INVESTIGATION OF DECISION-MAKING IN PRESCRIPTION MONITORING PROGRAM: A FACTORIAL SURVEY EXPERIMENT
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BACKGROUND

• Availability of prescription opioids
• Prescription drug monitoring programs (PDMP, PMP)
• All states: Voluntary vs Mandatory

PRESCRIPTION DRUG MONITORING PROGRAM

• Goals
  • Access to prescription history
  • Patient education tool
  • Reduce opioid abuse
  • Decrease opioid diversion
  • Identify when opioid misuse treatment is warranted
  • Allows verification
PRESCRIPTION DRUG MONITORING PROGRAMS

- Reasons for consulting PDMP
  - Concerns about appropriate dosing
  - Determine frequency of dispensing
  - Use of multiple prescribers and pharmacies
  - Patient behaviors or lack of efficacy for opioids
  - Identify potentially dangerous drug combinations e.g. opioids and benzodiazepines

VOLUNTARY PMP

- Barriers to routinely accessing PMP
- Study of chain community pharmacies
  - No access (Wixson, Blumenschein, Goodin et al., 2015)
- Study of Nurse Practitioners – North Dakota
  - Accessing easy, fast, valuable tool to help identify high risk
  - Using PMP databases in practice challenging
  - Could result in penalties for their prescribing behaviors (LaMire, Marmes, & Rising, 2012)

PURPOSE

- Understand factors related to PDMP use
- Consider the role of implicit bias in accessing or interpretation
  - Implicit bias lies outside the awareness of people, so interviews, focus groups, traditional surveys would overlook this phenomenon
- Factorial survey design
RESEARCH QUESTIONS

• What provider characteristics are associated with PDMP use?
• What patient and contextual factors influence a provider’s use of the PDMP?
• What is the association between the provider’s use of PDMP and their perceptions of medication safety and diversion risk?

METHODS

• Factorial survey design
  • To uncover the independent effects of biases and other situational characteristics that healthcare providers may not be conscious
  • Conduct and analyze a cross-sectional, interdisciplinary, factorial survey experiment
    • Random assignment associated with an experimental design.
    • Unique ability to simultaneously measure the independent effects of multiple provider and situational factors with needing every possible combination of variables (Rossi & Anderson, 1982; Ludwick et al., 2004)

DESIGN

• Online survey – Qualtrics
• Sample: Nurse Practitioners, Physician, Physician’s Assistants, Pharmacists
• Outpatient setting
• Iowa Prescription Drug Monitoring Program
**DESIGN**

- 3 sections to survey
  - Participant demographic questions
    - Gender
    - Years as HCP
    - Work setting
    - Full-time/part-time
    - Specialty
  - 8 randomly generated vignettes
  - Questions regarding general PDMP perception and experience

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**DESIGN**

- Survey procedure
  - Pretend they are on a local task force assessing PDMP utilization
  - Participants examine list of patient pain situations where schedule II was prescribed
    - PDMP was NOT consulted
  - Participants used 11 point scale to report their likelihood of accessing the PDMP
    - Determine safety risk
    - Likelihood of diversion

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**EXAMPLE OF PRIMING PARTICIPANT**

- Imagine you are on a local task force about controlled substances and our job is to evaluate the appropriateness of PDMP use by area providers. Review the following prescriptions where your colleagues did NOT consult the PDMP and answer the questions following each situation.
EXAMPLE OF SURVEY VIGNETTES

- Monday, 10 AM. Greg Wilson, 47 year old male. Oxycodone 5 mg #20, take 1 tablet 4 times daily as needed for pain.
- Prescriber is ARNP
- Prescription insurance: None. New patient.
  - On a scale of 0-10, what do you think is the likelihood that this prescription is diverted?
  - On a scale of 0-10, how safe is the above dose for the given indication?
  - On a scale of 0-10, how likely would you have been to check the PDMP?

