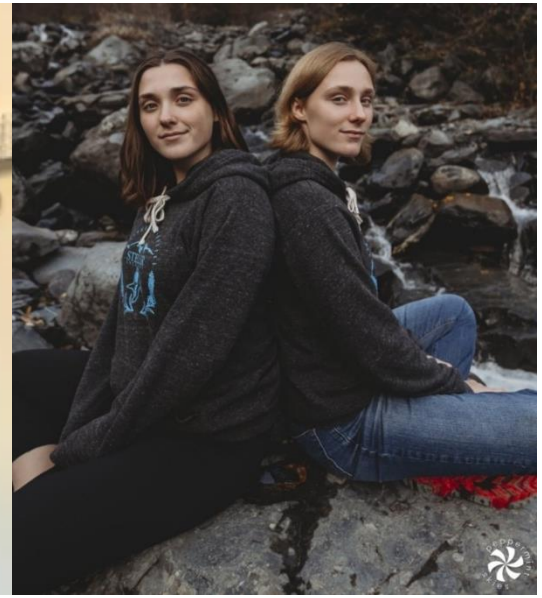
HEALTH RESEARCH DESIGN, DATA ANALYSIS, and WHERE TO FIND DATA

GRETCHEN DAY

RESEARCH SERVICES
ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Me and My Family





Objectives

Introduce types of data

Describe qualitative and quantitative research designs

Present examples of each type of research design using COVID 19 studies

Show the type of data that result from each design

List links to data sources

What type of data do you need?

Primary Data

Data directly collected through surveys, interviews, or experiments

Makes your research more original

Requires time and effort

Relies on participants being willing and accessible

Secondary Data

Data somebody else already collected, e.g., mortality data, birth data, birth defects data, BRFSS data, YRBS data, CUBS data, etc.

