

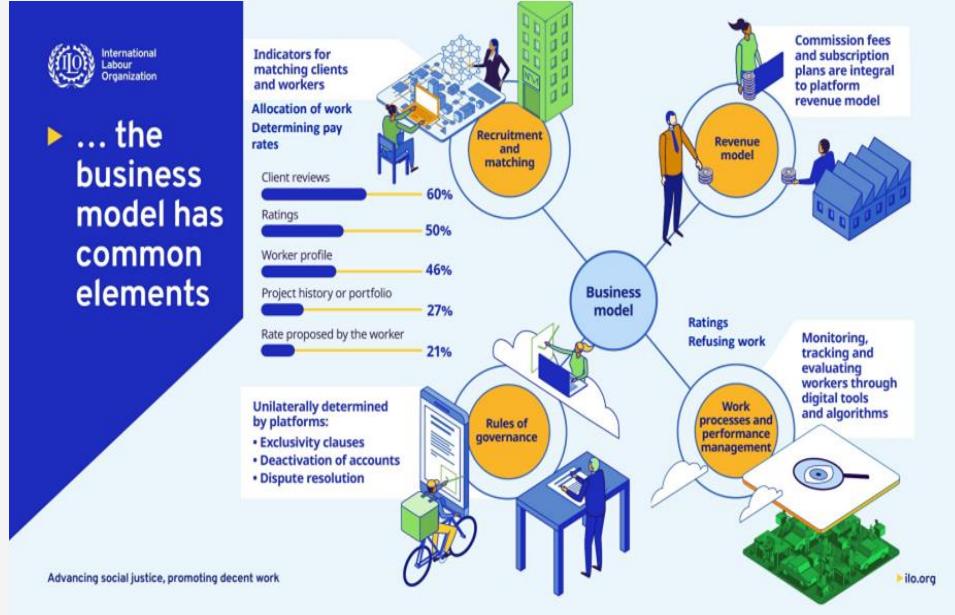
Health Service trial for Platform labor

Focusing on Replacement driver service

Jin-Ha Yoon (flyinyou@gmail.com)



Gig Economy Workers and Platform Labor



(ILO 2021 report)

Digital labour platforms are growing and presenting both opportunities and challenges to workers.

Common element for matching clients and workers

Allocation of worker

Determining pay rates

Unilateral determination of social agreement by platforms

Monitoring, tracking, and evaluation of workers through digital tools and algorithms

Same place at the same time, We are not colleagues.



“

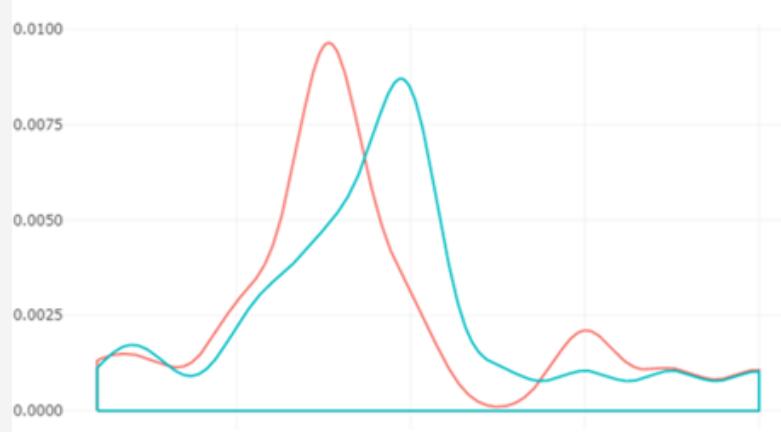
”

The bell rings, signaling the start of another round. The next person's phone also rings, and only the first one to answer it earns the money.

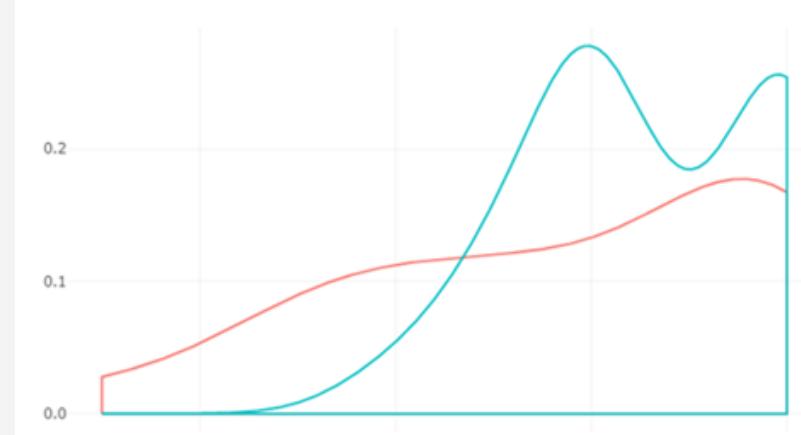
As a gig economy worker, I have to be quick to grab each opportunity.

In this crowded marketplace, every person is a potential competitor. I need to stay alert and be the first to respond, otherwise I will fail everytime.

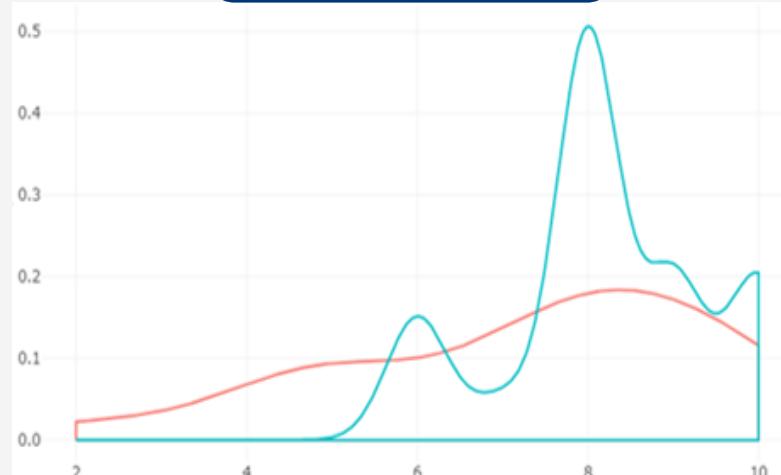
Changes in Income, Belonging, Friendship, and Loneliness



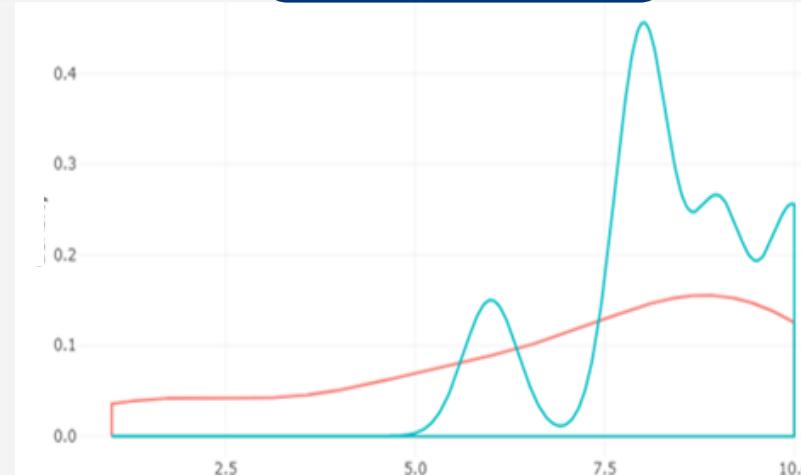
Changes in Income



Changes in Belonging



Changes in Friendship



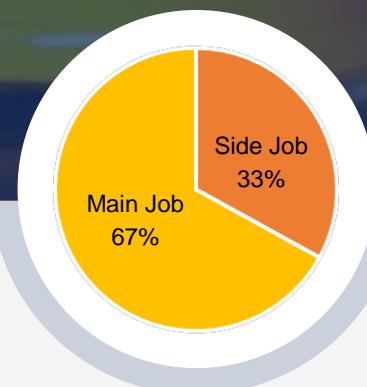
Changes in Loneliness

Literature review (1st year study)

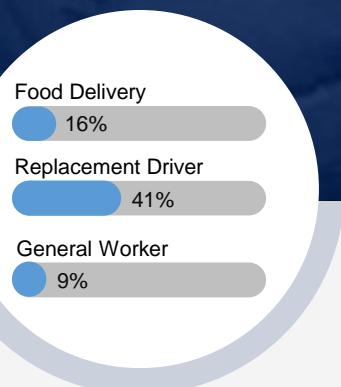
BCG(Boston Consult Group,2018) Future of Work

Global growth of Platform Labor

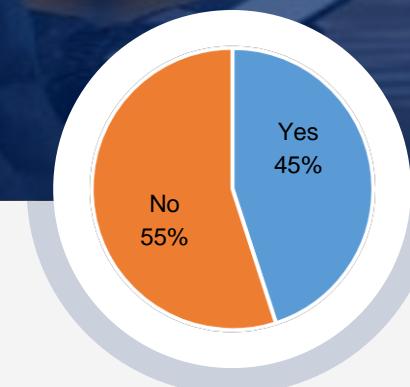
- Platform Labor : 4~45%
- 11~50% of Platform Labor : The main source of income



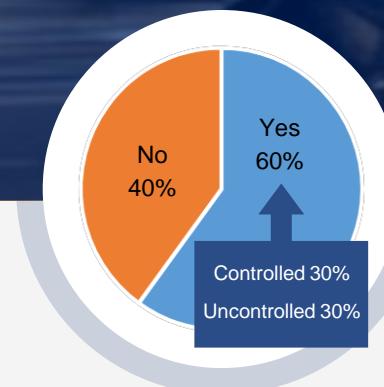
Platform Labor
(Replacement Driver)



Metabolic Syndrome Prevalence



Suicidal Thoughts among workers who answered
Yes to the question
"Experience of verbal abuse more than 10 times a year"



Presence and Management
of Chronic Diseases

2021 Platform Workers' Health Rights Survey

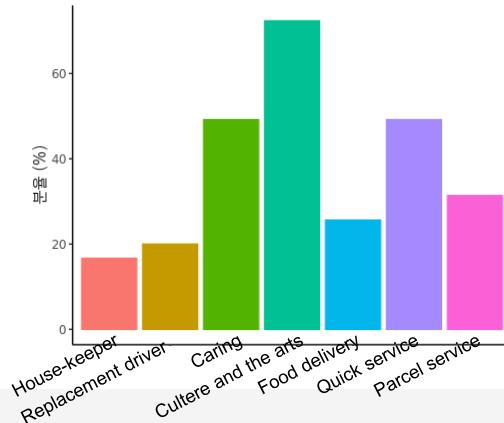
Prioritize the Needs of Platform Labors

- Industrial Health System for Platform Workers
- The Health Examination and Management System
- Public Organization for Platform Workers
- Insurance/Compensation Training
- Increasing Public Facilities Such As Toilets



2021 Platform Labors' Health Rights Survey

Q. Is there any meeting for workers with similar occupation?



Type of occupation	Through meetings in Supporting spaces such as Shelters	Through the meeting in the Neighborhood	Old acquaintance (Co-workers and seniors and juniors, etc.)	Online such as Internet cafe, etc.
House-keeper	9 (45%)	8 (40%)	7 (35%)	2 (10%)
Replacement driver	11 (44%)	6 (24%)	14 (56%)	1 (4%)
Caring	41 (68%)	11 (18%)	34 (57%)	9 (15%)
Culture and the arts	23 (26%)	7 (8%)	65 (73%)	16 (18%)
Food delivery	18 (58%)	3 (10%)	14 (45%)	3 (10%)
Quick service	29 (48%)	7 (12%)	25 (42%)	3 (5%)
Parcel Service	15 (35%)	6 (14%)	32 (74%)	1 (2%)

Q. Where do you usually get information about health and safety?

Type of occupation	TV	Radio	Internet	Advertising	Acquaintance
House-keeper	70 (58%)	0 (0%)	38 (32%)	6 (5%)	100 (83%)
Replacement driver	37 (30%)	1 (1%)	72 (58%)	4 (3%)	76 (61%)
Caring	52 (43%)	5 (4%)	44 (36%)	1 (1%)	111 (91%)
Culture and the arts	54 (44%)	6 (5%)	54 (44%)	15 (12%)	49 (40%)
Food delivery	35 (29%)	1 (1%)	90 (74%)	1 (1%)	71 (59%)
Quick service	41 (34%)	0 (0%)	41 (34%)	0 (0%)	84 (69%)
Parcel Service	35 (26%)	10 (7%)	66 (48%)	1 (1%)	74 (54%)

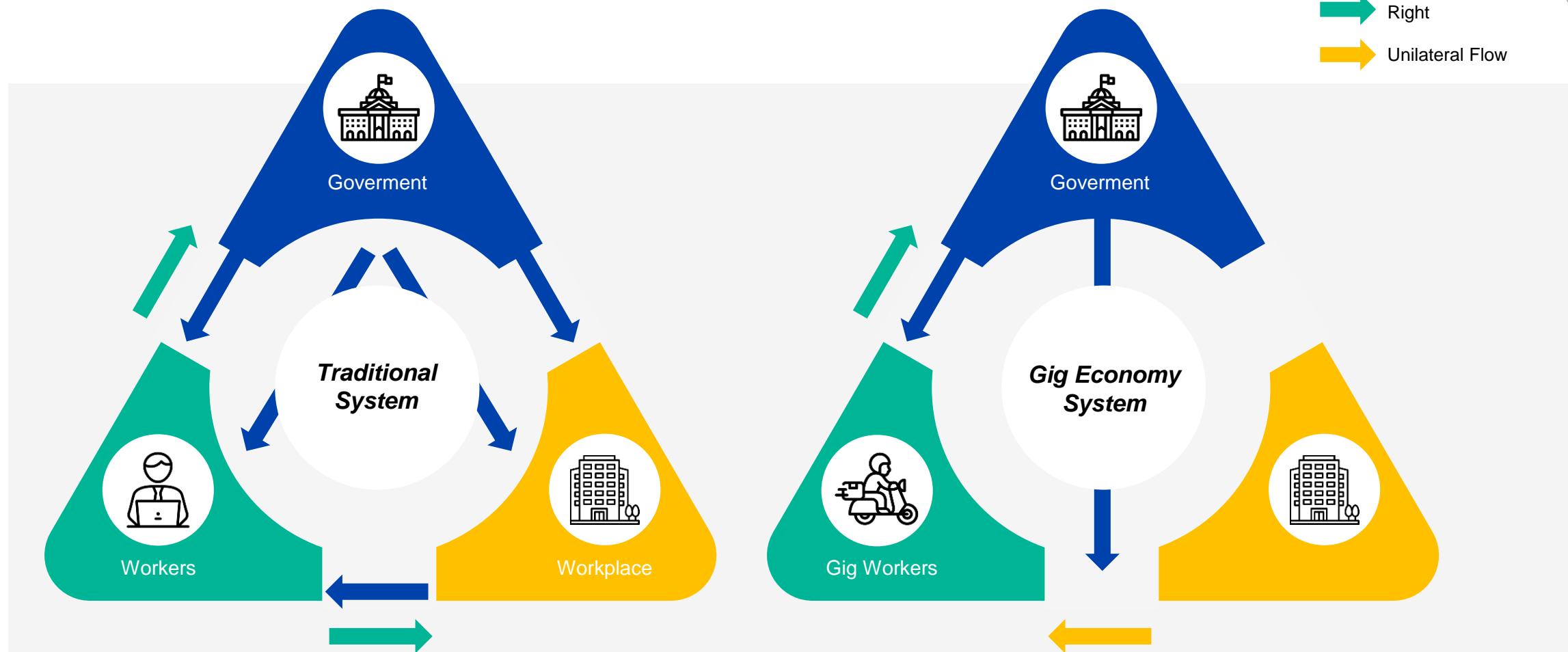
Summary and Status Review

	Details	Note
Research on the Actual condition	<p>1. Proposal for 7 major platforms for industrial health service and education policy (in downtown Seoul)</p> <p>2. A fact-finding survey to prepare measures to protect platform workers(Jiyeon Jang, Ministry of Employment and Labor)</p> <p>3. Occupational safety and health fact-finding survey, development of survey tools(Seung-Hyun Lee, KOSHA)</p>	<ul style="list-style-type: none"> - Conduct continuous monitoring and discuss process to build data - Survey of Platform worker Occupational Health service Needs and Priorities
Harmful environment assessment	<p>1. Labor environment Hazardous and dangerous environment, job stress, safety(Seung-Hyun Lee, KOSHA)</p> <p>2. Long working hour</p> <ul style="list-style-type: none"> - A Study on Optimal Working Hours for Courier Drivers(Tae-Won Jang, Ministry of Employment and Labor) - Investigation of long working conditions and research on ways to prevent health problems such as death from overwork(Hee-Jung Bae, KOSHA) - Short-term contract night logistics worker(Kim Hyoung-Ryoul) 	<ul style="list-style-type: none"> - Hazard risk factors by job category and Hazardous substance exposure level assessment - Development of standard working model of a platform labor (focused on the Musculoskeletal disorders) - Development of platform workers job stress assessment tool
Health care	<p>1. Conduct medical check-up</p> <ul style="list-style-type: none"> - Medical staff visits workplaces for medical check-ups(Jinwoo Lee, Gyeonggi Provincial medical center Paju hospital, Federation of Korean Chemical Worker's Union-TeunTeun Bus) - A patient visits the hospital for a medical check-up(Glguphs, Ministry of Health and Welfare) - Essential worker medical check-up support project(KOSHA) - Medical check-up for specially hired workers in the construction industry(Kim Se-Young) <p>2. Health care</p> <ul style="list-style-type: none"> - Replacement driver follow-up management(Chung-Won Kang , Seoul workers' health center) - Courier health management(Chung-Won Kang, Seoul workers' health center) 	<ul style="list-style-type: none"> - Selection of medical check-up items - Development of medical check-up system - Health management method and subject development - Data construction and presenting utilization model
Occupational Health Service Delivery System	<p>1. Discussion of incorporation into the existing occupational health system</p> <p>2. Delivery through a new system</p> <ul style="list-style-type: none"> - Funding Pilot Study (Public Workers Solidarity Foundation) - Service delivery system using IT (Korea Occupational Safety and Health Agency, Future Institute) - Health management through data sovereignty, my data business(Sangguk Lee, Ministry of Land, Infrastructure and Transport) 	<ul style="list-style-type: none"> - Building occupational health services that can be delivered to platform worker
Legal protection system	<p>1. Enlargement complement</p> <ul style="list-style-type: none"> - Operation of an advisory committee on employment types for worker characteristics (Ministry of Employment and Labor) - Industrial accident, employment insurance, vocational training(Ministry of Employment and Labor) - A study on the criteria for judgment standard and protection of special type workers(CHUN YUN-KU, Kyonggi univ.) - Platform Worker Legislation Reorganization, Overseas Cases (Eunjeong Park/Kang Jik Song, Korean Society Of Labor Law) <p>2. Offer through a new system</p> <ul style="list-style-type: none"> - Proof of experience career and support for mutual aid associations(Platform Workers' Mutual Aid Society sailing) 	<ul style="list-style-type: none"> - Sustainable financial preparation

