



AI DRIVEN EQUITY ANALYTICS IN NEW YORK CITY HOME CARE WORKFORCE MANAGEMENT: IDENTIFYING BIAS IN SCHEDULING, CASE ASSIGNMENT, WORKLOAD DISTRIBUTION, AND CAREER ADVANCEMENT

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**Abstract**

New York City is experiencing growing issues with home care workforce management involving scheduling fairness, workload imbalance, unequal case assignments, and lack of transparency about career advancement opportunities. The problems lead to employee dissatisfaction, organizational bias, and less operational efficiency. Artificial intelligence (AI)-driven equity analytics has emerged as a promising solution for identifying workplace disparities and supporting fair workforce management practices. This study aimed to explore how AI-driven equity analytics can help uncover bias in the scheduling, case assignment, workload distribution, and career progression processes in NYC home care organizations. This study also investigated employee attitudes about AI adoption, trust in the organization, and ethical issues related to AI implementation.

The study design used was quantitative in which a structured close ended questionnaire was sent to 275 health care workers working in home care organizations in New York City. Relevant responses were gathered using purposive sampling approach so as to obtain responses of Home Health Aides, Nurses, Case Managers, Supervisors and Administrative Staff. The data was evaluated using descriptive statistics, reliability assessment, mean scores, standard deviations and Chi-Square tests in an intention to evaluate the perception of workforce equity and AI acceptance.

The findings revealed moderate perceptions of equity in scheduling ( $M = 3.58$ ), equity in case assignment ( $M = 3.42$ ), workload distribution ( $M = 3.35$ ), and career advancement ( $M = 3.22$ ) and these results indicated the persistence of issues of favouritism, workload distribution and lack of transparency in promotion in home care organizations. Instead, AI Equity Analytics had the highest mean score ( $M = 4.10$ ), which indicates high levels of acceptance of AI-based tools to reduce bias and improve the fairness of the workforce. Problems of trust and ethics also became a relevant factor ( $M = 3.89$ ), in particular, the problem of privacy, openness, and the necessity of the human control of AI-assisted decision-making. The Chi-Square values of all the study variables were found to be statistically significant ( $p < 0.05$ ) indicating meaningful perceptions of the respondents regarding workforce equity and AI use.

The paper concludes that this AI-based equity analytics system has great potential to increase fairness, transparency and efficiency of home care worker management systems. Nevertheless, to be implemented efficiently, ethical leadership, trust among employees, privacy protection, and human control are vital to guarantee responsible and transparent AI-based decision-making.

**Keywords:** Artificial Intelligence, Equity Analytics, Workforce Management, Home Care Services, Scheduling Fairness, Organizational Bias, Healthcare Administration, Ethical AI.

**1. Introduction**

The trend of workforce shortage, increasing service demands, and the complexity of patient care provision are increasingly becoming a challenge in the healthcare systems of urban modern settings. Home



care is an essential aspect of taking care of the aging population and individuals with chronic conditions who require constant care and assistance at home instead of in a hospital or other institutional care facilities, especially in big cities such as New York. However, the home care workforce, quite often, does operate in a scenario where there is an unequal work distribution, irregular scheduling pattern and lack of administrative transparency in decision making (Pavuluri et al., 2024). Such organizational problems have caused increasing anxieties regarding equity, productivity, and worker welfare in the sector.

In the previous years, AI has transformed into a ground-breaking technology in healthcare staffing (Youn et al., 2022). The application of AI-powered systems is gaining momentum, and it is now applied to schedule and allocate resources and optimize the operational performance. Besides the known applications, AI is currently being explored as an equity analytics tool to reveal inequity within an organization processes (Baehr & El-Haji, 2024). In the case of home care workforce management, AI systems have the ability to analyze large volumes of workforce data in order to detect scheduling anomalies, workforce allocation, workforce distribution, and career progression decisions (Samorani et al., 2022). This data-driven approach to equity monitoring is a major leap forward in HR management.

The problem of fairness in the system is particularly acute in the home care environment, where workers might be asked to work in different agencies and locations on their own with patients. The work of home care workers might not be as closely supervised as in a hospital or other centralized location, leading to anomalies in task delegation and schedules (F. Amin et al., 2024). The feeling of unfair treatment, favoritism, or unequal work load of an employee can adversely impact employee morale, job satisfaction and retention (Malik & Solaiman, 2024). These problems may be further enhanced by the subjectivity of most managerial choices which can introduce bias in the functioning of the workforce.