Saves time

Can extend the scope of your research

No control over the way data collected and/or reliability

Data Sources

ANTHC Data Sources

http://anthctoday.org/epicenter/healthdata.html

Alaska Native Tumor Registry

Alaska Native Medical Center Diabetes Registry

Statewide Sources

http://ibis.dhss.alaska.gov/query/selection/brfss23/BRFSSSelection.html

http://ibis.dhss.alaska.gov/query/selection/prams23/PRAMSSelection.html

http://ibis.dhss.alaska.gov/query/selection/yrbsl23/YRBSSelection.html

More Statewide Sources

Birth/Death Certificates

Hospital Discharge Data

Population Estimates

Trauma Registry

Violent Death Reporting System

STD Surveillance

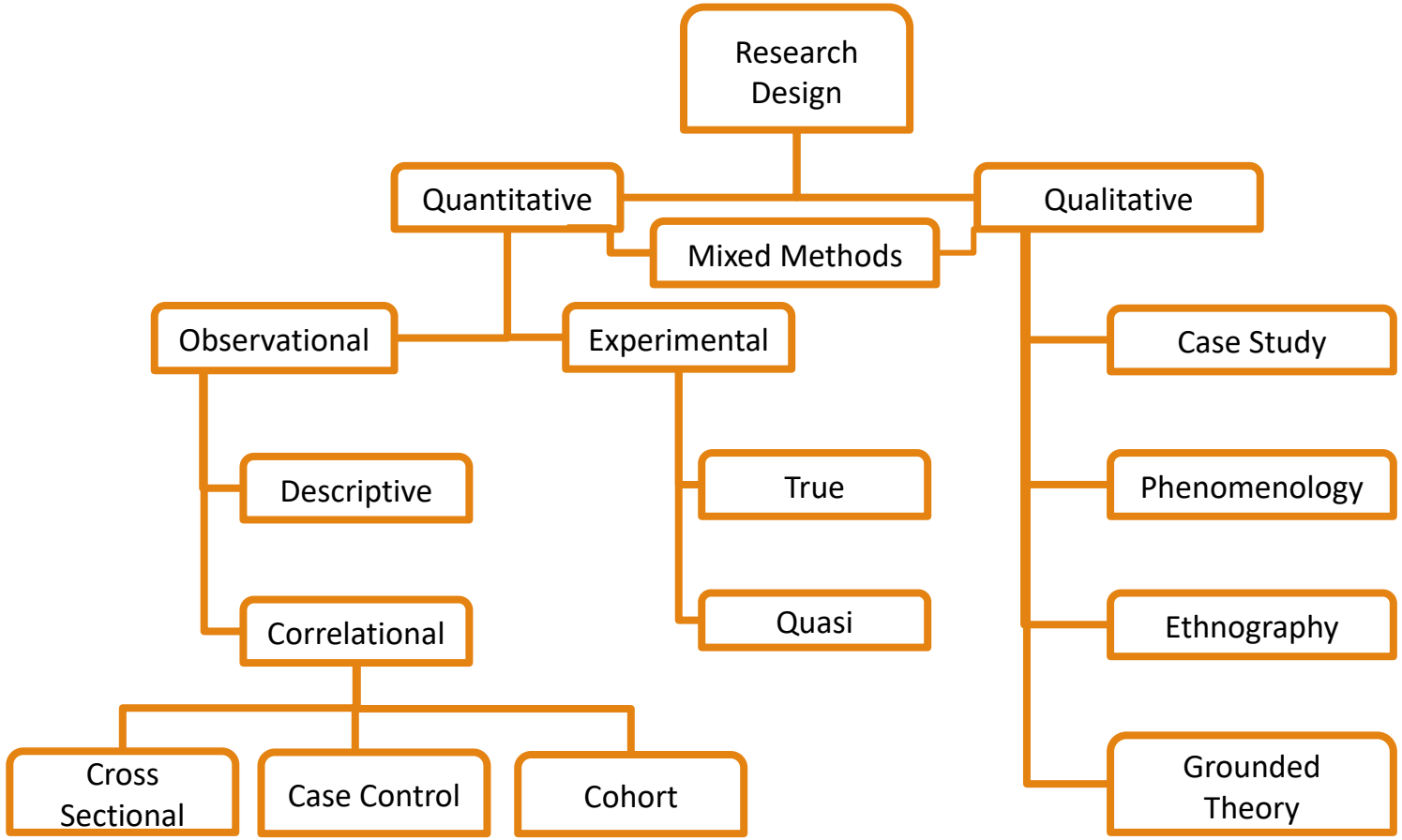
Opioid Surveillance

Infectious Diseases

Student Weight Status Surveillance

Research Design

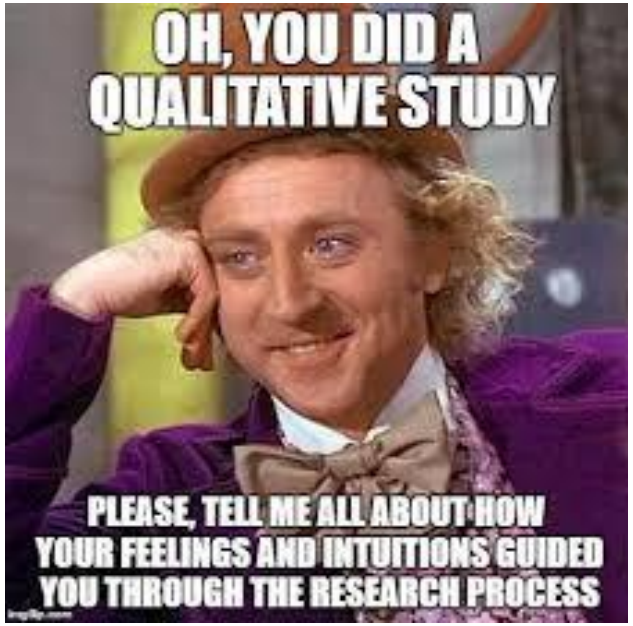
Is the plan for how you will answer a research question


Research Design
Quantitative
Qualitative
Mixed Methods
Observational
Experimental
Case Study
Descriptive
True
Phenomenology
Correlational
Quasi
Ethnography
Cross Sectional
Case Control
Cohort
Grounded Theory

Research Design

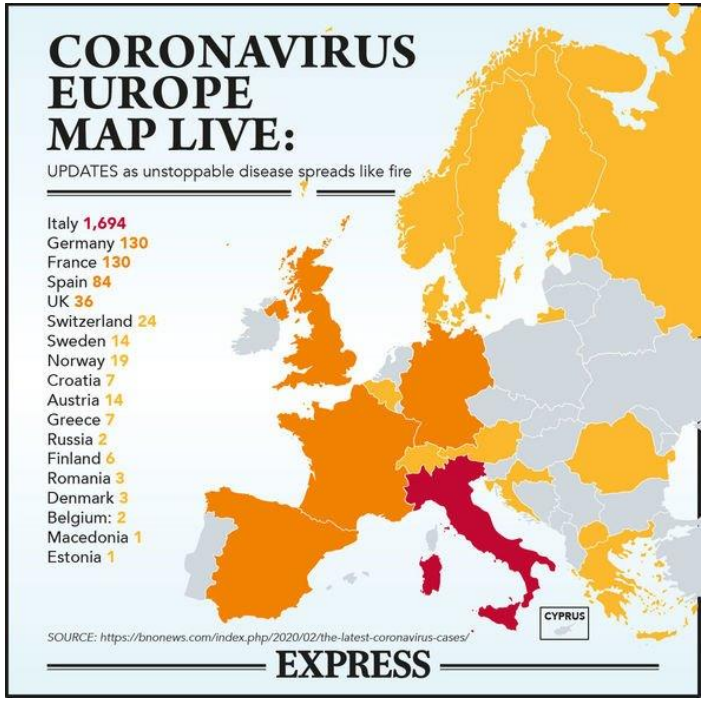
Quantitative

Qualitative



- Research Design
  - Qualitative
    - Case Study
    - Phenomenology
    - Ethnography
    - Grounded Theory