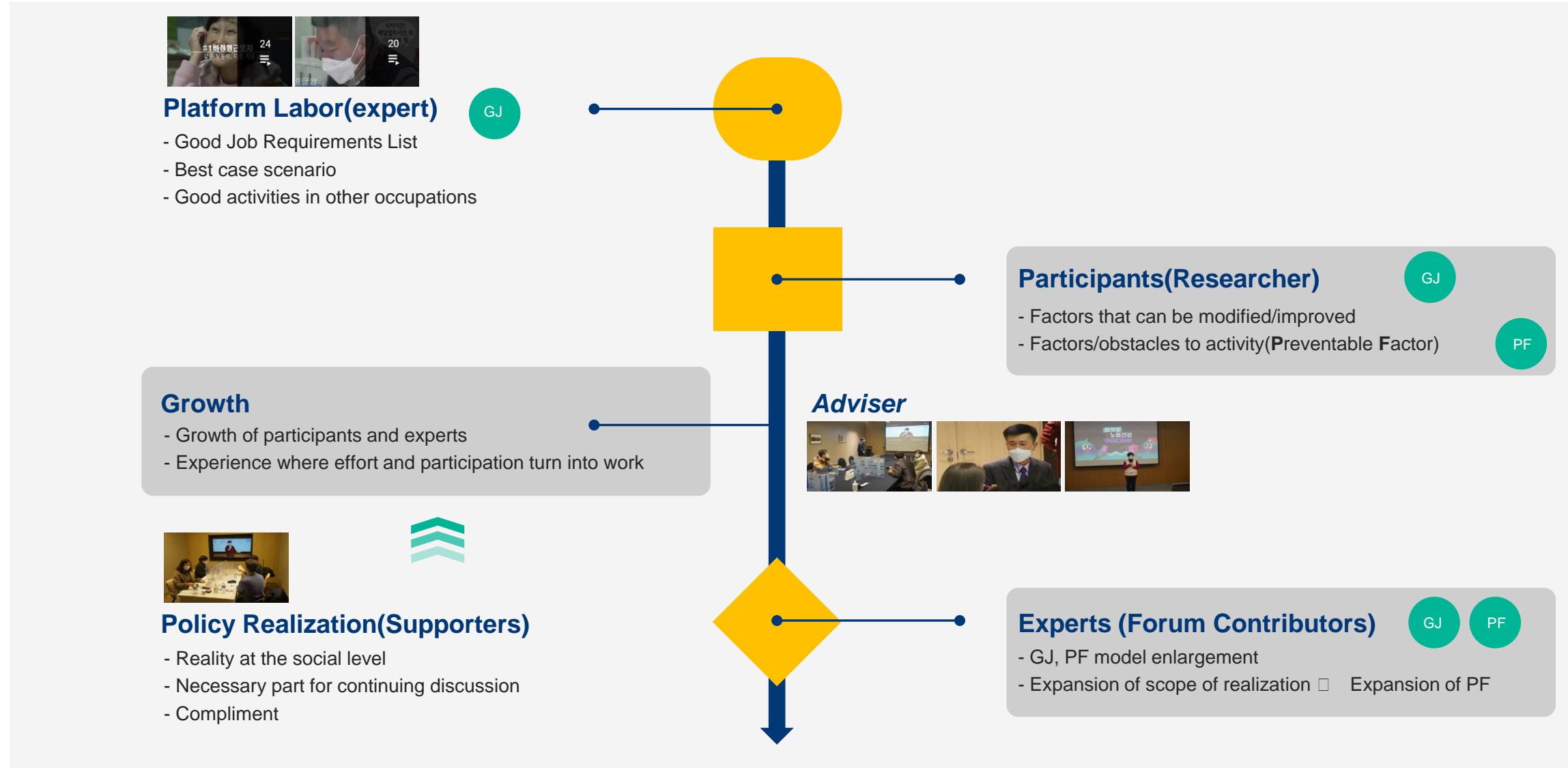
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Harmful environment assessment	<p>King conditions and research on ways to prevent health problems such as death from overwork(Hee-Jung Bae,</p>	<ul style="list-style-type: none"> Hazard risk factors by job category and Hazardous substance exposure level assessment Development of standard working model of a platform labor (focused on the Musculoskeletal disorders) Development of platform workers job stress assessment tool
Health care	<p>Summary</p> <ul style="list-style-type: none"> Occupational Health Organization Service Delivery Method Service contact problem Funding Medical Check-Health Management Chronic disease Management Long working hour, Overwork 	 <p>Literature review Committee Meeting Summary</p>
Occupational Health Service Delivery System	<p>– Funding Pilot Study (Public Workers Solidarity Foundation)</p> <p>– Service delivery system using IT (Korea Occupational Safety and Health Agency, Future institute)</p> <p>– Health management through data sovereignty, my data business(Sangguk Lee, Ministry of Land, Infrastructure and Transport)</p>	<ul style="list-style-type: none"> Building occupational health services that can be delivered to platform worker
Legal protection system	<p>1. Enlargement complement</p> <p>– Operation of an advisory committee on employment types for worker characteristics (Ministry of Employment and Labor)</p> <p>– Industrial accident, employment insurance, vocational training(Ministry of Employment and Labor)</p> <p>– A study on the criteria for judgment standard and protection of special type workers(CHUN YUN-KU, Kyonggi univ.)</p> <p>– Platform Worker Legislation Reorganization, Overseas Cases (Eunjeong Park/Kang Jik Song, Korean Society Of Labor Law)</p> <p>2. Offer through a new system</p> <p>– Proof of experience career and support for mutual aid associations(Platform Workers' Mutual Aid Society sailing)</p>	<ul style="list-style-type: none"> Sustainable financial preparation

Health Service Delivery System in Korea



Participatory Forum(Ideathon) Flow Chart



Participatory Forum(Ideathon) Flow Chart



	Status and Problems	Improvements and Necessities
House-keeper	<ul style="list-style-type: none"> - Subjects excluded from subscribing to industrial accident compensation insurance - Medical check-up: national medical check-up / personal insurance - Difficult to grasp work environment problems. - Eating problems - Musculoskeletal disorders - Emotional labor 	<ul style="list-style-type: none"> - Labor cooperatives - Musculoskeletal disorder management program - Safety education (fall accidents, etc.) - Work standardization - Description for medical check-up - Awareness improvement campaign
Replacement driver	<ul style="list-style-type: none"> - Quality of sleep - Eating problems - Musculoskeletal disorder - Mental health care 	<ul style="list-style-type: none"> - Musculoskeletal & Mental health management program - Team learning (providing a sense of belonging)
Rider	<ul style="list-style-type: none"> - Delivery system to encourage speeding and accidents - Customer rating system - Not recognized as an employee - Excessive insurance premium (6 million won/year) - Eating problems & eating habits - Administrative issues in the registration process for industrial accidents - Reasons for difficulty in organizing - New problems emerging in COVID-19 	<ul style="list-style-type: none"> - Mutual Aid Society - No-call campaign to comply with meal-times - Self-examination and screening incentives - Health-related investigation required - Safety rate system (KRW 4,000/1 case)

Participatory Forum(Ideathon)

1

How to collect on the Web App

- Platform worker online place (App)
- Worker app/consumer app linked campaign
- Expected effect
 - Integrated management of platform labor force
 - Personal health history (behavior) based service
 - Use for policy improvement

2

How to collect on the Web App(Add On)

- Responding to health issues: on/offline points of contact
 - Shelter for mobile workers
- Responding to safety issues: Existing app add-on method
- Formation of platform council

3

How to use On/Offline Points

- Establish an online space to provide integrated shelter information
- Rest time guarantee campaign
- Medical staff visits counseling center for medical check-ups for platform workers

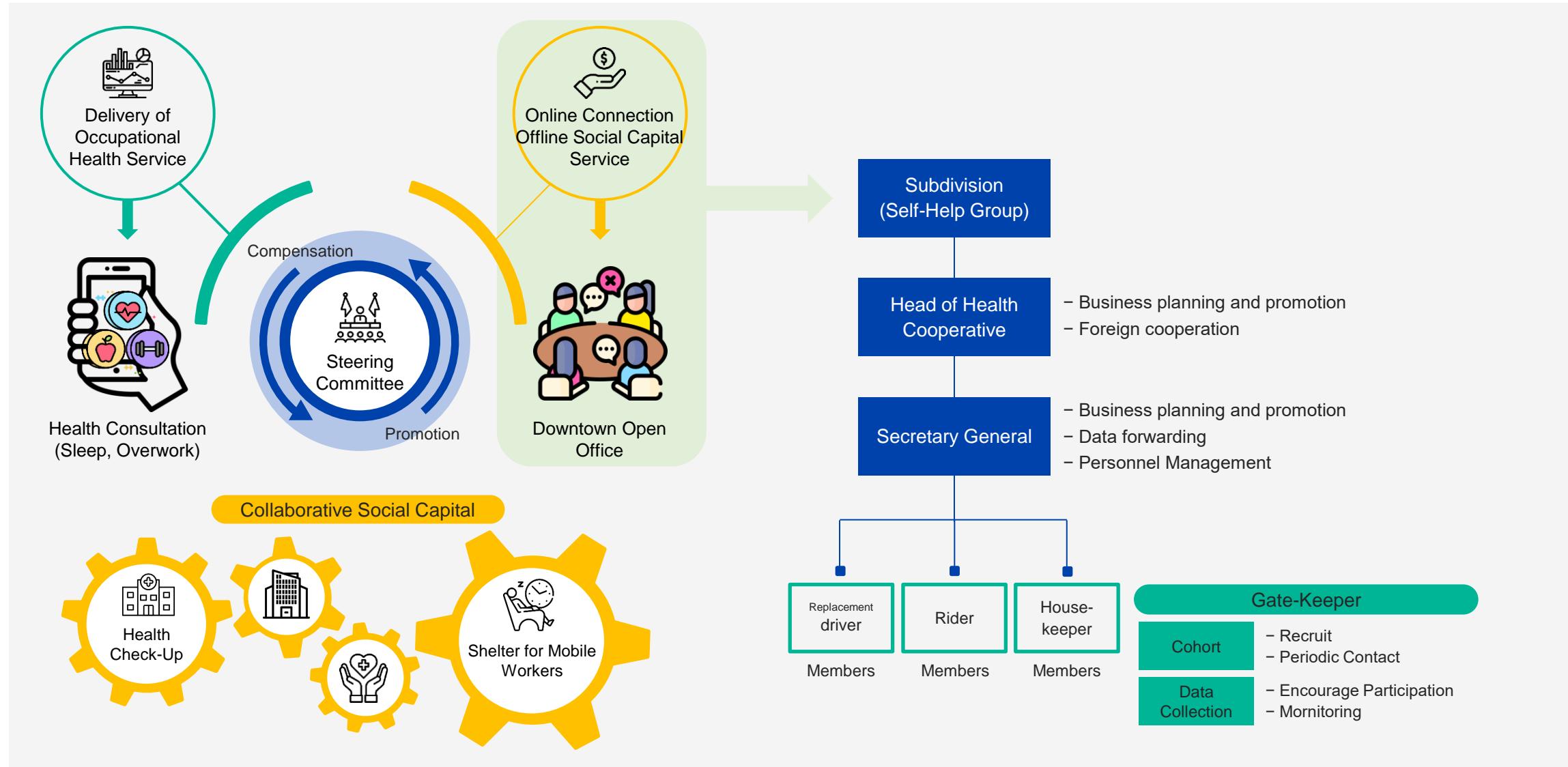
4

Public Data Utilization Plan

- Safety protection of platform workers through Open-API
- Plans to secure financial resources
- Protection model
 - Online education
 - Establishment of information delivery system
 - Preventing from overwork
 - Offering Incentive



Installing Health System Into Cooperative Self-Help Group

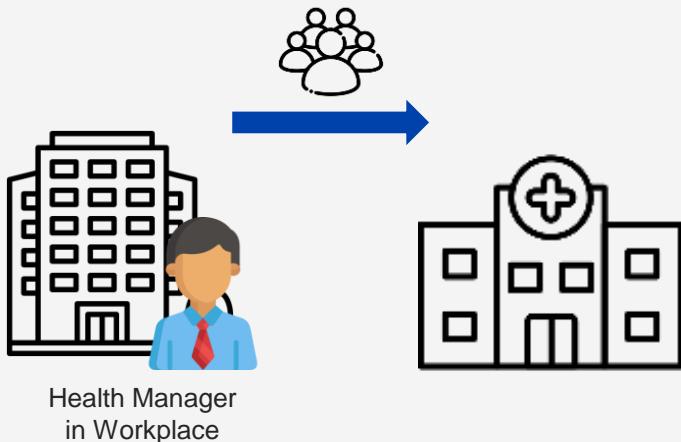


Workers Health Examination(General H.E)

“

1st Scenario

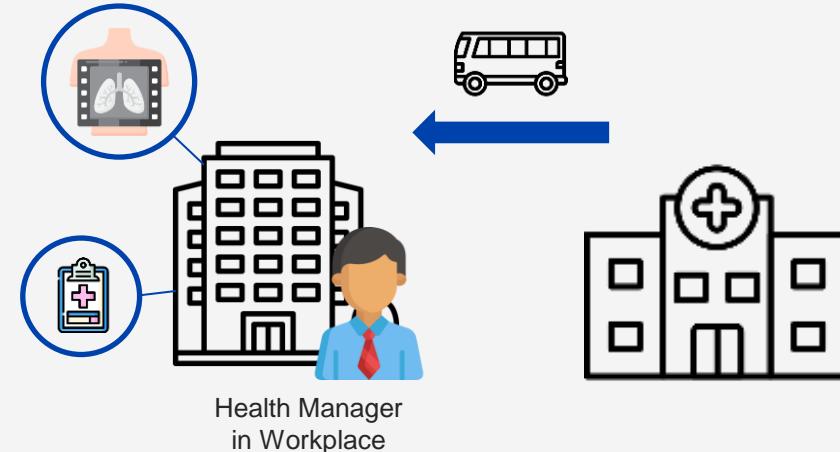
Worker visits hospital together with or without colleague. The schedule and status of health examination were managed by occupational health manager in workplace.



“

2nd Scenario

Hospital system with Bus visit factory (workplace) and take health examination, and the schedule and status of health examination were managed by occupational health manager in workplace.



