Business Analytics & Research (using R)

PRESENTED BY:

MANMEET KOUR
502304202

AVNEESH ANCHIT
502304195

RAJ KANSAL
502304205

RITIKA MEHTA
502304207

Research Project of BAR with R

Themes Brainstormed

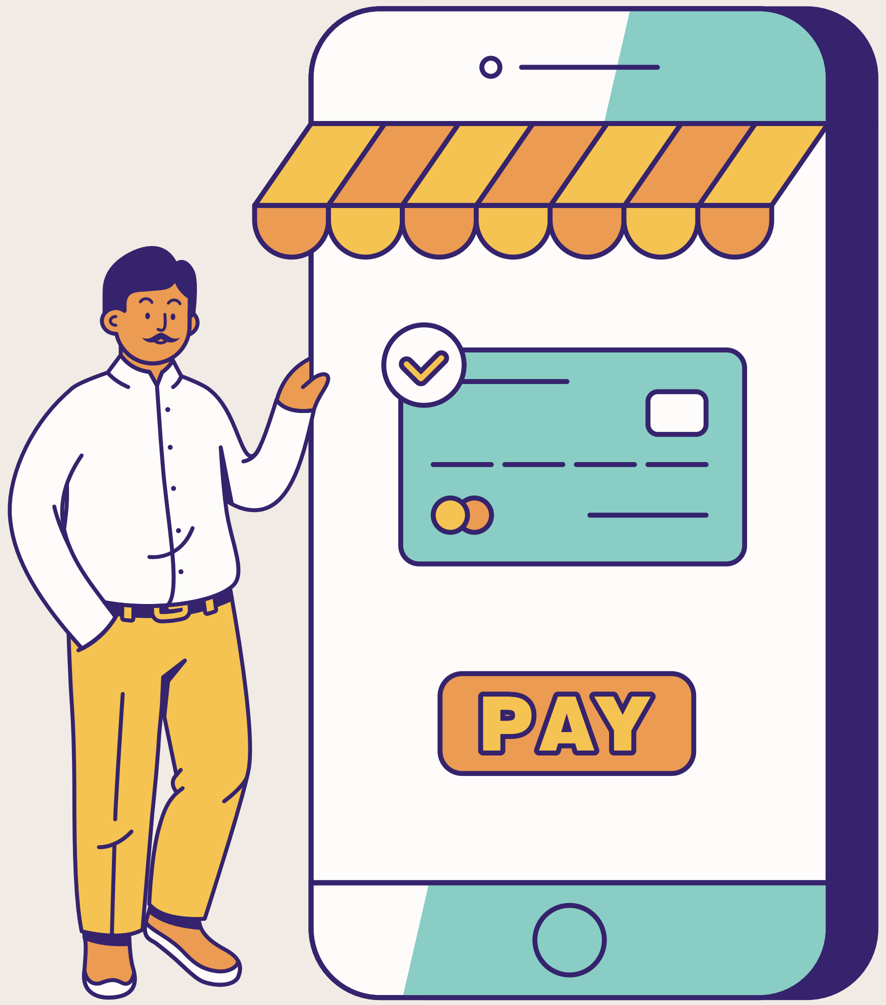
- Artificial Intelligence
- IOT
- Virtual Reality
- Metaverse
- Neuroscience
- Tech. Adoption
- Consumer Behavior