Clinical and virological data of the first cases of COVID-19 in Europe: **A CASE SERIES**



Lescure FX(1), Bouadma L(2), Nguyen D(3), et. Al. Clinical and virological data of the first cases of COVID-19 in Europe: a caseseries. Lancet Infect Dis. 2020 Mar 27. pii: S1473-3099(20)30200-0. doi:10.1016/S1473-3099(20)30200-0. [Epub ahead of print]

A Qualitative Study on the Psychological Experience of Caregivers of COVID-19 Patients: **PHENOMENOLOGY**

Sun N, Wei L, Shi S, et al. A qualitative study on the psychological experience of caregivers of COVID-19 patients [published online ahead of print, 2020 Apr 8]. *Am J Infect Control*. 2020;S0196-6553(20)30201-7. doi:10.1016/j.ajic.2020.03.018

Phenomenology data analysis

Theme	Subtheme	Quotations
1. Significant amount of negative emotions in the early stage	i. Fatigue, discomfort, and helplessness caused by high-intensity work and self-protection	“After putting on protective clothing, nursing duties are awkward to carry out. Protective clothing needs to be worn for 8 hours or more without drinking water and eating food, and urinating is done with adult diapers.”
		“After working 12-16 hours every day, I feel very tired and can even sleep while standing.”
		…“There are a lot of patients. Our job is not only to care for them, but also to participate in reporting, disinfection, and isolation. I feel I don't know where to start and I'm under a lot of pressure...”

Rapid **ETHNOGRAPHIC ASSESSMENT** of the COVID-19 pandemic April 2020 'surge' and its impact on service delivery in an Acute Care Medical Emergency Department and Trauma Center

Palinkas LA, *et al*. *BMJ Open* 2020;10:e041772. doi:10.1136/bmjopen-2020-041772

Ethnography Results

What are the impacts of the pandemic on service delivery by healthcare providers in an acute care setting?

Delay in Care

"Any trauma who is intubated (which is most of our sick trauma patients) is considered COVID positive coming in and we have to perform the initial resuscitation and evaluation in airborne precautions and limit people and supplies in the room. This can cause a delay in some of the care."

Overcoming the challenge of COVID-19: **A GROUNDED THEORY APPROACH** to rural nurses' experiences

Ohta R, Matsuzaki Y, Itamochi S. Overcoming the challenge of COVID-19: A grounded theory approach to rural nurses' experiences. J Gen Fam Med. 2020 Nov 29;22(3):134–40.