Workers Health Examination; 1st Scenario



Researcher Team

- Recruitment of the Education Center
- Schedule management
- Sharing health examination results with Examination Hospitals
(Role of Health Manager)
- Online program access



Business Expansion (2022-2023)

- This study : In-Hospital Examination, Online Health Consultation
 - Project Expansion: Platform-Freelance Mutual Aid Association Establishment of Right to Health System
- Funding : Public Coexistence Solidarity, Woori Bank
- Organizer : Platform-Freelance Mutual Aid Association
- Health Counseling : This Research System

Individual Visiting and Actual Cost support

- Gig Economy Worker visit Local Hospital
 - Report their Actual Cost for Health Examination to Platform Workers Mutual Aid Association
 - Compensated

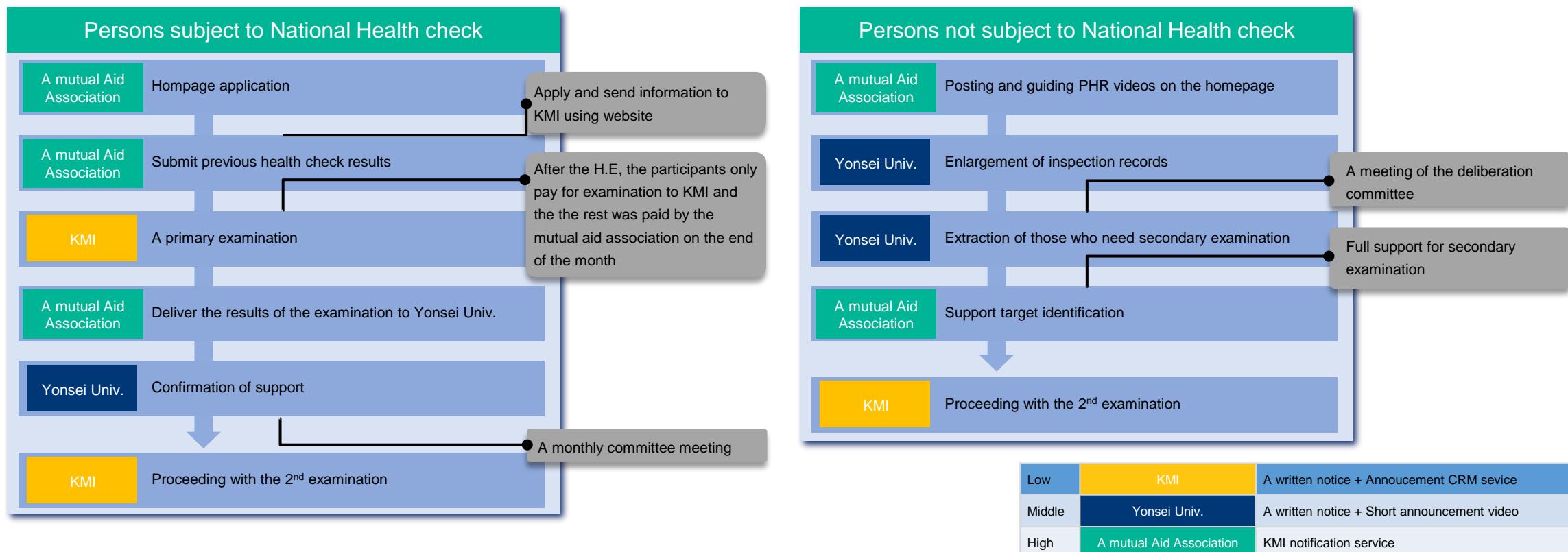
Workers Health Examination; 1st Scenario



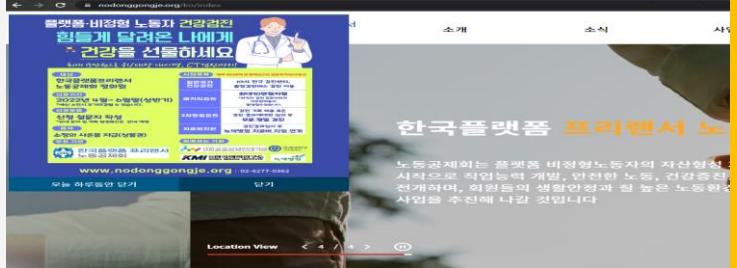
2

Continuation of Research Achievements into other Projects

– A meeting held with the base hospital, Mutual Aid Association, and GIGUPHS



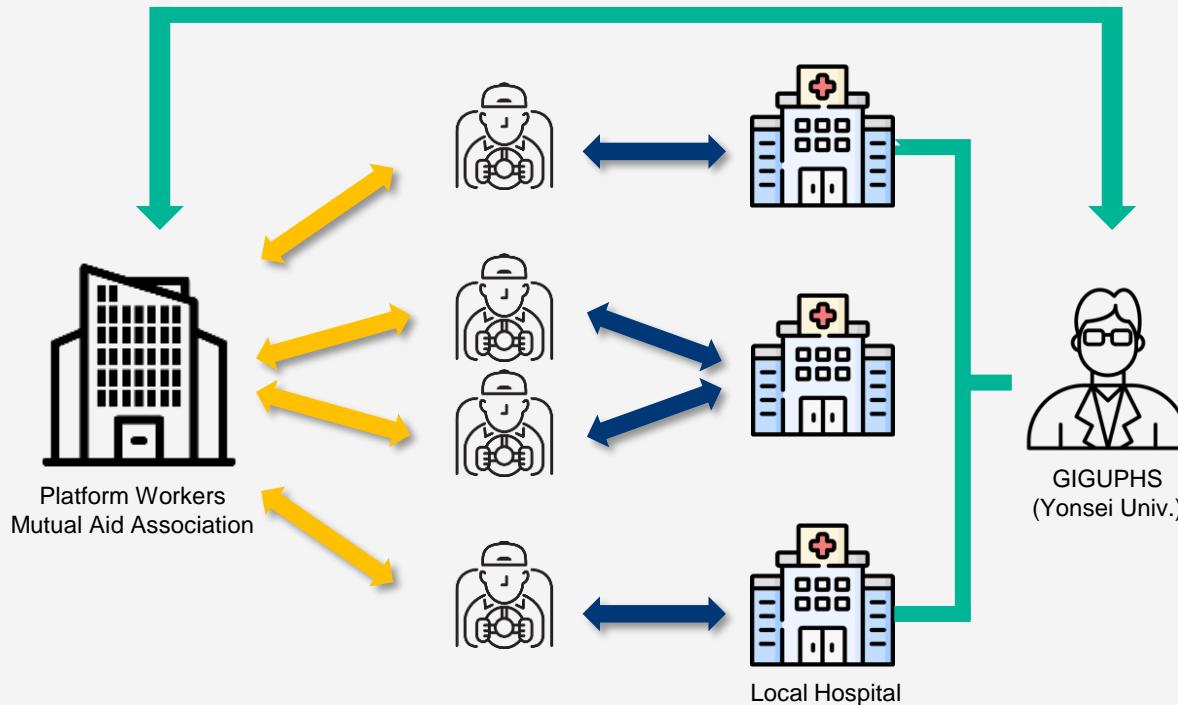
Workers Health Examination; 1st Scenario



3

Now! Individual visiting and Actual Cost support

- <https://www.nodonggongje.org/ko/index>
- Application Form



Workers Health Examination; 2nd Scenario



“ ”

Gig Economy Worker get together with other gig economy workers in open space (instead of workplace of standard worker), the hospital system visit with bus.(More than 50 worker is minimal criteria for private hospital system to fulfill the business model) We used lecture room in Resting shelter for outdoor moving workers.

We used resting shelter as meeting place among gig economy workers and private hospital for health examination.

On-site Health Examination

1st Space



Filling out a medical questionnaire



Check reception and questionnaire

2nd Space



Body measurement
Blood pressure measurement



Blood test

3rd Space



Doctor's care



4th Space

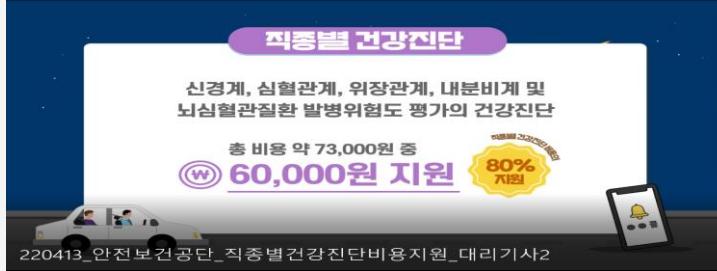


On-site Bus



X-ray shooting

Workers Health Examination; 2nd Scenario



직종별 건강진단

신경계, 심혈관계, 위장관계, 내분비계 및 뇌심혈관질환 발병위험도 평가의 건강진단

총 비용 약 73,000원 중 **60,000원 지원** 80% 지원

220413_안전보건공단_직종별 건강진단비용지원_대리기사2

직종별 건강진단

- 환경미화원을 위한 차량 매연 등 디젤엔진 배출가스로 인한 폐암 발생과 관련된 호흡기계 검사와 무거운 생활폐기물 취급에 따른 근골격계 중심의 건강진단
- 장시간 근로, 아간작업으로 인한 뇌-심혈관 질환 위험에 따른 택배기사-배달종사자-대리운전자-온라인배송기사-화물차주를 위한 뇌-심혈관계 중심의 건강진단
- 차량 매연 등 디젤엔진 배출가스로 인한 폐암발생과 관련한 호흡기계 검사와 장시간 근로, 아간작업으로 인한 뇌-심혈관 질환 위험에 따른 뇌-심혈관계 중심의 건강진단

신청대상

- 환경미화원(30인 미만) : 고용관계에 있는 사업주
- 택배기사-배달종사자-대리운전자-온라인 배송기사-화물차주 : 산업안전보건법상 노무를 제공받는 사업장
- 건설기계운전자 : 산업안전보건법상 노무를 제공받는 사업장

지원금액

- 직종별 건강진단 비용의 전체의 80% 지원(1-2차 검사비)

검강진단 기관

- 안전보건공단 홈페이지* 를 통해 직종별 건강진단 기관을 확인하시기 바랍니다.
- * 안전보건공단 홈페이지(www.kosha.or.kr) » 직종별 건강진단 » 공사사장
※ 출장검진, 휴일검진, 정형외과 진찰유무 등 자세한 기관현황이 기재되어 있으나, 반드시 홈페이지 공지사항을 확인하시기 바랍니다.

신청방법

- 안전보건공단 홈페이지* 에서 “해당 직종”으로 신청
- * 안전보건공단 홈페이지(www.kosha.or.kr) » 직종별 건강진단 » 사업신청

사후관리

- 건강진단 결과 유소견자는 심층건강진단 추가 지원 및 전국 23개소에 근로자 건강센터를 통한 맞춤형 건강관리 실시

2022-산업보건실-102

안전은 권리입니다

직종별 건강진단 비용지원

환경미화원, 건설기계운전자, 택배기사-배달종사자-대리운전자-온라인배송기사-화물차주

고용노동부 안전보건공단

On-site Health Examination + Offline contact

□ Open Examination

Occupational Health Examination by Safety and Health Agency
Implemented at shelters for mobile workers

혈액검사 결과

검사 항목	결과
혈색소(g/dL)	15.5
공복혈당(mg/dL)	85
총콜레스테롤(mg/dL)	212
고밀도 콜레스테롤(mg/dL)	64
중성지방(mg/dL)	69
저밀도 콜레스테롤(mg/dL)	134
혈청크레아티닌(mg/dL)	0.7
신사구체여과율	121
AST(SGOT)	21
ALT(SGPT)	15
감마지티피	14

Collaboration of researchers

If you applied to the Platform Mutual Aid Society, health consultation is conducted online.

Explain Health Examination Results



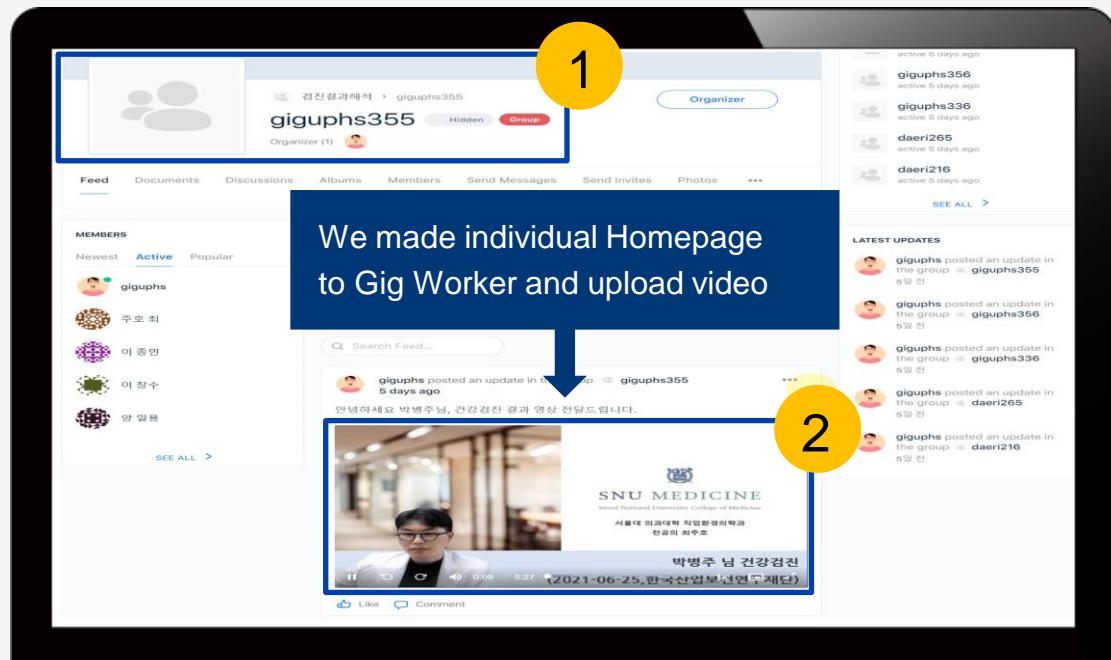
“

It is not easy to understand my health examination result paper, the hospital doctor not much time to explain to me.

Should I go to hospital again? Will my health get worse? I don't know what I should do for my health.

They suggested **repeatable video of doctor or nurse's message**. They want watch video again during working times.

Explain Health Examination Results



1\$ for Education

GIVILLAGE
GIVILLAGE

나의 건강김진 공지사항 설문조사 튜터 포럼 그룹 활동 블로그 ...

admin GIG

튜터

Alphabetical All Instructors 88

1.기초건강관리 (절주, 금연) - 필수
2 Lessons COMPLETE
간강관리의 시작은 금주와 금연입니다.
GIG admin
100% Complete Last activity on August 29, 2022

2.질환 (고혈압, 당뇨) - 필수
2 Lessons COMPLETE
시작 저 혈압 고혈압 당뇨 복통 척추 질환 등
GIG admin
100% Complete Last activity on August 29, 2022

3.과로 (스트레스) - 필수
1 Lesson COMPLETE
지속된 과로와 누적된 스트레스 어떻게 관리하나요?
GIG admin
0% Complete Last activity on August 18, 2022

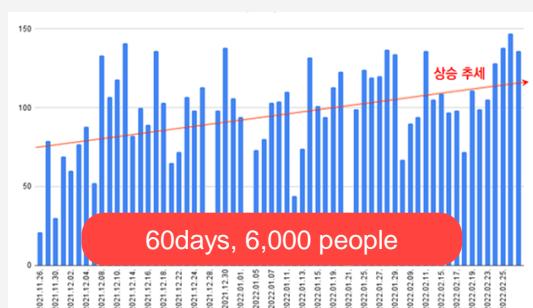
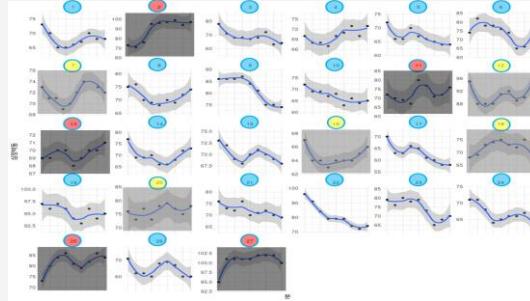
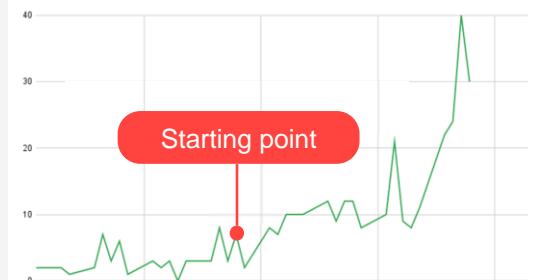
4.운동 - 필수
1 Lesson COMPLETE
스웨이 하면서 떠나자 건강 여행
GIG admin
100% Complete Last activity on August 29, 2022

5.수면 - 필수
1 Lesson COMPLETE
밤마다 불면증이 고민이신가요?
GIG admin
100% Complete Last activity on August 29, 2022

Private: FITBIT 스마트 위치 활용 방법
1 Lesson COMPLETE
GIG admin
100% Complete Last activity on January 9, 2023

4

Night Shuttle



회의실	용도 회의실 면적 30.49m ² (11.95평)
여성휴게실	용도 여성휴게실 면적 20.00m ² (6.32평)
강의실	용도 강의실 면적 3-35인 면적 59.05m ² (18.13평)
상담실	용도 상담실 면적 10.50m ² (3.51평)
창비실	용도 창비실 면적 36.00m ² (11.91평)



Government sustainable project

The Platform cooperative team received a project for shuttle operation business expenses from the Ministry of Labor(300 million).