Theme Selected

Technology Adoption✅

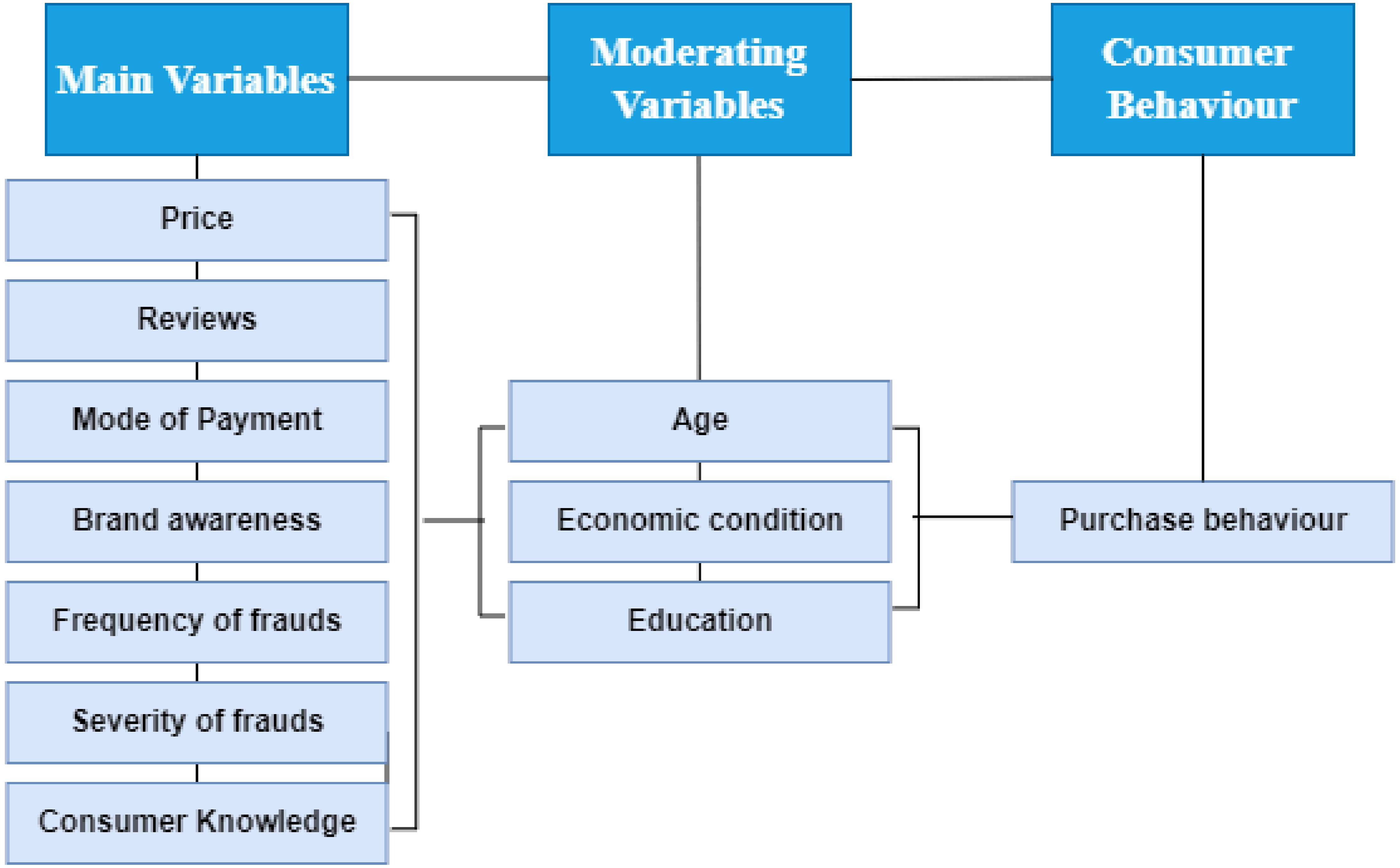
Topics Brainstormed

Natural Language Processing: a revolution in computer-human communication	Impact of metaverse on consumer behavior	Autonomous Driving Using common sense rerasoning	The future of computer- assisted education	The risks of Digital Voting
Using Technology to create eco-friendly food packaging	How have social media platforms altered communication	An investigation of Cyber Fraud impact on consumer's behavior to purchase online	Space-based solar energy: futuristic fantasy or fact	Are facial recognition technologies a threat to privacy or a berak through in AI?



