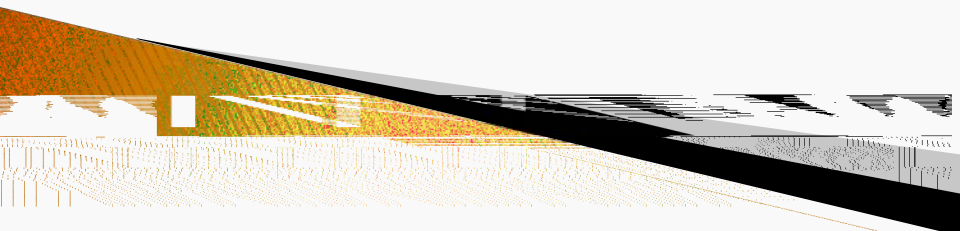


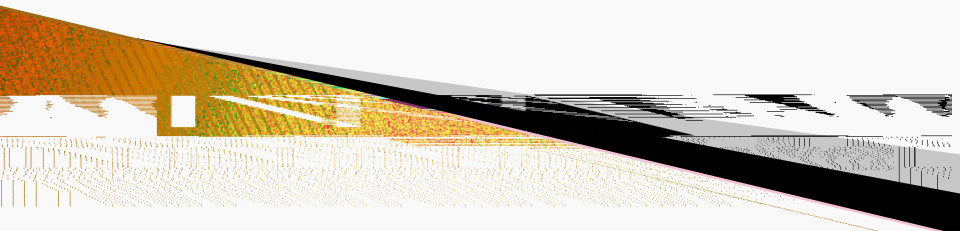
Amany Farag PhD, RN

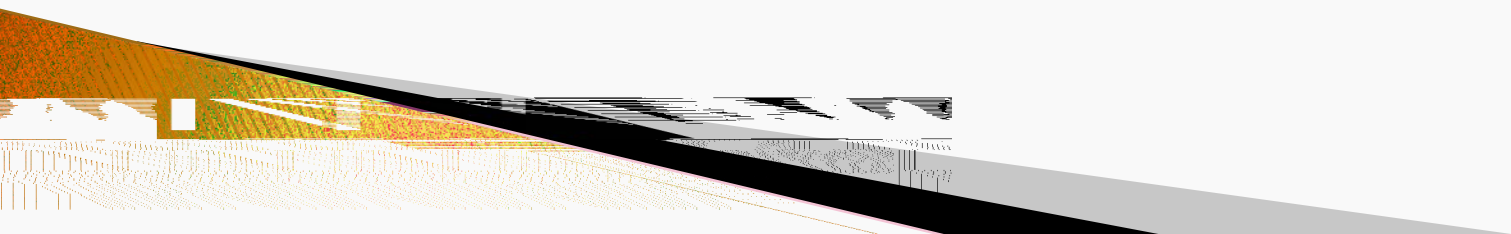
March 22, 2021

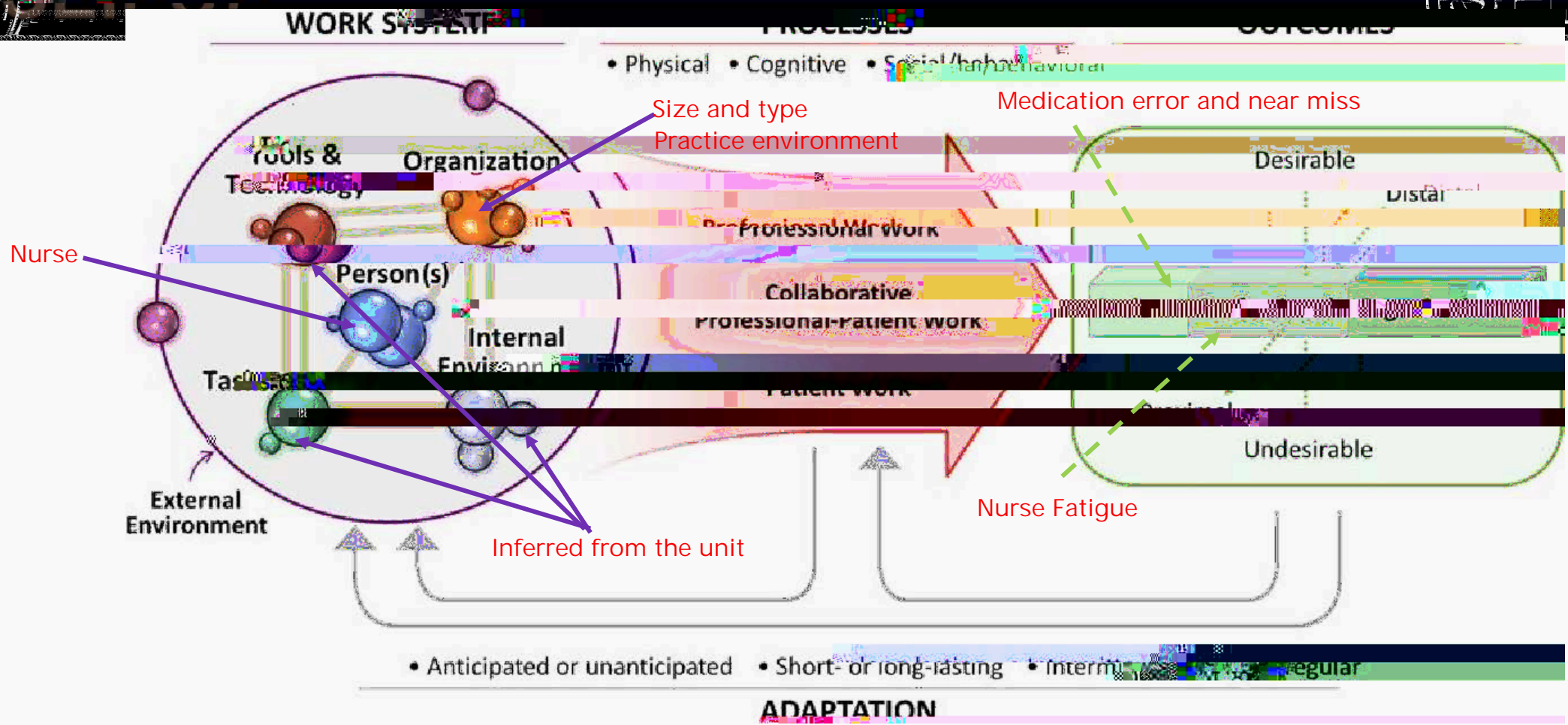
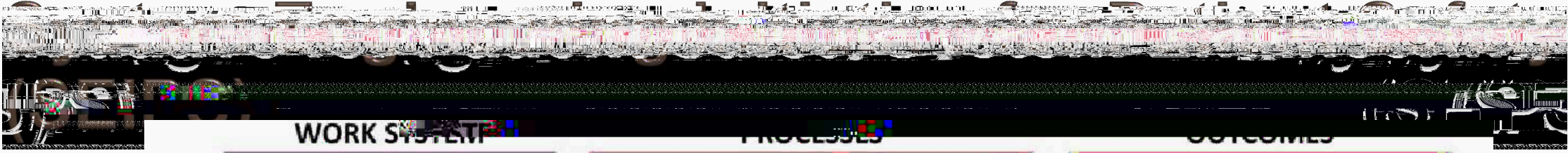


About 37.9% of the working population in the United States suffer from occupational fatigue.¹

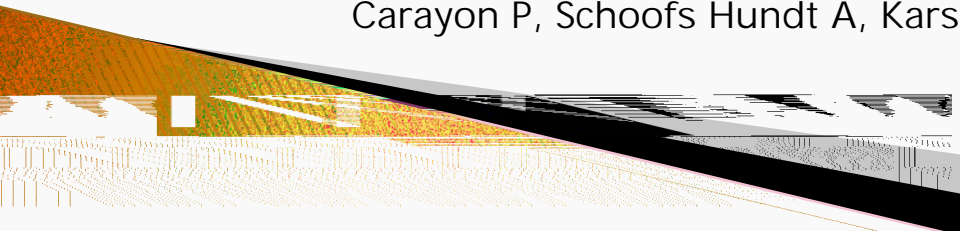
Occupational fatigue is a multi-causal and multidimensional phenomenon



