

Using qualitative data to inform the feasibility of workload monitoring within law enforcement officers

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Agenda



Background



Quantitative Findings



Qualitative Methodology



Results



Conclusions & Reflections

Background on Law Enforcement



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Law Enforcement in the United States



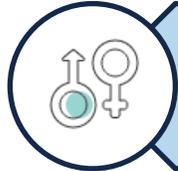
Police and Sheriff's Patrol Officers

688,400



Average Age

40 years



Gender

Male: 86% Female: 14%



Race & Ethnicity

White: 67% Black: 12% Hispanic: 17%



Most Common Degree

Baccalaureate





Essential Tasks & Skills



Critical and essential physically demanding tasks¹:

- Pursuing suspects (climbing stairs or fences)
- Restraining and controlling a suspect
- Relocating a downed victim

Skills:

- + Decision Making
- + Critical Thinking
- + Social Perceptiveness
- + Negotiation
- + Monitoring



CONTACT WITH
OTHERS



FREQUENCY OF
DECISION
MAKING



ENCLOSED IN
VEHICLE



RESPONSIBLE
FOR OTHERS'
HEALTH &
SAFETY



FREQUENCY
OF CONFLICT
SITUATIONS

¹Jamnik et al, 2013; O*NET 2022



Current State of Law Enforcement Officer Health



POOR HEALTH PROFILE



LOWER LIFE EXPECTANCY



POOR PHYSICAL
ACTIVITY HABITS



WORK-RELATED
STRESS



SHIFTWORK



- 1.7-fold higher CVD prevalence
- ↑ on-duty CVD events
- 82% are overweight or obese
- Work stress →
↑ CVD risk / ↓ sleep / low PA



Injury Risk within Law Enforcement Officers



- 10th most dangerous occupation within US¹
 - Three times higher injury rate than all other US workers²
 - Increased 1.2% annually from 2003-2014
- Majority of non-fatal injuries are musculoskeletal (MSK) in nature
 - Slips, trips, and falls³
 - Overexertion³
 - Recent 9.5% increase in violence and assaults²
- Most common regions: upper extremity, lower extremity, and torso
 - Annual cost of over \$3 million⁴
 - 38% result in lost time from work⁵





Examples of Law Enforcement Shift Schedules



- Shift Rotation
 - Consecutive days; days per month
- Shift Type
 - Day or Night shift
- Shift Entry Points
 - e.g., 6am-6pm; 6pm-6am; 4pm-2:30am
 - Length may vary (12 hr, 10.5 hr)
- Fixed or Not
 - Rotates D→N and N→D
 - e.g., every 2 weeks, every 6 months

2021 AUGUST						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 OFF	2 ON	3 ON	4 OFF	5 OFF	6 ON	7 ON
8 ON	9 OFF	10 OFF	11 ON	12 ON	13 OFF	14 OFF
15 OFF	16 ON	17 ON	18 OFF	19 OFF	20 ON	21 ON
22 ON	23 OFF	24 OFF	25 ON	26 ON	27 OFF	28 OFF
29 OFF	30	31				

Note: 2 or 3 consecutive 12-hr shifts, 14 shifts per month

2021 AUGUST						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 OFF	2 ON	3 ON	4 ON	5 ON	6 ON	7 OFF
8 OFF	9 OFF	10 OFF	11 ON	12 ON	13 ON	14 ON
15 ON	16 OFF	17 OFF	18 OFF	19 OFF	20 ON	21 ON
22 ON	23 ON	24 ON	25 OFF	26 OFF	27 OFF	28 OFF
29 OFF	30	31				

Note: 5 consecutive 10.5-hr shifts, 15 shifts per month

Background on Workload Monitoring



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What is Workload Monitoring?



- Promising tool within team sports as an injury prevention method^{1,2}
- Captured with a variety of methods
 - Internal load = psychophysiological response
 - External load = physical demands
- Greater prior day workload and greater monthly workloads associated with higher risk of injury (OR=1.54-1.98)³
- Relative loads examine the relationship between fatigue versus fitness⁴
- ↑ relative workload increases risk of injury, especially when coupled with low chronic loads^{5,6}
 - ↑ fitness levels tolerate higher loads and exhibit a lower risk of injury^{5,7,8}



Workload Survey

- External workload
 - Number and duration of calls within given work shift
 - Department's reporting systems

- Internal workload
 - Qualtrics → NASA-TLX scale
 - Six domains: mental demand, physical demand, temporal demand, effort, frustration level, performance
 - Scale of 1-100 (1= low demand/performance)
 - Composite score of all raw values

DAILY WORKLOAD SURVEY

How much mental activity was required to perform your job (thinking, deciding, calculating, searching)?