Topic Chosen✅

An investigation of cyber fraud impact on consumer's behavior to purchase online


Main Variables
Moderating Variables
Consumer Behaviour
Price
Reviews
Mode of Payment
Brand awareness
Frequency of frauds
Severity of frauds
Consumer Knowledge
Age
Economic condition
Education
Purchase behaviour

- **Price:** Price is a determining factor in consumer decision making. Consumers are often looking for value for money.

- **Reviews:** Online reviews play a key role in building consumer trust. Positive reviews can convince consumers of the legitimacy and reliability of a product or service, while negative reviews can raise a red flag and prevent a purchase

- **Payment method:** Available payment methods can influence consumer behavior, especially when it comes to cyber fraud. Consumers prefer secure payment methods such as credit cards with fraud protection, payment gateways with encryption technology

- **Brand awareness:** It is about how familiar and recognizable your brand is to your target audience.

- **Cyber fraud incidents:** Cyber fraud in online purchases comes in many forms, like phishing scams, fake websites, malware injections, and stolen credit card data.
- **Consumer knowledge:** knowledge levels vary greatly, impacting susceptibility to fraud and overall online shopping behavior.
- **Trust in Institutions:** Institutions such as banks, online retailers, government websites can moderate the likelihood of falling for cyber fraud.
- **Age:** Age can influence how individuals interact with technology and their susceptibility to different types of cyber fraud
- **Economic Conditions:** In times of economic downturn, increased financial pressures may lead to a higher incidence of individuals committing fraud.

Framed Hypotheses

Price

- Age has a significant moderating impact on the relationship between Price and the consumers' buying decisions.
- Economic condition has a significant moderating impact on the relationship between Price and the consumers' buying decisions.
- Education has a significant moderating impact on the relationship between Price and consumers' buying decisions.

Reviews

- Age has a significant moderating impact on the relationship between Reviews and the consumers' buying decisions.

- Economic condition has a significant moderating impact on the relationship between Reviews and the consumers' buying decisions.

- Education has a significant moderating impact on the relationship between Reviews and consumers' buying decisions.

Mode of payment

- Age has a significant moderating impact on the relationship between Mode of Payment and the consumers’ buying decisions.
- Economic condition has a significant moderating impact on the relationship between Mode of Payment and the consumers’ buying decisions.
- Education has a significant moderating impact on the relationship between Mode of Payment and consumers’ buying decisions.

Brand awareness

- Age has a significant moderating impact on the relationship between Brand awareness and the consumers' buying decisions.

- Economic condition has a significant moderating impact on the relationship between Brand awareness and the consumers' buying decisions.

- Education has a significant moderating impact on the relationship between Brand awareness and consumers' buying decisions.

Frequency of frauds

- Age has a significant moderating impact on the relationship between Frequency of frauds and the consumers’ buying decisions.

- Economic condition has a significant moderating impact on the relationship between Frequency of frauds and the consumers’ buying decisions.

- Education has a significant moderating impact on the relationship between Frequency of frauds and consumers’ buying decisions.

Severity of frauds

- Age has a significant moderating impact on the relationship between Severity of frauds and the consumers' buying decisions.
- Economic condition has a significant moderating impact on the relationship between Severity of frauds and the consumers' buying decisions.
- Education has a significant moderating impact on the relationship between Severity of frauds and consumers' buying decisions.

Consumer knowledge

- Age has a significant moderating impact on the relationship between Consumer knowledge and the consumers’ buying decisions.

- Economic condition has a significant moderating impact on the relationship between Consumer knowledge and the consumers’ buying decisions.

- Education has a significant moderating impact on the relationship between Consumer knowledge and consumers’ buying decisions.