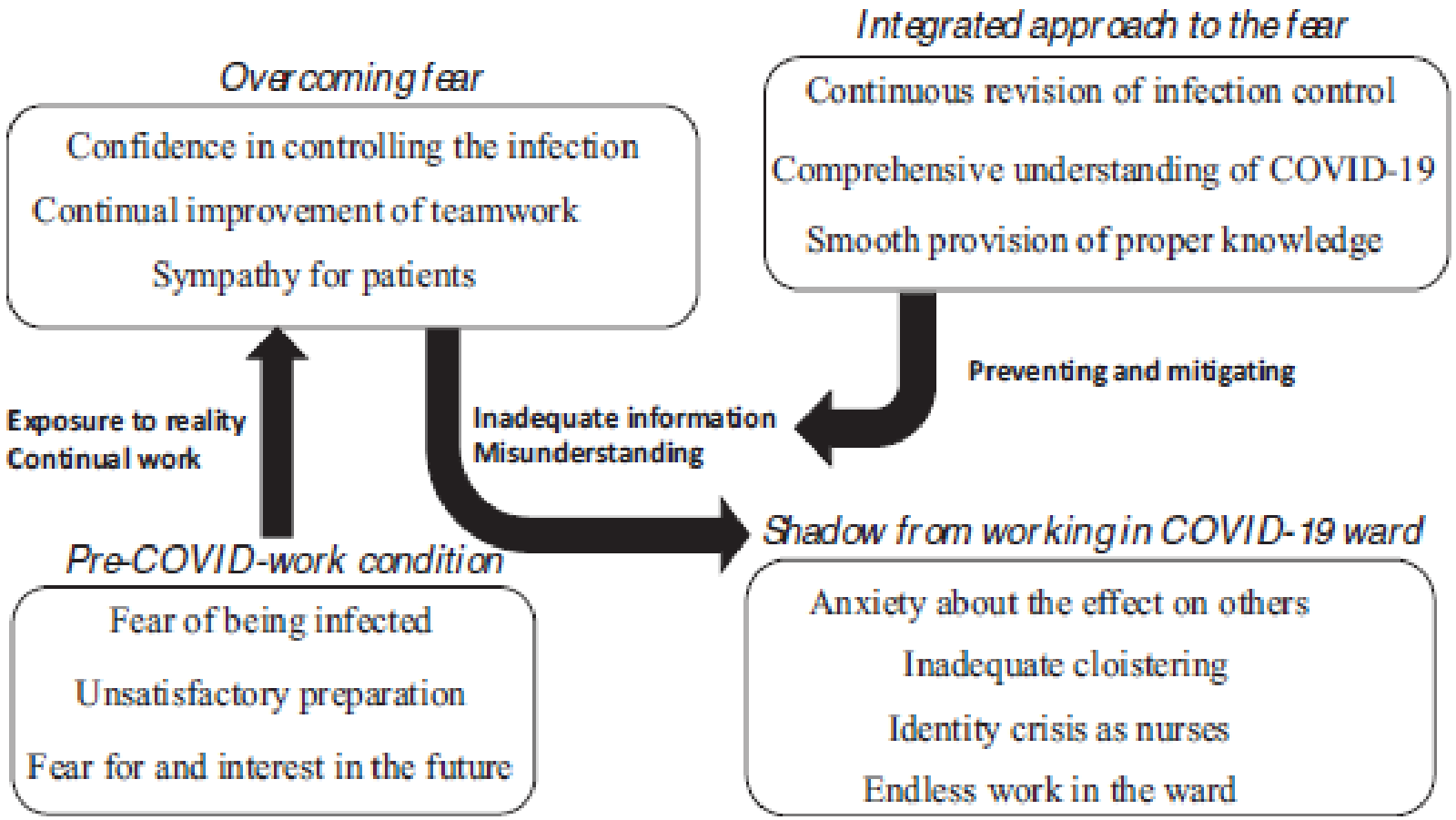
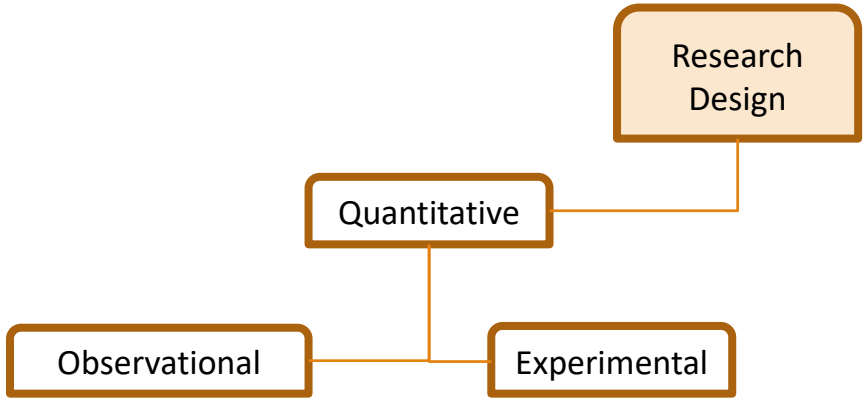