How much physical activity was required to perform your job (pushing, pulling, controlling, activating)?



How much time pressure did you feel due to the rate or pace at which tasks occurred?



How hard did you have to work (mentally or physically) to accomplish the level of performance?



How satisfied are you with your performance today?

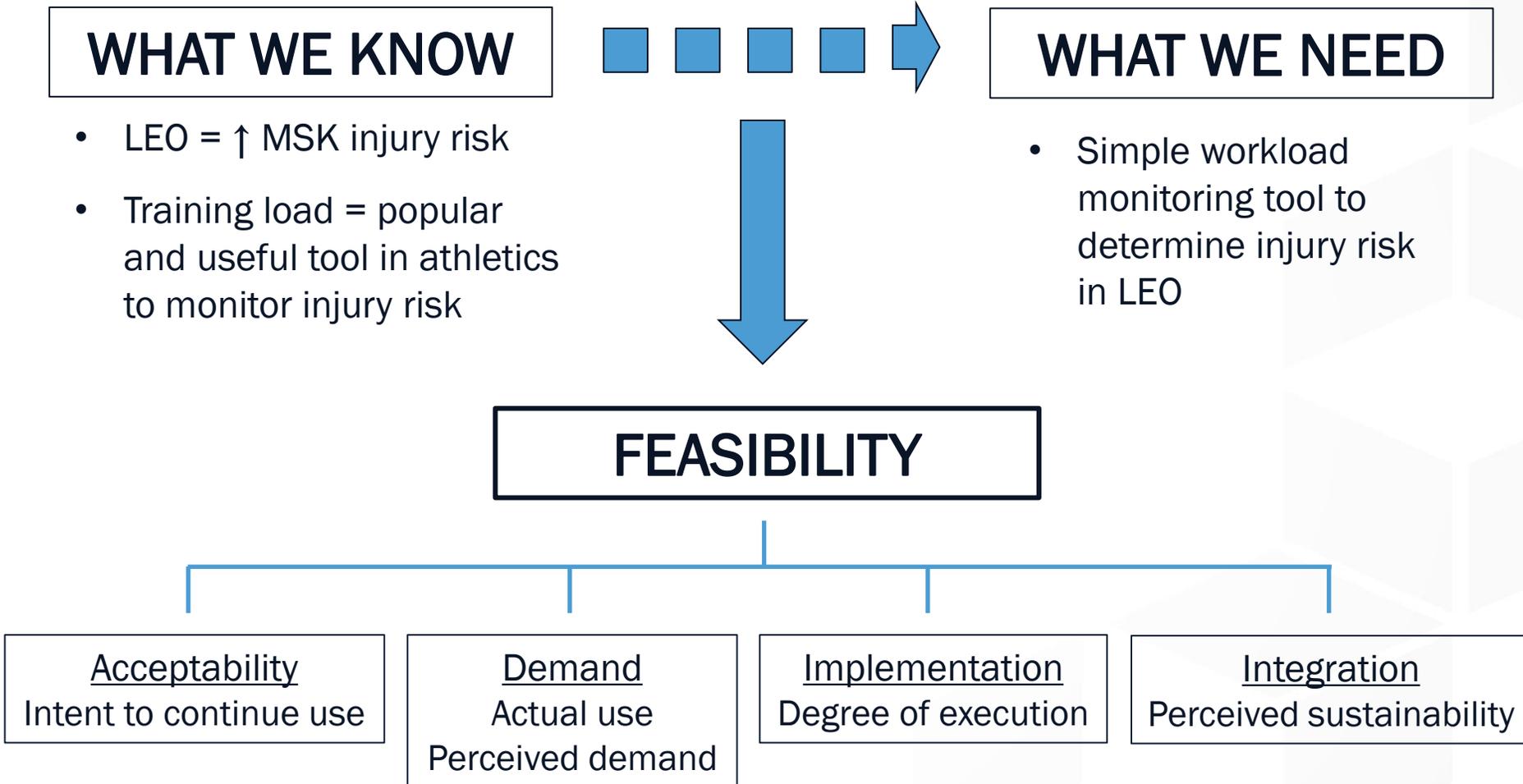


How discouraged, irritated, and stressed versus content and gratified did you feel during the tasks?





The Need For Feasibility Studies





Goal



To evaluate the feasibility of using workload monitoring to assess internal workload in LEO.

- We determined retention rates, in addition to adherence to and usability of the workload monitoring in LEO. Acceptability was also examined within the departments' administrative officials.

