural research institutes located across Punjab province.

The study employed a quantitative and cross-sectional research design to examine differences in autonomy orientation among knowledge workers across age and professional experience groups. Data were collected through a structured self-administered questionnaire from workers working in agricultural research organizations. A stratified random sampling technique was used to collect data. Work meaningfulness was measured using three items assessing the extent to which respondents perceived their work as meaningful and worthwhile. The items included "my work is highly meaningful to me," "my work often feels pointless," and "I often feel that my work counts for very little." Respondents rated each item on a five-point Likert scale ranging from 1 to 5. Descriptive statistics were computed to summarize respondents' characteristics and levels of meaningfulness at work. As the data did not satisfy the assumptions of normality, the Kruskal–Wallis H test was used to examine differences in autonomy orientation across age groups and professional experience groups. When the omnibus test was statistically significant, post hoc pairwise comparisons with adjusted p-values were conducted to identify specific group differences.

RESULTS AND DISCUSSION

Results and discussion section starts with psychometric analysis of the work meaningfulness construct. Table 1 presents the psychometric properties of the work meaningfulness construct. The three-item scale demonstrated excellent internal consistency. Cronbach's alpha was .938. Composite reliability (CR) was .921, which exceeded the recommended threshold of .70 and further confirmed the internal consistency of the construct. All three indicators loaded strongly on the latent construct. Item 1 ("My work is highly meaningful to me") had a standardized loading of .944. Item 2 ("My work often feels pointless") showed the highest loading of .950. Item 3 ("I often feel that my work counts for very little") also produced a load of .944. These loadings were well above the acceptable value of .70, indicating that each item contributed substantially to the measurement of work meaningfulness. Collinearity statistics were also within acceptable limits. The collinearity statistic was .237 for Items 1 and 3 and .214 for Item 2. These values suggest that multicollinearity was not a concern in this study.

Table 1				
<i>Loadings, Internal Reliability, and Collinearity of Work Meaningfulness Construct</i>				
Items	Loadings	Alpha	CR	CS
Work meaningfulness		.938	.921	
Work meaningfulness 1	.944			.237
Work meaningfulness 2	.950			.214
Work meaningfulness 3	.944			.237
Note: CR = composite reliability, CS = collinearity statistics				

DESCRIPTIVE STATISTICS

After assessing the psychometric properties of the work meaningfulness construct, descriptive statistics were evaluated. Table 2 presents the descriptive statistics for work meaningfulness across age and professional experience groups. Clear differences appeared across both demographic characteristics. Among the age groups, employees aged 21–33 years reported the highest level of work meaningfulness ($M = 12.09$, $SD = 2.08$, 95% CI [11.72, 12.46]). Their scores ranged from 8 to 15. Employees aged 34–46 years reported a considerably lower mean score ($M = 8.31$, $SD = 2.16$, 95% CI [7.93, 8.68]), with scores ranging from 3 to 14. The oldest employees (47–60 years) reported the lowest level of work meaningfulness ($M = 6.35$, $SD = 2.39$, 95% CI [5.87, 6.83]). Their observed scores ranged from 3 to 12. These statistics indicate a steady decline in perceived work meaningfulness across successive age groups.

A similar pattern emerged across professional experience groups. Employees with 1–10 years of experience reported the highest work meaningfulness ($M = 12.50$, $SD = 1.83$, 95% CI [12.14, 12.87]), with scores ranging from 8 to 15. The mean decreased to 9.74 ($SD = 1.63$, 95% CI [9.37, 10.10]) among employees with 11–20 years of experience. Their scores ranged from 7 to 15. Employees with 21–30 years of experience reported a mean of 7.14 ($SD = 2.10$, 95% CI [6.95, 7.87]), with scores between 3 and 13. The lowest level of work meaningfulness appeared among employees with 31–40 years of experience ($M = 6.05$, $SD = 2.29$, 95% CI [5.55, 6.54]), whose scores ranged from 3 to 12. Work meaningfulness declined as professional experience increased.