AI can be utilized to address these gaps, providing objective, information-driven data on workforce trends (Zohora & Paul, 2024). Equity analytics powered by AI may show insights into distribution, though, like cases always being assigned to particular employees, shifts that are more difficult to complete by employees, or even lower chances of promotion (Aronno et al., 2023). These could cause prevailing and emerging inequality that cannot be analyzed using the traditional approach of management according to previous and recent statistics (F. Amin et al., 2024). In addition, AI may help decision-makers to come up with more fair scheduling and workload distribution systems, increasing the level of transparency and accountability in the organization.

There are concerns regarding the implementation of AI in workforce equity monitoring that are important and should be addressed (Tareque et al., 2023). Transparency, predictive models and their accuracy, and automated decision-making ethics can also be questioned by algorithms (George, 2024). The value of privacy of data, monitoring, and trust in technology also play a role in internal acceptance of AI systems to a considerable extent (Ilyas & Ilyas, 2024). Thus, it is important to be aware of workforce perceptions if implementing AI-powered equity analytics is to be a success in home care organizations.

The current study aims at exploring the uses of AI-based equity analytics within the NYC home care systems of home care workforce management. It analyzes such crucial aspects as scheduling equity, case assignment equity, workload equity and career promotion opportunity. Moreover, it delves into how employees have perceived systems that can identify and minimize workplace bias using AI. In addition, the paper addresses trust and ethical issues in the organizations that come along with the implementation of artificial intelligence in workforce decision-making.

Finally, the research can be considered a significant addition to the existing literature in the field of intelligent workforce management that entails the integration of the aspects of artificial intelligence, organizational justice, and healthcare management. It emphasizes the need to define and deal with systemic inequality in the employment models using sophisticated analytical software. The results will be used to guide policy makers, health care administrators and technology developers on the way forward to promote fairness, efficiency and transparency in the home care workforce systems.



### ***Problem Statement***

The problems in the workforce of the home care that persist in NYC are scheduling inequity, disproportional patient assignments, inequity of workload and lack of visibility of the promotion opportunities. Such issues may result in dissatisfaction and unfair treatment of the employees as well as reduced productivity in the organization. Traditional management systems are subjective and may result in unwanted inequities. Although there are some thrilling opportunities in the use of AI in equity analytics and equity inequities detection, empirical research on the effectiveness of AI in detecting inequities and mitigating inequities in the workplace in home care setting is scarce. This work will fill this gap by examining how AI can be used in equity analysis in workforce management.

## **2. Literature Review**

### ***Workforce Inequality in Home Care Systems***

Home care services play a vital role in the care provision to individuals who require continuous medical and personal care, which is not available in the hospital (Imtiaz et al., 2024). However, the workers who offer these services tend to be affected by structural inequalities in the division of labor and the timing schedules (Maleki Varnosfaderani & Forouzanfar, 2024). Workload inequities and management favoritism is frequently reported. Such disparities result in reduced job satisfaction and turnover intentions. Home care work is also decentralized which makes supervision and standardization of workforce management practices even more difficult.

### ***Scheduling and Workload Distribution Challenges***

One of the most crucial problems related to workforce management systems is scheduling fairness. There are also unpredictable schedules, sudden shift changes, and unjust shifts, which are usual practices that home care workers undergo (Nama et al., 2023). This may result in burnout, fatigue and unproductiveness. Likewise, the workload may also be unequal and some workers may be facing more complex or challenging cases compared to others (Bernhardt et al., 2023). This can cause one to feel that there is unfairness and also it can influence the morale of the employees. To manage the workload, clear and data-driven plans on how to distribute the work must be used to ensure a more balanced distribution (Halid et al., 2024).

### ***Career Advancement and Organizational Bias***

Career advancement in homecare organizations may be affected by subjective ratings and unofficial decision making processes (Vignola et al., 2023). The employee might feel that not every employee is in a position to be promoted or that promotion is based on favoritism (Gao & Zamanpour, 2024). Inequality will also demoralize workers and decrease worker engagement (Nacheva, 2024). In case an organization does not create certain and indisputable promotion criteria, the turnover is high and the workforce is not so stable.

### ***Role of Artificial Intelligence in Equity Analytics***

Artificial intelligence offers novel avenues of enhancing fairness in managing the workforce (George & Wooden, 2023). Equity analytics, which operate based on AI, are able to process large volumes of data and identify trends and inequalities in hiring, workload allocation, and promotions. They enable organizations to detect bias that might not be evident through usual monitoring methods (Wissemann et al., 2022). Artificial intelligence will help to make more balanced decisions and improve the HRM transparency by providing objective information (Ekuma, 2024). Moreover, predictive models may be applicable in assisting organizations to proactively exert efforts towards inequities but before they are a greater challenge in the organization.