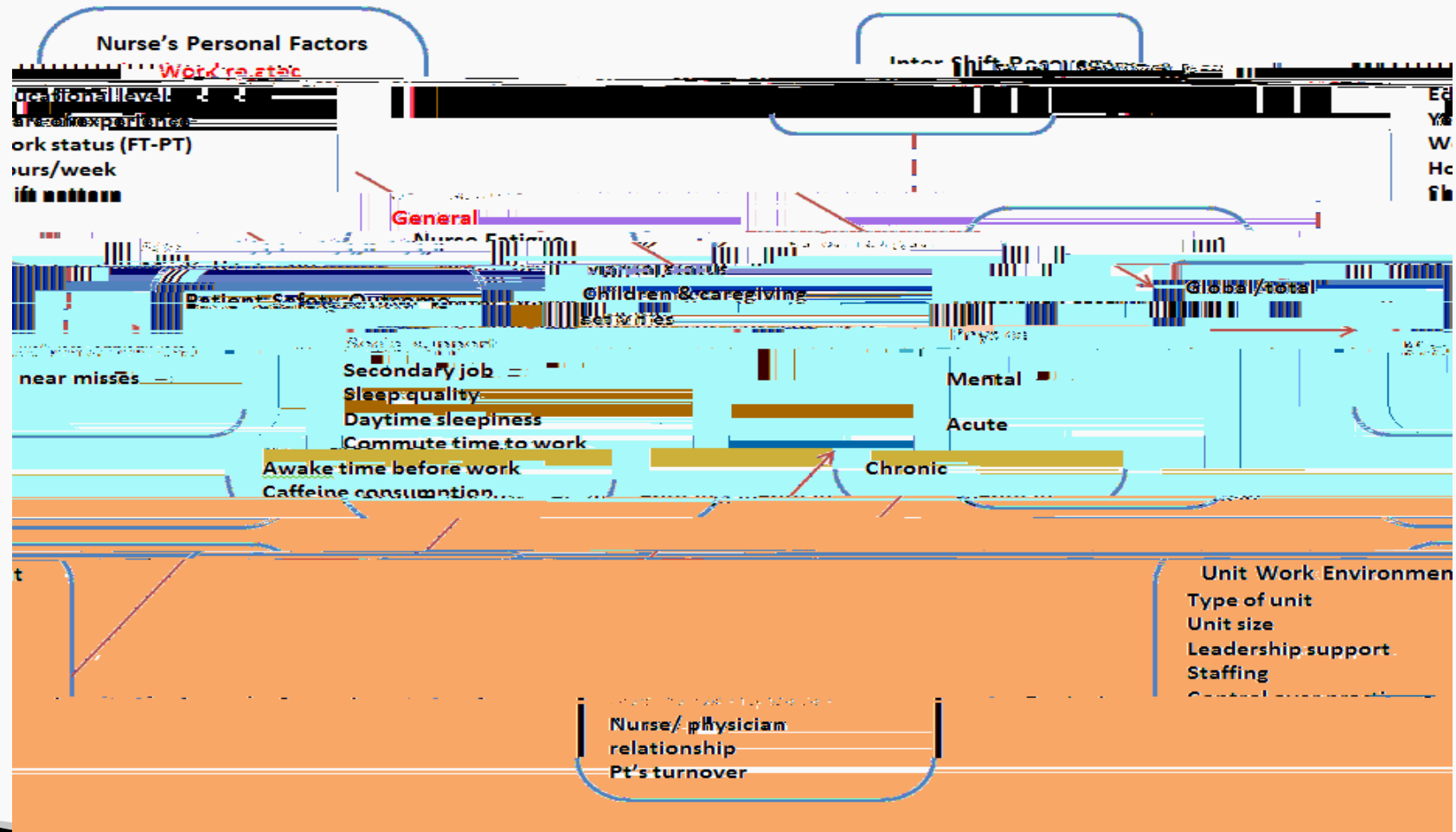




Carayon P, Schoofs Hundt A, Karsh T, Gurses P, Alvarado C, Smith M, Flatley Brennan P



Study Model

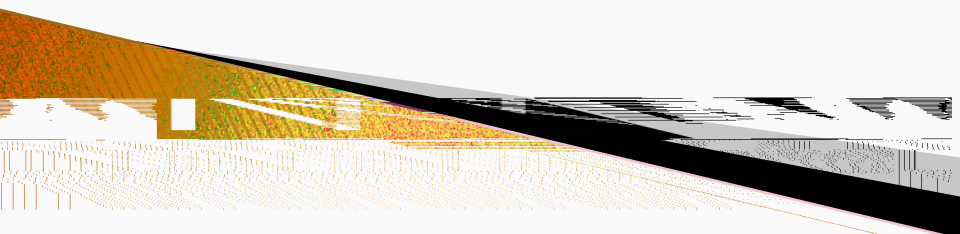


Design

- Multi-phased mixed method design.

Setting

- All in-patient units within a convenience sample of 8 hospitals across one Midwestern state.