Quantitative Findings on Feasibility



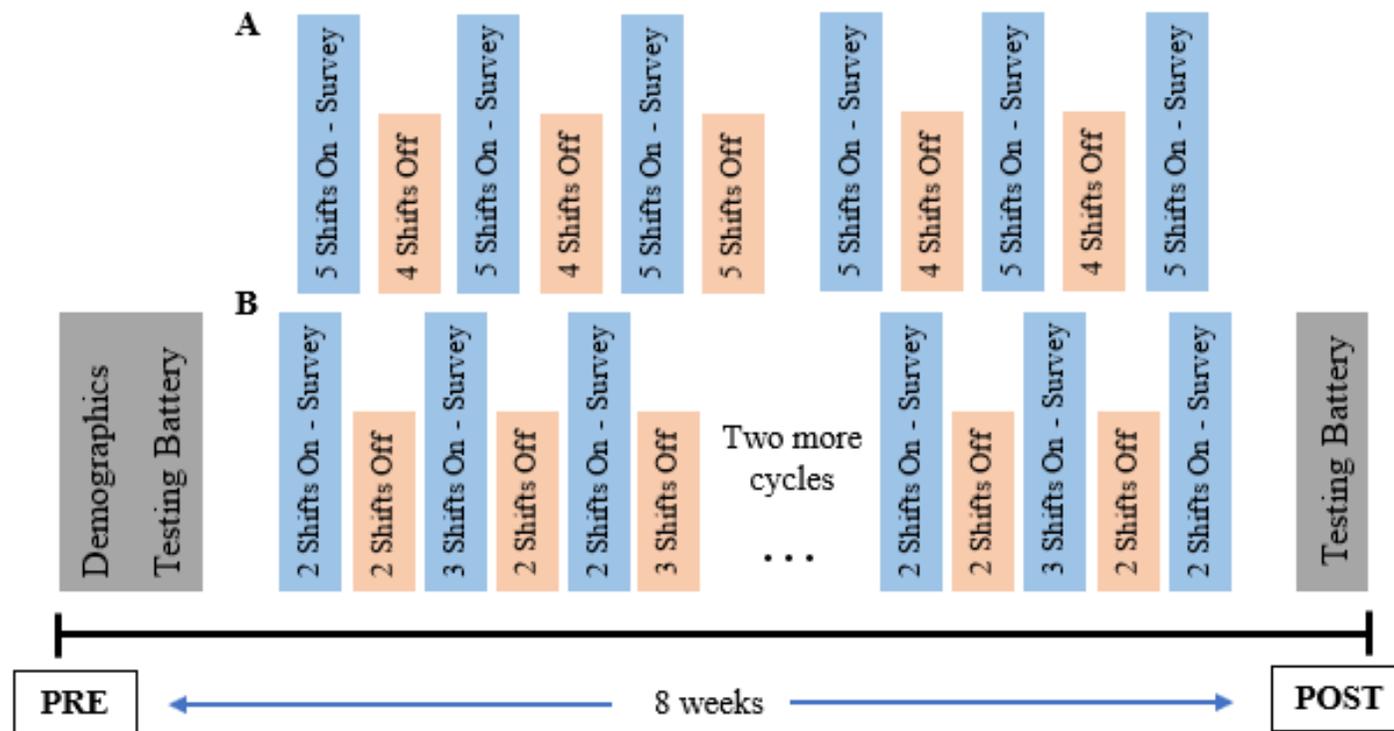
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Study Design



- Eight-week longitudinal design with pre- and post-testing
- Between pre- and post-testing, workload survey sent via text message 30 minutes following end of each shift





- **Fifty** LEO volunteered for this study

	Mean \pm SD or %	Range
Age (years)	37 \pm 10	22 - 53
Employment Tenure (years)	10.7 \pm 8.4	0.5 - 27.0
Height (cm)	178.0 \pm 8.1	159.7 - 192.0
Weight (kg)	94.2 \pm 24.6	57.6 - 188.0
Body Mass Index (kg/m ²)	29.6 \pm 6.6	19.2 - 53.2
Sex (% Female)	18	-
Race (% White)	76	-