### ***Ethical Considerations and Workforce Acceptance***

The AI systems may be very useful but they also raise the ethical concerns of privacy, transparency and algorithm fairness. Employees might be concerned with how their data is gathered, processed, and used to make decision making procedures (Varma et al., 2023). Also, AI systems may reproduce the same biases unless they are created and supervised. Hence, it is critical to trust in the organization and ethical governance to attain a successful implementation (Moafa et al., 2024). The transparency and accountability of the



employees should be taken into consideration to embrace AI systems and it is necessary to make sure that technology is not taking over the judgment of human beings.

### ***Conceptual Relevance to the Study***

Integration of AI-based equity analytics into home care workforce management is an evolution towards a data-based organizational decision-making process. This work examines what AI can accomplish to prevent and eliminate bias in the workplace, by scheduling fairly, allocating work, assigning cases and advancing a career. It also highlights the importance of employee perceptions to the effectiveness of technological interventions. The research contributes to the realization of how successful the introduction of smart systems is to enhance equity, productivity, and trust in the healthcare work environment.

### ***Research Questions***

1. What is the level of perceived fairness in scheduling among home care workers?
2. How equitable is case assignment in home care workforce management?
3. To what extent is workload distribution perceived as balanced or biased?
4. How fair are career advancement opportunities in home care organizations?
5. What is the level of employee perception toward AI-driven equity analytics systems?
6. What are the major ethical and trust-related concerns regarding AI implementation?
7. Is there a significant relationship between perceived workplace fairness and AI acceptance?
8. Can AI systems effectively identify bias in scheduling, workload, and promotion decisions?

### ***Research Objectives***

1. To assess perceived fairness in scheduling practices among home care workers.
2. To evaluate equity in case assignment and workload distribution.
3. To examine fairness in career advancement opportunities within home care organizations.
4. To analyze employee perceptions of AI-driven equity analytics systems.
5. To identify ethical and trust-related concerns regarding AI adoption.
6. To determine the effectiveness of AI in detecting workplace bias.
7. To examine relationships between perceived fairness and AI acceptance in workforce management.
8. To provide recommendations for improving equity using AI-based workforce analytics.

## **3. Methodology**

### ***Research Design***

The study utilized a quantitative research design to determine the relevance of AI-driven equity analytics to help reveal bias in home care workforce management systems in New York City. In order to determine employee perceptions regarding scheduling equity, case assignment equity, workload equity, career growth, and organizational trust with regard to AI implementation, a descriptive and analytical research methodology was applied. The quantitative approach was deemed as suitable as it allowed measurable data to be collected and variables related to workforce equity to be analyzed statistically.

### ***Research Population and Sample***

The study population included employees from home care organizations including the Home Health Aides, Nurses, Case Managers, Supervisors and Administrative Staff in home care organizations in New York City. To capture a cross-sectional perspective from healthcare workforce professionals, a sample size of 275 respondents was used. Participants were from various age groups, professional roles and year's experience in the workforce to provide a broad spectrum of home care.

### ***Sampling Technique***

Respondents were included using purposive sampling to ensure they had first-hand experience and knowledge on workforce management practices in home care organizations. The sampling approach was used because only healthcare professionals would be included that would be of relevance to this study, which improved the quality and relevancy of the collected data.

### ***Data Collection Instrument***



The collection of data was through a structured close ended questionnaire, specifically designed to meet the goals of the study. The questionnaire contained several questions on demographic information, fairness in scheduling, fairness in case assignment, fairness in workload, fairness in advancement at the workplace, perceptions of AI equity analytics, and organizational trust and ethics. These answers were measured on a 5-point Likert scale between Strongly Disagree (1) to Strongly Agree (5).

#### ***Data Collection Procedure***

The questionnaire was administered electronically to healthcare workers at home care organizations located in New York City. Participation was voluntary and the participants were told the aim of the research. Data collection was carried out in a non-anonymous manner by ensuring confidentiality to obtain honest and unbiased answers.

#### ***Reliability and Validity***

Cronbach's Alpha analysis was used to determine the reliability of the research instrument. The reliability coefficient of all constructs was 0.86-0.91 which is high internal consistency and means that this questionnaire could be analyzed statistically. To ensure content validity, the items in the questionnaire were aligned with the research objectives and literature available on AI-driven workforce equity analytics.

