

ORIGINAL ARTICLE

Working on the frontlines in U. S. hospitals: Scheduling challenges and turnover intent among housekeepers and dietary service workers

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ABSTRACT

The changing nature of U.S. health care has created challenges for hospitals, including managing high rates of turnover among frontline support workers. Few studies have examined the effect of work schedules on turnover among frontline hospital support workers. This cross-sectional study (N = 270) examined scheduling challenges prevalence among hospital housekeeping and dietary workers and their relationship to turnover intent. Both worker groups experienced schedule unpredictability but dietary workers reported greater schedule instability than housekeeping workers. Schedule rigidity was reported by all workers, although housekeepers had more difficulty in changing work schedules. All three scheduling challenges were significant predictors of intent to leave.

Key Words: Scheduling challenges, Intent to turnover, Frontline workers, Housekeepers, Dietary workers, Health care, Hospitals

1. INTRODUCTION

In 2012, hospitals in the United States collectively generated \$2.4 trillion in total gross revenues, with a cumulative profit exceeding \$64 billion.<sup>[1]</sup> This represents a staggering 17% of the total U. S. economy.<sup>[2]</sup> Yet, recently hospitals have faced financial challenges resulting from the passage of the Affordable Care Act (ACA) and the concurrent authorization of the Value-Based Purchasing (VBP) program.<sup>[3]</sup> This new reimbursement system provides monetary incentives and penalties aimed at ensuring that hospitals emphasize quality of care and patient perception.<sup>[3]</sup> The financial impact that patient perception now wields is not insignificant, given that hospitals who regularly report high scores in patient

satisfaction are also among the most financially successful.<sup>[4]</sup>

Correspondingly, there is enormous growth projected for frontline health care support positions, which will employ 4 million additional workers by 2022.<sup>[5]</sup> Frontline health care support workers in this study are defined as those who earn less than \$40,000 per year,<sup>[6]</sup> primarily provide direct care or support services and hold jobs that require minimal levels of education and training,<sup>[7]</sup> such as housekeeping or dietary service worker positions. These health care support workers are integral to overall patient satisfaction with hospital services, as both food service quality and environmental cleanliness have been found to influence patient satisfaction.<sup>[8-10]</sup>

Frontline health care support jobs are often poor quality jobs

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defined by low wages, limited benefits and few advancement opportunities.<sup>[11]</sup> Additionally, frontline health care support workers are frequently required to manage chaotic, inconsistent weekly work schedules<sup>[12]</sup> and they may experience other scheduling challenges that have been well documented in other industries: schedule unpredictability, instability and rigidity.<sup>[13]</sup> Schedule unpredictability occurs when workers do not have adequate notice of assigned schedules or are called into work with little to no notice.<sup>[14]</sup> Schedule instability occurs when the hours, days or time of scheduled work change often, or when hours are reduced to compensate for slower business demands, and can include involuntary part-time work.<sup>[15-17]</sup> The third type of scheduling challenge, schedule rigidity, occurs when workers have little to no control over their schedules, including what days and times they work, when they start and end work each day, and when they take breaks during the work day.<sup>[14]</sup> A major consequence of these scheduling challenges is their contribution to voluntary turnover,<sup>[15]</sup> which occurs when workers opt to leave an employer of their own volition.<sup>[18]</sup>

Health care administrators are increasingly concerned with high turnover rates among frontline employees, as they negatively impact the quality of patient care, which eventually hurts the overall financial performance of the organization.<sup>[19]</sup> Hospitals with high rates of turnover experience decreased patient satisfaction and customer service quality, as well as lower profitability and higher discharge costs<sup>[20,21]</sup> and industry studies indicate turnover rates among frontline hospital support workers to be as high as 100%.<sup>[22]</sup> When actual turnover does occur, the workers that remain behind often experience increased workloads and stress, which reduces satisfaction for employees as well as the patients they serve.<sup>[20]</sup> Furthermore, when an increasing number of employees quit, those who remain may experience detachment, and be triggered to leave<sup>[23]</sup> resulting in a disruption of patient care.