Method

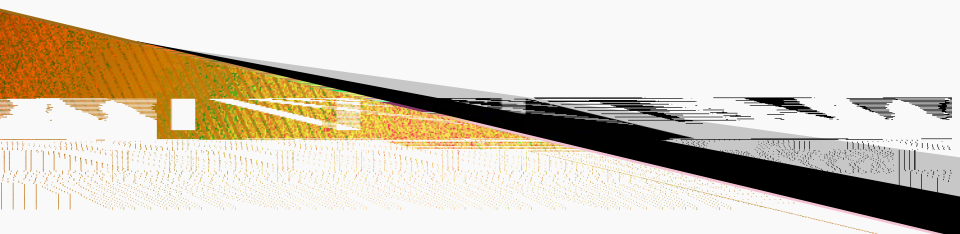
Measurements

Demographics and personal factors	Investigator developed questions	Age, gender, employment status, years of experience, working hours/week, shift work, marital status, secondary job, No. of children, one-way commute time, exercise, caffeine consumption, and perceived social support.
Work environment	The Practice Environment Scale (PES) Lake (2002) and Aiken (2002)*.	Three subscales of leadership support (5 items), collegial nurse-physician relationship (3 items), and Staffing and resource adequacy *(4 items) were used. Nurses completed each item using 4-point Likert scale ranging from

Method

Measurements

Sleep Quality	Pittsburg Sleep Quality Index (PSQI) Buysse, Reynolds, Monk, Berman & Kupfer (1989)	PSQI consists of 19 items covering 7 subscales of: sleep duration, disturbance, latency, efficiency, day dysfunction, need for medication, and overall sleep quality. subscales score range from 0-21; a lower score indicates better sleep quality, cut off point is 5.
Day time sleepiness	Epworth Sleepiness Scale (ESS) Johns (1991)	Nurses used 4-point Likert scale ranging from (0) would never doze to (3) high chance of dozing, to indicate the chances of dozing while engaged in 8 different daily situations. Score ranges from 0-24, lower score is better, cut off point is 8.



Measurement

Fatigue Physical		

Method

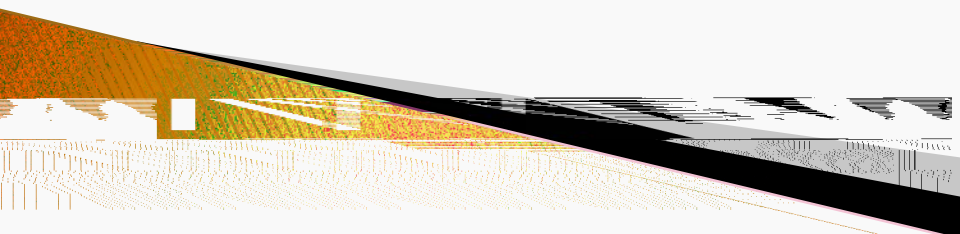
Measurement

Medication error and near miss	Investigator developed questions.	Nurses used two dichotomous questions (Yes-No) and cannot remember to indicate if they remembered to indicate its medication 5 (e) 2.9



Phase one (Survey)

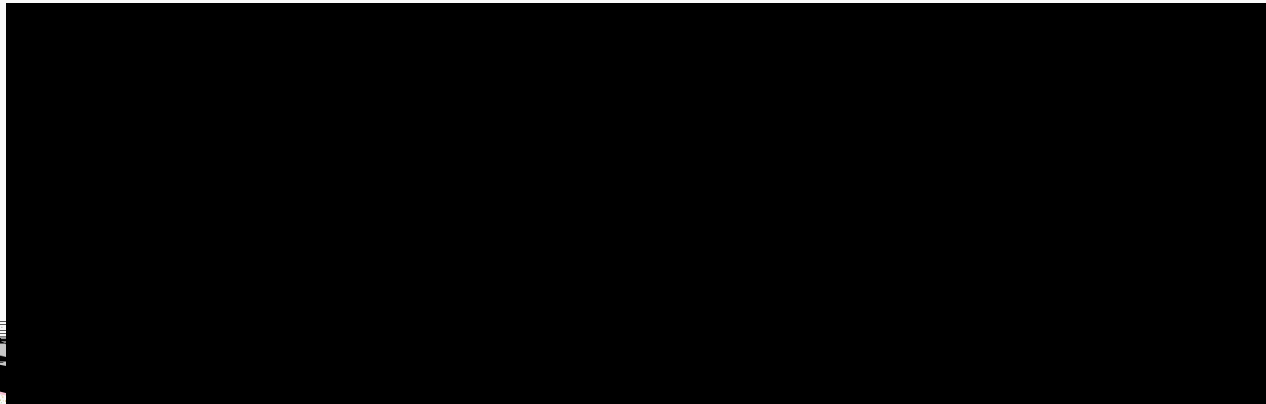
- The PI attended all the staff meetings, introduced the study, and distributed the study package in the nurses' mailboxes.
- The study package contained invitation to the second and third phases of the study.
- Weekly reminder flyers and a last call flyer were distributed over 3 weeks period.
- Each participant received a \$20 compensation after receiving the completed survey.
- A total of 1137 completed the study surveys and mailed it back.