#### ***Data Analysis Techniques***

The collected data were analyzed using descriptive and inferential statistics tests. Frequencies and percentages were used to analyze the demographic variables and mean scores and standard deviations were used to analyze respondent perceptions on all the constructs used in the study. Chi-Square ( $\chi^2$ ) analysis was also used to identify the statistical significance of responses to questions regarding workforce fairness and AI perception variables. Tables, charts and a graphical representation has been used to supplement the findings and aid the interpretation and understanding.

#### ***Ethical Considerations***

The research was carried out in compliance with the ethical principles. Informed consent was signed by all participants prior to the questionnaire and the information gathered was handled in a confidential manner. The research was carried out to provide voluntary involvement of the respondent, anonymity of the respondent and responsible utilization of research data. Moreover, the paper emphasized the relevance of ethical issues, including transparency, privacy protection, and human control in workforce management systems in the implementation of AI.

#### **4. Results**

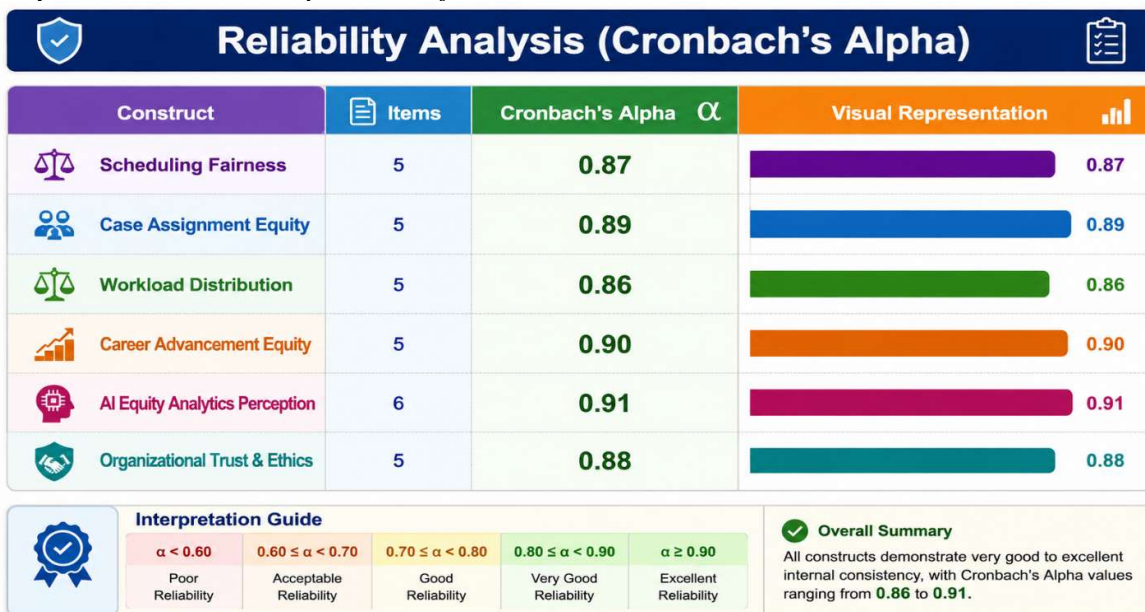
The results section represents the findings obtained after the data analysis in a coherent, systematized, and objective manner. It is a repetition of the results of the study without personal interpretation or discussion. Tables, graphs, charts, statistical values, and explanations are included in the section to explain significant patterns and relationships in the data obtained. The aim of the results section is to provide evidence that either answers the research questions or justifies the study objectives.

#### ***Reliability Test Results***

The reliability analysis shows that the values of Cronbach's Alpha are all above 0.86 and range up to 0.91, indicating a high internal consistency of all the constructs of the study. Measuring items in AI Equity Analytics Perception had the highest reliability ( $\alpha = 0.91$ ) followed by Career Advancement Equity ( $\alpha = 0.90$ ), while the other measuring items had reliability ranging from 0.73 to 0.90. The other constructs, Case Assignment Equity ( $\alpha = 0.89$ ), Organizational Trust & Ethics ( $\alpha = 0.88$ ), Scheduling Fairness ( $\alpha = 0.87$ ), and Workload Distribution ( $\alpha = 0.86$ ), were also very good. In general, results indicate that the questionnaire items are reliable and can be used for further statistical analysis.