Although these three scheduling challenges have been documented in smaller industry specific studies<sup>[17,24]</sup> and more recently in a national representative survey,<sup>[25,26]</sup> no study to our knowledge has assessed the prevalence of these scheduling challenges among hospital housekeepers and dietary service workers and their relationship to turnover. This is a critical gap in knowledge, as hospitals have certain innate qualities that make scheduling challenges for their employees more likely. The most obvious quality being that they are always open for business, which can result in the undesirable timing of shifts, as well as variable schedules, due to the requirement for constant coverage.<sup>[12]</sup> Moreover, the nature of work among hospital support occupations has certain qualities that differ; the timing of work is one such differ-

ence. Housekeeping functions frequently require three set 8-hour fixed shifts to accommodate the routine cleaning and maintenance tasks. Whereas, dietary service functions frequently require variable shifts and variable work hours to accommodate dietary needs of patients, operating hours of hospital cafes and cafeterias and fluctuations in hospital census. These inherent structural differences between the two occupations could influence the way schedules are assigned and managed, which could then in turn influence turnover intentions.

## 2. THEORETICAL FRAMEWORK

### 2.1 The turnover response: Employees react to poor scheduling practices

Equity theory,<sup>[27]</sup> the accompanying expectation of reciprocal treatment<sup>[28]</sup> and social exchange theory,<sup>[29]</sup> are used as the foundational concepts to link scheduling practices to intent to leave a job. Within workplace relationships, the employee expectation of reciprocity is defined as the psychological contract between the employer and employee,<sup>[28]</sup> and scheduling is one of many areas in which an employee expects reciprocal treatment. For example, when an employee readily works schedules assigned by his or her employer, they may expect the employer to reciprocate by approving requested time off.

Social exchange theory<sup>[29]</sup> has also been applied to employment relationships<sup>[30]</sup> and schedules can be conceptualized as one means of exchange between an employee and his or her employer.<sup>[31]</sup> The social exchange dynamic is already used by many employers in regard to scheduling, as evidenced by the practice of paying higher wages (shift differentials) for weekend or overnight work, in order to increase the benefit to employees who are experiencing the higher cost of working undesirable hours. We extend this rationale to the assignment of schedules. Workers may expect that if they are a dedicated employee that at least some of their scheduling preferences will be considered.

Similarly, when employers account for employee scheduling preferences in creating the work schedule, which may reduce schedule rigidity, and/or enhance schedule stability and predictability, employees may experience a positive exchange relationship<sup>[31]</sup> resulting from perceptions of equity and justice. However, when there is a perceived imbalance in the employment relationship, and the psychological contract is violated, negative emotions may then contribute to a desire to leave or plan to leave one's job.<sup>[32]</sup>

The series of interactions between employee and employer are governed by these exchange principles.<sup>[33]</sup> Employees who feel a lack of equity in their employment experience in-

creased inclinations to leave their job.<sup>[34]</sup> Unequal exchanges lead to actual turnover, as employees respond negatively to what they perceive as negative treatment by their employer and terminate the employment relationship.<sup>[35]</sup>

These theories are used to better understand the relationship between three forms of scheduling practices and turnover intentions among hospital housekeeping and dietary service workers and to address identified gaps in the literature about turnover among this worker population. To this end, this paper will: (1) determine the types of scheduling challenges experienced by housekeeping and dietary service workers who worked for an outsourcing firm, within a hospital, (2) determine what of the scheduling challenges were significantly different between worker groups, and (3) determine which scheduling challenges were associated with intent to leave for all workers and whether or not this was moderated by worker group.

### 3. METHOD

#### 3.1 Study design & procedures

This exploratory, cross-sectional study used survey methodology to collect data on hourly, housekeeping and dietary service workers at two U. S. hospitals. All respondents worked for OutfirmX (pseudonym), a Fortune 500 outsourcing firm that was contracted to provide these services to the respective hospitals located in the northeast region of the United States. Survey data was collected with the purpose of informing a later interventional study designed to reduce turnover at each site, and the sites were specifically selected by the corporate executive team for this purpose. The survey collected data on attitudes, opinions, social norms and expectations of these workers and identified working conditions that influence the workers' turnover intentions, as well as the workers' ability to manage work and family.

These frontline service employees were recruited via non-probability, convenience sampling. Eligibility criteria included being over the age of 18, being paid hourly, and classification as a housekeeping or dietary service worker. Hospital administrators provided employees paid time during their regularly scheduled work shift to complete the survey in one designated location in the facility, reserved for this purpose. Researchers were onsite for two consecutive days at each hospital, across all three work shifts. The survey, available to take using a laptop computer or using pen and paper, consisted of 57 questions that assessed various dimensions of job quality and took approximately 30 minutes to complete. The study protocol was approved by the Institutional Review Board (IRB) at the University of Maryland Baltimore. Of the 370 eligible employees, 288 completed the survey for an initial response rate of 78%. Ten of the respondents were

removed from the sample because they did not meet study criteria and eight were removed because they did not answer more than 33% of the questions with a final sample size of 270 workers and a response rate of 73%.