ANOTHER VIGNETTE

- Friday, 2PM. Jamal Jackson, 32 year old male. Hydrocodone 5/325 mg #30. Take 1-2 tablets 2 times/day prn for tooth pain.
- Prescriber: MD
- Prescription Insurance: Employer. 2 year history with patient.
  - On a scale of 0-10, what do you think is the likelihood that this prescription is diverted?
  - On a scale of 0-10, how safe is the above dose for the given indication?
  - On a scale of 0-10, how likely would you have been to check the PDMP?

FACTORIAL APPROACH

- Preferred for studying social judgments
- Allows relevant dimensions to vary per vignette
- Makes variables more realistic to a real panel of patients
- Superior to 2X2 or 3X2 design, which has a limited amount of variation and feels contributed and repetitive
- Using random vignettes eliminates correlation between the respondent characteristics and vignette variables
- Regression analysis without omitted variable bias
SUBJECTS

• Mail letter to healthcare providers explaining the study
  • Iowa Board of Nursing (ARNPs)
  • Iowa Board of Medicine
  • Iowa Board of Physician Assistants
  • Iowa Board of Pharmacy
  • Access through online survey link.
  • First questions assess the following inclusion criteria, also included in recruitment letter.

INCLUSION CRITERIA

• ARNPs, Physicians, Physician Assistants who have prescribed an opioid prescription to treat pain in the outpatient setting in the past month.
• Pharmacists who have dispensed an opioid prescription to treat pain in the outpatient setting in the past month.
• Can read and respond in English.

At end of survey, participants may choose to enter their name and email address into a raffle for $50 gift card drawings.

DATA COLLECTION

• Pilot study
  • Test the vignettes
  • Test the question
  • Feedback was qualitative
• Survey was active for 3 months following mailing. Repeat mailing was done again at 3 months.
• Data: 3 question sections
  • Free text area
DATA ANALYSIS

- Two databases
  - Demographic factors and closed-ended items
  - Random vignette characteristics and participant responses to 3 assessment dependent variables (24 judgments per participant)
- Two data sets were linked with unique identifier

DATA ANALYSIS

- Hierarchical linear modeling
  - Two equations:
    - One modeling the effects of vignette variables within respondents
    - One modeling variation between respondents
- HLM 7.0 statistical software
- Descriptive statistics for analysis of demographic responses and closed-ended survey items.

RESULTS: DESCRIPTIVE FINDINGS

- Characteristics of respondents
  - Pharmacist = 81
  -ARNP = 52
  - Physician = 19
  - Physician Assistant = 4
  - Female = 73.1%
  - Clinic = 36.7%
  - Community Pharmacy = 44.9%
  - Hospital = 6.3% (ED = 4.4%)
  - Full time = 81.4%
PMP RESULTS

• 91.7% were NOT PMP registered in Iowa
• Checking PMP
  • Check themselves = 88.8%
  • Assistant checks = 2.1%
  • Combination = 9.1%
• Frequency of checking PMP
  • Multiple times a day = 18.6%
  • About once a day = 9.7%
  • Few times a week = 26.2%
  • Once a month or less = 21.0%

RESPONDENT FACTORS

• Significant predictors include professional status and gender
• Pharmacists were significantly less likely to review the PMP compared to ARNP
  • After controlling for other variables in the model
• Males were significantly less likely to review PMP
• Implicit bias was not a significant predictor

VIGNETTE FACTORS

• Significant predictors
  • Age
  • Quantity of drug
  • Drug/medication
  • Indication for opioid
  • Insurance
VIGNETTE FACTORS (CONT.)

- Age
  - Significant negative relationship
  - As age increased, respondents were less likely to check PMP
- Quantity of pills
  - Significant positive relationship
  - Situations where HCP more likely to check PMP
    - Patients paid with cash
    - Indication for headache

RANK OF IMPORTANT REASONS TO CHECK PMP

SIGNIFICANCE TO PAIN MANAGEMENT NURSING

- Little research on accessing the PDMP among interdisciplinary healthcare providers
- Comparing members of the interdisciplinary team
- Need for better understanding how patients and situational factors influence clinical decision making related to PDMP
  - Implicit bias
POLICY AND EDUCATION IMPLICATIONS

• PDMP is still voluntary in many states
• Accessing PDMP reduces deaths from opioid overdose
• Inform education in the role of monitoring