Phase two (text messaging- EMA) Initiation of texting activities.

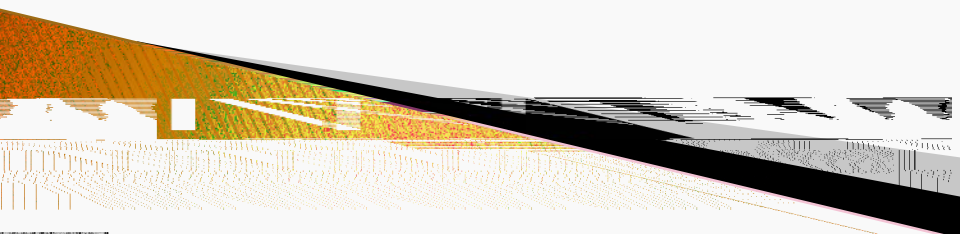
- Participants who agreed to participate in the second phase were called and entered into specifically designed texting platform.
- To account for possible schedule change, the first text was intended to verify if the participant is still working as scheduled or not.
- Each participant received \$ 90 for participating for 14 days and \$10 bonus for complete texting (at least 75%)
- A total of 1031 consented to the second phase, however, only 675 were successfully enrolled.



Phase 3 (Qualitative interview)

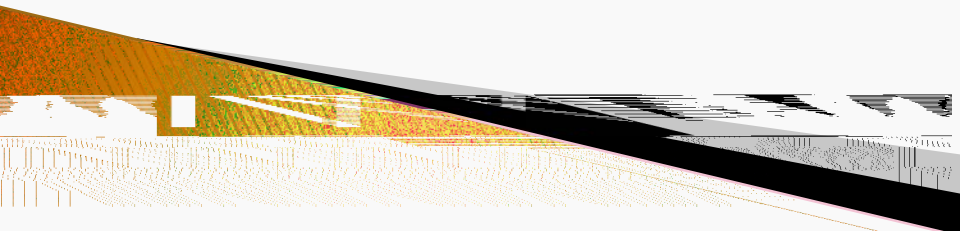
- Nurses fatigue scores and their medication error responses were used to classify nurses into 4 groups of High fatigue/ had error; high fatigue/ no error; low fatigue/ had error; low fatigue/ no errors
- A random sample of nurses (30 from each group) were invited to a 20-30 min qualitative interview about fatigue recovery measures used during work and off-work days.
- Participants' compensation (\$40).
- A total of 120 invitation were mailed to nurses; 42 responded and completed the interview.

Variable	Mean (SD)	Min-Max
Age	35.11(m (Ag)380	



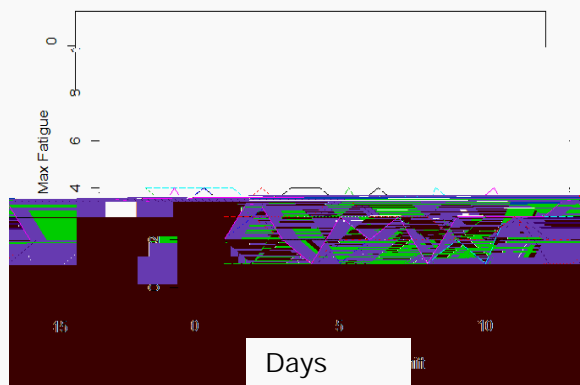
Marital status (n=1137): Married	599	52.6
Single	321	28.2
Education (n=1137): Associate	329	28.9
BSN	721	63.3
Type of Unit (n=1133): Medical/Surgical	259	22.7
Critical care	293	25.7
Pediatrics	206	18.1
Mother baby	123	10.9
Specialty units	129	11.4
Employment status (n=1131): Full time	799	70.1
Living with children (n=1137): No	665	58.4
Age of youngest child (n=472): Toddler 1-3y	132	27.9
Secondary Job (n=1133): No	984	86.4