#### 3.2 Measures

##### 3.2.1 Scheduling challenges

Independent variables included three types of scheduling challenges: schedule unpredictability, schedule instability and schedule rigidity. All scheduling variables were recoded into dichotomous variables due to non-normal distributions. Three dimensions of unpredictability were assessed: advance schedule notice, day/time unpredictability and total hours unpredictability. Advance notice, was measured by asking respondents, "How far in advance do you usually know what days and times you will be working?"<sup>[5]</sup> The five-item response categories (1 = One week or less to 5 = Set schedule) were recoded into a dichotomous variable (1 = advance notice of 1 week or less and 0 = advance notice of more than 1 week). Day/time unpredictability and weekly work hour unpredictability were measured, respectively, by asking workers to indicate level of agreement with the following statements: "You can easily anticipate what days and times you'll be working week to week" and "You can easily anticipate how many hours you'll be working week to week".<sup>[5]</sup> Responses for both questions were rated on a 4-point Likert scale (1 = Strongly Disagree to 4 = Strongly Agree) and were recoded into dichotomous variables (1 = Strongly Disagree/Disagree and 0 = Agree/Strongly Agree).

Three forms of instability were assessed: (1) fluctuation in the number of hours worked, (2) supervisor adjustments to schedule without consent, and (3) last-minute schedule changes.<sup>[36]</sup> Fluctuation in the number of hours asked how frequently the number of hours scheduled for work varies from week to week. Supervisor adjustments to schedule asked how frequently the supervisor reduces or changes hours without worker consent. Last-minute schedule changes asked how frequently workers experience last minute adjustments to their schedule during the work week. All three questions were rated on a 5-point Likert scale (1 = Never to 5 = Always) and were recoded into dichotomous variables (0 = Never/Rarely and 1 = Sometimes/Often/Always).

Three forms of schedule rigidity were measured: (1) level of employee control in start and end times, (2) ability to change schedule for planned personal matters, and (3) ability to change schedule for unexpected personal matters. Schedule control was assessed with the question, "Which of the following statements best describes the flexibility in the start and end time of your work day?"<sup>[5]</sup> Responses ranged from 1 = Times decided by supervisor only to 4 = Employee is

free to decide, and were recoded into a dichotomous variable that maintained the original construct goal of determining the amount of employee control over scheduling (1 = no employee input and 0 = some degree of employee input). Last minute schedule changes for planned events was measured with the following: "It is difficult to change my schedule when I have planned family/personal business to attend to" and last minute schedule changes unexpected matters was measured with the following: "When an unexpected personal/family matter arises, I have the ability to modify my schedule."<sup>[37]</sup> Both questions were rated on a 4-point Likert Scale (1 = Strongly Disagree to 4 = Strongly Agree) and were recoded into dichotomous variables, such that 1 = Difficulty changing schedule and 0 = Does not have difficulty changing schedule.

### 3.2.2 Intent to turnover

Intent to turnover, the dependent variable in this study, was assessed with a single item measure: "How likely is it you will look for a new job with another employer within the next year?"<sup>[38]</sup> Responses were reported on a 4-point Likert scale (1 = Not at All Likely to 4 = Very Likely) and recoded into a dichotomous variable (1 = Likely to Leave and 0 = Not Likely to Leave). Intent to turnover is often used as a proxy measure for voluntary turnover due to its strong positive relationship with actual turnover.<sup>[39]</sup> Furthermore, intentions to turnover are the last step in a cognitive process that immediately precedes voluntarily leaving ones' job,<sup>[40]</sup> further validating its reliability as a proxy measure for actual turnover.

### 3.2.3 Control variables

Due to limited literature pertaining to scheduling and turnover among this worker population, the selection of appropriate control variables was sample specific and derived from a priori testing shown in Table 1. Control variables included in the models were demographic and job characteristics that were significantly different between those workers who were/were not likely to intend to leave OutfirmX in the next 12 months, including three dichotomous variables, worker group (1 = housekeeping, 0 = dietary service), race (1 = white, 0 = non-White), and having children under age 18 (1 = yes, 0 = no), and two continuous variables that measured age and hourly pay.

