

Introduction

Older adults are considered one of the most vulnerable populations in society. Research on this vulnerable population is also limited. In the past 10 years, over \$32 billion were paid for malpractice claims with 8% of those payments awarded to older adults. The goal of this research was to explore characteristics of malpractice claims in older adults and to use unsupervised learning to identify potential cohorts in older adults using the National Practitioner Data Bank's Public Used Data File. Significant disparities in malpractice payments were identified between older and younger adults which warranted further analysis.

Methods

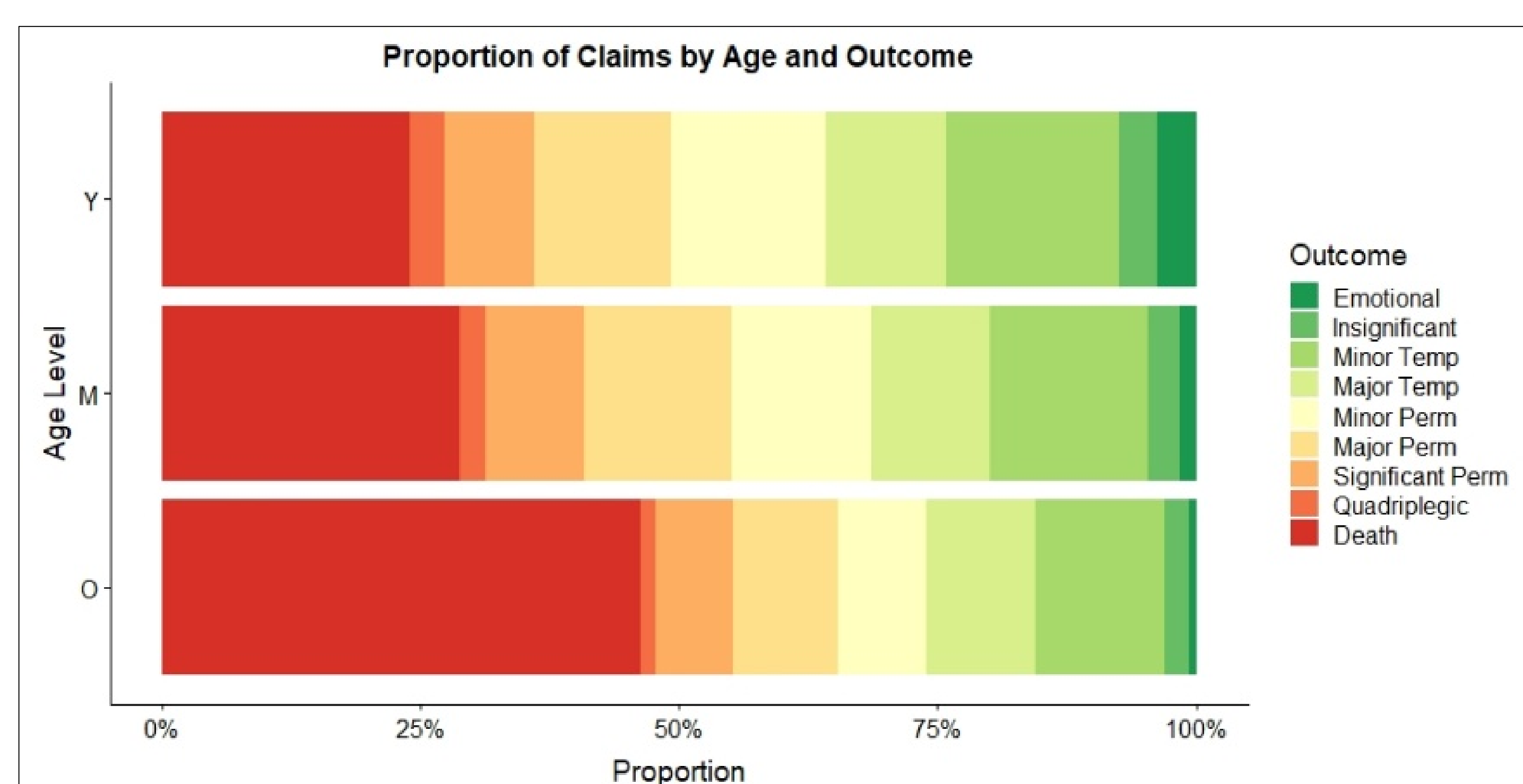
The National Practitioner Data Bank's (NPDB) Public Used Data File was used to create an analytical dataset for this study. Care delivery entities are required to report any malpractice payments to the data bank. All data were stratified into 3 age levels. We defined older adults as patients over 70 years old, middle-age adults as patients between 40 to 69 years old, and young adults as patients between 20 to 39 years old. We excluded fetus, infants and children in this study. Due to several new variables added since January 31, 2004 and, on average, a 4-year-gap between incident occurrence and its payment, a 10 year period (2005 – 2014) based on the report filing year was used in this study. Records with missing data were deleted. In the end, 133,707 malpractice claims were included.