Short Conclusion : Research Performance(2)

3

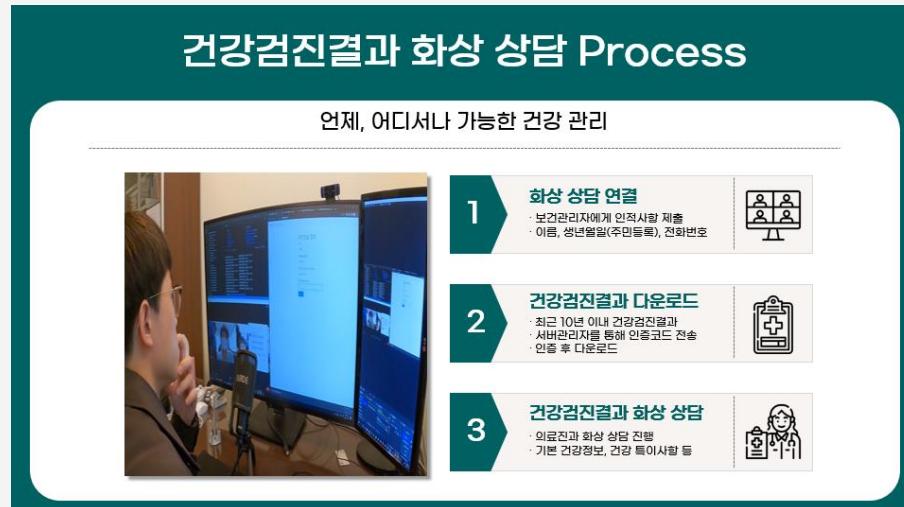
Platform worker's Demand

Management of medical health check already received

Necessary technology

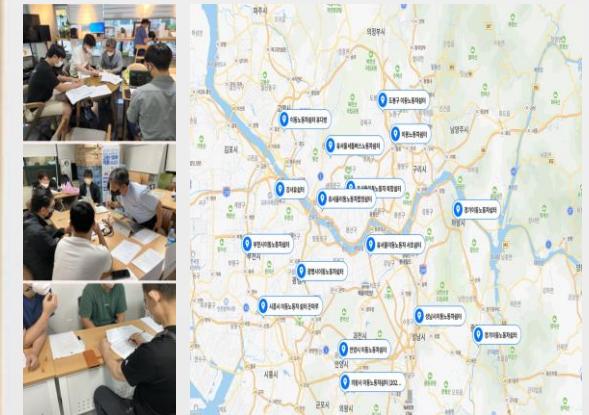
- Video call management
(video viewing history, messages, participation, etc.)
 - a part already developed as an educational program
 - Technology for downloading and providing medical-health check records

Is it possible to consult with the medical health examination that I have already received?



Mobile worker shelter location

- Health records are provided based on the consent of the person at base mobile worker shelters, etc.
 - Provides health information online at a later date.



Lack of social security or connection for Replacement Driver

3



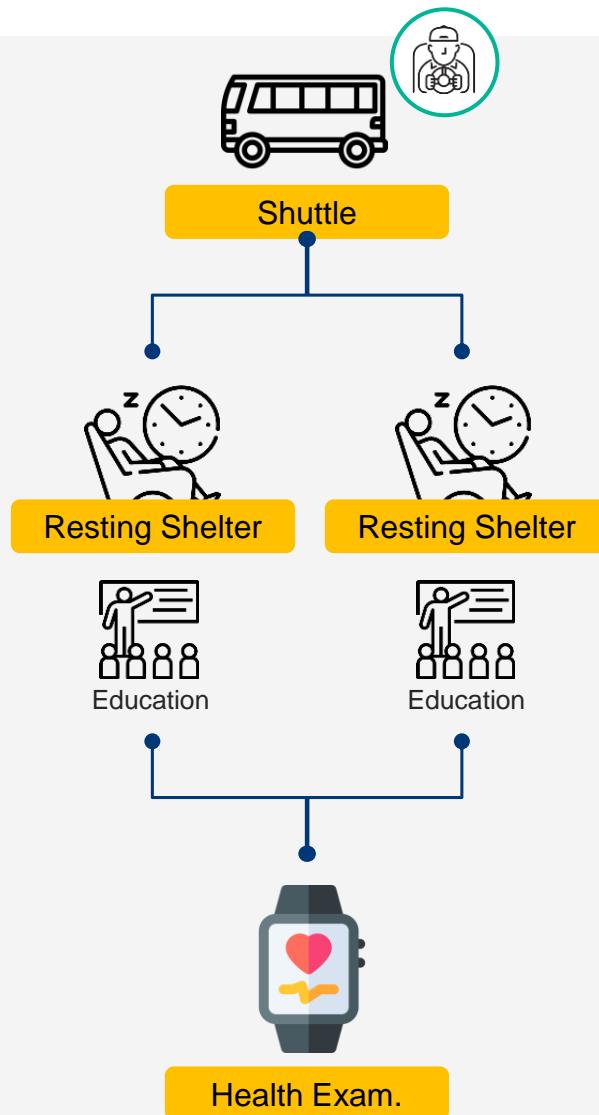
“

3AM, there was a car accident. after car accident, ambulance took 4 passengers to hospital. The crashed car was towed to parking lot. In that morning, police men found a dead person under the very end seat. Because all passengers were Replacement driver, they did not know each other, and nobody knew that death.

”

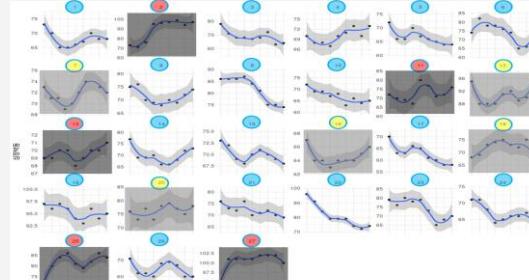
There was no bus, no subway. I cannot walk to my home, because my last customer lived far away from my home. The taxi is too expensive for me to use. I usually used shuttle instead.

Night Shuttle



“ Replacement drivers fall into remote area late night where there is no public transportation running. So, we tried to make a night shuttle between remote area and Resting Shelter. The resting shelter can introduce mutual fund and health examination project for the shuttle users.

Night Shuttle

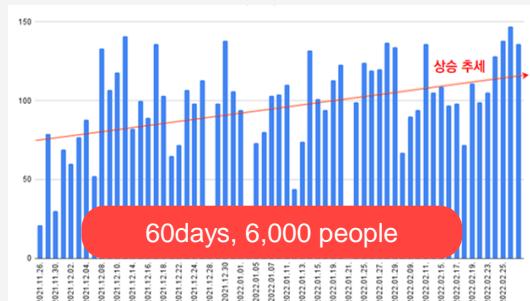


Num of Worker using Resting Shelters

Heart rate variability in shuttle

Shuttle route(1)

Shuttle route(2)



Shuttle daily number of users



회의실	용도 회의실 면적 30.49m ² (11.95평)
여성휴게실	용도 여성휴게실 면적 20.00m ² (6.32평)
강의실	용도 강의실 면적 3-35평 면적 59.05m ² (18.13평)
상담실	용도 상담실 면적 10.50m ² (3.51평)
창비실	용도 창비실 면적 36.00m ² (11.91평)

Shuttle in operation



“

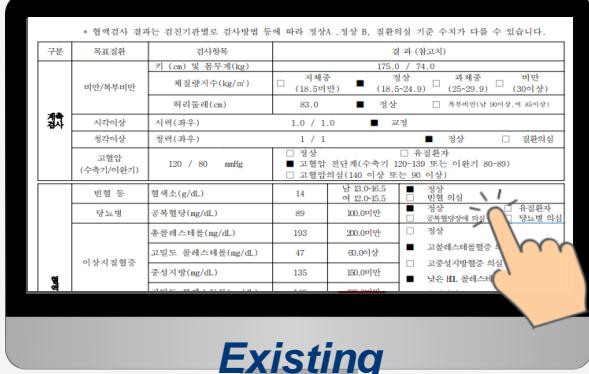
Government sustainable project

The Platform cooperative team received a project for shuttle operation business expenses from the Ministry of Labor(300 million).

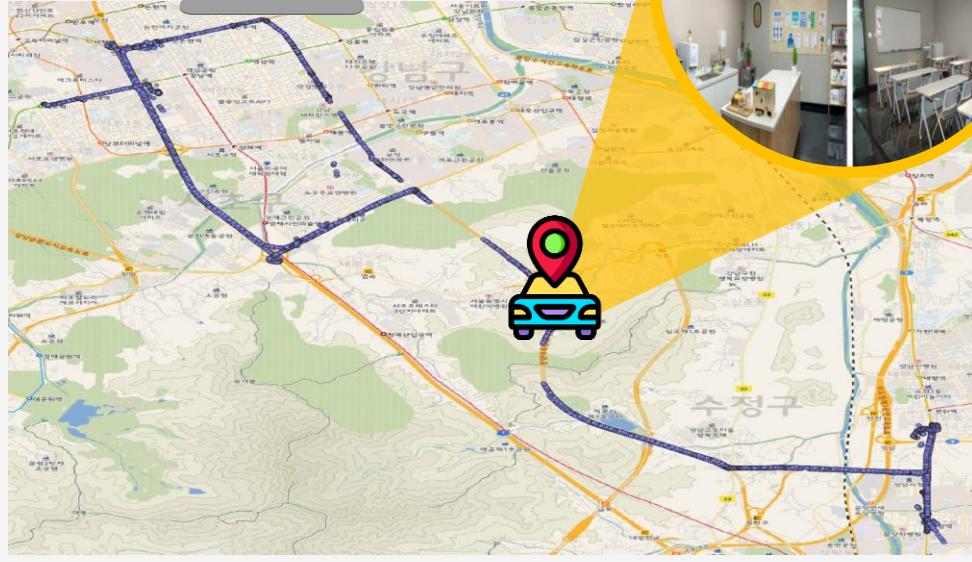
”

Night Shuttle(Provide Health information Online)

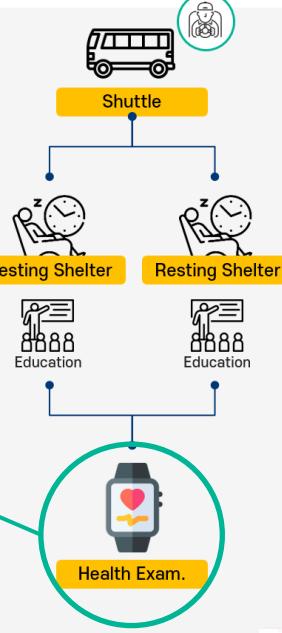
Existing System



구분	목표질환	검사항목	결과 (참고치)
비만/복부비만	키 (cm) 및 몸무게 (kg)	175.0 / 74.0	비만
	체질량지수(kg/m ²)	(18.5~24.9) 정상 (25.0~29.9) 과체중 (30이상) 비만	정상
	비 터浊도(cm)	83.0 정상 (85이상) 복부비만(남 90이상, 여 85이상)	정상
시각이상	시력(좌우) 1.0 / 1.0 정상	교정	
청각이상	청력(좌우) 1 / 1 정상	정상	
고혈압 (수축기/이완기)	120 / 80 mmHg 정상 고혈압 전단계(수축기 120~139 또는 이완기 80~89) 고혈압의심(140 이상 또는 90 이상)	정상	
변비 등	변비(24시간 대변 2회 미만) 정상 비정상	정상	
당뇨병	당뇨병(ng/dL) 89 정상 (200이상) 유질환자 당뇨병 의심	정상	
이상지질혈증	총콜레스테롤(ng/dL) 193 정상 (200이상) 유질환자 코레스테롤증 고지상지질증 의심	정상	
	고밀도 덱스테로필(ng/dL) 47 정상 (60이상) 고밀도 덱스테로필증 고지상지질증 의심	정상	
	총膽汁酸(ng/dL) 135 정상 (200이상) 낮은 HDL 콜레스테롤	정상	




Automated System


Health information video provided Online

Automated System Development



Where are my Health Examination results?

* 혈액검사 결과는 검진기관별로 검사방법 등에 따라 정상A, 정상 B, 질환의심 기준 수치가 다를 수 있습니다.

구분	목표질환	검사항목	결과 (참고치)			
검사	비만/복부비만	키 (cm) 및 몸무게(kg)	175.0 / 74.0			
		체질량지수(kg/m ²)	<input type="checkbox"/> 저체중 (18.5미만)	<input checked="" type="checkbox"/> 정상 (18.5~24.9)	<input type="checkbox"/> 과체중 (25~29.9)	<input type="checkbox"/> 비만 (30이상)
		허리둘레(cm)	83.0	<input checked="" type="checkbox"/> 정상	<input type="checkbox"/> 복부비만(남 90이상, 여 85이상)	
시각이상	시력(좌우)	1.0 / 1.0	<input checked="" type="checkbox"/> 교정			
청각이상	청력(좌우)	1 / 1	<input checked="" type="checkbox"/> 정상	<input type="checkbox"/> 질환의심		
고혈압 (수축기/이완기)	120 / 80 mmHg	<input type="checkbox"/> 정상	<input type="checkbox"/> 고혈압 진단계(수축기 120~139 또는 이완기 80~89)	<input type="checkbox"/> 유질환자		
		<input checked="" type="checkbox"/> 고혈압의심(140 이상 또는 90 이상)				
검사	변혈 등	혈색소(g/dL)	14	남 13.0~16.5 여 12.0~15.5	<input checked="" type="checkbox"/> 정상 <input type="checkbox"/> 비혈 의심	
	당뇨병	공복혈당(mg/dL)	89	100.0이상	<input checked="" type="checkbox"/> 정상 <input type="checkbox"/> 당뇨병 의심	
	이상지질혈증	총콜레스테롤(mg/dL)	193	200.0이상	<input type="checkbox"/> 정상 <input checked="" type="checkbox"/> 고콜레스테롤혈증 의심	
		고밀도콜레스테롤(mg/dL)	47	60.0이상	<input type="checkbox"/> 고증성지방혈증 의심	
		중성지방(mg/dL)	135	150.0이상	<input checked="" type="checkbox"/> 낮은 HDL콜레스테	
고밀도콜레스테롤(%)	34%	100~120%				

Existing System

개인정보 입력

서버
- 간편인증 소통
- 건강보험공단 소통
- 개인 건강검진 다운로드

현장 오프라인 접점 보건관리자

연세대학교 온라인 보건관리자

개인정보 입력 UI, 간편인증 시작

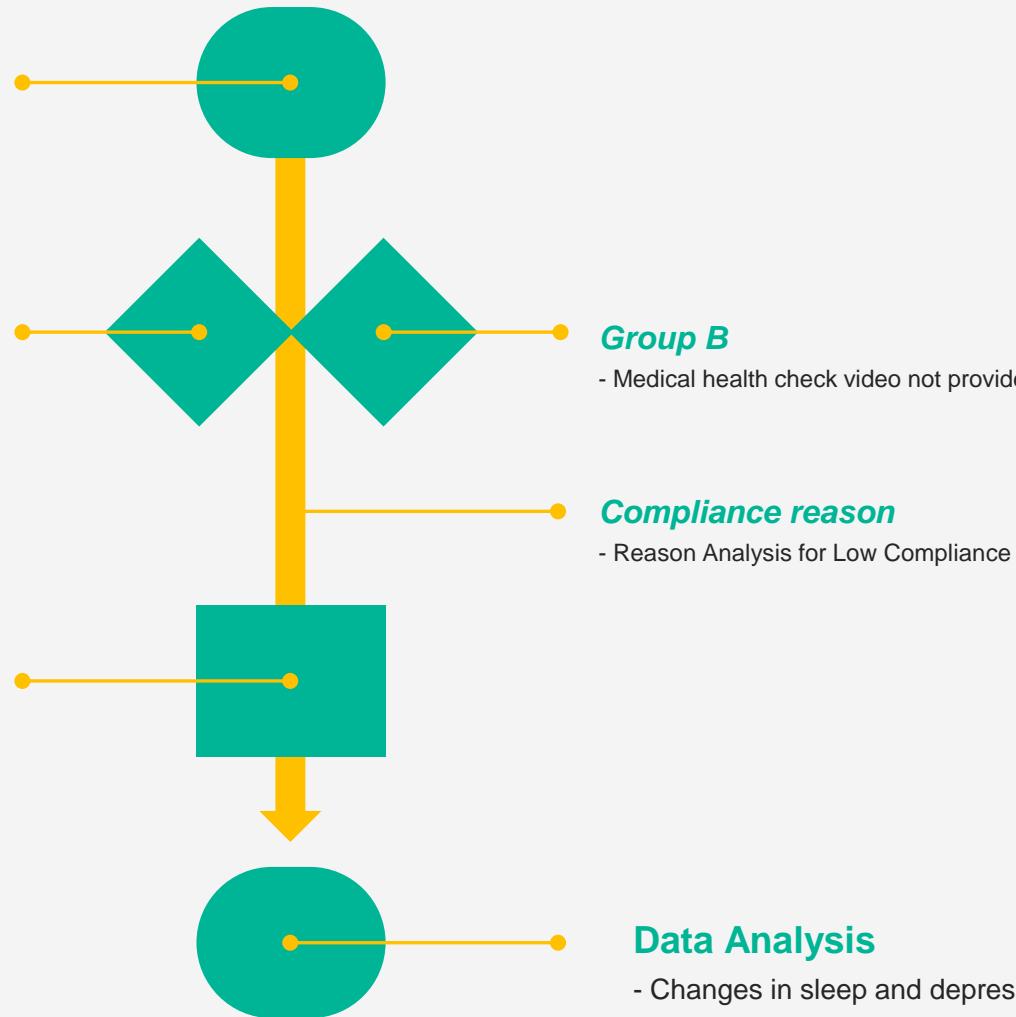
Automated System

Research and development process(Intervention research)