### 3.3 Analysis

Chi-square tests were conducted to identify areas where scheduling challenges varied between housekeepers and dietary service workers. Hierarchical binary logistic regression analyses were conducted to predict intent to turnover from schedule unpredictability, instability and rigidity. Different models were created for each type of scheduling challenge

in order to view them separately and isolate their respective effects on intent to turnover. All controls and scheduling variables were entered in Step 1 of each model. The independent variables in first three regression models were as follows: Model 1 included the three types of schedule unpredictability; Model 2 included the three forms of schedule instability; Model 3 included the three types of schedule rigidity. Any scheduling challenges found to be related to turnover intent in Models 1, 2, and 3 were then entered as predictors, along with the same control variables, into an omnibus model (Model 4) to determine their relative significance. Worker group was also tested as a moderator in each model by creating interaction terms between each type of scheduling challenge and worker group, which were then entered separately in Step 2 for all four models. In models with no significant interactions, the model was re-estimated without the interaction terms. Missing data was addressed through use of the Markov Chain Monte Carlo computational method.

## 4. RESULTS

### 4.1 Study participants

The study sample consisted of 147 housekeepers and 123 dietary service workers (see Table 1). Nearly 67% of housekeepers and 80% of dietary workers were women ( $\chi^2 [1] = 4.22, p = .040$ ). Housekeepers were more likely to identify as non-White (79.3%) in comparison to dietary workers (52.2%;  $\chi^2 [1] = 20.79, p < .001$ ). Almost 70% of housekeepers had a high school diploma/general equivalent diploma (GED) or less compared to 53.4% of dietary workers ( $\chi^2 [1] = 5.51, p = .019$ ). Close to 60% of both worker groups reported that they were single. The average age for all workers was 39.6 years ( $SD = 15.3$ ; range = 18-69), and about 47% of all participants had children less than 18 years of age living at home. Housekeepers earned an average hourly wage of \$9.94 ( $SD = 1.44$ ) that was significantly lower than the \$11.14 ( $SD = 2.44$ ) earned by dietary service workers ( $t[173] = -4.60, p < .001$ ). Housekeepers worked significantly more hours per week ( $\mu = 39.88$ ;  $SD = 8.59$ ), compared to dietary workers ( $\mu = 34.40$ ;  $SD = 11.31$ ;  $t[222] = 4.36, p < .001$ ). The worker groups also reported significant differences in terms of intent to leave ( $\chi^2 [1] = 6.46, p = .011$ ); 51% of housekeepers and 35.5% of dietary workers reported that they were likely or very likely to look for another job in the next year.

### 4.2 Scheduling challenges reported by frontline hospital workers

The proportion of housekeepers and dietary service workers who reported experiencing schedule unpredictability, instability and unpredictability is reported in Table 2. There were

no significant differences between worker groups regarding prevalence of schedule unpredictability. For the combined sample, 18% of workers reported advance schedule notice of one week or less, 29% reported that they cannot easily

anticipate the days and times they will be scheduled to work and 23% reported that they are unable to easily anticipate how many hours they will be scheduled to work from week to week.

**Table 1.** Demographic differences between workers who are likely and not likely to report intent to leave OutfirmX in the next 12 months (N = 270)

Variable	Intent to turnover			$\chi^2$ statistic
	Total (N = 270) % (N)	Not Likely (n = 150) % (n)	Likely (n = 118) % (n)	
Worker Group				
• Housekeeping	54.9 (147)	49.0 (72)	51.0 (75)	6.46**
• Dietary	45.1 (121)	64.5 (78)	35.5 (43)	
Gender				
• Male	27.6 (71)	60.6 (43)	39.4 (28)	0.69
• Female	72.4 (186)	54.8 (102)	45.2 (84)	
Race				
• White	32.9 (83)	67.5 (56)	32.5 (27)	6.66**
• Non-White	67.1 (169)	50.3 (85)	49.7 (84)	
Education				
• High school diploma or less	61.2 (158)	57.6 (91)	42.4 (67)	0.32
• Some college or more	38.8 (100)	54.0 (54)	46.0 (46)	
Marital status				
• Married/living with partner	42.9 (111)	62.2 (69)	37.8 (42)	2.65
• Not married/living with partner	57.1 (148)	52.0 (77)	48.0 (71)	
Kids under age 18 in the home				
• No	52.3 (134)	63.4 (85)	36.6 (49)	5.28*
• Yes	47.7 (122)	49.2 (60)	50.8 (62)	
Health insurance at work				
• No	51.5 (136)	47.1 (64)	52.9 (72)	8.45**
• Yes	48.5 (128)	64.8 (83)	35.2 (45)	
Employment status				
• Full-time	80.8 (215)	53.5 (115)	46.5 (100)	2.10
• Part-time	19.2 (51)	64.7 (33)	35.3 (18)	
	<b>M (SD)</b>	<b>M (SD)</b>	<b>M (SD)</b>	<b>t-test statistic</b>
Age	40.59 (15.30)	45.19 (15.33)	34.54 (12.96)	5.71***
Typical hours worked	37.35 (10.29)	36.41 (9.50)	38.54 (11.26)	-1.61
Hourly pay	10.49 (2.05)	11.10 (2.45)	9.75 (1.00)	5.84***
Supervisor support	3.15 (0.83)	3.36 (0.64)	2.89 (0.95)	4.48***
Affective commitment	3.61 (0.83)	3.87 (0.65)	3.28 (0.92)	5.63***