*only high percent are reported

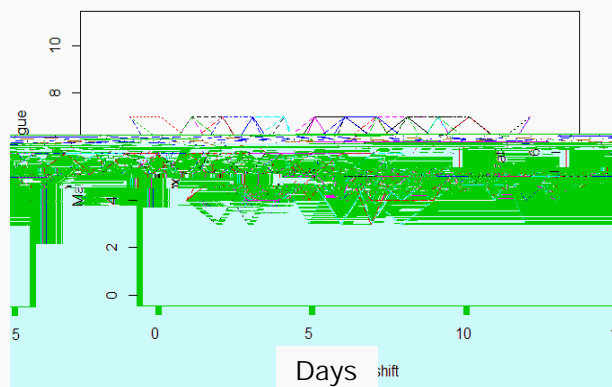




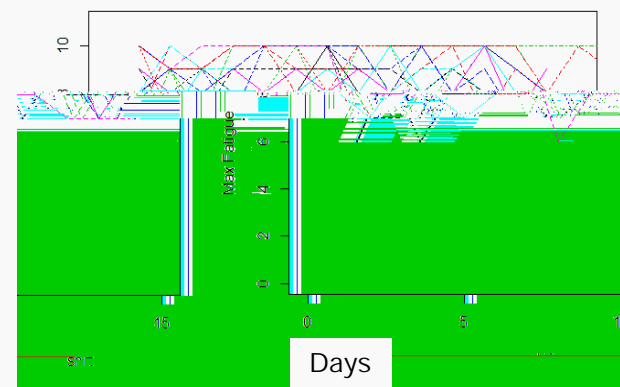
Cluster 1 (n=9)



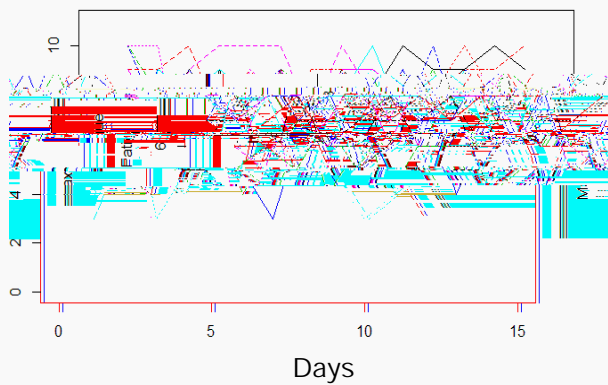
Cluster 2 (n=23)



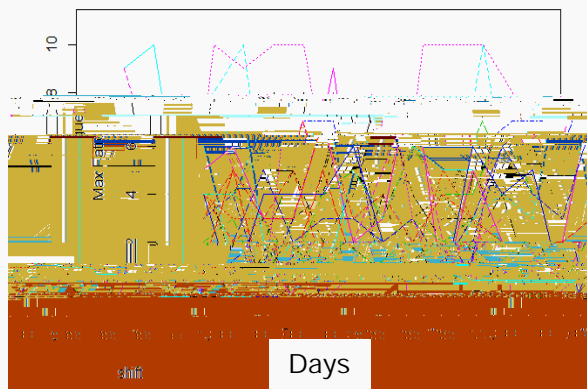
Cluster 3 (n=14)



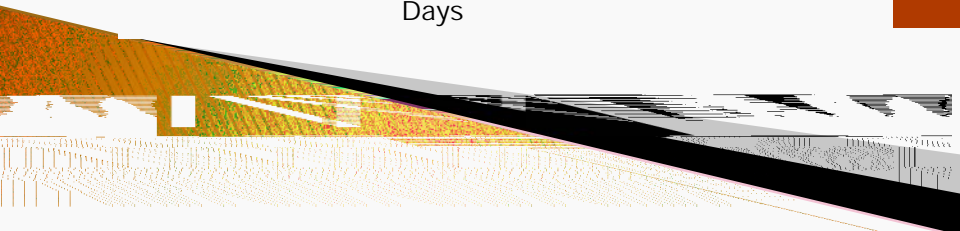
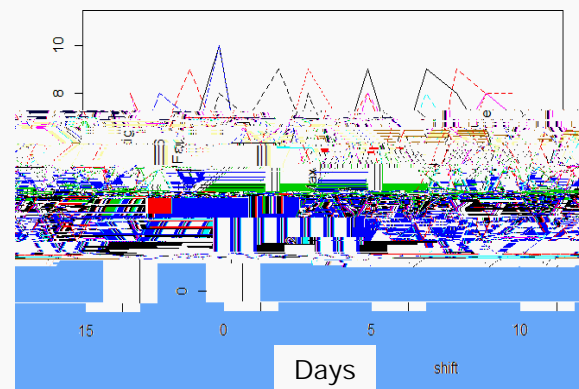
Cluster 4 (n=204)