3

Intervention study participants

- 1st survey
- Medical examination data
- Medical examination video

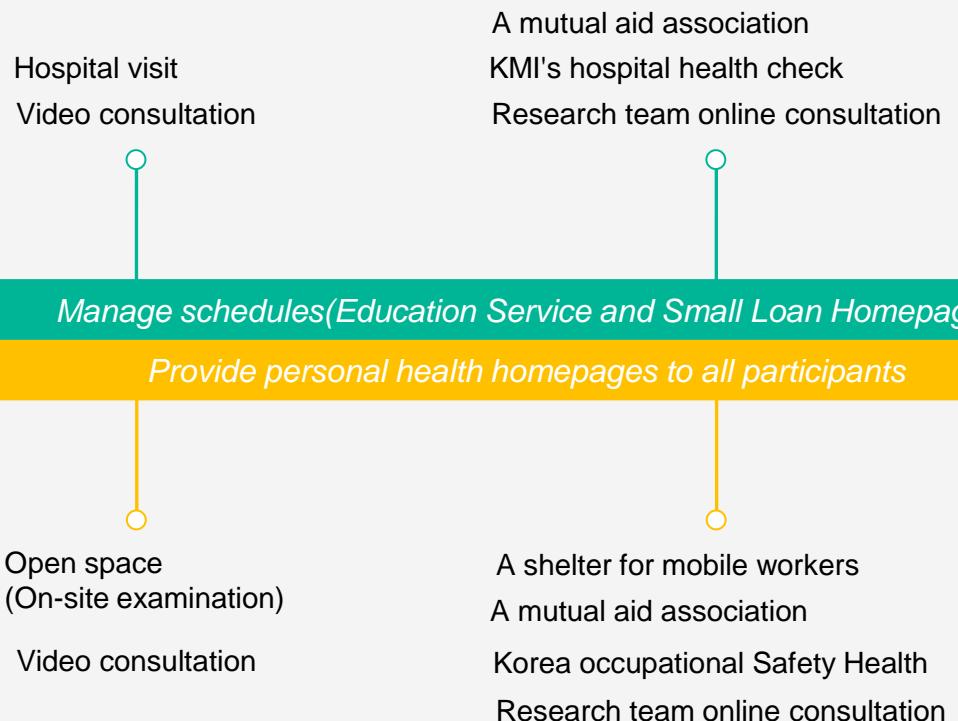


Proceed with the 2nd survey

- A month after watching the video
- Sleep and Depression Survey



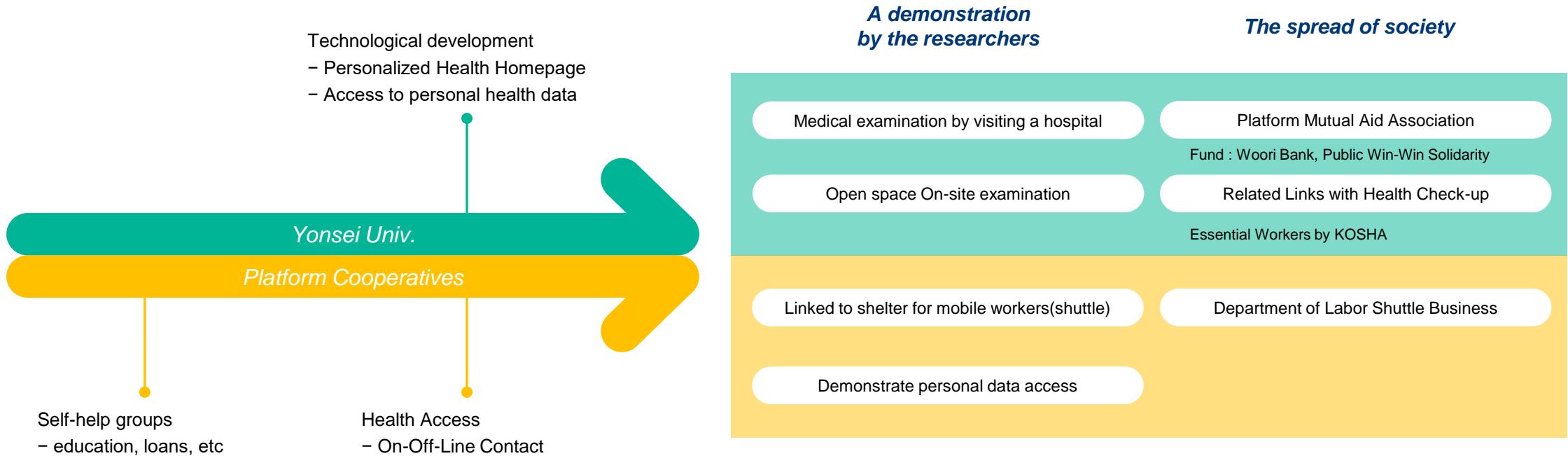
Short Conclusion : Research Performance(1)



“ ”
The health care system experienced in this study will not be stopped with the end of the study but continued through collaboration with other business teams.

Research and development comprehensive process

3



Discussion

4



셔틀을 이용한 단순 모집

- 60일간 약 6000명 이용
- 30일간 2700명에게 홍보
- 약 30명(1.11%) 연구 참여

요일	탑승인원
월 → 화	1,113
화 → 수	1,218
수 → 목	1,274
목 → 금	1,419
금 → 토	1,002
전체	6,026



다중 교육을 통한 모집

- 1회 교육당 약 50명 설명
- 총 10회 진행

- 500명 중 약 30%인 150명 정도 연구 참여
- 단순 홍보와 약 30배 차이의 연구 참여도를 보임



참여 교육 모집 [1:1 교육]

- 1:1 교육을 통한 연구 설명 및 교육
- 1회 교육당 약 50명 설명

- 5회 교육 진행
- 약 250여명 중 70%이상 연구 참여



지속적인 Follow-up 확인

- 연구참여자의 지속적인 참여도와 순응도 확인
- 낮은 Compliance에 대한 이유 분석
- 플랫폼 노동자의 특성을 반영한 Compliance 증가 방안 모색
- 필요한 정책 제언

Others Data manage, Computer setting and programing

Developing Guide Book

Data management and analysis

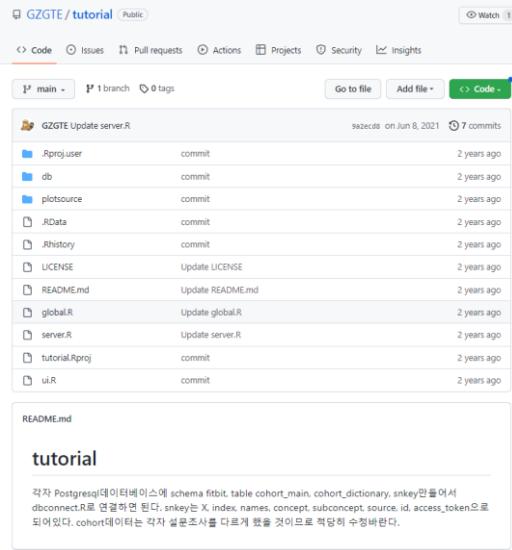
FitBit Heart Rate download, dashboard

NHIS-health examination

AutoReporting

Web and Mobile App

Prediction, analysis



GZGTE/tutorial Public

Code Issues Pull requests Actions Projects Security Insights

main · branch · tags

Go to file Add file Code

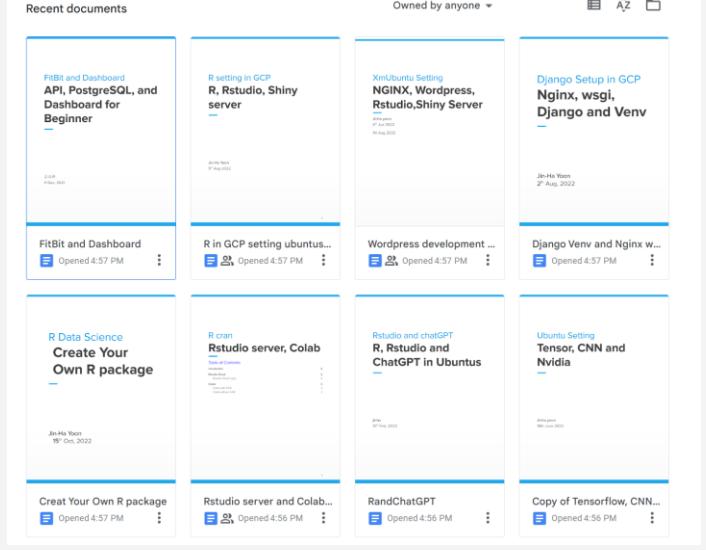
992ed8 on Jun 8, 2021 7 commits

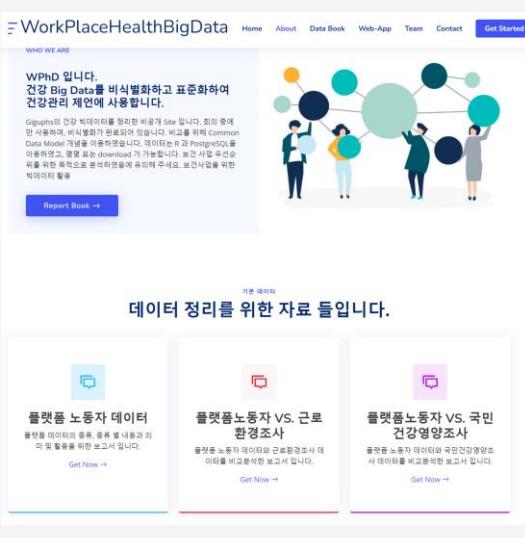
Rprojuser commit 2 years ago
db commit 2 years ago
plotsource commit 2 years ago
RData commit 2 years ago
Rhistory commit 2 years ago
LICENSE Update LICENSE 2 years ago
README.md Update README.md 2 years ago
global.R Update global.R 2 years ago
server.R Update server.R 2 years ago
tutorial.Rproj commit 2 years ago
ui.R commit 2 years ago

README.md

tutorial

각자 Postgresql 데이터베이스에 schema fitbit, table cohort_main, cohort_dictionary, smkey 만들어서 dbconnect.R로 연결하면 된다. smkey는 X_index, names, concept, subconcept, source_id, access_token으로 되어있다. cohort데이터는 각자 질문조사를 다르게 끌을 것이므로 적당히 수정해한다.





WorkPlaceHealthBigData Home About Data Book Web-App Team Contact Get Started

WHO WE ARE

WPHD입니다.
건강 Big Data 를 바탕화하고 표준화하여
건강관련 제도에 사용합니다.

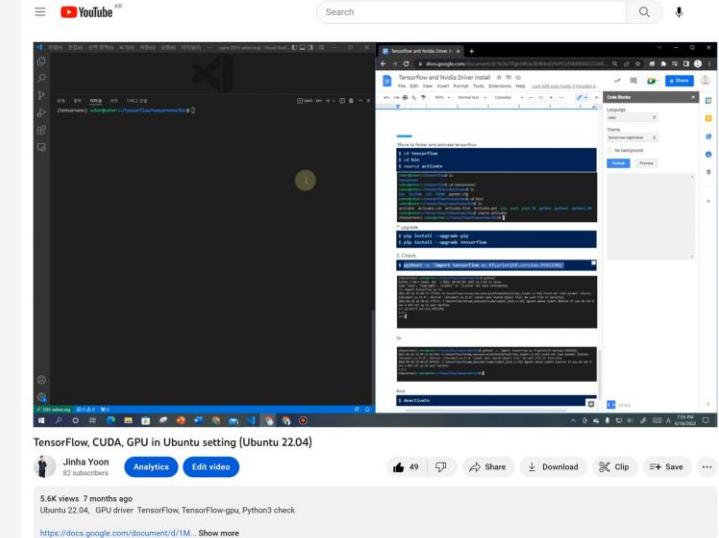
Graphic showing four stylized human figures interacting with a central green circle.

데이터 정리를 위한 자료 들입니다.

플랫폼 노동자 데이터
플랫폼 데이터의 종류, 품질 및 내용과의
미적·질itative 차이를 보고서입니다.
Get Now →

플랫폼 노동자 VS. 근로 환경조사
플랫폼 노동자 데이터와 근로환경조사의
이미지를 비교분석한 보고서입니다.
Get Now →

플랫폼 노동자 VS. 국민 건강영양조사
플랫폼 노동자 데이터와 국민건강영양조사
데이터를 비교분석한 보고서입니다.
Get Now →



TensorFlow, CUDA, GPU in Ubuntu setting (Ubuntu 22.04)

JinHa Yoon 82 subscribers Analytics Edit video

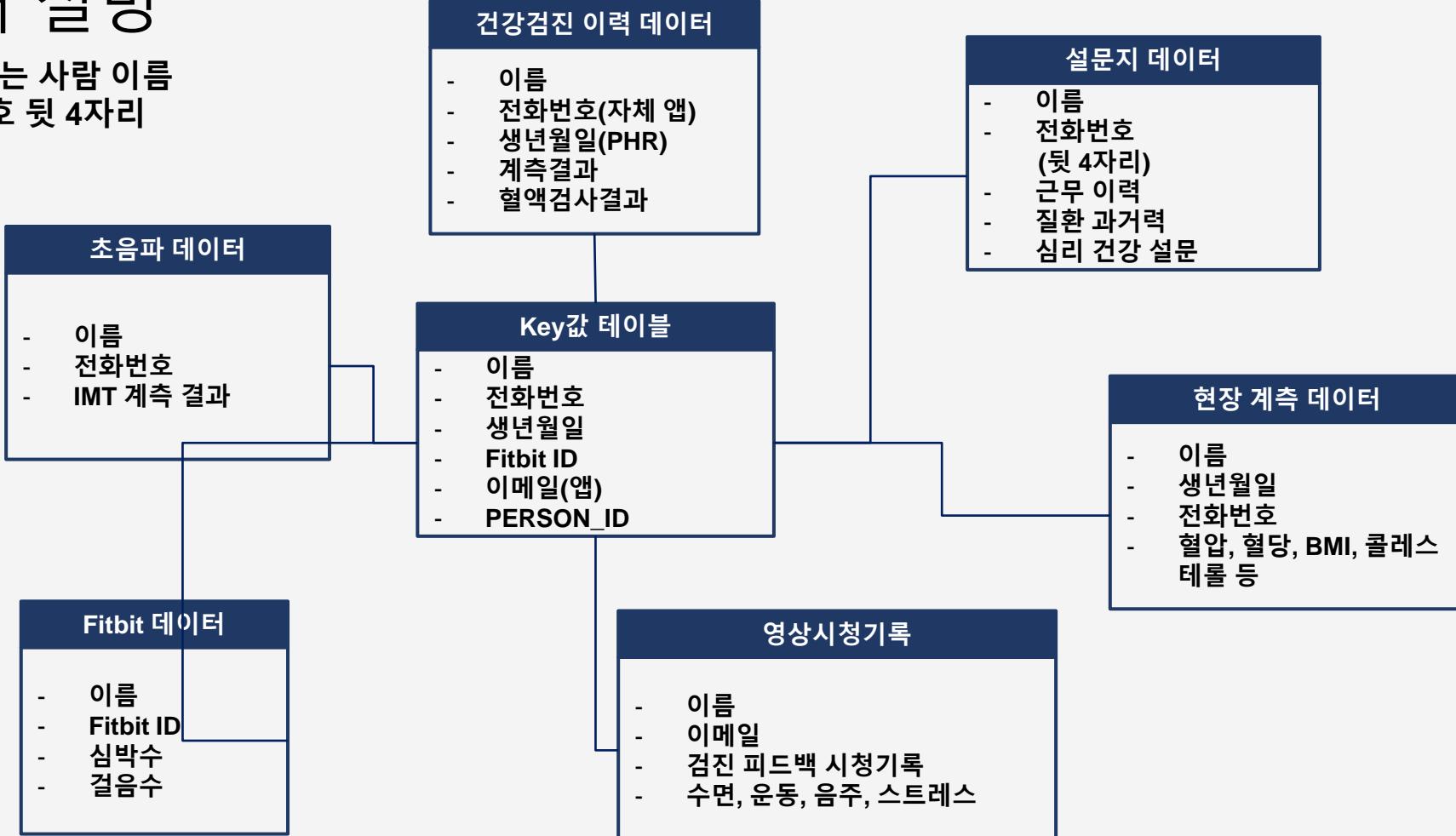
5.6K views 7 months ago
Ubuntu 22.04. GPU driver: TensorFlow, TensorFlow-gpu, Python3 check

https://docs.google.com/document/d/1M... Show more

Data Management and analysis

데이터 설명

기본 결합키는 사람 이름
+ 핸드폰번호 뒷 4자리



Data Management, and analysis

4

데이터 설명-결합예시

건강검진

PERSON_ID	혈압	공복혈당	콜레스테롤	BMI
V1001	135/78	112	205	25.5
V1003	154/98	139	178	26.3

PERSON_ID	BIRTH_YEAR	SEX	FITBIT_ID
V1001	1961	1	123
V1002	1974	1	9999
V1003	1952	1	55
V1004	1983	2	9999
V1005	1991	1	9999
V1006	1965	1	87

