How Anxious and Fatalistic Mentalities Affect Patient Avoidance in Healthcare

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Demographics

White - 3,824 (70.3%)

Black or African American - 1,355 (16.6%)

American Indian or Alaskan Native - 591 (2.5%)

Asian Indian - 61 (1.1%)

Chinese - 71 (1.3%)

Other - 226 (4.2%)

Total Subjects - 5,438

Subjects were separated them via race, income, marital status, age, and gender.

Abstract

Subjects were asked questions that separated them via race, income, marital status, age, and gender.

Our analysis focused on the phenomenon of patient delay, defined as the time interval between the debut of symptoms and first contact with the health care system.

We hypothesized that there would be a significant relationship between subjects who answered more often on the anxiety and fatalism survey questions and those who answered that they avoided the doctor.

Statistical Analysis

Averages - The average numeric answer for each explanatory variable (Anxiety and Fatalism) divided given each answer to the response variable (Avoidance).

P-value - Binary Logistics Regression was used to identify if the responses to the explanatory questions (Anxiety and Fatalism) were significantly related to the answer to the response question (Avoidance). The test identifies a two-tail z-test based on a binary relationship. The p-value indicates the probability that there is no relationship between the response and the explanatory data.

Anxiety on Avoidance Data

- Explanatory (1-Strongly Agree, 2-Somewhat Agree, 3-Somewhat Disagree, 4-Strongly Disagree)
  - Over the past 2 weeks, how often have you been bothered by any of the following problems?
    - Anxiety A - Little interest or pleasure in doing things
    - Anxiety B - Feeling down, depressed, or hopeless
    - Anxiety C - Feeling nervous, anxious, or on edge
    - Anxiety D - Not being able to stop or control worrying
- Response (1-True, 2-Not True)
  - Some people avoid visiting their doctor even when they expect they should. Would you say this is true for you, or not true for you?

Anxiety on Avoidance

Average Answers	A	B	C	D
Avoid	3.237003	3.331040	3.240613	3.292496
Does not avoid	3.577468	3.662859	3.570089	3.647612

Over the past 2 weeks, how often have you been bothered by any of the following problems?

- Anxiety A - Little interest or pleasure in doing things
- Anxiety B - Feeling down, depressed, or hopeless
- Anxiety C - Feeling nervous, anxious, or on edge
- Anxiety D - Not being able to stop or control worrying

P-value of no relationship between answers and Avoidance answer
A - <2E-16
B - <2E-16
C - <2E-16
D - <2E-16

Conclusion: There is a significant statistical relationship between the response for each of the above questions and the response question. The average answer is more often on average more often to the above questions for those who answered that they avoid.

All data removes pairs of responses that have missing or otherwise incorrect data for the specific explanatory-response pair.

Fatalism on Avoidance Data

- Explanatory (1-Strongly Agree, 2-Somewhat Agree, 3-Somewhat Disagree, 4-Strongly Disagree)
  - Fatalism A - It seems like everything causes cancer.
  - Fatalism B - There's not much you can do to lower your chances of getting cancer.
  - Fatalism C - There are so many different recommendations about preventing cancer, it's her to know which ones to follow.
- Response (1-True, 2-Not True)
  - Some people avoid visiting their doctor even when they expect they should. Would you say this is true for you, or not true for you?

Fatalism on Avoidance

Average Answers	A	B	C
Avoid	2.064441	2.817111	1.989883
Does not avoid	2.267472	2.976413	2.145989

- Fatalism A - It seems like everything causes cancer.
- Fatalism B - There's not much you can do to lower your chances of getting cancer.
- Fatalism C - There are so many different recommendations about preventing cancer, it's her to know which ones to follow.

P-value of no relationship between answers and Avoidance answer
A - <2E-16
B - <2E-16
C - <2E-16

Conclusion: There is a significant statistical relationship between the response for each of the above questions and the response question. The average answer is more often on average more often to the above questions for those who answered that they avoid.

All data removes pairs of responses that have missing or otherwise incorrect data for the specific explanatory-response pair.

Impacts

Our results show that when patients feel depressed, anxious, and fatalistic more often, they are, on average, more likely to avoid visiting their physician, even when they feel they should go.

In 2014, The Joint Commission's Office of Quality and Safety analyzed 73 sentinel events that were the result of delays in treatment; 48 of these events resulted in death of the patient.[1]

Patient delay significantly affects the quality of care of the patient.

Traditionally, patient delay has been said to have been mostly impacted by socioeconomic status.[1] However, from our analysis, we can conclude that the mental states of anxiety and avoidance may be indicators of health care quality.