Table 2							
<i>Descriptive Statistics of Work Meaningfulness</i>							
Groups	N	Mean	S. D	CI		Min	Max
Age				LB	UB		
21-33	122	12.09	2.08	11.72	12.46	8	15
34-46	130	8.31	2.16	7.93	8.68	3	14
47-60	98	6.35	2.39	5.87	6.83	3	12
Experience							
1-10	101	12.50	1.83	12.14	12.87	8	15
11-20	80	9.74	1.63	9.37	10.10	7	15
21-30	83	7.14	2.10	6.95	7.87	3	13
31-40	86	6.05	2.29	5.55	6.54	3	12

Differences in Work Meaningfulness Across Age and Professional Experience

Next, inferential statistics were applied to evaluate the difference in work meaningfulness across age and professional experience of knowledge workers. Table 3 presents the Kruskal–Wallis test results. Significant differences in work meaningfulness were observed across age groups, $\chi^2(2) = 186.661$, $p < .001$. Employees aged 21–33 years had the highest mean rank (270.32) and a median score of 12.50 ($Q1 = 10$, $Q3 = 14$). Employees aged 34–46 years obtained a mean rank of 151.00 and a median of 8.00 ($Q1 = 6.75$, $Q3 = 10$). Employees aged 47–60 years showed the lowest mean rank (89.96) and a median of 6.00 ($Q1 = 5$, $Q3 = 8$). These findings support Hypothesis 1.

Table 3						
<i>Comparative Analysis of Work Meaningfulness Based on Age and Professional Experience</i>						
Groups	n	Mean rank	Median (Q1, Q3)	df	X ²	P
Age				2	186.661	.000
21-33	122	270.32	12.50 (10, 14)			
34-46	130	151.00	8 (6.75, 10)			
47-60	98	89.96	6 (5, 8)			
Experience				3	222.30	.000
1-10	101	283.67	13 (11, 14)			
11-20	80	198.56	10 (9, 11)			
21-30	83	119.76	8 (6, 9)			
31-40	86	80.81	5.50 (4, 8)			

Significant differences also emerged across professional experience groups, $\chi^2(3) = 222.300$, $p < .001$. Employees with 1–10 years of experience obtained the highest mean rank (283.67) and a median score of 13.00 (Q1 = 11, Q3 = 14). Employees with 11–20 years of experience reported a mean rank of 198.56 and a median of 10.00 (Q1 = 9, Q3 = 11). Those with 21–30 years of experience obtained a mean rank of 119.76 and a median of 8.00 (Q1 = 6, Q3 = 9). Employees with 31–40 years of experience reported the lowest mean rank (80.81) and a median of 5.50 (Q1 = 4, Q3 = 8). These findings support Hypothesis 2.

Pairwise Comparisons

Table 4					
<i>Pairwise Comparisons in Work Meaningfulness Across Age and Professional Experience</i>					
Sample 1-Sample 2	Test Statistic	S. E	Test Statistic	p	Adj. p
Age					
47-60-34-46	61.032	13.468	4.532	.000	.000
47-60-21-33	180.355	13.657	13.206	.000	.000
34-46-21-33	119.324	12.690	9.403	.000	.000
Experience					
31-40-21-30	38.945	15.491	2.514	.012	.072
31-40-11-20	117.742	15.638	7.529	.000	.000
31-40-1-10	202.854	14.772	13.732	.000	.000
21-30-11-20	78.797	15.774	4.995	.000	.000
21-30-1-10	163.909	14.915	10.989	.000	.000
11-20-1-10	85.112	15.068	5.648	.000	.000
The significance level is .050.					
Significance values have been adjusted by the Bonferroni correction for multiple tests.					

Lastly, pairwise comparisons were made to find where the actual differences lie. Table 4 presents the Bonferroni-adjusted pairwise comparisons. All age-group comparisons remained statistically significant after adjustment. Employees aged 34–46 years differed significantly from those aged 47–60 years (test statistic = 61.032, SE = 13.468, $z = 4.532$, adjusted $p < .001$). Employees aged 21–33 years also differed significantly from those aged 47–60 years (test statistic = 180.355, SE = 13.657, $z = 13.206$, adjusted $p < .001$). A significant difference was also found between the 21–33 and 34–46 year groups (test statistic = 119.324, SE = 12.690, $z = 9.403$, adjusted $p < .001$). These findings indicate that each age group reported a distinct level of work meaningfulness.