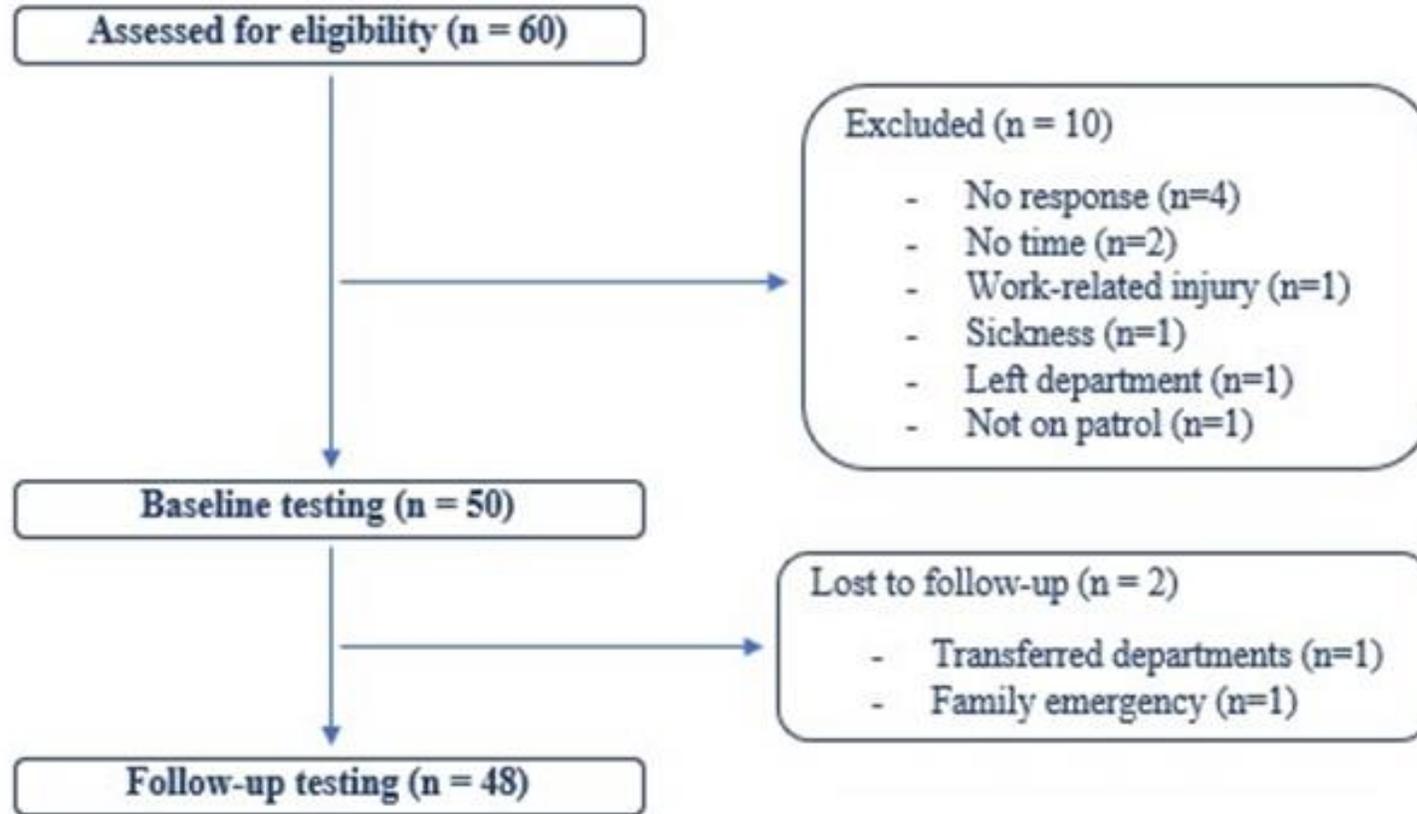
- **Eight** administrative officials volunteered for the post-testing surveys
 - Police Chiefs, Sheriff, Lieutenants, Training Captains



- Officers:
 - Usability
 - System Usability Scale – 10 questions about the ease of use and confidence about using the workload tool in the future
 - Scale of 1-5 (strongly disagree to strongly agree) then summed
 - Score out of 100
 - Likelihood to Continue to Use
 - Scale of 0-10, with 10 representing high likelihood to continue to use
- Administrative Officials:
 - Perceived usefulness and perceived sustainability
 - Scales of 0-10, which 10 representing high utility and sustainability



Flow of Participants: CONSORT Diagram



**96%
retention**



- Law Enforcement Officers (n=48)
 - 93.9 – 94.5% survey adherence [68 – 100%]
 - Usability: 88.3 ± 11.2 [52.5 – 100]
 - Likelihood to Continue to Use: 6.8 ± 2.9 [0 – 10]
- Administrative Officials (n=8)
 - Sustainability (Willingness to Implement): 8.9 ± 0.9 [7.6 – 10]
 - Utility (Usefulness): 9.0 ± 1.0 [7.5 – 10]

Qualitative Methodology



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Goal: To evaluate the feasibility of using workload monitoring to assess internal workload in LEO.