LINKS

Google Form Link:

https://forms.gle/pkpNhioHUHWDatveA

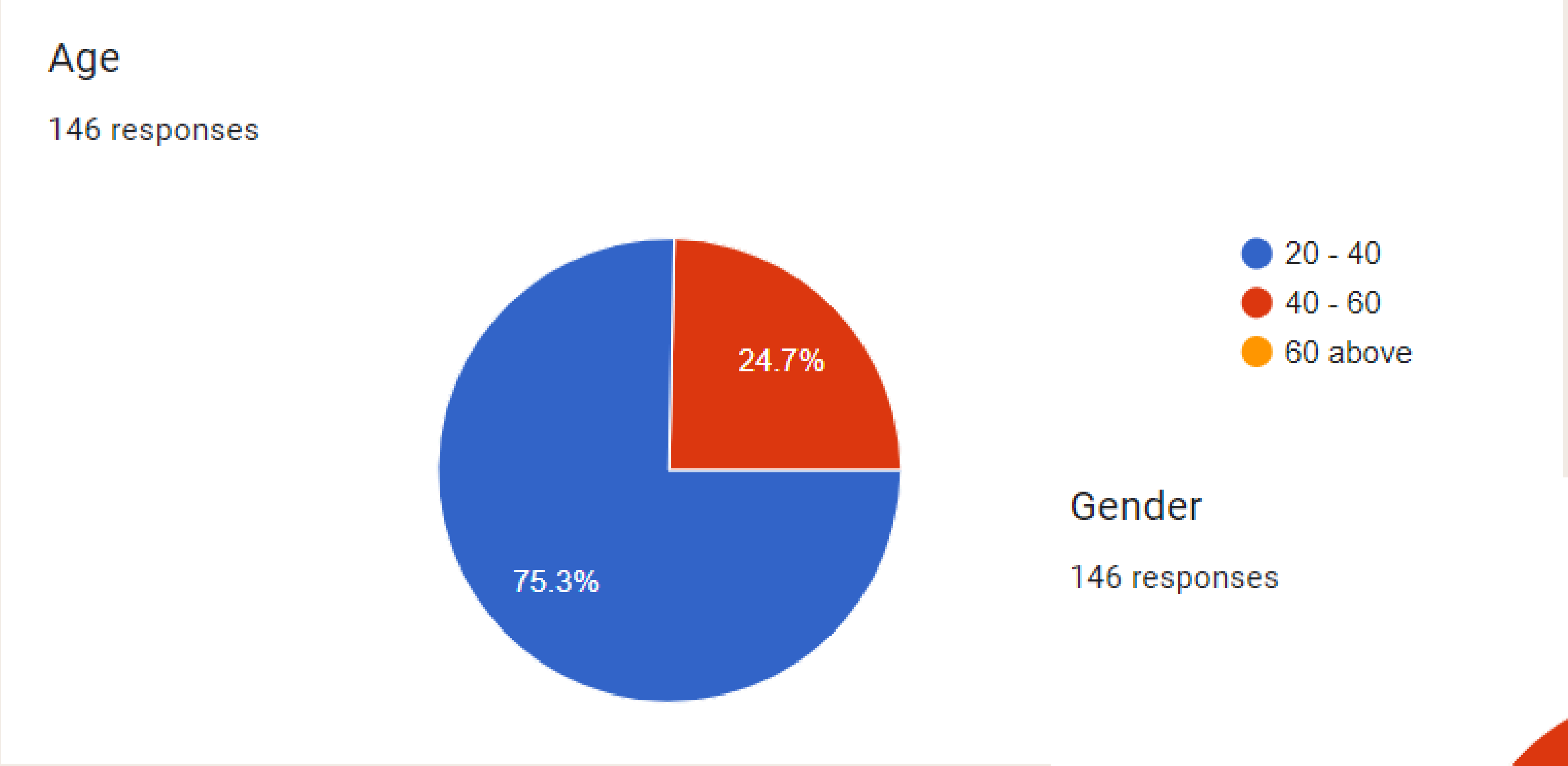
Excel File:

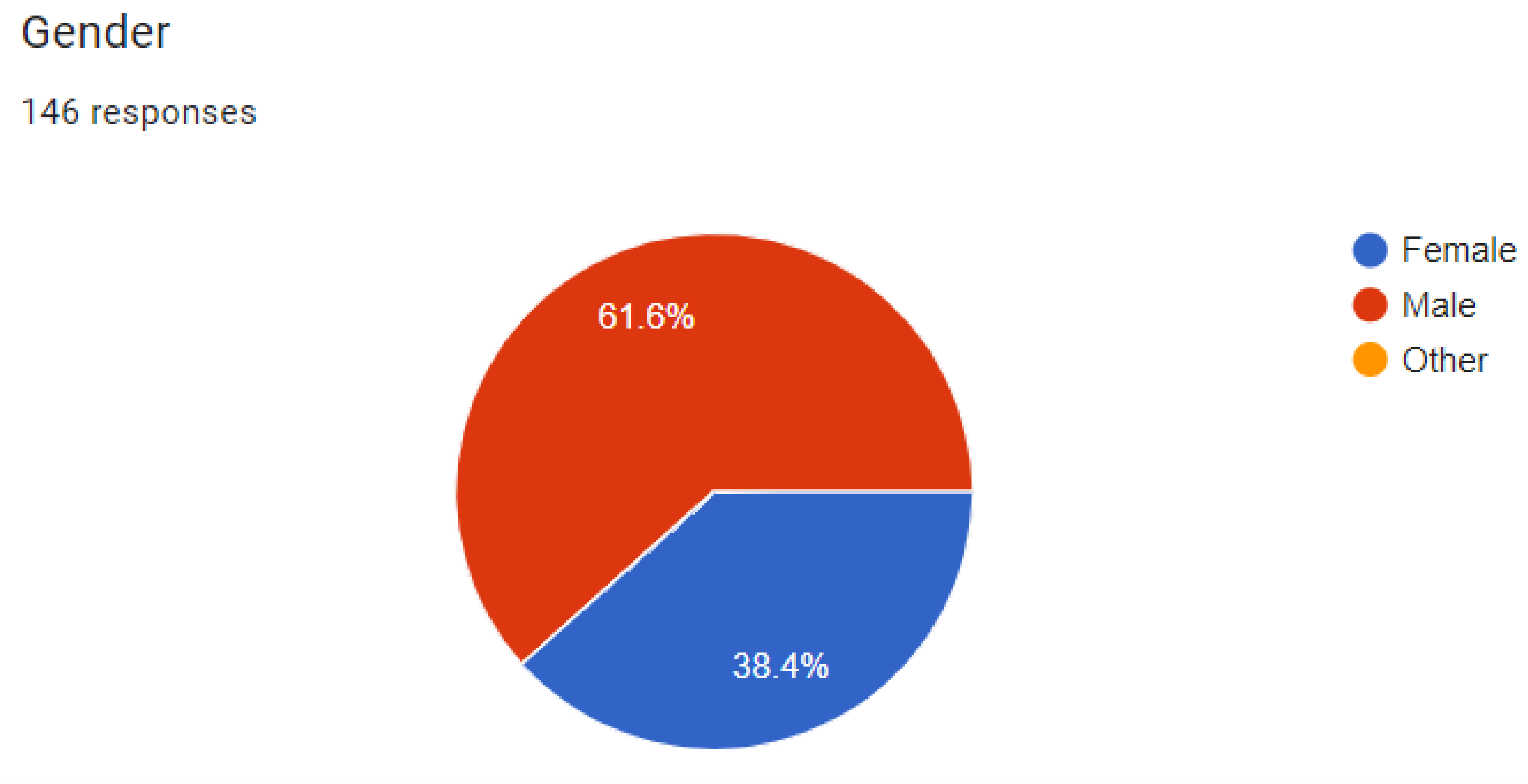
https://docs.google.com/spreadsheets/d/1UzYznUfHrvjdibpc
sn2ElnIFHYn1jL0HK4R7dnbJAQE/edit?usp=sharing