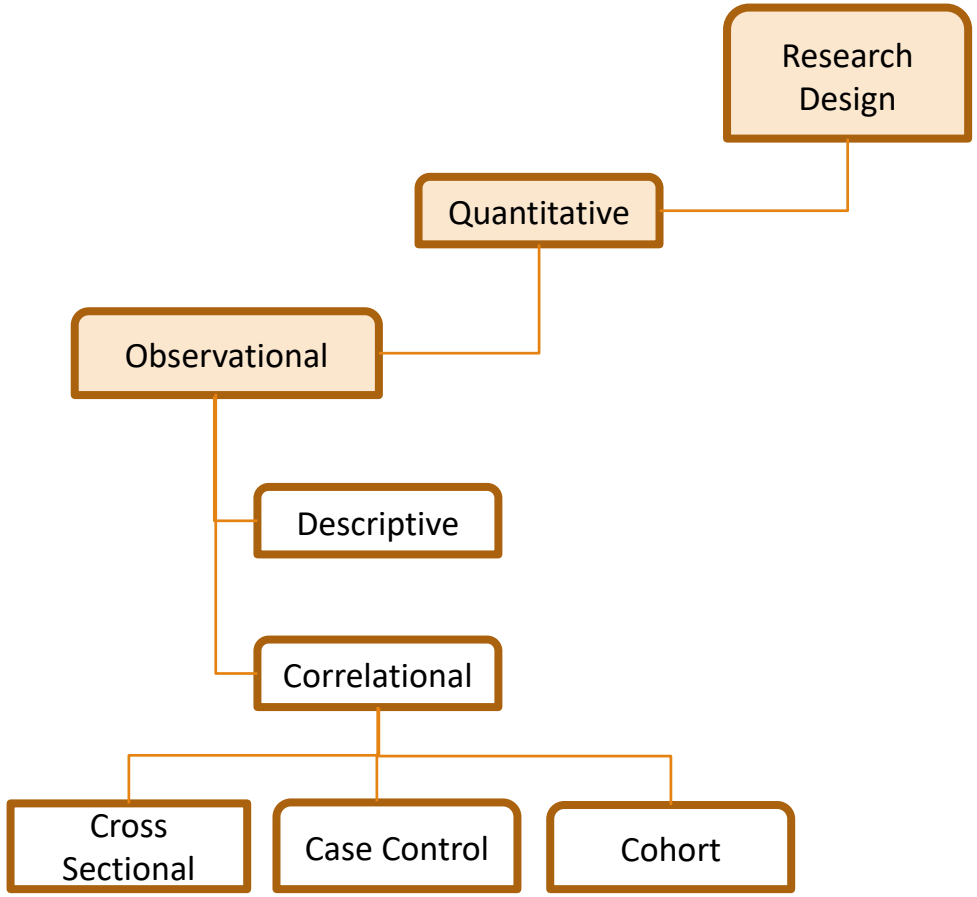
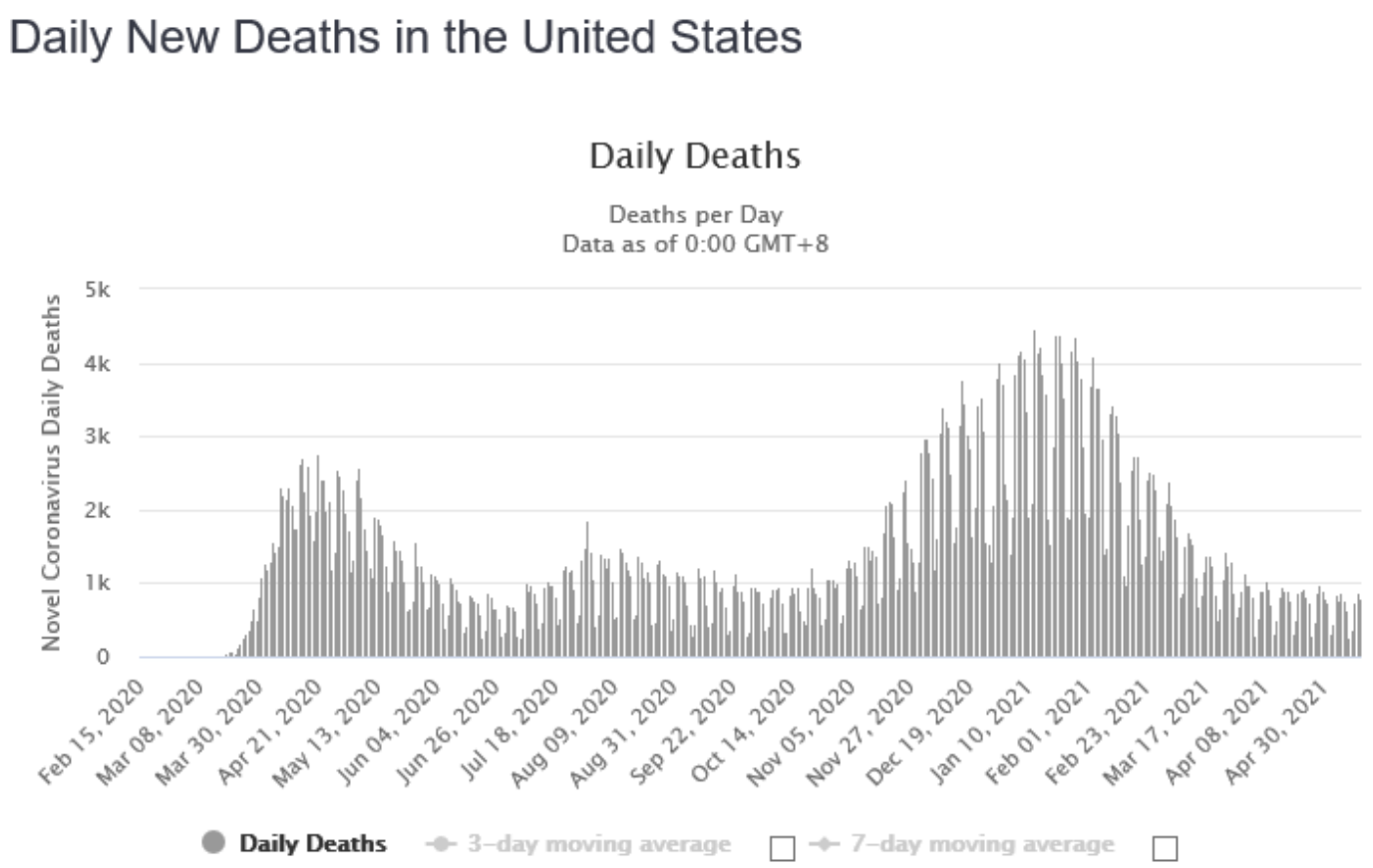