설문

PERSON_ID	우울 점수	불면증 점수	근무 이력(시작)	근무 시간
V1001	12	14	2015년	주 50시간
V1005	5	10	2020년	주 68시간
V1006	21	18	2017년	주 40시간

FITBIT_ID	날짜	심박 수	걸음 수
123	2021.11.12	79	10988
123	2021.11.13	95	12154
55	2022.05.12	68	5900

KEY TABLE

이름, 전화번호를 활용한
PERSON_ID 생성
E-mail 정보 호환

Data Management, and analysis

데이터 설명

설문조사

4

시범		1차/2차	
기본정보	9문항	기본정보	7문항
근무정보	7문항	근무정보	5문항
건강상태	52문항	건강상태	12문항
심리건강	45문항 - 수면 8문항 - 안과 7문항 - 우울 9문항 - 폭행 12문항 - 기타 9문항	심리건강	32문항 - 수면 8문항 - 삭제 - 우울 9문항 - 폭행 6문항 - 기타 9문항
사회적지지	13문항	사회적지지	6문항
전체	126문항	전체	62문항

Data Management, and analysis

데이터 설명

데이터 코딩북 – 심리건강

수면	ISI1	잠들기 어려움	0=없음, 1=약간, 2=중간, 3=심함, 4=매우 심함	KWHE-CDM	2. 최근 2주간 다음 각 항목의 문제들이 얼마나 심한지 선택해 주십시오. [a. 잠들기 어려움]
	ISI2	잠 유지 어려움	0=없음, 1=약간, 2=중간, 3=심함, 4=매우 심함	KWHE-CDM	2. 최근 2주간 다음 각 항목의 문제들이 얼마나 심한지 선택해 주십시오. [b. 잠을 유지하기 어려움]
	ISI3	너무 일찍 깨	0=없음, 1=약간, 2=중간, 3=심함, 4=매우 심함	KWHE-CDM	2. 최근 2주간 다음 각 항목의 문제들이 얼마나 심한지 선택해 주십시오. [c. 너무 일찍 깨는 문제]
	ISI4	수면 만족도	0=매우 만족, 1=만족, 2=중간, 3=불만족, 4=매우 불만족	KWHE-CDM	3. 현재 당신의 수면패턴에 대해 얼마나 만족하고 있습니까?
	ISI5	일상생활 방해	0=전혀 방해되지 않음, 1=약간, 2=중간, 3=심하게 방해, 4=매우 심하게 방해	KWHE-CDM	4. 불면증이 일상생활을 어느 정도 방해한다고 생각합니까?
	ISI6	주변 사람 생각	0=전혀 심각하게 생각하지 않음, 1=약간, 2=중간, 3=심각하게 생각, 4=매우 심각하게 생각	KWHE-CDM	5. 주변 사람들이 귀하의 수면문제에 대해 심각하게 생각하고 있습니까?
	ISI7	불면증 걱정	0=전혀 걱정하지 않는다, 1=약간, 2=중간, 3=심하게 걱정, 4=매우 심하게 걱정	KWHE-CDM	6. 현재 불면증에 관하여 얼마나 걱정하고 있습니까?
안과	E_PEO	안과 수술 경험	1=예, 2=아니오, 99999=모름/무응답	KWCS	7. 과거에 안과 수술을 받은 적이 있습니까?
	E_DES_ds	안구건조증 증상	1=예, 2=아니오, 99999=모름/무응답	KWCS	8. 안구건조증(눈 건조 또는 자극) 증상 경험이 있습니까?
	E_DES_dg	안구건조증 진단	1=예, 2=아니오, 99999=모름/무응답	KWCS	9. 안구건조증(눈 건조 또는 자극) 진단을 받은 받았습니까?
	E_VS_DS	시력 장애	1=예, 2=아니오, 99999=모름/무응답	KWCS	10. 시력장애가 있습니까?
	E_VS_MYO	근시	1=예, 2=아니오, 99999=모름/무응답	KWCS	11. 멀리는 잘 안보이고, 가까운 것이 잘보입니다?
	E_VS_HYPER	원시	1=예, 2=아니오, 99999=모름/무응답	KWCS	12. 멀리는 잘 보이고, 가까운 것이 잘 안보입니다?
	E_VS_AST	독시	1=예, 2=아니오, 99999=모름/무응답	KWCS	13. 물건이 흐리게 보이거나 겹쳐보입니다?
우울	BP_PHQ1	우울증 PHQ 설문 1	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	1. 기분이 가라앉거나, 우울하거나, 희망이 없다고 느꼈다.
	BP_PHQ2	우울증 PHQ 설문 2	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	2. 평소 하던 일에 대한 흥미가 없어지거나 즐거움을 느끼지 못했다.
	BP_PHQ3	우울증 PHQ 설문 3	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	3. 잠들기가 어렵거나 자주 깨다/혹은 너무 많이 잤다.
	BP_PHQ4	우울증 PHQ 설문 4	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	4. 평소보다 식욕이 줄었다/혹은 평소보다 많이 먹었다.
	BP_PHQ5	우울증 PHQ 설문 5	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	5. 다른 사람들이 눈치 챌 정도로 평소보다 말과 행동이 느려졌다/혹은 너무 안절부절 못해서 가만히 앉아 있을 수 없었다.
	BP_PHQ6	우울증 PHQ 설문 6	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	6. 피곤하고 기운이 없었다.
	BP_PHQ7	우울증 PHQ 설문 7	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	7. 내가 잘못 했거나, 실패했다는 생각이 들었다/혹은 자신과 가족을 실망시켰다고 생각했다.
	BP_PHQ8	우울증 PHQ 설문 8	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	8. 신문을 읽거나 TV를 보는 것과 같은 일상적인 일에도 집중할 수가 없었다.
	BP_PHQ9	우울증 PHQ 설문 9	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	9. 차라리 죽는 것이 더 낫겠다고 생각했다/혹은 자해할 생각을 했다.
업무중 폭력 피해	asb1_n	언어폭력	연속형	KWCS (건수로)	1. 업무 수행 중에 언어폭력이 몇 건 당했습니다?
	asb2_n	원하지 않는 성적 관심	연속형	KWCS (건수로)	2. 원하지 않는 성적 관심이 몇 건 있었습니까?
	asb3_n	위협	연속형	KWCS (건수로)	5. 위협 또는 굴욕적 행동이 몇 건 당했습니다?
	asb4_n	인격모독	연속형	KWCS (건수로)	4. 인격모독을 몇 건 당했습니다?
	asb5_n	신체적 폭력	연속형	KWCS (건수로)	3. 신체적 폭력이 몇 건 당했습니다?
	asb9_n	업무 외 일	연속형	KWCS (건수로)	6. 업무 외 일(심부름, 쓰레기처리 포함)이 몇 건 당했습니다?
	asb1_wh	언어폭력을 가한 상대	해당없음, 2= 고객, 3=대행업체(또는 사무실), 4= 프로그램 사	KWCS	7. 위 사건은 누구에게 당했습니다? (중복가능) [1. 언어폭력]

Data Management, and analysis

데이터 설명

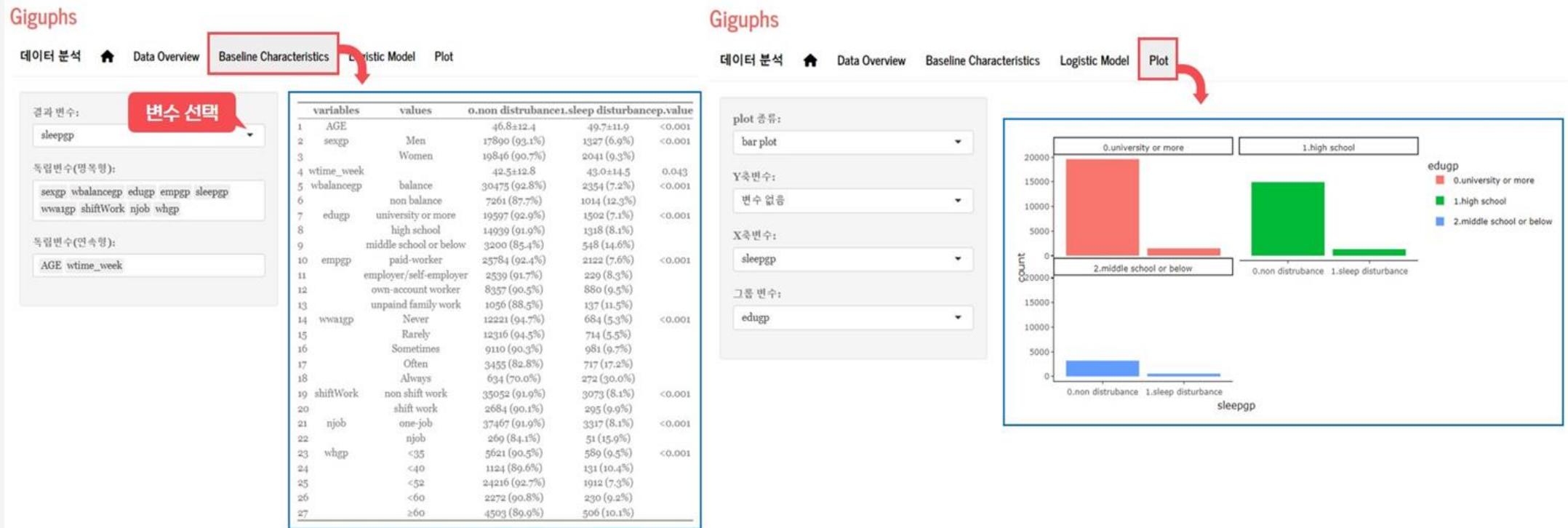
데이터 코딩북 – 심리건강

수면	ISI1	잠들기 어려움	0=없음, 1=약간, 2=중간, 3=심함, 4=매우 심함	KWHE-CDM	2. 최근 2주간 다음 각 항목의 문제들이 얼마나 심한지 선택해 주십시오. [a. 잠들기 어려움]
	ISI2	잠 유지 어려움	0=없음, 1=약간, 2=중간, 3=심함, 4=매우 심함	KWHE-CDM	2. 최근 2주간 다음 각 항목의 문제들이 얼마나 심한지 선택해 주십시오. [b. 잠을 유지하기 어려움]
	ISI3	너무 일찍 깨	0=없음, 1=약간, 2=중간, 3=심함, 4=매우 심함	KWHE-CDM	2. 최근 2주간 다음 각 항목의 문제들이 얼마나 심한지 선택해 주십시오. [c. 너무 일찍 깨는 문제]
	ISI4	수면 만족도	0=매우 만족, 1=만족, 2=중간, 3=불만족, 4=매우 불만족	KWHE-CDM	3. 현재 당신의 수면패턴에 대해 얼마나 만족하고 있습니까?
	ISI5	일상생활 방해	0=전혀 방해되지 않음, 1=약간, 2=중간, 3=심하게 방해, 4=매우 심하게 방해	KWHE-CDM	4. 불면증이 일상생활을 어느 정도 방해한다고 생각합니까?
	ISI6	주변 사람 생각	0=전혀 심각하게 생각하지 않음, 1=약간, 2=중간, 3=심각하게 생각, 4=매우 심각하게 생각	KWHE-CDM	5. 주변 사람들이 귀하의 수면문제에 대해 심각하게 생각하고 있습니까?
	ISI7	불면증 걱정	0=전혀 걱정하지 않는다, 1=약간, 2=중간, 3=심하게 걱정, 4=매우 심하게 걱정	KWHE-CDM	6. 현재 불면증에 관하여 얼마나 걱정하고 있습니까?
안과	E_PEO	안과 수술 경험	1=예, 2=아니오, 99999=모름/무응답	KWCS	7. 과거에 안과 수술을 받은 적이 있습니까?
	E_DES_ds	안구건조증 증상	1=예, 2=아니오, 99999=모름/무응답	KWCS	8. 안구건조증(눈 건조 또는 자극) 증상 경험이 있습니까?
	E_DES_dg	안구건조증 진단	1=예, 2=아니오, 99999=모름/무응답	KWCS	9. 안구건조증(눈 건조 또는 자극) 진단을 받은 받았습니까?
	E_VS_DS	시력 장애	1=예, 2=아니오, 99999=모름/무응답	KWCS	10. 시력장애가 있습니까?
	E_VS_MYO	근시	1=예, 2=아니오, 99999=모름/무응답	KWCS	11. 멀리는 잘 안보이고, 가까운 것이 잘보입니다?
	E_VS_HYPER	원시	1=예, 2=아니오, 99999=모름/무응답	KWCS	12. 멀리는 잘 보이고, 가까운 것이 잘 안보입니다?
	E_VS_AST	독시	1=예, 2=아니오, 99999=모름/무응답	KWCS	13. 물건이 흐리게 보이거나 겹쳐보입니다?
우울	BP_PHQ1	우울증 PHQ 설문 1	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	1. 기분이 가라앉거나, 우울하거나, 희망이 없다고 느꼈다.
	BP_PHQ2	우울증 PHQ 설문 2	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	2. 평소 하던 일에 대한 흥미가 없어지거나 즐거움을 느끼지 못했다.
	BP_PHQ3	우울증 PHQ 설문 3	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	3. 잠들기가 어렵거나 자주 깨다/혹은 너무 많이 잤다.
	BP_PHQ4	우울증 PHQ 설문 4	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	4. 평소보다 식욕이 줄었다/혹은 평소보다 많이 먹었다.
	BP_PHQ5	우울증 PHQ 설문 5	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	5. 다른 사람들이 눈치 챌 정도로 평소보다 말과 행동이 느려졌다/혹은 너무 안절부절 못해서 가만히 앉아 있을 수 없었다.
	BP_PHQ6	우울증 PHQ 설문 6	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	6. 피곤하고 기운이 없었다.
	BP_PHQ7	우울증 PHQ 설문 7	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	7. 내가 잘못 했거나, 실패했다는 생각이 들었다/혹은 자신과 가족을 실망시켰다고 생각했다.
	BP_PHQ8	우울증 PHQ 설문 8	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	8. 신문을 읽거나 TV를 보는 것과 같은 일상적인 일에도 집중할 수가 없었다.
	BP_PHQ9	우울증 PHQ 설문 9	0=없음, 1=2-6일, 2=7-12일, 3=거의 매일, 99999=무응답	KNHANES	9. 차라리 죽는 것이 더 낫겠다고 생각했다/혹은 자해할 생각을 했다.
업무중 폭력 피해	asb1_n	언어폭력	연속형	KWCS (건수로)	1. 업무 수행 중에 언어폭력이 몇 건 당했습니다?
	asb2_n	원하지 않는 성적 관심	연속형	KWCS (건수로)	2. 원하지 않는 성적 관심이 몇 건 있었습니까?
	asb3_n	위협	연속형	KWCS (건수로)	5. 위협 또는 굴욕적 행동이 몇 건 당했습니다?
	asb4_n	인격모독	연속형	KWCS (건수로)	4. 인격모독을 몇 건 당했습니다?
	asb5_n	신체적 폭력	연속형	KWCS (건수로)	3. 신체적 폭력이 몇 건 당했습니다?
	asb9_n	업무 외 일	연속형	KWCS (건수로)	6. 업무 외 일(심부름, 쓰레기처리 포함)이 몇 건 당했습니다?
	asb1_wh	언어폭력을 가한 상대	해당없음, 2= 고객, 3=대행업체(또는 사무실), 4= 프로그램 사	KWCS	7. 위 사건은 누구에게 당했습니다? (중복가능) [1. 언어폭력]