Note. n's for those not likely to turnover range from 133 to 150 due to occasional missing data; n's for those likely to turnover from 98 to 118 due to occasional missing data; N's range from 252 to 268 due to occasional missing data; \*p < .05; \*\*p < .01; \*\*\*p < .001

Schedule instability was significantly higher for dietary workers in all three forms. Almost twice the proportion of dietary workers (55%) experienced frequent fluctuations in the number of hours worked in comparison to housekeepers (22.9%;  $\chi^2 [1] = 28.75, p < .001$ ); nearly 30% of dietary workers versus nearly 15% of housekeepers experienced supervisor adjustments to schedule without consent ( $\chi^2 [1] = 8.96, p = .003$ ); and 45% of dietary workers experienced last-minute schedule changes in comparison to nearly 25% of housekeepers ( $\chi^2 [1] = 12.01, p = .001$ ).

There were also similarities between housekeeping and di-

etary service workers regarding two of the three forms of schedule rigidity. Over 70% of all workers reported that they had no input into the start and end times of their workdays and 43% reported that they are not able to change their schedule to accommodate unplanned family or personal matters.

### 4.3 The relationship between scheduling challenges and intent to leave

In all models, age and pay had significant negative relationships with intent to leave. Workers who were younger and those who were paid a lower hourly wage had increased odds

of intending to leave OutfirmX within the next 12 months. Interactions testing the moderating effect of worker group were entered in Step 3 for all four models and all were non-significant, so the reduced models were retained.

**4.3.1 Schedule unpredictability (Model 1)**

Model 1 analyzed the relationship between schedule unpredictability and intent to leave OutfirmX within the next 12 months. Final model fit was statistically significant ( $\chi^2 [9] = 43.76, p < .001$ ). One of the three types of schedule unpredictability, not knowing the days and times of work from week-to-week, was found to be a significant predictor of intent to leave ( $B = 0.78, OR = 2.18, p = .050$ ) and workers who reported this form of unpredictability in scheduling had 2.18 times higher odds of also reporting that they intended

to leave, controlling for other predictors in the model.

**4.3.2 Schedule instability (Model 2)**

Model 2 analyzed the relationship between schedule instability and intent to leave OutfirmX within the next 12 months. The final model fit was statistically significant ( $\chi^2 [9] = 48.26, p < .001$ ). One form of instability, last-minute schedule changes during the work week, was a significant predictor of intent to leave ( $B = 0.90, OR = 2.45, p = .011$ ). Workers who reported frequently experiencing this form of schedule instability had 2.45 times higher odds of intent to leave. Worker group was also found to significantly predict intent to leave, such that housekeepers had almost twice the odds of intending to leave, when compared to dietary service workers ( $B = 0.63, OR = 1.88, p = .053$ ).

**Table 2.** Sample differences between housekeeping and dietary workers at OutfirmX (N = 270)

Variable	Worker group			$\chi^2$ statistic
	Housekeeping (n = 147) % (n)	Dietary (n = 123) % (n)	Total (N = 270) % (N)	
Gender				
• Male	32.6 (46)	21.2 (25)	27.4 (71)	4.22*
• Female	67.4 (95)	78.8 (93)	72.6 (188)	
Race				
• White	20.7 (29)	47.8 (54)	32.8 (83)	20.79***
• Non-White	79.3 (111)	52.2 (59)	67.2 (170)	
Education				
• High school diploma or less	67.4 (97)	53.0 (61)	61.0 (158)	5.51*
• Some college or more	32.6 (47)	47.0 (54)	39.0 (101)	
Marital status				
• Married	43.1 (62)	42.2 (49)	42.7 (111)	0.02
• Single	56.9 (82)	57.8 (67)	57.3 (149)	
Kids under age 18 at home				
• Yes	52.4 (75)	42.1 (48)	47.9 (123)	2.72
• No	47.6 (68)	57.9 (66)	52.1 (134)	
Provides care for disabled/ill/elderly				
• Yes	18.3 (26)	26.3 (31)	21.9 (57)	2.39
• No	81.7 (116)	73.7 (87)	78.1 (203)	
Intent to turnover				
• Likely	51.0 (75)	35.5 (43)	44.0 (118)	6.46**
• Not likely	49.0 (72)	64.5 (78)	56.0 (150)	
Employment status				
• Full-time	91.8 (134)	68.0 (83)	81.0 (217)	24.33***
• Part-time	8.2 (12)	32.0 (39)	19.0 (51)	
	<b>M (SD)</b>	<b>M (SD)</b>	<b>M (SD)</b>	<b>t-test statistic</b>
Age	39.82 (15.01)	39.30 (15.72)	39.59 (15.30)	0.25
Typical hours worked	39.88 (8.59)	34.40 (11.31)	37.35 (10.29)	4.36***
Hourly pay	9.94 (1.44)	11.14 (2.44)	10.49 (2.05)	-4.60***