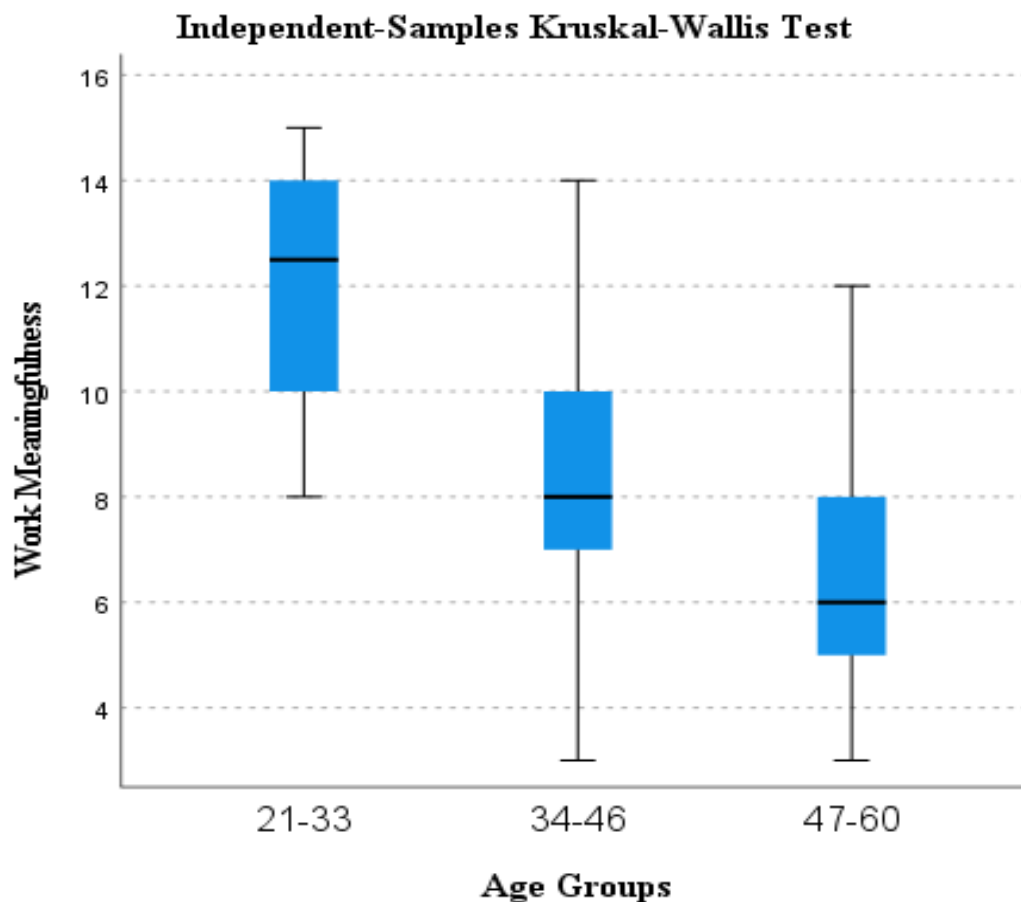


Figure 1: Visual Comparison of Work Meaningfulness Across Age Groups

For professional experience, five of the six pairwise comparisons remained significant after Bonferroni correction. Workers with 31–40 years of experience differed significantly from those with 11–20 years (test statistic = 117.742, SE = 15.638, $z = 7.529$, adjusted $p < .001$) and from those with 1–10 years of experience (test statistic = 202.854, SE = 14.772, $z = 13.732$, adjusted $p < .001$). Workers with 21–30 years of experience also differed significantly from those with 11–20 years (test statistic = 78.797, SE = 15.774, $z = 4.995$, adjusted $p < .001$) and from those with 1–10 years of experience (test statistic = 163.909, SE = 14.915, $z = 10.989$, adjusted $p < .001$). A significant difference was further observed between workers with 11–20 and 1–10 years of experience (test statistic = 85.112, SE = 15.068, $z = 5.648$, adjusted $p < .001$). However, the difference between workers with 21–30 and 31–40 years of experience was not significant after Bonferroni adjustment (test statistic = 38.945, SE = 15.491, $z = 2.514$, adjusted $p = .072$). Work meaningfulness decreased progressively with increasing professional experience, although the two most experienced groups did not differ significantly from one

