H0 : Impact of demographic factor on consumer decision making process while purchasing OTC Medicine.

> ## Structure of data

> str(data)

tibble [119 x 24] (S3: tbl_df/tbl/data.frame)

$ Age : num [1:119] 1 1 1 1 1 3 1 1 1 1 ...

$ Gender : num [1:119] 2 2 1 1 1 2 1 1 2 1 ...

$ Education : num [1:119] 5 5 4 5 5 5 5 5 5 5 ...

$ Income : num [1:119] 4 1 1 1 2 3 1 2 4 1 ...

$ PlaceofResidence : num [1:119] 1 1 1 1 1 1 3 1 1 1 ...

$ Monthly expenditure on OTC medicines. : num [1:119] 2 1 4 1 1 5 5 1 1 1 ...

$ Are you suffering from any common illness? : num [1:119] 1 2 1 1 2 1 1 1 2 1 ...

$ PI_V1 : num [1:119] 3 2 2 2 1 1 1 3 2 2 ...

$ PI_V2 : num [1:119] 3 3 3 4 3 3 2 2 2 3 ...

$ PI_V3 : num [1:119] 4 2 2 2 2 2 2 2 2 2 ...

$ PI_V4 : num [1:119] 2 2 1 1 1 1 1 2 2 2 ...

$ PI_V5 : num [1:119] 3 2 3 4 3 2 2 4 2 4 ...

$ PI_V6 : num [1:119] 2 2 1 2 1 3 1 2 1 2 ...

$ PI_V7 : num [1:119] 2 1 3 2 2 2 2 2 1 3 ...

$ PI_V8 : num [1:119] 2 2 2 1 2 1 2 3 1 2 ...

$ AT_V1 : num [1:119] 1 2 1 1 2 2 1 2 2 1 ...

$ AT_V2 : num [1:119] 2 2 2 1 2 1 2 1 2 2 ...

$ AT_V3 : num [1:119] 1 3 1 1 1 1 1 1 1 1 ...

$ AT_V4 : num [1:119] 3 3 3 3 3 3 3 3 3 3 ...

$ Do you suffer from any side effect of OTC medicine? : num [1:119] 2 2 3 2 2 2 3 3 1 2 ...

$ Have you used any vitamins or other dietary supplements in the past year?: num [1:119] 1 2 1 2 2 2 2 3 2 1 ...

$ Do you have any long-term disease (Diabetes, BP, Asthma) : num [1:119] 2 2 2 2 2 2 1 2 2 2 ...

$ PI : num [1:119] 2.62 2 2.12 2.25 1.88 ...

$ AT : num [1:119] 1.75 2.5 1.75 1.5 2 1.75 1.75 1.75 2 1.75 ...

>

> model=lm(PI~Age,data)

> print(model)

```
Call:
lm(formula = PI ~ Age, data = data)

Coefficients:
(Intercept)         Age
    2.18833      0.04726
```

> summary(model)

```
Call:
lm(formula = PI ~ Age, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-1.2356 -0.3606 -0.0801  0.3422  1.5144

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.18833    0.10272  21.303   <2e-16 ***
Age          0.04726    0.07145   0.661     0.51
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5391 on 117 degrees of freedom
Multiple R-squared:  0.003725,  Adjusted R-squared:  -0.00479
F-statistic: 0.4375 on 1 and 117 DF,  p-value: 0.5096
```

CONCLUSION: here p-value=0.509 which is greater than 0.05

Hence we do not reject null hypothesis.

```
> r=cor(data$PI,data$Age)
> r
[1] 0.06103663

>
> model1=lm(PI~Gender,data)
> print(model1)

Call:
lm(formula = PI ~ Gender, data = data)

Coefficients:
(Intercept)      Gender
    2.26708     -0.01227

> summary(model1)

Call:
lm(formula = PI ~ Gender, data = data)

Residuals:
     Min       1Q   Median       3Q      Max
-1.24254 -0.31117 -0.00481  0.37019  1.50746

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.26708    0.16366  13.852   <2e-16 ***
Gender      -0.01227    0.09980  -0.123    0.902
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Residual standard error: 0.54 on 117 degrees of freedom

Multiple R-squared: 0.0001292,Adjusted R-squared: -0.008417

F-statistic: 0.01512 on 1 and 117 DF, p-value: 0.9024

CONCLUSION: here p-value=0.9 which is greater than 0.05

Hence we do not reject null hypothesis.

> r1=cor(data$PI,data$Gender)

> r1

[1] -0.01136555

>

> model2=lm(AT~Education,data)

> print(model2)

Call:

lm(formula = AT ~ Education, data = data)

Coefficients:

(Intercept)   Education

   1.63681   0.01538

> summary(model2)

Call:

lm(formula = AT ~ Education, data = data)

Residuals:

    Min   1Q Median   3Q   Max

-0.71374 -0.19835 0.03626 0.27857 1.03626

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	1.63681	0.17765	9.214	1.55e-15	***
Education	0.01538	0.04027	0.382	0.703	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.315 on 117 degrees of freedom

Multiple R-squared: 0.001246, Adjusted R-squared: -0.00729

F-statistic: 0.146 on 1 and 117 DF, p-value: 0.7031

CONCLUSION: here p-value=0.70 which is greater than 0.05

Hence we do not reject null hypothesis.

> r2=cor(data$AT,data$Education)

> r2

[1] 0.03529888

>

> model3=lm(AT~Income,data)

> print(model3)

Call:

lm(formula = AT ~ Income, data = data)

Coefficients:

(Intercept)	Income
1.72705	-0.01253

> summary(model3)

Call:

lm(formula = AT ~ Income, data = data)

Residuals:

Min	1Q	Median	3Q	Max
-0.71452	-0.20826	0.03548	0.28548	1.03548

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	1.72705	0.06020	28.691	<2e-16	***
Income	-0.01253	0.02844	-0.441	0.66	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3149 on 117 degrees of freedom

Multiple R-squared: 0.001656, Adjusted R-squared: -0.006877

F-statistic: 0.194 on 1 and 117 DF, p-value: 0.6604

CONCLUSION: here p-value=0.66 which is greater than 0.05

Hence we do not reject null hypothesis.

> r3=cor(data$AT,data$Income)

> r3

[1] -0.04069095

>Hence we conclude that, there is no impact of demographic factor on consumer decision making process while purchasing OTC Medicine.