Note. n's for housekeeping range from 140 to 147 due to occasional missing data; n's for dietary range from 113 to 123 due to occasional missing data; N's range from 253 to 268 due to occasional missing data; \* p < .05; \*\* p < .01; \*\*\* p < .001

**Table 3.** Scheduling challenges reported by housekeeping and dietary workers at OutfirmX (N = 270)

Variable	Housekeeping (n = 147), % (n)	Dietary (n = 123), % (n)	Total (N = 270), % (N)	$\chi^2$ statistic
<b>Schedule Unpredictability</b>				
• Advance notice of schedule is 1 week or less.	20.5 (30)	14.8 (18)	17.9 (48)	1.52
• Advance notice of schedule is more than 1 week.	79.5 (116)	85.2 (104)	82.1 (220)	
• Subject to unpredictable days/times of work.	27.6 (40)	30.8 (37)	29.1 (77)	0.34
• Not subject to unpredictable days/times of work.	72.4 (105)	69.2 (83)	70.9 (188)	
• Subject to unpredictable number of hours of work.	19.7 (28)	27.5 (33)	23.3 (61)	2.21
• Not subject to unpredictable number of hours of work.	80.3 (114)	72.5 (87)	76.7 (201)	
<b>Schedule Instability</b>				
• Frequently subject to variation in work hours each week.	22.9 (33)	55.0 (66)	37.5 (99)	28.75***
• Not subject to frequent variation in work hours each week.	77.1 (111)	45.0 (54)	62.5 (165)	
• Supervisor frequently changes schedule without consent.	14.6 (21)	29.8 (36)	21.5 (57)	8.96***
• Supervisor does not change schedule frequently without consent.	85.4 (123)	70.2 (85)	78.5 (208)	
• Frequently subject to last-minute schedule changes.	24.6 (35)	45.0 (54)	34.0 (89)	12.01***
• Not frequently subject to last-minute schedule changes.	75.4 (107)	55.0 (66)	66.0 (173)	
<b>Schedule Rigidity</b>				
• No input in the start/end times of the workday.	73.6 (103)	72.6 (85)	73.2 (188)	0.03
• Some input in the start/end times of the workday.	26.4 (37)	27.4 (32)	26.8 (69)	
• Difficulty changing schedule for planned family/personal matters.	50.3 (73)	40.2 (49)	45.7 (122)	2.77 <sup>t</sup>
• No difficulty changing schedule for planned personal/family matters.	49.7 (72)	59.8 (73)	54.3 (145)	
• No ability to modify schedule for unplanned family/personal matters.	47.1 (66)	38.3 (46)	43.1 (112)	2.05
• Ability to modify schedule for unplanned family/personal matters.	52.59 (74)	61.7 (74)	56.9 (148)	

Note. n's for housekeeping range from 140 to 146 due to occasional missing data; n's for dietary range from 117 to 122 due to occasional missing data; N's range from 262 to 268 due to occasional missing data; <sup>t</sup>p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001

**4.3.3 Schedule rigidity (Model 3)**

Model 3 analyzed the relationship between schedule rigidity and intent to leave OutfirmX within the next 12 months, and the overall model was statistically significant ( $\chi^2$  [11] = 45.82,  $p < .001$ ). One form of schedule rigidity was significantly predictive of intent to leave; workers who have no input into their schedule have reduced odds of intending to leave OutfirmX within the next 12 months ( $B = -0.73$ ,  $OR = 0.48$ ,  $p = .022$ ).