– Give context to our quantitative findings

- ★ Semi-structured interviews
- ★ Audio recorded sessions
- ★ Transcribed
- ★ Coded using the *Consensual Qualitative Research Tradition*



Interview Outline



• LEO – workload survey

DAILY WORKLOAD SURVEY

How much mental activity was required to perform your job (thinking, deciding, calculating, searching)?

1 Low 100 High

How much physical activity was required to perform your job (pushing, pulling, controlling, activating)?

1 Low 100 High

How much time pressure did you feel did you feel due to the rate or pace at which tasks occurred?

1 Low 100 High

How hard did you have to work (mentally or physically) to accomplish the level of performance?

1 Poor 100 Good

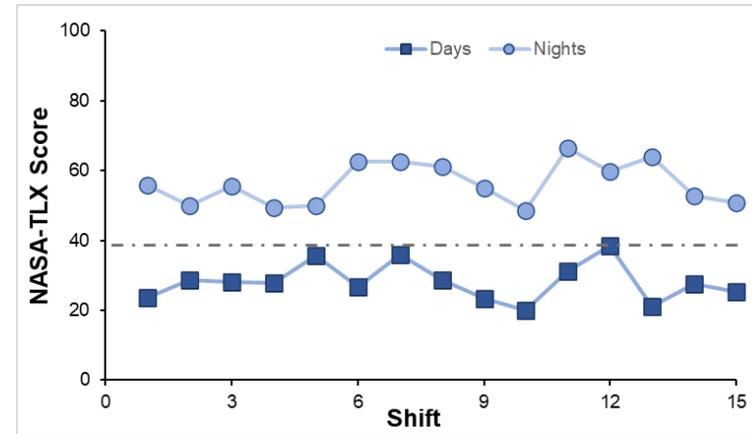
How satisfied are you with your performance today?

1 High 100 Low

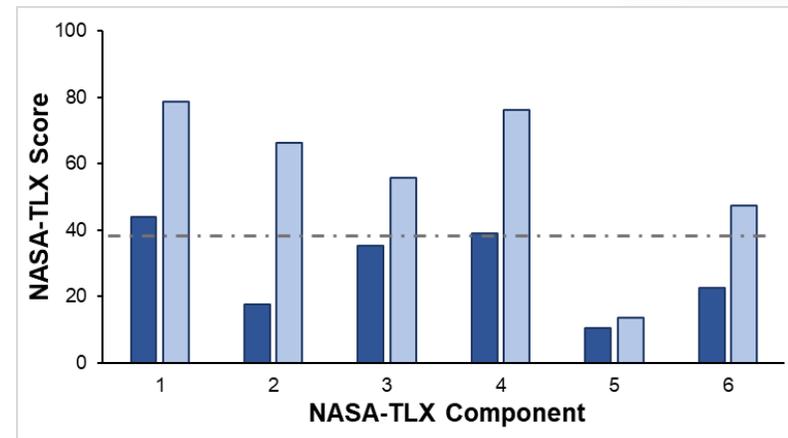
How discouraged, irritated, and stressed versus content and gratified did you feel during the tasks?

1 Low 100 High

• Admin – workload report



Workload score over the last 15 consecutive workdays for **day and night** officers



1 = mental
 2 = physical
 3 = temporal
 4 = effort
 5 = satisfaction
 6 = frustration

Six different components for both day and night shift workers averaged over the last 15 shifts.



Interview Outline



Warm-Up &
Understanding

Feasibility

Usability

Barriers &
Facilitators

Improvements



Interview Outline



One of the goals of this study was to track workload, in your own words can you tell me what workload means to you?

Feasibility

Usability

Barriers & Facilitators

Improvements



Interview Outline



Warm-Up &
Understanding

How did you feel about
length of the **workload
survey / report?**

Usability

Barriers &
Facilitators

Improvements



Interview Outline



Warm-Up &
Understanding

Feasibility

Did you find any
component of the
workload **survey** / **report**
useful / **not useful**?

Barriers &
Facilitators

Improvements



Interview Outline



Warm-Up &
Understanding

Feasibility

Usability

What made it **easy** / **hard**
to **fill out** / **read** the
workload **survey** / **report**?

Improvements



Interview Outline



Warm-Up &
Understanding

Feasibility

Usability

Barriers &
Facilitators

Do you have any
suggestions on how the
workload **survey** / **report**
can be improved?