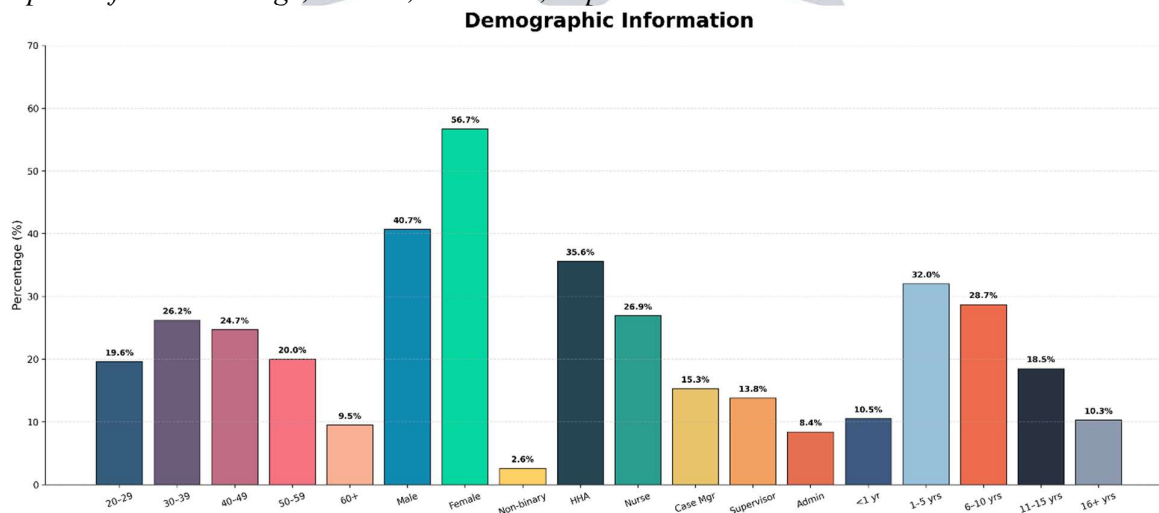
**Figure 1**  
 Reliability Test - Cronbach's Alpha values for all constructs



**Demographic Information**

Demographic analysis shows that the age range with the biggest proportion of the respondents was 30-39 years old (26.2%) with the corresponding age range 40-49 years (24.7%) showing close follow-on numbers, thus indicating good representation of the mid-career professionals. There were more females than males (56.7% and 40.7% respectively). In terms of job roles, the largest share of respondents were Home Health Aides (35.6%) and Nurses (26.9%), indicating the strong representation of front-line healthcare professionals. Regarding professional experience, the majority of respondents had 1-5 years' experience (32.0%), followed by 6-10 years (28.7%), thereby representing the moderately experienced healthcare personnel. In summary, the demographic profile indicates a robust and professionally diverse sample suitable for analyzing workforce equity and AI-driven analytics in healthcare management.