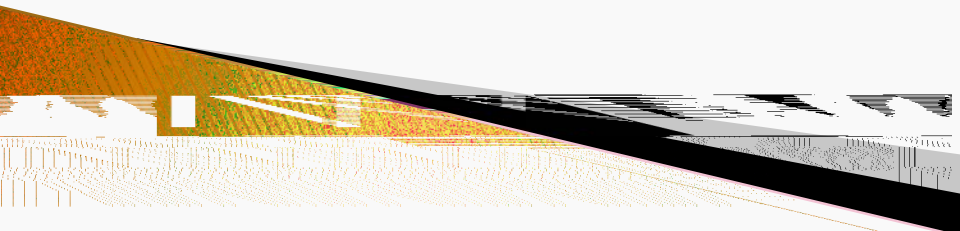


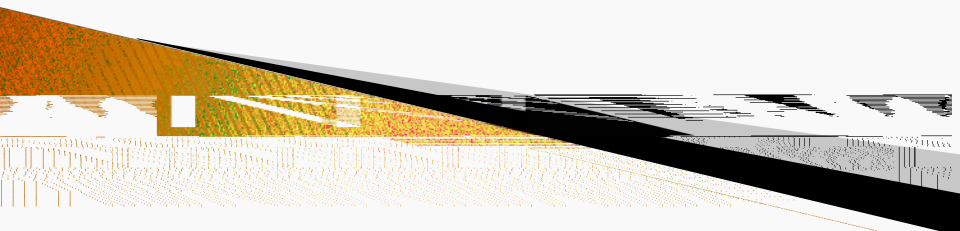
Cluster 5 (n=92)