Consensual Qualitative Research Tradition – Research Team



Auditor

Dr. Johna Register-Mihalik



Coder #1

Myself



Coder #2

Dr. Hayden Giuliani-Dewig



Coder #3

Erika Cotrufo



Consensual Qualitative Research Tradition



Stage	Action	Product
1	Identify key words Create initial code domains	Initial Codebook
2	Create categories within domains	
3	Cross analysis of interviews	Finalized Codebook
4	Determine frequency of data presentation	Narrative accounts and illustrative cases



Participants - LEO



- Patrol
- Cluster random sample from initial voluntary response sample

Sex		Race/Ethnicity		Age (years)		Experience (years)		Additional Responsibilities		Department	
Male	n=7	White	n=6	20-29	n=4	≤ 4	n=3	Canine	n=2	#1	n=3
Female	n=2	Black	n=2	30-39	n=1	5-9	n=2	Supervisor	n=1	#2	n=2
		Hispanic	n=1	40-49	n=3	10-14	n=1	With Trainee	n=2	#3	n=3
				50-59	n=1	15-19	n=1			#4	n=1
						≥20	n=2				



Participants - Administration



- Leadership Stakeholders
- Purposive and convenience sampling
- 1 per department

Sex		Stakeholder Type		Average Years of Experience	
Male	n=4	Chief/Sheriff	n=2	Total	27.0
		Captain	n=2	In Current Role	6.1

Results



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Law Enforcement Officer Mind Map





Theme #1: Workload Definitions & Associated Duties



“...it's a combination of the **number of tasks** you have to perform, the **difficulty of them**, and the **time that you have to do them.**”

“I'm **K9**, so we do tracks and stuff. Obviously, that's **physical.**”

“—how I **perceive** one thing might be **super easy** and how somebody else might **perceive** it as **really hard.**”

“There's **no typical day.**”

“...there were a few days that I may not have done a lot physically, but **I had to think almost 95 percent of the day.** To me, I think that draws on your fatigue.”

“**Paperwork.**”

“...we have to make **good decisions** every day, in all aspects.”

“I just wish that there was more I could do to **help.**”

“We have **so many hats.**”

“I've been an officer for 22 years, so at this point, there's a lot of things that maybe a younger officer is gonna think a lot harder about, and for me, it's just automatic, so it came out. Probably some things came out on here that were **listed as easy to me** that wouldn't be for a lot of younger people 'cause they just haven't done 'em a hundred times.”



Theme #2: Shift Characteristics



“Most of the time, it’s just teamwork and helping each other out. I’m good for that. I don’t want to leave people hanging.”

“I hope, particularly for the police, that something like this will make them think differently about particularly the **shift work** and how all the little things **add up** to potentially unhealthy conditions with this job.”

“I just wish that there was more I could do to help.”

“...seasons change and obviously, workload gets a little bit different in the winter ‘cause it’s not as busy.”

“Everything is more difficult on night shift.”

“...the stressors of dealing with being able to multitask throughout the entire day.”



Theme #3: Tracking Workload



“...it was less than 5 minutes. Everyone has that.”

“No complaints.”

“It went **straight** to my phone, and it's as easy as it gets, in my opinion.”

Depending on if I was tired or not and the workload that I had that **night**, if I would like—if I had a lot of stuff that I had to do, that last thing I wanted to do was fill out the survey.

“It just flowed well.”

“...it's short, and it's quick. No big deal.”

“All the questions were very straightforward and concise, easy to follow, and they all kind of **made sense to our day**. Like I said, for me, I perceive my workload to be **both mental and physical**. It asks questions about both of them. I thought it was pretty spot on.”

“Very simple. Easy to understand.”

“...after fillin' out the survey, it **gave me a better understanding of my workload.**”

“I just wish that there was more I could do to help.”

“...shortening that scale...The 0-10 or like I said, just that 5 choice of that scale of strongly disagree to strongly agree.”

“...if you forget to fill out the survey after you get the first two text message, I think just maybe one more would help. It would probably be a good, beneficial one, especially for guys like me that work on **night shifts.**”

“...it encompasses all of the job.”

“...click, click, click, click. No login, no password.”



Theme #4: Other Procedures & Future Directions



“I think it could be beneficial for all officers here, kind of track their performance, their workload, and being able to see that on paper especially, the administration staff, I think they would enjoy that, or they could take a lot from it.”

“I wasn't quite sure what it was getting at. Maybe y'all will explain that. I don't know. I wouldn't mind knowing what some of them said.”

“I don't really know what all the data's used for. I don't have an issue doing it, I know that. I guess I have no opinion on it.”

“I think it would give you guys some legitimate information to what officers are feeling in regard to their workload.”

“If the agency thinks it's useful, then I think that's their business. They've got a vision for what they want. I'm here to try to help get us towards that vision. I don't think the task is very hard.”