**Figure 2**  
 Demographic Information - Age, Gender, Job Roles, Experience





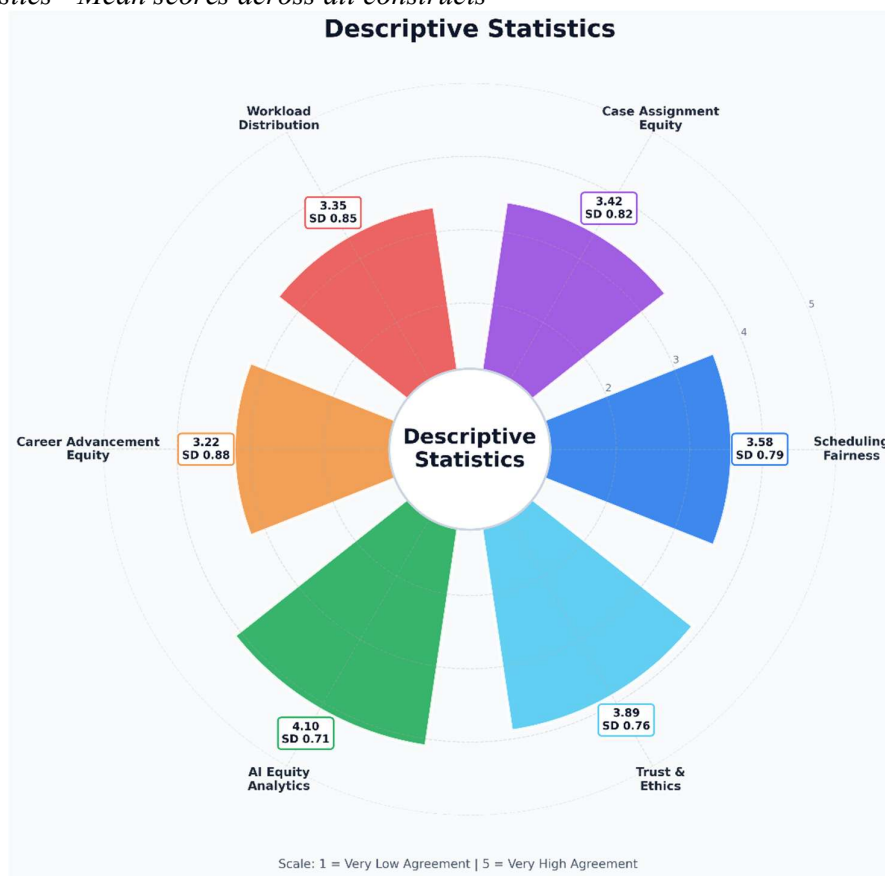
### Descriptive Statistics

According to the descriptive analysis, there is a difference in the perceptions of equity and fair practices of workforce management. The highest score was in AI Equity Analytics (M = 4.10, SD = 0.71), which means that the participants were highly accommodating of AI-driven analytics. Trust & Ethics were also just (M = 3.89, SD = 0.76), and this had a moderate to high concern with the issues of trust and ethics regarding AI implementation.

On the other hand, the lowest mean (M = 3.22, SD = 0.88) was on Career Advice Equity which showed low perceptions of being treated fairly in reference to promotions and career advancement. Workload Distribution (M = 3.35, SD = 0.85) and Case Assignment Equity (M = 3.42, SD = 0.82) also indicate that there are problems with inequity in workload and case assignments. In conclusion, the results indicate a positive attitude of respondents towards AI-driven Equity Analytics while identifying some significant issues regarding fairness and equity in the practices of an organization.

Figure 3

Descriptive Statistics - Mean scores across all constructs



### Scheduling Fairness Analysis

The output of Scheduling Fairness Analysis indicates that the perceptions about the fairness of workforce scheduling practices are relatively positive. The highest mean score (M = 3.72) was on the item "Fair schedule distribution" with 62 percent of the respondents agreeing that generally schedules are distributed fairly. Similarly, the "Advance notice given" (M = 3.65) and "Bias in scheduling" (reverse coded) (M = 3.60) was also positive, which implied that the participants had a moderate confidence in transparency and biasness in scheduling procedures.

However, the level of agreement on "Equal shift preference" was somewhat lower (55%, M = 3.48), indicating that there was some amount of inequality in the preferred shift allocation that some respondents



still perceived. The Chi-Squares were all statistically significant (p < 0.05), which means that the perceptions of the respondents regarding each item of the scheduling fairness were significantly different. The overall result is a fair scheduling in general but there are some concerns of equal shift opportunities.

Table 1

Scheduling Fairness Analysis

Table with 6 columns: Item, Agree %, Disagree %, Mean, chi^2, Sig. Rows include Fair schedule distribution, Advance notice given, Equal shift preference, Bias in scheduling (R), and Transparent scheduling.

Case Assignment Equity

The results for Case Assignment Equity indicate moderate perceptions of fairness in the distribution of work-related cases among employees. The highest mean score (M = 3.55) and 61% agreement was found for the item "Unequal difficult cases" (reverse coded), indicating that respondents mostly felt that there was a fair balance when it came to difficult cases.

But the overall mean for "Equal number of cases" (M = 3.32) and "No favoritism" (M = 3.30) suggest that there are still issues around fairness and equal treatment in case allocation practices. There are also only moderately high agreements between 50%-57% and it means that there is moderate confidence in the equity of assignments.

Table 2

Case Assignment Equity

Table with 6 columns: Item, Agree %, Disagree %, Mean, chi^2, Sig. Rows include Fair case allocation, Equal workload cases, Unequal difficult cases (R), Skill-based assignment, and No favoritism.

Workload Distribution

Moderate concerns are identified for fairness and balance of workloads to employees in the Workload Distribution analysis. The highest mean was for "Overburdened vs peers" (reverse coded) (M = 3.60) and 63% agreed, meaning there was a general agreement that there are differences in workload distribution among staff.

"Adequate staffing" on the other hand, had the lowest mean score (M = 3.18) and the highest disagreement percentage (38%), implying concerns about lack of staffing to effectively cope with the organizational demands. Only moderate perceptions of equity in workload allocation are further reflected in "Balanced workload" (M = 3.25) and "Fair task distribution" (M = 3.36).