We performed an exploratory data analysis and calculated summary statistics. Trend plots, bar charts and histograms were plotted for data visualization. In cluster analysis, we compared three algorithms: hierarchical clustering, K-Medoids and K-Prototype, due to the non-numerical characteristics of the dataset. Sum of squared error and silhouette value were used to evaluate the performances of these algorithms.

Results

There were over 133,000 malpractice claims between 2005 and 2014. Of those, around 14,000 cases were from older adults, which constituted 12% of malpractice claims. Around 60% (68,000) of them were from middle-aged adults and 28% (32,000) of them were from younger adults. The number of malpractice claims for all three age levels decreased through the years.

In the past 10 years, around \$32 billion went into malpractice payments out of which \$2.7 billion were awarded to older adults. In addition, there were over 600 death cases of older patients each year, which constituted almost 45% of malpractice cases for older adults (Figure 1). Despite the high death rate, older adults only received a median payment of \$128,866 per case of death, which was over 50% less than the amount that middle-aged and young adults received. The payment disparity persisted across different malpractice types.



Results (Cont.)

Over 95% of malpractice cases ended in settlements, and only less than 3% of the cases went to court. These proportions hold true for all three age levels. The amount of money that older adults (median \$105,114, CI \$101,648 to \$107,143) claimed through settlement was significantly less than the amount of payment claimed by middle-aged (median \$152,632, CI \$152,439 to \$157,609) and younger (median \$137,363, CI \$131,579 to \$142,045) adults. In contrast, there was no significant difference in payments through judgement across the three age groups (Table 1).

	Older Adults N = 14,128	Median-age Adults N = 68,069	Young Adults N = 31,510
Summary			
Median	105,978 (102632, 107143)	157,609 (152632, 159341)	142,045 (137363, 147059)
Type			
J (Judgement)	262,195 (176829, 309783)	294,407 (269231, 315000)	288,235 (255435, 325000)
S (Settlement)	105,114 (101648, 107143)	152,632 (152439, 157609)	137,363 (131579, 142045)
Outcome			
1 (Emotional)	19,231 (12887, 27439)	27,781 (26471, 32353)	45,732 (38660, 50000)
2 (Insignificant)	9,615 (9211, 12755)	13,736 (12887, 14205)	13,736 (12887, 15244)
3 (Minor Temp)	28,061 (26471, 30220)	30,220 (29891, 32353)	31,250 (29891, 33163)
4 (Major Temp)	88,415 (79670, 96154)	114,706 (107143, 118557)	106,925 (100610, 110795)
5 (Minor Perm)	85,294 (78804, 95109)	107,143 (102632, 108824)	97,500 (91176, 102941)
6 (Significant Perm)	192,308 (176829, 205882)	266,304 (257895, 269231)	276,471 (266304, 289474)
7 (Major Perm)	229,412 (205263, 245000)	355,670 (335366, 375000)	403,061 (375000, 433673)
8 (Quadriplegic, Brain Damage, Lifelong Care)	306,362 (257895, 437500)	521,053 (505102, 542683)	708,791 (605000, 789773)
9 (Death)	128,866 (121053, 137363)	244,318 (237805, 247253)	257,895 (250000, 269231)

Conclusion

Older adults were paid significantly less for the same malpractice claims as compared to younger adults. Distinct clusters were discovered. The NPDB database is an important dataset to study malpractice claims in older patients. Further analysis of information extracted from this dataset and building predictive models are warranted.

Bibliography

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