Data Management, and analysis

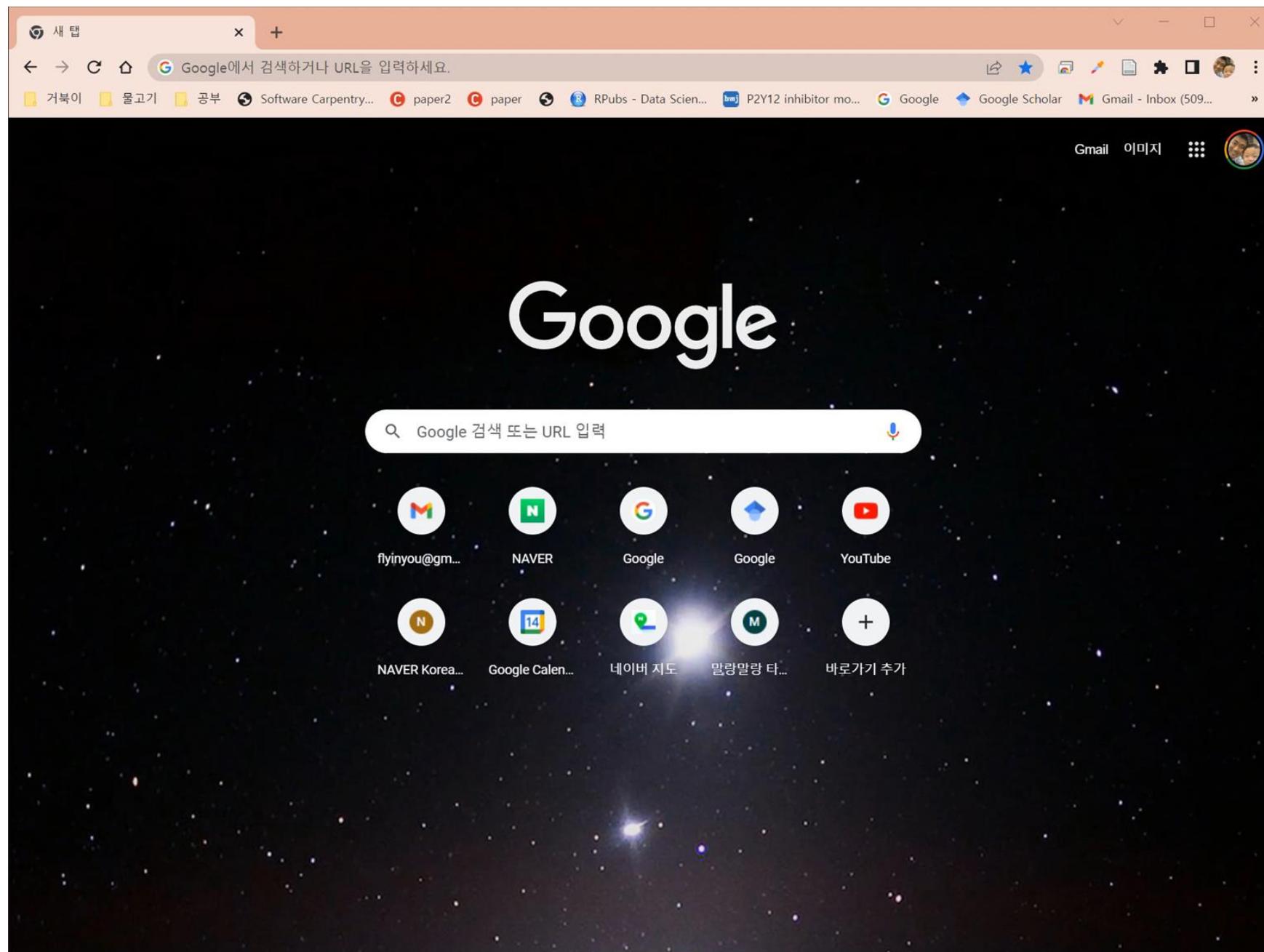
4

AutoReporting



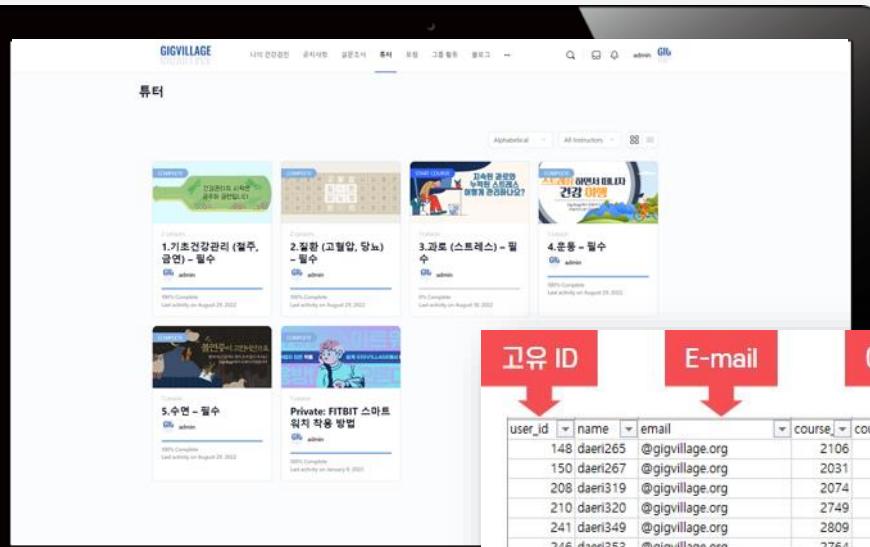


GigUpHs



Data Management, and analysis

교육 프로그램 기록 데이터



고유 ID	E-mail	이수 교육 과정명	교육 이수 여부	교육 재생 시간
148	daeri265 @gigvillage.org	2106 _건강검진결과	1 YES	2022-12-01 2022-11-02 29d 6h 11m 5s 2107 Lesson _건강검진결과
150	daeri267 @gigvillage.org	2031 _건강검진결과	1 YES	2022-12-01 2022-12-01 2032 Lesson _건강검진결과
208	daeri319 @gigvillage.org	2074 _건강검진결과	1 YES	2022-12-02 2022-12-02 2075 Lesson _건강검진결과
210	daeri320 @gigvillage.org	2749 _건강검진결과	1 YES	2022-11-25 2022-11-25 3m 1s 2748 Lesson _건강검진결과
241	daeri349 @gigvillage.org	2809 _건강검진결과	1 YES	2022-11-25 2022-11-05 20d 12h 19m 55s 2808 Lesson _건강검진결과
246	daeri353 @gigvillage.org	2764 _건강검진결과	1 YES	2022-11-22 2022-11-22 4m 11s 2763 Lesson _건강검진결과
271	daeri376 @gigvillage.org	2194 _건강검진결과	1 YES	2022-11-28 2022-11-28 2193 Lesson _건강검진결과
276	daeri380 @gigvillage.org	2179 _건강검진결과	1 YES	2022-11-28 2022-11-28 2178 Lesson _건강검진결과
331	@gigvillage.org	2618 _건강검진결과	1 YES	2022-12-02 2022-12-02 2617 Lesson _건강검진결과
498	@gigvillage.org	2922 _건강검진결과	1 YES	2022-11-17 2022-10-24 24d 52m 9s 2923 Lesson _건강검진결과
239	@gigvillage.org	2132 _건강검진결과	1 YES	2022-12-06 2022-11-28 8d 3h 11m 35s 2133 Lesson _건강검진결과
401	@gigvillage.org	100 1.기초건강관리(질주, 금연) - 필수	2 YES	2022-08-29 2022-08-29 1m 33s 1484 Lesson 기초건강관리(금연)
401	@gigvillage.org	98 2.질환(고혈압, 당뇨) - 필수	2 YES	2022-08-29 2022-08-29 2m 43s 108 Lesson 질환(당뇨)
401	@gigvillage.org	96 3.과로(스트레스) - 필수	1 YES	2022-08-29 2022-08-25 3d 21h 9m 14s 106 Lesson 과로(스트레스)
401	@gigvillage.org	94 4.운동 - 필수	1 YES	2022-08-29 2022-08-25 3d 21h 17m 14s 104 Lesson 운동
401	@gigvillage.org	92 5.수면 - 필수	1 YES	2022-08-29 2022-08-29 16m 16s 102 Lesson 수면
401	@gigvillage.org	134 FITBIT 스마트 워치 작용 방법	1 YES	2022-08-25 2022-08-25 1m 27s 136 Lesson FIT-BIT 스마트 워치 작용 방법
401	@gigvillage.org	2623 _건강검진결과	1 YES	2022-11-02 2022-10-19 14d 14m 14s 2622 Lesson _건강검진결과
478	@gigvillage.org	2628 _건강검진결과	1 YES	2022-12-02 2022-12-02 2627 Lesson _건강검진결과
249	@gigvillage.org	2017 _건강검진결과	1 YES	2022-11-18 2022-11-18 5m 44s 2016 Lesson _건강검진결과
483	@gigvillage.org	2504 _건강검진결과	1 YES	2022-11-05 2022-11-05 16s 2503 Lesson _건강검진결과
402	@gigvillage.org	98 2.질환(고혈압, 당뇨) - 필수	2 YES	2022-08-31 2022-08-31 13m 24s 108 Lesson 질환(당뇨)
402	@gigvillage.org	2514 _건강검진결과	1 YES	2022-12-06 2022-11-28 8d 3h 3m 53s 2513 Lesson _건강검진결과
474	@gigvillage.org	2524 _건강검진결과	1 YES	2022-11-25 2022-11-25 11s 2523 Lesson _건강검진결과
103	@gigvillage.org	2087 _건강검진결과	1 YES	2022-11-28 2022-11-28 4m 1s 2086 Lesson _건강검진결과
252	@gigvillage.org	2027 _건강검진결과	1 YES	2022-11-26 2022-11-26 2m 23s 2026 Lesson _건강검진결과
501	@gigvillage.org	2891 _건강검진결과	1 YES	2022-12-07 2022-11-25 11d 23h 46m 29s 2890 Lesson _건강검진결과
497	@gigvillage.org	2908 _건강검진결과	1 YES	2022-11-24 2022-11-02 21d 22h 49m 38s 2907 Lesson _건강검진결과
454	@gigvillage.org	2531 _건강검진결과	1 YES	2022-11-16 2022-11-10 5d 10h 23m 12s 2530 Lesson _건강검진결과
456	@gigvillage.org	2541 _건강검진결과	1 YES	2022-12-02 2022-12-02 2540 Lesson _건강검진결과
232	@gigvillage.org	2546 _건강검진결과	1 YES	2022-12-07 2022-11-10 26d 6h 18m 52s 2545 Lesson _건강검진결과
132	@gigvillage.org	2496 _건강검진결과	1 YES	2022-12-02 2022-12-02 2497 Lesson _건강검진결과
496	@gigvillage.org	2896 _건강검진결과	1 YES	2022-11-26 2022-10-19 38d 5h 1m 20s 2895 Lesson _건강검진결과

연령대

연령대	학력	시청 여부	N (%)
55세 이하	고등학교 이하	아니오	19 (55.88%)
55세 이하	고등학교 이하	예	15 (44.12%)
55세 이하	대학교 이상	아니오	26 (42.62%)
55세 이하	대학교 이상	예	35 (57.38%)
55세 초과	고등학교 이하	아니오	12 (75%)
55세 초과	고등학교 이하	예	4 (25%)
55세 초과	대학교 이상	아니오	15 (35.71%)
55세 초과	대학교 이상	예	27 (64.29%)

Data Management, and analysis

Article

The Association between Replacement Drivers and Depressive Symptoms

Jongmin Lee¹, Heejoo Park², Juyeon Oh³, Juho Sim³, Chorom Lee⁴, Yangwook Kim³, Byungyoon Yun^{4,*}, and Jin-Ha Yoon^{4,5,*}

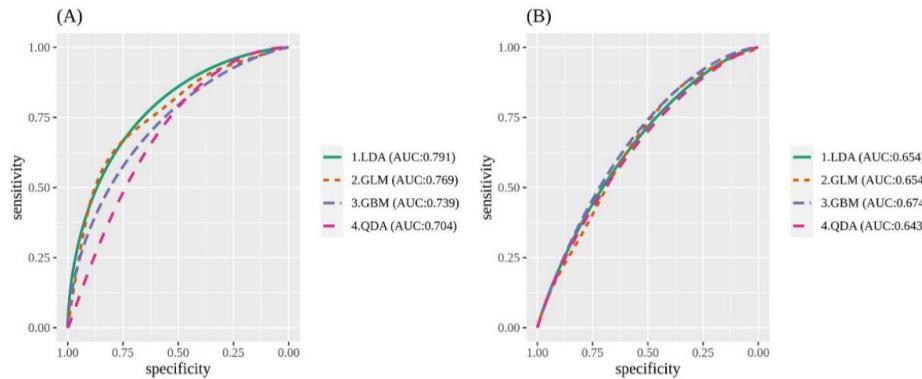


Figure 3. Differences in the area under the curve (AUC) based on whether (A) replacement driver variable was used or (B) not.

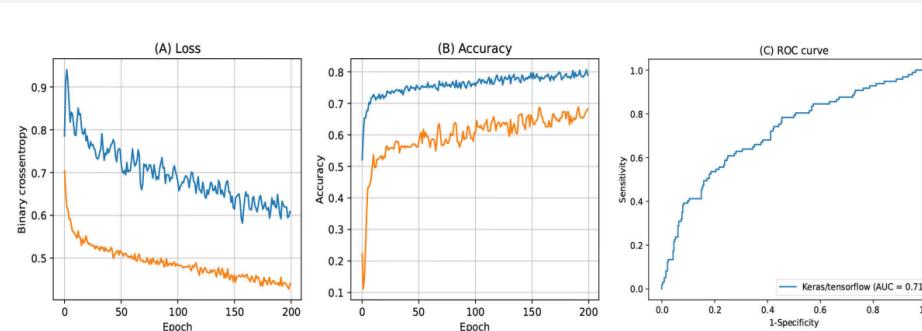


Figure 4. (A) Loss, (B) Accuracy, and (C) ROC curve of the deep learning model with Tensorflow.

Variables	Model 1	Model 2	Final model
Replacement driver			
No	Reference (1.00)	Reference (1.00)	Reference (1.00)
Yes	9.09 (6.49–12.74)	8.59 (6.10–12.09)	7.89 (5.53–11.26)
Age	0.98 (0.96–0.99)	0.98 (0.96–0.99)	0.97 (0.96–0.99)
Education			
Below high school		Reference (1.00)	Reference (1.00)
Above university	0.94 (0.68–1.29)	0.83 (0.60–1.15)	
Household income			
High		Reference (1.00)	Reference (1.00)
Low	1.34 (1.00–1.80)	1.31 (0.97–1.77)	
Smoking			
None			Reference (1.00)
Ex-smoker			1.34 (0.88–2.05)
Current smoker			1.84 (1.22–2.78)
Alcohol consumption			
None			Reference (1.00)
Social drink			1.25 (0.80–1.96)
Heavy			1.36 (0.85–2.18)
Working hours			
Short (<40)			Reference (1.00)
Long (≥40)			1.18 (0.88–1.57)
Muscular exercise			
None			Reference (1.00)
Exerciser (>1 day)			1.60 (1.16–2.21)
Sleeping time			
Normal (6–9)			Reference (1.00)
Abnormal (≤5 / ≥10)			1.86 (1.28–2.71)

