Low Back Pain Treatment Recommendations in Primary Care

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Purpose

This project examined characteristics of patients diagnosed with low back pain (LBP) and the relationships between demographics, treatment recommendations and similarity to evidence-based recommendations at primary care clinics across West Virginia (WV).

Method

Study was reviewed and approved by the WVU Institutional Review Board (Protocol #1609280294).

Sample

- De-identified demographic (Table 1) and treatment recommendation data were collected from electronic medical records for those receiving a LPB diagnosis between July 1, 2015 and June 30, 2016 from 5 primary care clinics across West Virginia.
- International Classification of Diseases Ninth and Tenth Revisions (ICD-9-CM and ICD-10) codes, 724.2 and M54.5 respectively, were used to identify patients with a low back pain diagnosis.

Treatment Classification

Treatment recommendations were provided for a subset of cases and were classified based on source of care using a risk-stratified stepped-care approach for managing LBP in primary care[1] and in consultation with a Family Practice physician. Case treatment recommendations were categorized into three steps (Table 2) reflecting current evidence-based recommendations:

- Step 1 – Primary care clinician recommendations
- Step 2 – Referral to therapy
- Step 3 – Referral to specialty care
- LBP treatment recommendations that included opioid prescriptions were classified as *not recommended* [2].

Data Analysis

Multinomial logistic regression was performed (SPSS v.21) to assess prediction of membership in risk-stratified treatment categories in one of 8 outcomes (Figure 1).

- Race and Ethnicity demographic variables were excluded from final model to address violation of multicollinearity assumption.
- Assumptions were met for variables included in the final model (Table 3).
- Alpha level was set at $p \leq 0.05$.

Results

Table 1: Patient Characteristics

Demographic Variable	LBP Cases	Cases with Treatment Recommendations
	(N = 2,910)	(N = 379)
Age (Years)	Range: 18-99 M = 51 Mode = 59	Range: 18-90 M = 49 Mode = 52
Height (feet/inches)	Range: 4'4"- 6'8" M = 5'6" Mode = 5'6"	Range: 4'9"- 6'3" M = 5'5" Mode = 5'6"
Sex		
Male	40%	39%
Female	60%	61%
Race		
White	94%	93%
Black	4%	5%
Unknown	2%	2%
Ethnicity		
Hispanic	1%	1%
Non-Hispanic	97%	97%
Unknown	2%	2%
Employment		
Employed	22%	54%
Unemployed	4%	31%
Unknown	74%	15%
Smoking Status		
Current	23%	32%
Former	13%	27%
Never	23%	36%
Passive	1%	1%
Unknown	40%	4%

Table 2: Treatments by Step

Step 1	Ice Weight management Durable Medical Equipment Hydration Tobacco cessation TENS Stimulation NSAIDs Acetaminophen Muscle Relaxants Self-exercise Gabapentin
Step 2	Physical Therapy Osteopathic Manipulation Occupational Therapy Chiropractor
Step 3	Pain clinic Spine or Orthopedist Neurosurgery Neurologist Spine specialist (non-surgical) Epidural Injection nerve block
Not Recommended	Opioids

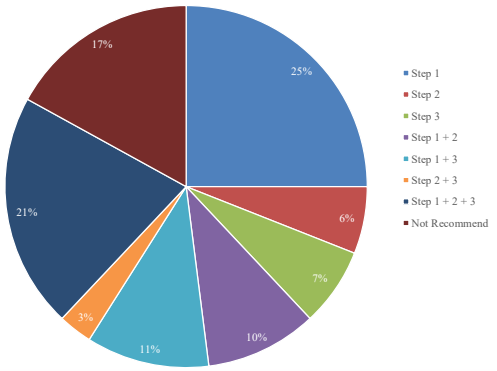
Abbreviations: NSAIDS = nonsteroidal anti-inflammatory drugs; TENS = transcutaneous electrical nerve stimulation

Table 3: Regression Model

Variable	χ^2	df	p
Age	22.94	7	*0.002*
Height	2.53	7	0.925
Smoking Status	41.00	28	0.054
Sex	1.54	7	0.981
Employment	20.90	14	0.104

- Model fit: $\chi 2$ (63, N = 397) = 93.65, p = 0.007
- Overall classification was only 29%; cases were over-classified into Step 1 (61%)
- Parameter estimates indicated that age was negatively associated with receiving certain recommendations:
  - Step 1: B = -0.027, p = 0.018
  - Step 1 + 2: B = -0.035, p = 0.034
  - Step 1 + 2 + 3 B = -0.045, p = 0.013

Figure 1: Treatment Categories



Conclusions and Discussion

- Women were more likely to be diagnosed with low back pain
  - 60% of Females compared to 40% of Males
  - ICD codes used in this study are for chronic pain; codes related to injury may have yielded different results
- The most common recommendation included self-care
  - 25% of sample received Step 1 recommendations
  - 56% of patients in the sample received recommendations that included Step 1
- Younger individuals were more likely to receive recommendations that included self-care
  - Patients between the ages of 20-40 were more likely to receive Step 1 recommendations
- Current model had limited predictive value
  - Demographic variables allowed for 29% classification into treatment categories. Model over classified patients into Step 1
  - Latent variables could include concurrent conditions
- Study limitations include:
  - Lack of information concerning acute or chronic status of LPB
  - Concurrent conditions for which recommendations may have been made

References

1. Von Korff MV, Moore JC. Stepped care for back pain: activating approaches for primary care. Ann Intern Med. 2001; 134: 911-917.
2. Ashworth J, Green DJ, Dunn KM, Jordan KP. Opioid use among low back pain patients in primary care: is opioid prescription associated with disability at 6-month follow-up? Pain. 2013 Jul; 157(7): 1038-44. PMID23688575

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