Table 3

Workload Distribution

Item	Agree %	Disagree %	Mean	$\chi^2$	Sig.
Balanced workload	48%	35%	3.25	19.66	0.002
Overburdened vs peers (R)	63%	21%	3.60	24.15	0.000
Fair task distribution	51%	30%	3.36	17.88	0.003
Adequate staffing	45%	38%	3.18	21.44	0.001
Excess workload (R)	60%	25%	3.52	20.08	0.002

Career Advancement Equity

Career Advancement Equity results indicate that the perception that is concerned with the equity of organizational promotion and advancement is not high. The item with the highest mean score (M = 3.65) was the item "Favoritism affects promotion" (reverse coded) with 66% agreement, which shows that a significant proportion of respondents thought that the aspect of favoritism is a significant factor to consider in order to advance their career. This raises issues of transparency and fairness in promotions.

The ability of "Fair training access" (M = 3.42) acquired a medium answer, that is, employees are in some way aware of the fact that all people are equally offered the possibility to improve their abilities and acquire new knowledge. However, the lower mean of 3.20 for "Equal promotion access" and 3.25 for "Equal advancement opportunities" shows that there are issues that are associated with unequal opportunities in regard to career advancement in the organization. All Chi-Square values were significant (p < 0.05) and it means that all of the items had significant differences in perception of the respondents. On the whole, the results show that employees think that the system of career promotion is reasonably fair, yet an element of favoritism still exists in the organization.

Table 4

Career Advancement Equity

Item	Agree %	Disagree %	Mean	$\chi^2$	Sig.
Equal promotion access	46%	36%	3.20	22.90	0.001
Merit-based promotion	49%	33%	3.28	18.77	0.003
Favoritism affects promotion (R)	66%	20%	3.65	25.41	0.000
Fair training access	53%	29%	3.42	16.80	0.005
Equal advancement chances	47%	34%	3.25	19.55	0.002

AI Equity Analytics Perception

AI Equity Analytics Perception has a strong positive attitude towards the implementation of AI-based systems in the management of the workforce. The "Willing to use AI" item had the highest mean value (M = 4.20) and 74% agreement that implies the degree of acceptance and readiness of the respondents to use AI-based equity solutions. Likewise, the respondents firmly believed that AI technologies could be used to reduce favoritism (M = 4.10), and aid in identifying bias (M = 4.15), which means that they think AI could be useful in enhancing fairness and minimizing discriminatory behaviors.

In addition, the respondents were in agreement that AI can be utilized to make decisions more equitable (M = 4.08) and redistribute workloads (M = 4.05), which implies that they believed that AI can be used to aid in coming up with decisions that are more equitable in organizations. The average score of the item "Trust AI decisions" was quite low (M = 3.95), yet the average score points towards moderate to high trust in AI-assisted management systems. Chi-Square values were all statistically significant (p < 0.05) which means that the pattern of responses on each item was not meaningless. The findings reveal that there is a high-commitment level of the implementation of AI equity analytics in organizations with the aim of enhancing fairness, transparency, and efficacy in managing workforce.



Table 5

AI Equity Analytics Perception

Item	Agree %	Disagree %	Mean	$\chi^2$	Sig.
AI detects bias	72%	15%	4.15	28.44	0.000
Improves fairness	70%	17%	4.08	26.33	0.000
Ensures workload balance	68%	18%	4.05	24.77	0.001
Trust AI decisions	61%	22%	3.95	21.60	0.002
Reduces favoritism	69%	16%	4.10	27.11	0.000
Willing to use AI	74%	14%	4.20	30.02	0.000

Trust & Ethics

Trust & Ethics analysis shows the moderate level of organizational trust and high ethical concerns of AI implementation. Human supervision was ranked as the highest scoring (M = 4.25) statement with 76% of the scores falling in the agreement range, meaning there is a strong agreement that human supervision is still necessary in the decision making processes led by AI. Similarly, the average of "AI privacy concern" was rather high (M = 3.75), which means that privacy and ethical risks of AI systems are the concern of respondents.

The mean of "Safe reporting system" (M = 3.60) and "Transparency exists" (M = 3.50) were moderate, that is, employees partially believed that there are transparent and supportive practices in the organization. The mean score of "Trust management" was however, rather low (M = 3.40) with moderate scores of trust in the fairness of the management and their ethical behavior. All these Chi-Square statistics were significant (p < 0.05) because there were significant differences between the answers to the respondents. Lastly, the findings indicate that the participants recognize the possibilities of AI systems, but also, they attach importance to the ethical concerns, privacy, and the need to continuous human monitoring.