**4.3.4 Omnibus model (Model 4)**

In Model 4, the three significant scheduling challenges found in Models 1-3 were combined to analyze their influence on turnover intent relative to one another. Only two of the scheduling challenges remained significant in relation to turnover intent. Schedule instability resulting from last-minute schedule changes during the week was a significant predictor of intent to leave ( $B = 0.80$ ,  $OR = 2.22$ ,  $p = .015$ ). Schedule rigidity in the form of workers who have no input into schedule was also a significant predictor of intent to leave ( $B = -0.66$ ,  $OR = 0.52$ ,  $p = .038$ ). The final model fit was statistically significant ( $\chi^2$  [9] = 51.95,  $p < .001$ ).

**5. DISCUSSION**

This is the first study, to the authors' knowledge, to identify the prevalence of specific scheduling challenges experienced by hospital housekeeping and dietary service workers,

whether certain types of scheduling challenges are more prominent within one occupational group compared to another, and to definitively connect certain scheduling challenges to increased turnover intentions among these workers. Our results have important managerial implications for the health care industry as they indicate that schedules matter to turnover intentions among a worker population that can influence patient satisfaction.<sup>[20]</sup>

Overall, all three forms of scheduling challenges were reported by workers employed by OutfirmX. Schedule rigidity was most dominant, with significantly more housekeepers reporting that they experience difficulty changing their schedule for planned family and personal matters. Schedule instability was significantly more prevalent among dietary service workers than among housekeepers. These findings are consistent with scheduling practices common within retail industries, where 60% to 70% of workers experience weekly fluctuations in scheduled hours<sup>[36]</sup> and also with national work schedule trends.<sup>[25]</sup> The least prevalent scheduling challenge reported by workers in this study was schedule unpredictability. This is in contrast to national trends; for example, 18% of OutfirmX workers reported less than one week in advance schedule notice, compared to 41% of workers who reported this nationally.<sup>[25]</sup> The low prevalence of schedule unpredictability among our sample may be partly due to the high number of full-time employees in our sample,

which is consistent with health care industry trends.<sup>[41]</sup> By identifying the most common scheduling challenges, hospital managers can develop specific and relevant solutions that are targeted to reduce these challenges for workers.

This study also revealed that scheduling challenges significantly increase the odds of turnover intentions, providing an opportunity for managers who oversee the work schedules of frontline support workers to address these scheduling challenges and reduce turnover intentions. Workers who experienced unpredictability in the days and times that they are scheduled or frequent last minute schedule changes have a higher odds of leaving their job than their colleagues who do not experience these scheduling challenges. Additionally, those workers who did not have input into the start and end times of work shifts had reduced odds of leaving their

job; this form of rigidity in scheduling may be experienced by these workers as schedule stability, providing additional evidence that scheduling stability has a significant relationship to turnover intent. Our results also indicate that when these three distinct forms of scheduling challenges are considered together unpredictability in days and times scheduled to work, frequent last minute scheduling challenges and lack of schedule input in start and end times influence workers' turnover intentions. These scheduling practices have major implications for workers' ability to manage caregiving responsibilities, pursue academic endeavors, work a second job or arrange transportation.<sup>[25,42]</sup> Even if the work is meaningful, these scheduling challenges may be too difficult to endure and motivate workers to consider looking for other employment opportunities.

**Table 4.** Models 1-3: Binary logistic regression analyses predicting intent to turnover based on types of schedule unpredictability, instability, and rigidity for housekeeping and dietary workers at OutfirmX (N = 270)

Variable	Model 1			Model 2			Model 3		
	B	SE	OR	B	SE	OR	B	SE	OR
<b>Control Variables: Worker and job characteristics</b>									
• Worker group (Housekeeping = 1)	0.43	0.30	1.54	0.63*	0.33	1.88	0.44	0.31	1.55
• Race (White = 1)	-0.16	0.35	0.85	-0.27	0.35	0.76	-0.04	0.35	0.96
• Kids < 18 years old at home (Yes = 1)	0.11	0.30	1.11	-0.02	0.30	0.98	-0.02	0.30	0.99
• Age	-0.04***	0.01	0.96	-0.04***	0.01	0.96	-0.04***	0.01	0.96
• Hourly pay	-0.26**	0.10	0.77	-0.27*	0.11	0.77	-0.28**	0.11	0.75
• Health insurance at work (No = 1)	0.30	0.29	1.35	0.29	0.29	1.34	0.39	0.29	1.47
<b>Model 1: Types of schedule unpredictability</b>									
• Advance notice of schedule less ≤ 1 week = 1	0.03	0.38	1.03						
• Days/times of work are unpredictable = 1	0.78*	0.40	2.18						
• Total hours of work are unpredictable = 1	-0.57	0.44	0.56						
<b>Model 2: Types of schedule instability</b>									
• Frequent fluctuation in hours worked = 1				-0.21	0.34	0.81			
• Frequent schedule changes without consent = 1				0.17	0.42	1.18			
• Frequent last-minute schedule changes = 1				0.90**	0.35	2.45			
<b>Model 3: Types of schedule rigidity</b>									
• Employee has no input in start/end times = 1							-0.73*	0.32	0.48
• Difficulty changing schedule for planned events = 1							0.29	0.29	1.33
• Difficulty changing schedule for unplanned events = 1							0.46	0.30	1.58
<b>Constant</b>	3.60**	1.19	36.43	3.43**	1.23	30.73	4.01**	1.30	55.07
<b>Model Summary</b>									
• Omnibus $\chi^2$ (df)	43.76 (9), $p < .001$			48.26 (9), $p < .001$			46.43 (9), $p < .001$		
• Nagelkerke $R^2$	0.27			0.29			0.29		