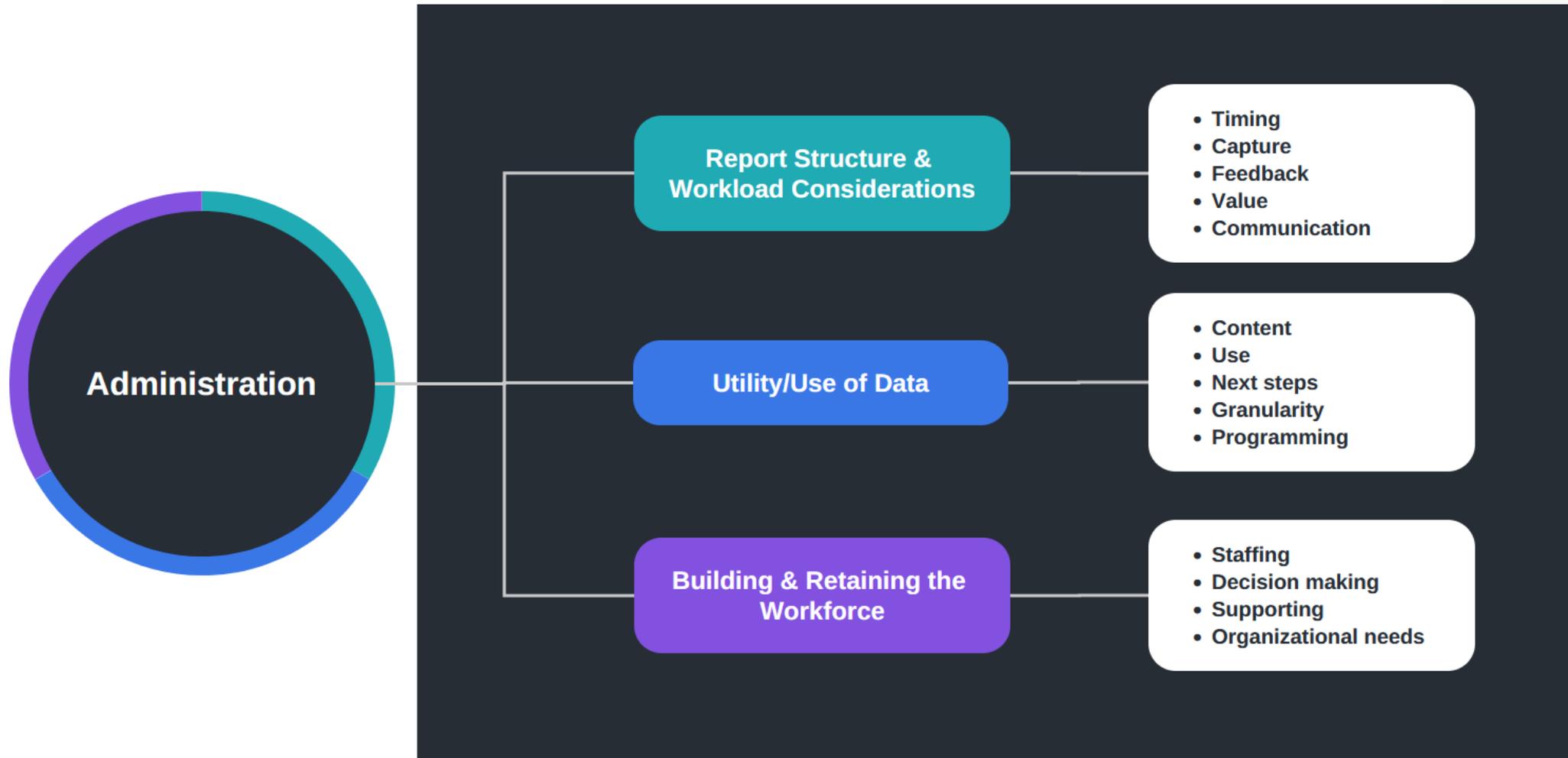
“I just wish that there was more I could do to help.”

“Quarterly.”

“Sometimes we get a little nervous and we start putting our initials on stuff and be honest about where we are. People might not want to be as open about stuff.”



Administration Mind Map





Theme #1: Report Structure & Workload Considerations



“...you might go 8 hours, and the radio never goes off one time. That's not unusual for nightshift officers to turn it off and turn it back on to make sure it's working because it's been quite for so long. Then, 5 things happen that are terrifying and heartbreaking and unbelievably stressful in the span of 30 minutes. **That is the nightshift.**”

“It's really helpful to get information like this in a way that we could ask questions kind of in an interactive way.”