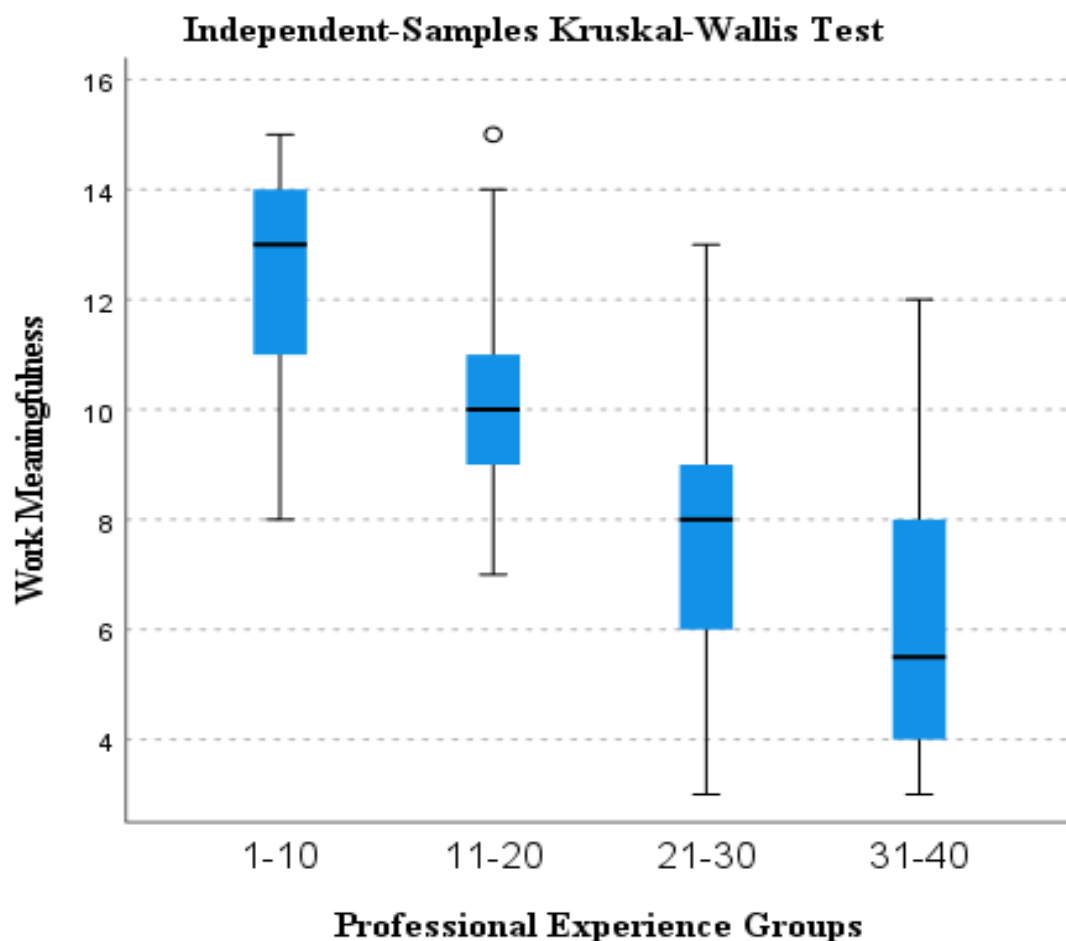


Figure 2: Visual Comparison of Work Meaningfulness Across professional Experience Groups

The findings show that work meaningfulness differs across both age and professional experience groups. This finding of the study agrees with other studies conducted on demographic variables and their relationship with meaningfulness at work. Additionally, new workers and those with fewer years of experience revealed the highest levels of work meaningfulness. However, seasoned workers perceived their work as less meaningful (Tan et al., 2023; Taneva et al., 2016; Veld & Heres, 2021). One possible explanation is that workers often begin their careers with greater enthusiasm. As time passes, monotonous tasks, limited career progression, and organizational constraints may reduce their sense of purpose (Peng, 2022; Popaitoon, 2022; Shilo-Levin et al., 2021). The study recommends that policy makers and managers should take care of meaningfulness at work through the whole careers of workers. To create strong sense of purpose, it is necessary to create better opportunities for promotion and recognition. It is also important to provide chance for recognition and meaningful activities.

CONCLUSION

The study was conducted to assess the statistical differences in work meaningfulness across age and professional experience groups. The study findings show that work meaningfulness differs across both age and professional experience groups. Younger workers and those with fewer years of experience showed the highest levels of work meaningfulness. In contrast, older and more experienced workers perceived their work as less meaningful. One explanation that make sense is when workers start their

first job, they are more energetic, lively, and more devoted to work and towards organizations. As time passes, they become used to routine, boring, monotonous, and dull tasks. These sorts of assignments and tasks may reduce their meaningfulness level at work.

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