Table 6

Trust & Ethics

Item	Agree %	Disagree %	Mean	$\chi^2$	Sig.
Transparency exists	55%	28%	3.50	18.22	0.003
Trust management	52%	30%	3.40	17.10	0.004
Safe reporting system	58%	25%	3.60	20.90	0.001
AI privacy concern	63%	22%	3.75	23.44	0.001
Human oversight needed	76%	12%	4.25	32.10	0.000

5. Discussion

This research shows how AI-driven equity analytics can make a difference in making inequities more visible and reducing inequities in home care workforce management systems in New York City. The results showed that there was a moderate level of concern related to scheduling fairness, workload distribution and case assignment equity, indicating that employees continue to experience inconsistencies in workforce management practices. Such findings have been reported in earlier studies and there it was revealed that lack of regularity in the working hours, unequal distribution of work load and perceived favoritism adversely impact employee morale and organizational performance (Pavuluri et al., 2024; Youn et al., 2022). The somewhat less positive perceptions about equity for career advancement also indicate that career advancement opportunities and promotions are not necessarily considered to be completely transparent or merit-based. These same issues of organizational bias and subjective decision-making were also noted in previous studies of workforce management (Baehr & El-Haji, 2024; Halid et al., 2024).

The research also showed that there is a high level of positive perception of AI equity analytics systems, especially their capacity to reduce bias, favoritism, and workload allocation fairness. These findings are in line with the notion that systems based on AI can offer objective and data-driven insights for



organizational decision making (George & Wooden, 2023; Ekuma, 2024). The survey findings also showed that the interest in the implementation of AI technologies is high with respondents showing confidence in the intelligent solutions of workforce management. It aligns with the results of the previous studies that show the transformative role of AI in healthcare management and workforce optimization (Maleki Varnosfaderani & Forouzanfar, 2024; Nama et al., 2023).

The findings also revealed that the ethical and trust concerns on the implementation of AI are of great concern. The necessity of human control, transparency, and privacy in the areas where AI is used in decision-making was one of the main arguments that were raised by the participants. It is supported by the prior studies which proposed that AI systems may become a threat to ethics, algorithmic bias, and distrust towards employees without adequate supervision (Malik & Solaiman, 2024; Varma et al., 2023). Therefore, organizations need to possess an effective ethical control and the definition of how AI systems should be utilized.

Overall, the research confirms that AI equity analytics can play a crucial role in ensuring that employees are treated fairly and workforce management is more effective in a workforce management of home care. Nonetheless, responsible implementation is a balance between technological innovation and ethical responsibility, trust among the employees, and continuous human supervision.

## **6. Conclusion**

In conclusion, the study identifies the growing importance of AI-based equity analytics in improving equity and transparency in home care workforce management systems in New York City. The findings revealed that the moderate concerns of employees are on the issue of scheduling fairness, workload assignment, case assignment and career promotion. The organizational problems that are likely to influence the level of employee satisfaction, credibility and retention of workforce negatively are the feeling of favoritism and unequal treatment.

Meanwhile, the respondents were quite high-level acceptance of AI-driven equity analytics systems because they enjoy the fact that it uncovers bias and minimizes unfair practices, thereby contributing to making just decisions. The study also emphasized the importance of ethical control, privacy and human control to guarantee responsible AI usage. Employees stressed the importance of implementing AI tools to support, rather than to remove managerial decision-making.

Overall, the findings of the study support the idea that AI-based workforce analytics may be a helpful solution to promote fairness, efficiency, and accountability within the organization. But, it is crucial for the success of adoption, to remain transparent, ethical and have the trust of employees during the implementation.

## **7. Recommendations**

1. Implement AI-driven scheduling systems to ensure fair and balanced shift allocation among employees.
2. Establish transparent criteria for case assignments and workload distribution to minimize perceptions of favoritism.
3. Develop standardized promotion and career advancement policies based on merit and performance evaluation.
4. Conduct regular AI equity audits to identify and address potential bias in workforce management decisions.
5. Ensure continuous human oversight in AI-assisted decision-making processes to maintain accountability and ethical compliance.
6. Strengthen employee data privacy and cybersecurity measures when implementing AI analytics systems.
7. Offer staff training and awareness of the benefits, limitations, and ethical application of AI technologies.
8. Establish secure and confidential reporting methods that allow employees to report mistreatment or discrimination in the workplace.



9. Improve staffing to minimize high workloads and encourage healthier work distribution practices.
10. Promote transparency and communication within the organization in order to establish trust among employees in AI-based workforce management solutions

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No outside funding was obtained for this study.

#### **Informed Consent Statement**

Every participant in the study gave their informed consent.

#### **Statement of Data Availability**

The corresponding author can provide the data used in this study upon request.

#### **Conflicts of Interest**

The authors declare no conflict of interest.

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