“...shorter, clearer, high-level takeaways are better with the ability to seek more granularity if you want to, so I like 1-page. I'd prefer 1-page.”

“The charts are clear. The words of the descriptions of the charts are clear. The explanation of what you're measuring for each one is clear.”

“I would want it to be a little bit longer. Eight weeks is a very small snapshot.”

“On a 1-10, I'd say it's a 9½.”

“...it would be tremendous amount of value for me to see quarterly.”

“This is a great snapshot.”



Theme #2: Utility/Use of Data



“I think there's value to know how many, in your own words, or by your own definition, how many **serious calls** for service did you go on tonight? ... because we all know that that one can **significantly affect you**. Maybe a child death. It may be a fatality crash, and it really affects you.”

“In the **aggregate**...probably not for specific officers. For no other reason, if they thought we were using specific information about them, they will no longer participate.”

“...when we think about our **management philosophies** and our **management priorities**, 5 [*satisfaction*] and 6 [*frustration*], I think, could lead to action.”

“...**early intervention, early warning system.**”

“...**specialty units**, they have some unique demands on their time...Again, those are **extra responsibilities** that carry a lot of responsibility and a lot of **stress and pressure.**”

“Finding a way to better **balance our service delivery and officer well-being** with the downtime...that has potential.”

“...**tenure, age, number of days workout per week...**”

“...there'd have to be some type of continued study or **continued input** by the officers to really have the **benefit over a longer term.**”



Theme #3: Building & Retaining the Workforce



“From an administrative aspect, if we had the time and the money and the participation of the officers, there could be short-term and long-term benefits to having this information in developing programs or policies to ensure officers are being healthy and fit and doing their job while we’re maintaining service delivery as well.”

“...how folks feel about their workplace, is very, very important. They like the work. They wanna work hard. That's why they do this work. Them feeling like the demands are high, I think it's correct that probably there's some pride in those demands being high. Their feelings about those high demands, I think, are very much influenced by or generally how they feel about the organization, how they're supported and cared for, how they're perceived in the community they serve...This is the stuff that makes people either come stay with you for a long time and have a great career or leave you.”

“They know I want the best for them.”

“Again, as we think about the specific needs of our employees, and how we can support them, and how they're feeling about the workplace, and the demands on them, which I think make their way into their responses, I'm sure. I think that's a good set of questions that really help us think about our management priorities.”

“I think, as I'm beginning to understand some of what this stuff is telling us, I think it could be really, really useful to inform, you know, decisions about staffing, decisions about scheduling.”

Conclusions & Reflection



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Take Aways



LEO

- Easy to use 
- Short 
- Timing & questions are relevant 
- Smartphone is best interface 
- Minor suggested adjustments 
- Unsure of tangibles 

ADMIN

-  There is a need & a want!
-  Could result in actionable items
-  Balance of too little/much data
-  Stratify data in ways that make sense for department
-  Unsure of best delivery & utility

COMBINED

-  Quarterly
-  This is a stressful job!
-  Comprehension with explanation
-  Mental load is the key factor
-  Perception is individualized
-  Would continue use
-  Shift type/schedule matters



Take Aways



LEO

- ↑ Usability (88%)
- Moderate likelihood to continue (68%)
- ★ Higher likelihood with departmental buy-in

ADMIN

- ↑ Willingness to implement (89%)
- ↑ Usefulness (90%)

Workload
monitoring is
feasible in law
enforcement!

COMBINED

“This is as big as a two-way radio!”



Next Steps



Prepare reports for officers and admin



Present findings back to departments



Prepare manuscript



Continue to collaborate with departments



Importance of the *Total Worker Health*[®] Approach



“As a profession, we're not very good at this kind of work. Particularly, culturally speaking, in our profession, there's a whole lot of, "Just toughen up." We've been doing, "Don't be so soft" for a lack of a better way to put it, which is absurd, but it is a part of law enforcement culture. It's hard to break that.

One way to break to that is to really be takin' a hard look at **what the effects of the work are on your people, both real and perceived**. By the way, perceived is real, if it informs **how you feel about the workplace**, and **your place in it, the management of your stress**, and so on. I can imagine going forward with this kind of work, this kind of analysis. This kind of reporting will be *essential to modern law enforcement leaders*. I don't expect it to happen in 2022 to be part of our culture, but maybe by 2032, when we realize that the far and away, **the most important thing we have are the people who are here**. We can't get anything done without all these folks who answer these questionnaires. We really have to get serious about their wellness and taking care of them and creating some kind of **holistic program** that **helps maximize their success**.”

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Questions?



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