Appendix

Statistical Outputs

Anxiety A

```
##
## Call:
## glm(formula = AvoidDocFactor ~ LittleInterest, family = "binomial",
##     data = nonega)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.7783   0.6787   0.6787   0.6787   1.1465
##
## Coefficients:
##                Estimate Std. Error z value Pr(>|z|)
## (Intercept)    -0.35265    0.12138  -2.905  0.00367 **
## LittleInterest  0.42587    0.03477  12.249  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 5899.2  on 5257  degrees of freedom
## Residual deviance: 5753.0  on 5256  degrees of freedom
## AIC: 5757
##
## Number of Fisher Scoring iterations: 4
```

Anxiety B

```
##
## Call:
## glm(formula = AvoidDocFactor ~ Hopeless, family = "binomial",
##     data = nonegb)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.7737   0.6819   0.6819   0.6819   1.2355
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept) -0.62762    0.13548  -4.632 3.61e-06 ***
## Hopeless     0.49203    0.03795  12.967  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 5892.9  on 5246  degrees of freedom
## Residual deviance: 5728.1  on 5245  degrees of freedom
## AIC: 5732.1
##
## Number of Fisher Scoring iterations: 4
```

Anxiety C

```
##
## Call:
## glm(formula = AvoidDocFactor ~ Nervous, family = "binomial",
##     data = nonegc)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.7884   0.6719   0.6719   0.6719   1.1818
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept) -0.47154    0.12854  -3.668 0.000244 ***
## Nervous      0.46124    0.03697  12.476  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 5888.0  on 5249  degrees of freedom
## Residual deviance: 5735.4  on 5248  degrees of freedom
## AIC: 5739.4
##
## Number of Fisher Scoring iterations: 4
```

Anxiety D

```
##
## Call:
## glm(formula = AvoidDocFactor ~ Worrying, family = "binomial",
##     data = nonegd)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.7796   0.6778   0.6778   0.6778   1.2299
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept) -0.61469    0.13038  -4.714 2.42e-06 ***
## Worrying     0.49214    0.03673  13.398  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 5885.6  on 5241  degrees of freedom
## Residual deviance: 5709.5  on 5240  degrees of freedom
## AIC: 5713.5
##
## Number of Fisher Scoring iterations: 4
```

Fatalism A

```
##
## Call:
## glm(formula = AvoidDocFactor ~ EverythingCauseCancer, family = "binomial",
##     data = nonega)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.8678   0.6198   0.6915   0.7693   0.8533
##
## Coefficients:
##                       Estimate Std. Error z value Pr(>|z|)
## (Intercept)            0.57970    0.08256   7.021 2.20e-12 ***
## EverythingCauseCancer  0.24314    0.03599   6.755 1.43e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 5810.4  on 5179  degrees of freedom
## Residual deviance: 5763.2  on 5178  degrees of freedom
## AIC: 5767.2
##
## Number of Fisher Scoring iterations: 4
```

Fatalism B

```
##
## Call:
## glm(formula = AvoidDocFactor ~ PreventNotPossible, family = "binomial",
##     data = nonegb)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.7603   0.6910   0.6910   0.7493   0.8763
##
## Coefficients:
##                    Estimate Std. Error z value Pr(>|z|)
## (Intercept)         0.57516    0.10396   5.532 3.16e-08 ***
## PreventNotPossible  0.18388    0.03455   5.322 1.03e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 5751.9  on 5131  degrees of freedom
## Residual deviance: 5723.8  on 5130  degrees of freedom
## AIC: 5727.8
##
## Number of Fisher Scoring iterations: 4
```

Fatalism C

```
##
## Call:
## glm(formula = AvoidDocFactor ~ TooManyRecommendations, family = "binomial",
##     data = nonegc)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.8489   0.6320   0.7612   0.7612   0.8328
##
## Coefficients:
##                         Estimate Std. Error z value Pr(>|z|)
## (Intercept)              0.67123    0.08357   8.032 9.61e-16 ***
## TooManyRecommendations  0.20957    0.03805   5.508 3.63e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 5793.4  on 5161  degrees of freedom
## Residual deviance: 5762.2  on 5160  degrees of freedom
## AIC: 5766.2
##
## Number of Fisher Scoring iterations: 4
```

Citation

“Preventing Delays in Treatment.” *The Joint Commission*, 2015, www.jointcommission.org/-/media/deprecated-unorganized/imported-assets/tjc/system-folders/joint-commission-online/quick_safety_issue_nine_jan_2015_finalpdf.pdf?db=web&hash=D5C49298D4FCB08F66F710FDFFD8CFC3.