Note. The unstandardized regression coefficient (B); standard error (SE) and odds ratio (OR) figures reported are multiple imputation pooled estimates; Model summary figures were calculated with the original data (Model 1 N = 198; Model 2 N = 197; Model 3 N = 189); \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Our results also suggest that the effect of scheduling challenges on turnover did not vary by occupational groups, indicating that certain forms of unpredictable, unstable and rigid scheduling practices contribute to turnover intentions

among both worker groups. This finding, in combination with the results that housekeepers and dietary service workers vary in their experience of the three types of scheduling challenges, implies that hospital human resource policies and

supervisor/management strategies pertaining to the assignment and management of work schedules may need to be broad enough to be inclusive of how work is organized for different hospital support staff within one organization.

In light of these findings, hospital human resource and operational managers should consider the implications that scheduling practices may have on frontline support worker turnover, and subsequently patients. Providing workers with work schedules that are predictable in terms of the number of hours, as well as the days and times one is scheduled to work from week to week may help to minimize turnover intentions and actual turnover, which ultimately impacts patient care. Establishing policies that would either minimize last minute schedule changes or create a strategy that would give workers some input into schedule creation would also be beneficial.

Our research also reveals that younger workers and those who are paid less per hour have increased odds of turnover intentions. These findings are consistent with other turnover literature on workers employed by health care organizations.<sup>[43-45]</sup> The latter finding lends support to the growing national momentum for increasing the minimum wage to a livable wage.<sup>[46]</sup> It also lends support for health care organizations to consider offering front-line hospital support workers a livable wage in an effort to retain a valuable frontline support workforce that provides quality service to patients, family members and visitors.

## 6. CONCLUSIONS

Although our study is among the few examining the effect of scheduling challenges on frontline hospital support workers, our findings should be considered within the context of the study limitations. The sample is limited to hourly, hospital housekeeping and dietary service workers that were employed by an outside contracting firm in one specific area of the U.S., so caution should be exercised in generalizing results to other populations. The workers were surveyed at work and were encouraged to participate by management. Despite being advised of their anonymity, workers may have responded with less accuracy (more positively) when reporting issues at work due to this association.

The single item scheduling measures, while generated from the relevant literature, may not completely capture the full meaning of each construct. The types of scheduling challenges assessed in this study are a recent trend that has emerged in the last 10-15 years;<sup>[25,26]</sup> refined measures that are transferable across industries are still in developmental

stages.<sup>[16,26]</sup> As such, we included measures that have been used in previous research and that we thought best fit the nature of the occupational groups studied. The single item turnover intention measure is another limitation of the study. Although, ample research has found that single item measures are strongly correlated with multi-item measures<sup>[47]</sup> and it is likely this item accurately reflects the intention that workers have to turnover, there is the possibility that turnover intent among this population of more vulnerable workers does not reflect actual turnover as accurately as it does among professional, white-collar workers.<sup>[48]</sup>

Despite these limitations of the study, this is one of the first studies to determine the prevalence of scheduling challenges among hospital-based housekeepers and dietary service workers and to assess the relationship of these challenges to turnover intentions. It contributes to the body of literature about scheduling practices and turnover in the health care industry and scheduling challenges of frontline support workers. This rare convergence of the interests of a marginalized worker group with those of a Fortune 500 corporation provides an important and much needed opportunity to create change by engaging employers. However, more studies are needed to fully solidify the idea that historically adversarial groups can find common ground and goals in regard to workplace scheduling practices. Research which can quantify the financial advantage of improving hospital scheduling practices in regard to frontline support workers would be particularly compelling.

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## CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflict of interest.

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