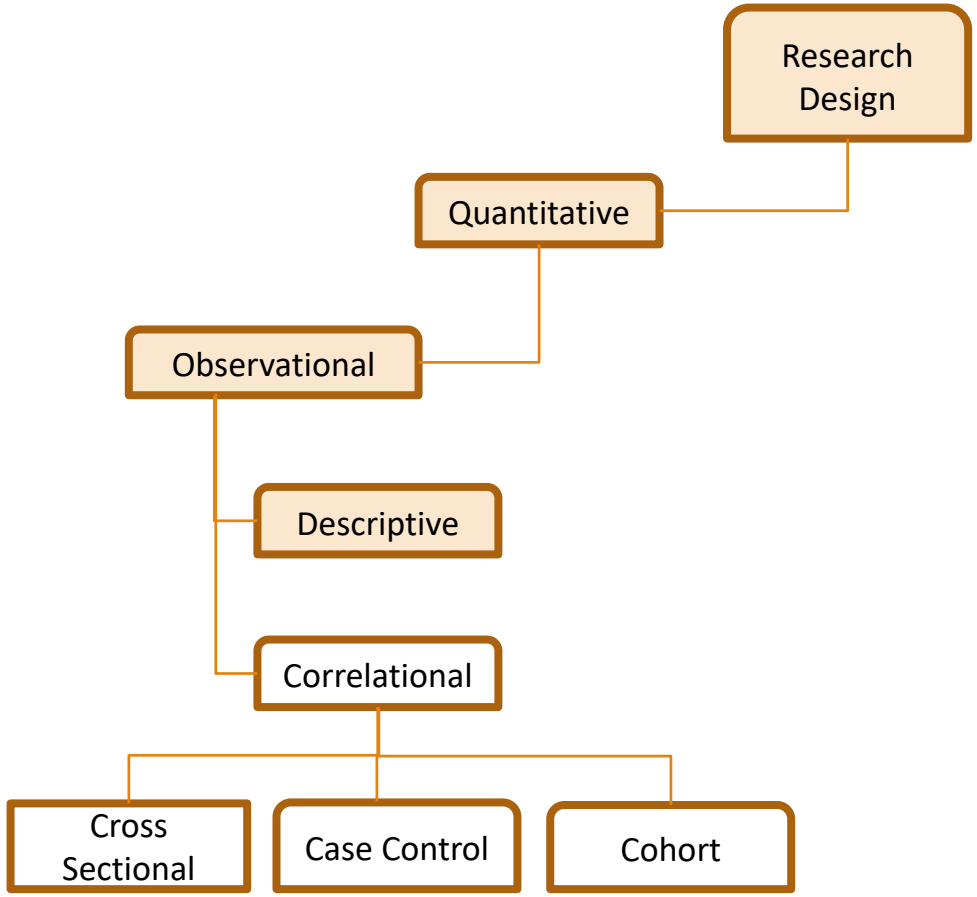
FIGURE 1 Conceptual model of the process of changes in nurses' perceptions