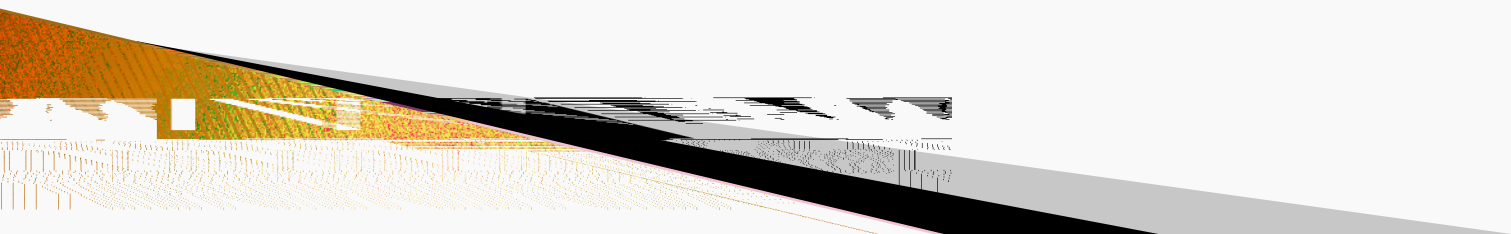


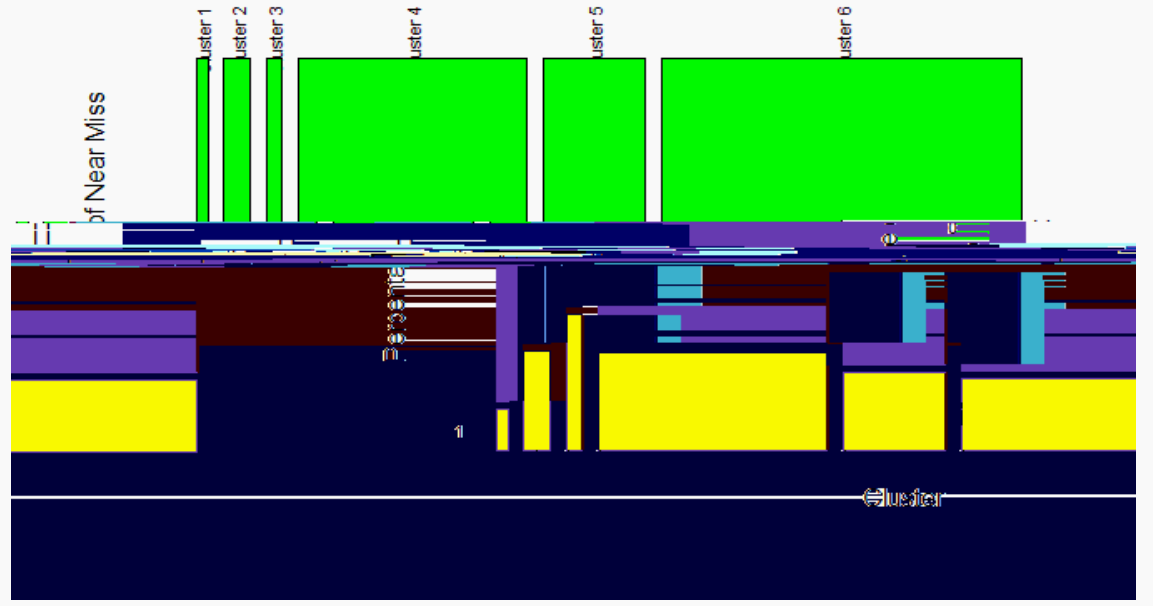
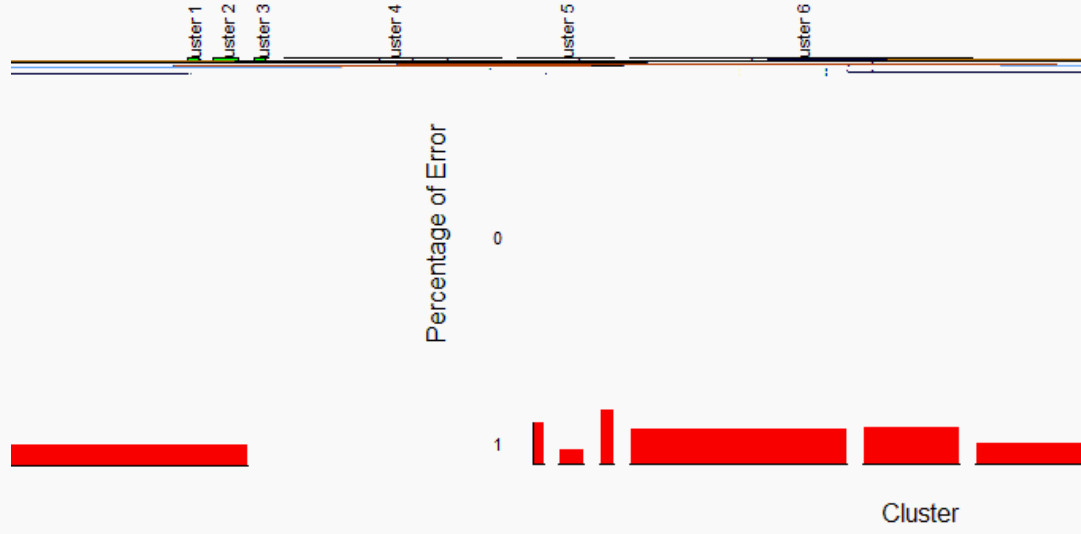
Cluster 6 (n=323)





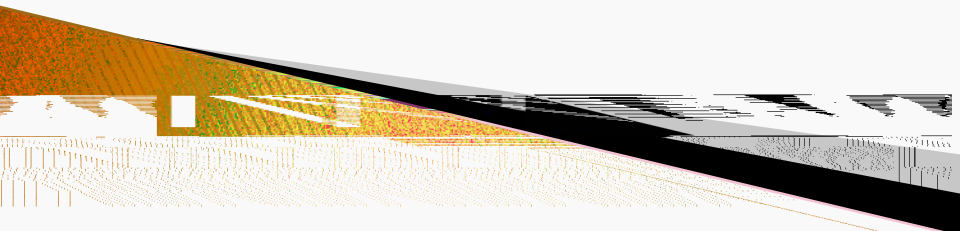






Fatigue is a multicausal multidimensional phenomenon.

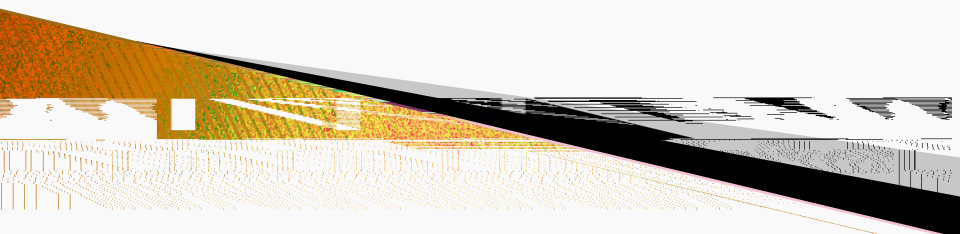
- Sleep quality, exercise, caffeine consumption before work, staffing and resource adequacy were among the strongest predictors of various fatigue types.
- Nurses are more mentally than physically fatigued.
- Surprisingly, day shift nurses were more fatigued than nightshift nurses, however, night shift delayed nurse recovery.
- Caregiving responsibilities and second job were not associated with fatigue.
- Nurse fatigue was associated with medication error and near



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Image : Journal of Nursing Scholarship.



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