Data Management, and analysis

Common Data Model Presenteeism/Absenteeism

☞ 근로환경조사의 일반 임금근로자와 비교

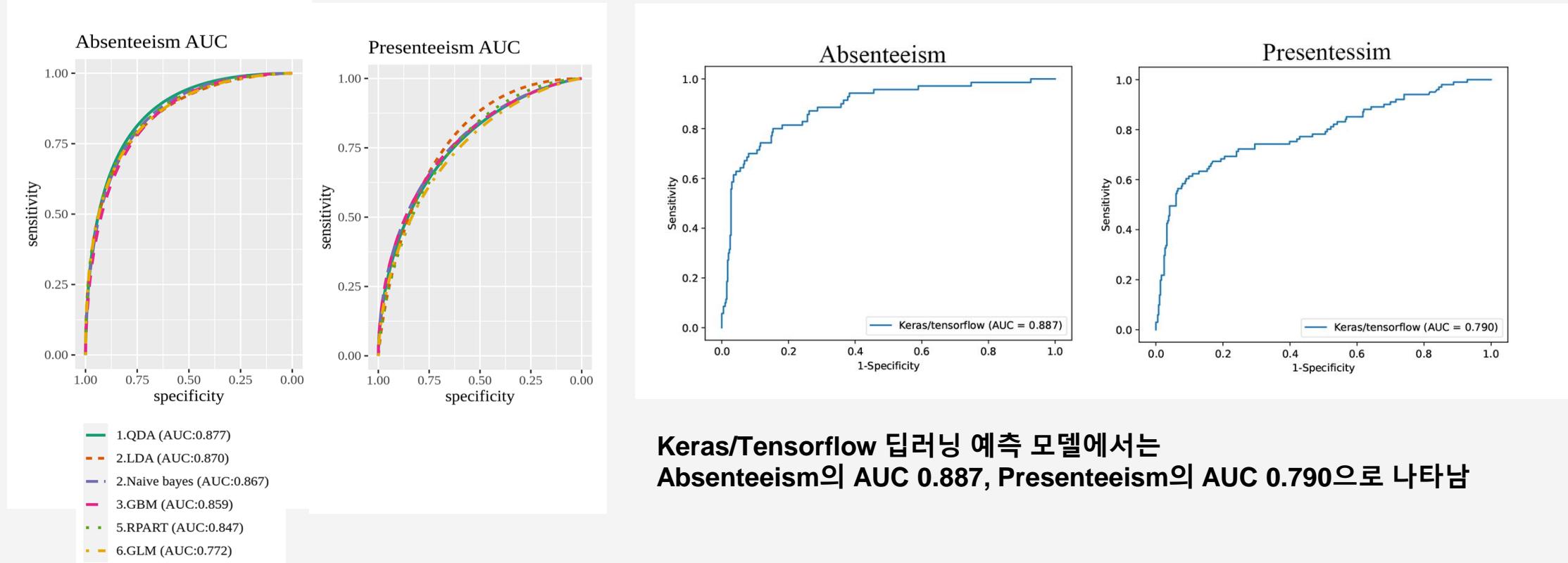
Table 2. Absenteeism & Presenteeism

Variable	Values	Presenteeism Model			Absenteeism Model		
		Odds Ratios	CI	p	Odds Ratios	CI	p
Platform	the general population	1.00	(reference)		1.00	(reference)	
	Platform worker	6.70	4.26-10.51	<0.001	26.91	15.33-47.22	<0.001
Age		1.00	0.99-1.01	0.88	1.00	0.98-1.02	0.98
	High	1.00	(reference)		1.00	(reference)	
Education	Low	1.14	0.86-1.51	0.38	0.96	0.68-1.35	0.80
	High	1.00	(reference)		1.00	(reference)	
Income	Medium	0.80	0.55-1.15	0.23	0.94	0.59-1.50	0.81
	Low	0.52	0.34-0.79	0.002	0.81	0.49-1.33	0.40
Working hour	< 40 hour	1.00	(reference)		1.00	(reference)	
	≥ 40 hour	1.68	1.16-2.42	0.006	1.41	0.92-2.16	0.11
Verbal Abuse	No	1.00	(reference)		1.00	(reference)	
	Yes	0.83	0.50-1.36	0.45	0.64	0.36-1.12	0.12
Sexual Violence	No	1.00	(reference)		1.00	(reference)	
	Yes	2.76	1.17-6.51	0.02	1.75	0.77-3.96	0.18
Physical Violence	No	1.00	(reference)		1.00	(reference)	
	Yes	3.29	1.90-5.71	<0.001	3.66	2.05-6.53	<0.001
Working days for week	> 5day	1.00	(reference)		1.00	(reference)	
	≤ 5day	1.12	0.78-1.62	0.54	1.08	0.70-1.66	0.73
working duration	High	1.00	(reference)		1.00	(reference)	
	Medium	1.36	0.96-1.91	0.08	1.62	1.06-2.46	0.03
Hard sleep	Low	1.70	1.16-2.49	0.006	1.57	0.97-2.52	0.06
	No	1.00	(reference)		1.00	(reference)	
Maintain sleep	Yes	0.63	0.37-1.07	0.09	1.14	0.59-2.21	0.7
	No	1.00	(reference)		1.00	(reference)	
Absenteeism	Not difficult	1.47	0.91-2.39	0.11	0.52	0.26-1.02	0.06
	Difficult						

Adjusted by age ,edu, income ,working hour, verbal abuse, sexual violence ,physical violence, day5 ,working duration, hard sleep and maintain sleep.

Data Management, and analysis

데이터 분석 결과-Presenteeism/Absenteeism



Keras/Tensorflow 딥러닝 예측 모델에서는
Absenteeism의 AUC 0.887, Presenteeism의 AUC 0.790으로 나타남

- ▶ 전체적으로 Absenteeism과 Presenteeism의 예측 모델의 AUC값이 높게 나타남
- ▶ **Absenteeism: QDA의 AUC 0.877, Presenteeism: GBM의 AUC 0.798**

Data Management, and analysis

Unmet Health Care - Hypertension

연령대	고혈압	대조군	플랫폼
55세 이하	아니오	609(76.22%)	39(65%)
55세 이하	예	190(23.78%)	21(35%)
55세 초과	아니오	168(49.56%)	24(40.68%)
55세 초과	예	171(50.44%)	35(59.32%)

고혈압
Age-adjusted OR 1.26
(0.85-1.87; p=0.25)

고혈압 중 조절/관리 X
Age-adjusted OR 8.43
(3.48-20.39; p<0.001)

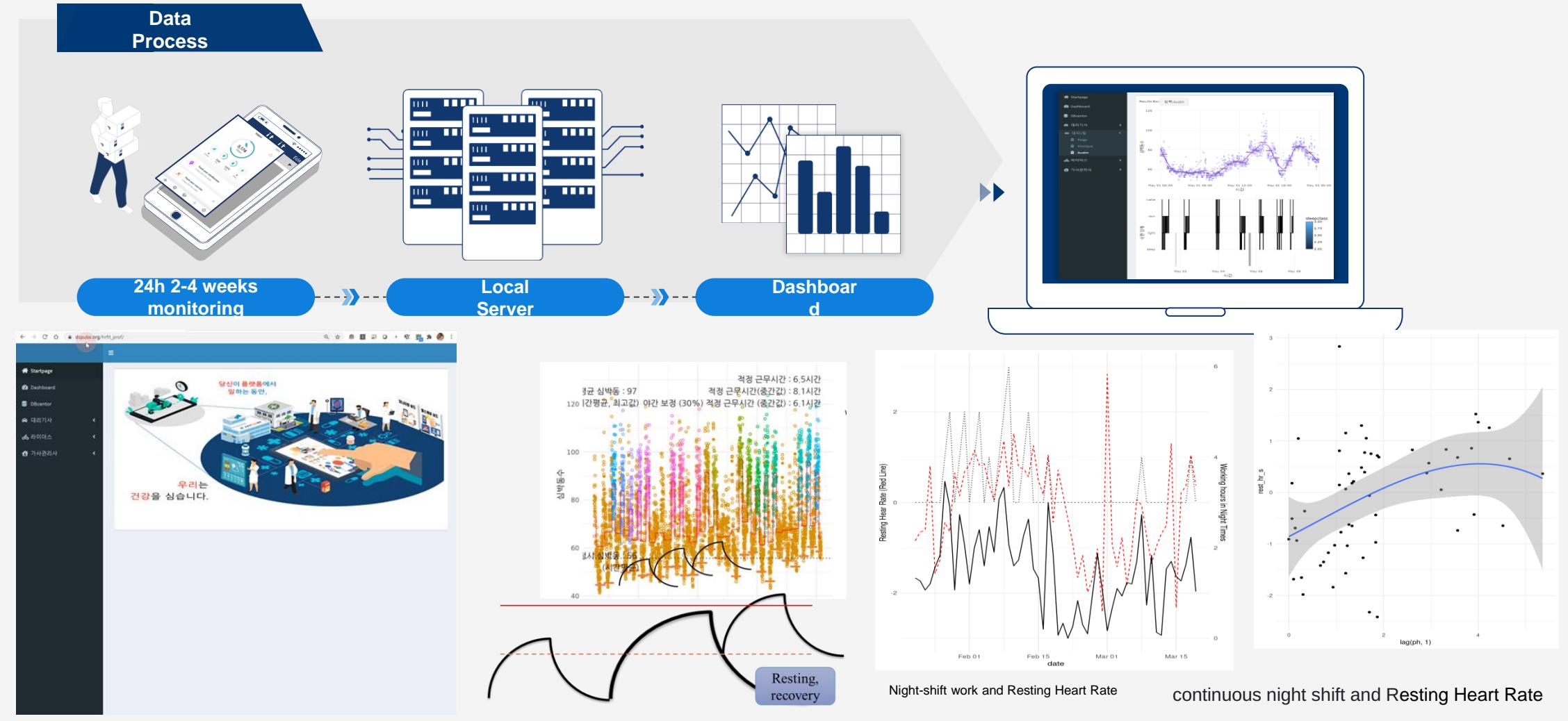
연령대	고혈압 과거력	측정시 고혈압	대조군	플랫폼
55세 이하	아니오	예	107(56.32%)	17(80.95%)
55세 이하	예	아니오	54(28.42%)	1(4.76%)
55세 이하	예	예	29(15.26%)	3(14.29%)
55세 초과	아니오	예	30(17.54%)	25(71.43%)
55세 초과	예	아니오	107(62.57%)	5(14.29%)
55세 초과	예	예	34(19.88%)	5(14.29%)

→ 고혈압 인지 X

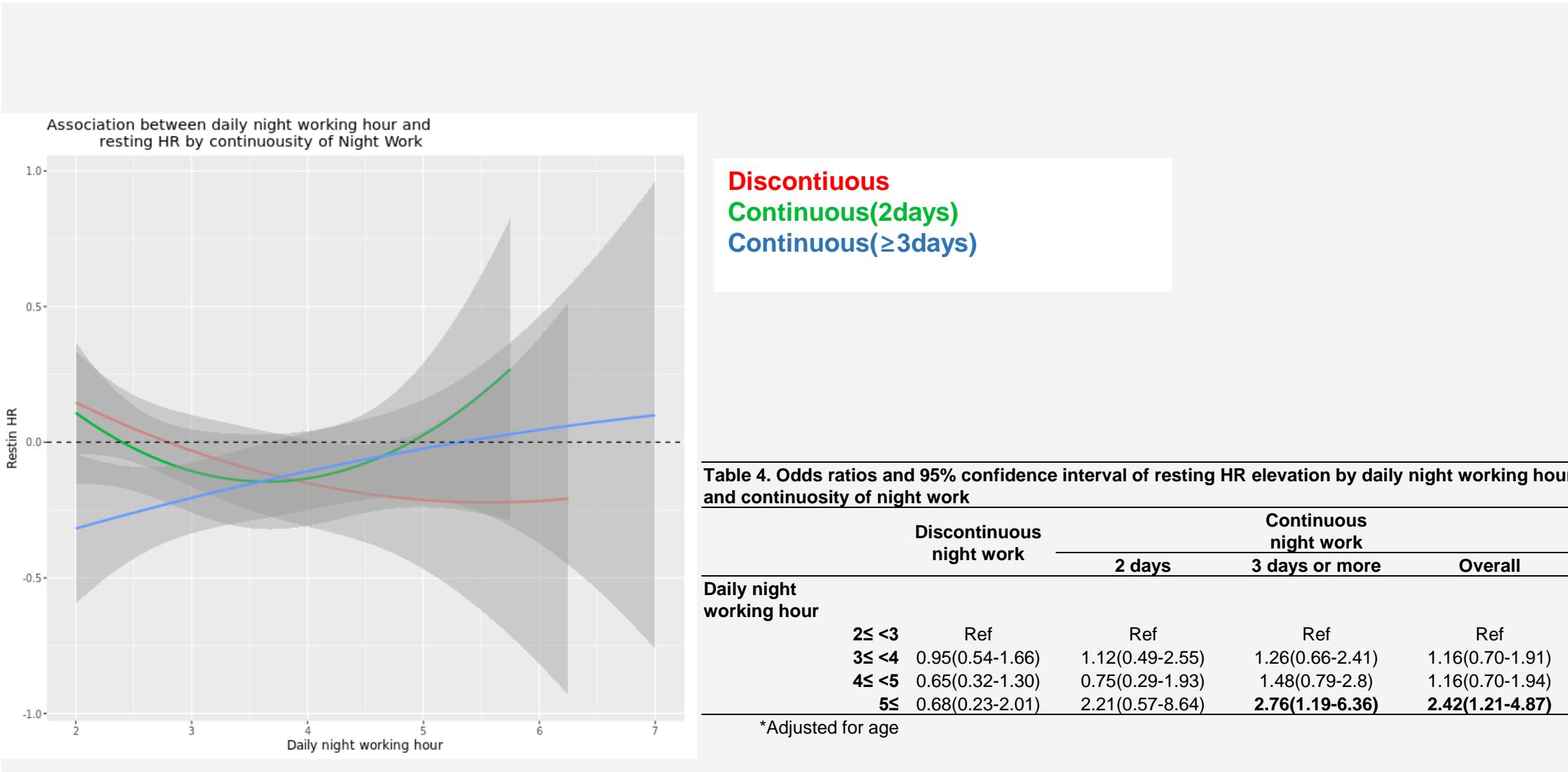
→ 고혈압 조절 X

Data Management, and analysis

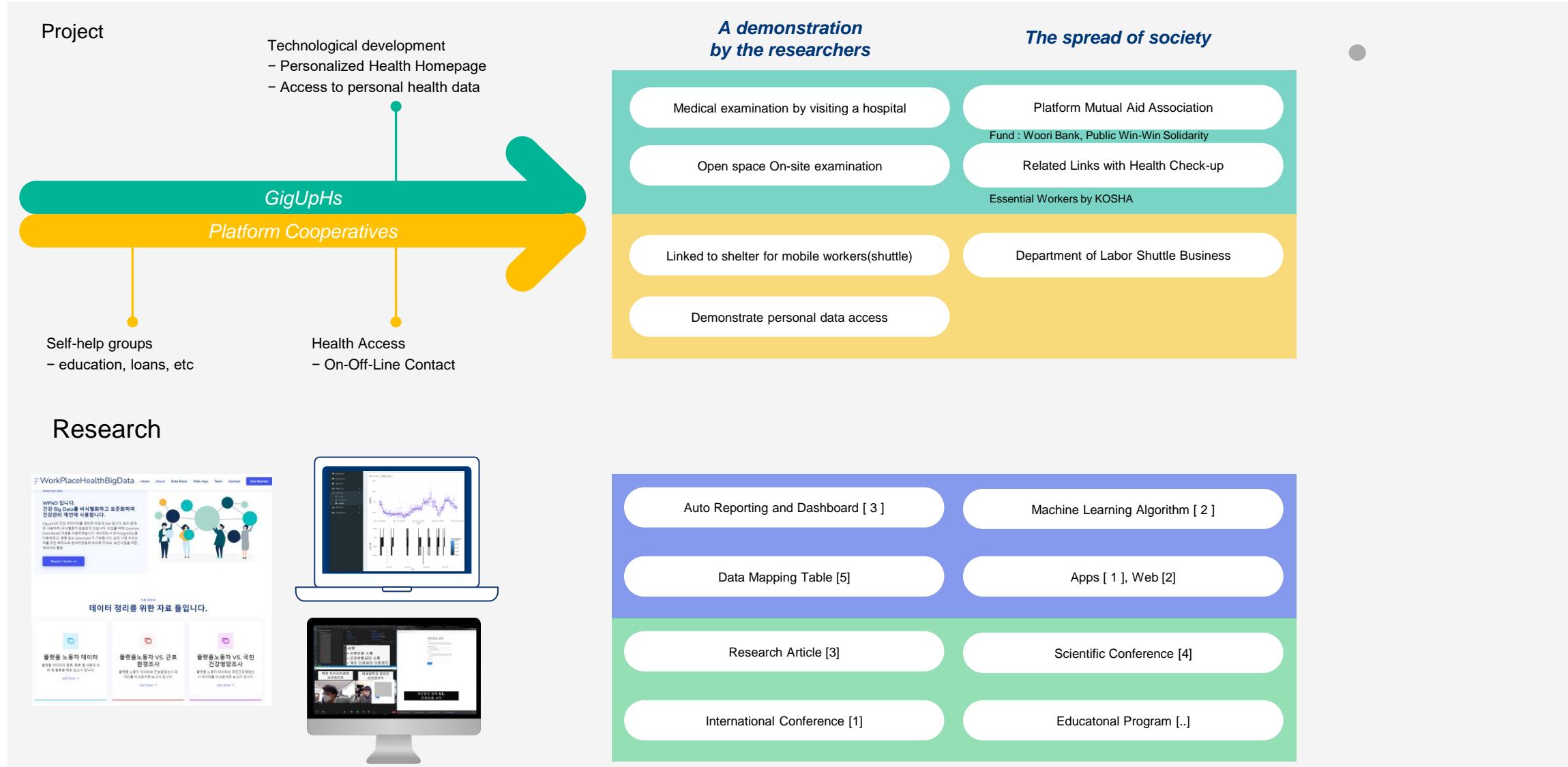
FitBit Heart Rate Download and Dashboard



Data Management, and analysis



Summary



Thank You

GigUpHs

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본 연구는 국민건강 스마트 관리 연구개발사업의 일환으로 이루어졌습니다.

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Health Service trial for Platform labor

Focusing on Replacement driver service

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