Research Design
Quantitative
Observational
Experimental


Research Design
Quantitative
Observational
Descriptive
Correlational
Cross Sectional
Case Control
Cohort

Descriptive Research Design

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Correlational Research Design

Cross Sectional	Case Control	Cohort
Exposures and Outcomes measure at the same time	Outcomes measured before exposures are measured	Exposures are measured before outcomes
Can not tell the difference between cause and effect	Are always retrospective	Shows cause and effect
Used to determine prevalence	Are used to identify predictors of outcome, or to study rare events	Used to determine incidence, cause, and prognosis
Easy to do	Requires fewer participants since some are selected because they have the disease	Usually takes a long time and is expensive
Can study multiple outcomes	Can study only one outcome	Can study multiple outcomes

Self-Reported Olfactory and Taste Disorders in Patients With Severe Acute Respiratory Coronavirus 2 Infection: A CROSS-SECTIONAL STUDY

Characteristics (N = 59)	
	n (%)
Male sex	40 (68%)
With olfactory and/or taste disorders	20 (34%)
	Median (IQR)
Age, y, median (IQR)	60 (50–74)
Days from illness onset to hospital admission, median (IQR)	6 (4–10)

Giacomelli A, Pezzati L, Conti F, et al. Self-reported olfactory and taste disorders in SARS-CoV-2 patients: a cross-sectional study [published online ahead of print, 2020 Mar 26]. *Clin Infect Dis*. 2020;ciaa330. doi:10.1093/cid/ciaa330

Characteristics of persons with OTD

Characteristic	n (%)	p-value
Sex Men Women	 25% 53%	 0.036
Age, years With OTD Without OTD	Median (IQR) 56 (47-60) 66 (52-77)	 0.035

Gastrointestinal Symptoms and COVID-19: **CASE-CONTROL STUDY**

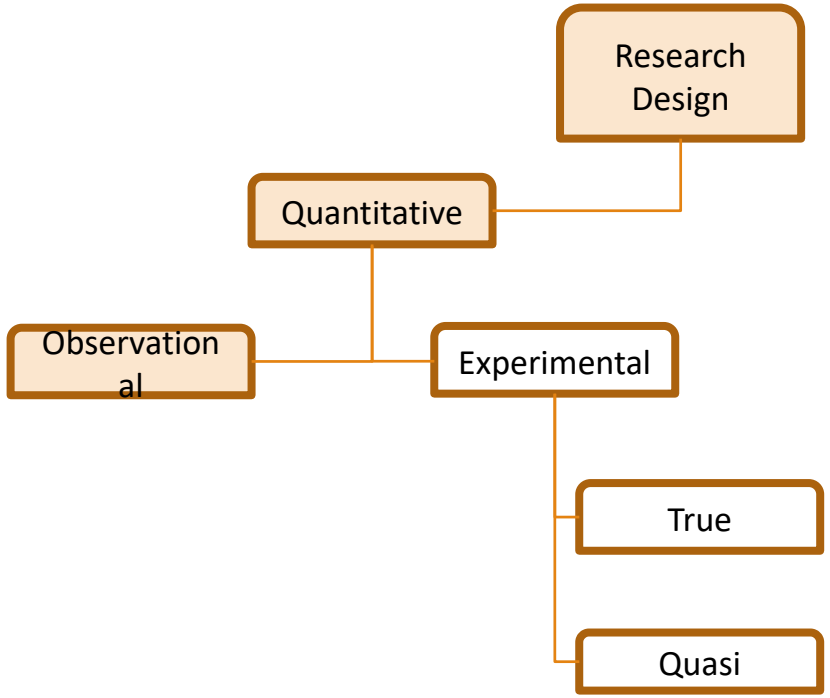
	COVID-19 Positive (n=278)	COVID-19 Negative (n=238)	p-value
Any gastrointestinal symptoms			
Present (n=160)	97 (61%)	63 (39%)	0.04
Absent (n= 356)	181 (51%)	175 (49%)	

Nobel YR, Phipps M, Zucker J, et al. Gastrointestinal Symptoms and COVID-19: Case-Control Study from the United States [published online ahead of print, 2020 Apr 12]. *Gastroenterology*. 2020;S0016-5085(20)30490-X. doi:10.1053/j.gastro.2020.04.017

Predictors of Mortality for Patients with COVID-19 Pneumonia: **A PROSPECTIVE COHORT STUDY**

Characteristic	Total (n=179)	Deceased (n=21)	Survivors (n=158)	p-value
	Mean (SD)	Mean (SD)	Mean (SD)	
Age, years	58 ± 13.7	70 ± 7.7	56 ± 13.5	<0.001
Sex	n (%)	n (%)	n (%)	
Male	97 (54%)	10 (48%)	87 (55%)	0.642
Female	82 (46%)	11 (52%)	71 (45%)	
Underlying Diseases				
Hypertension	58 (32.4)	13 (61.9)	45 (28.5)	0.005
CVD	29 (16.2)	12 (57.1)	17 (10.8)	<0.001

Du RH, Liang LR, Yang CQ, et al. Predictors of Mortality for Patients with COVID-19 Pneumonia Caused by SARS-CoV-2: A Prospective Cohort Study [published online ahead of print, 2020 Apr 8]. *Eur Respir J*. 2020;2000524. doi:10.1183/13993003.00524-2020


Research Design
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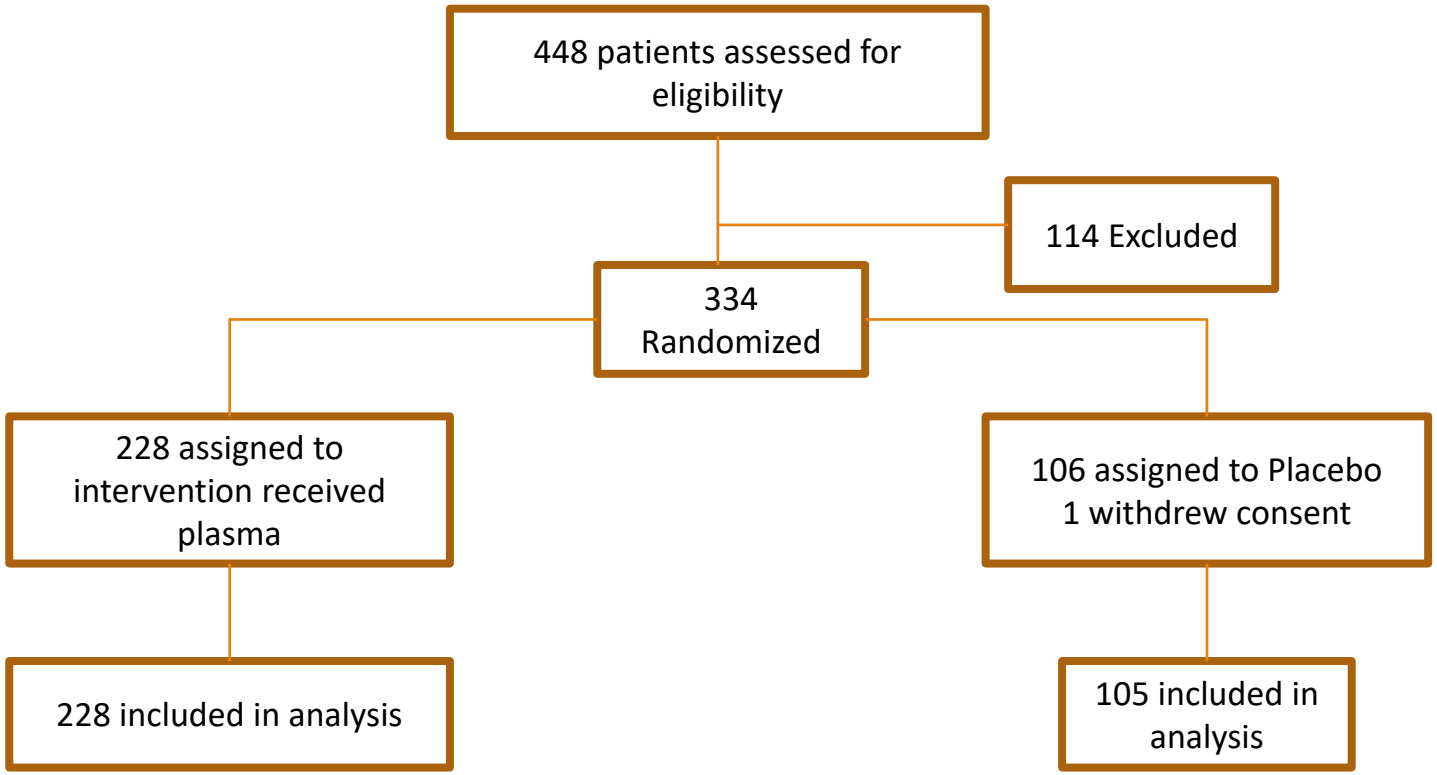
Quasi

A RANDOMIZED TRIAL of Convalescent Plasma in Covid-19 Severe Pneumonia



Simonovich VA, Burgos Pratx LD, Scibona P, etal. A Randomized Trial of Convalescent Plasma in Covid-19 Severe Pneumonia**N Engl J Med 2021;384:619-29.**

Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label **NON-RANDOMIZED CLINICAL TRIAL**

Gautret P, Lagier JC, Parola P, et al. Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial [published online ahead of print, 2020 Mar 20]. *Int J Antimicrob Agents*. 2020;105949.

Relative Strength of Quantitative Designs

Cross-sectional designs

Pre/post quasi-experiment designs

Randomized controlled trials