Questionnaire

https://docs.google.com/document/d/1rmw824MGQ8-
fufFOcGUFuTYr8nCSlvSos1ZNXNtgDQc/edit

Distribution based on demographics

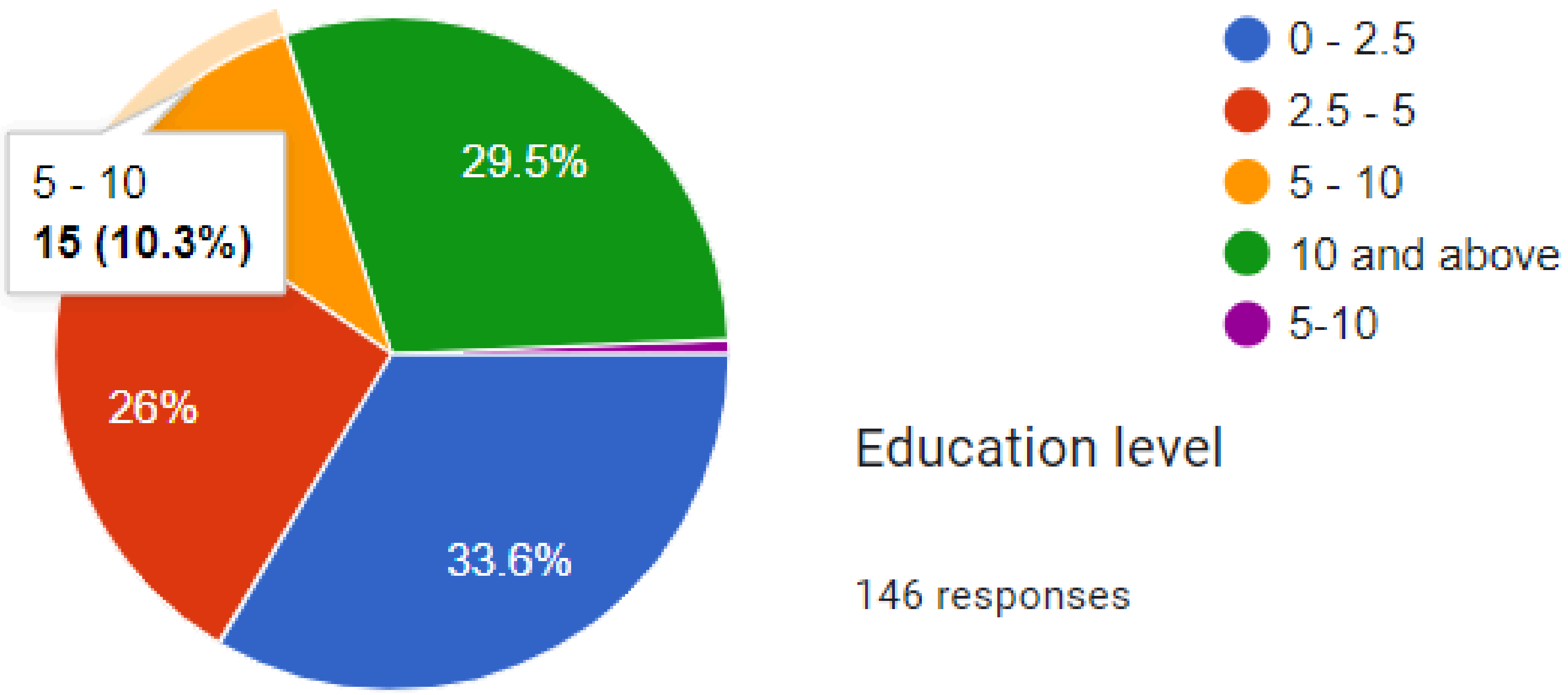




Feedback

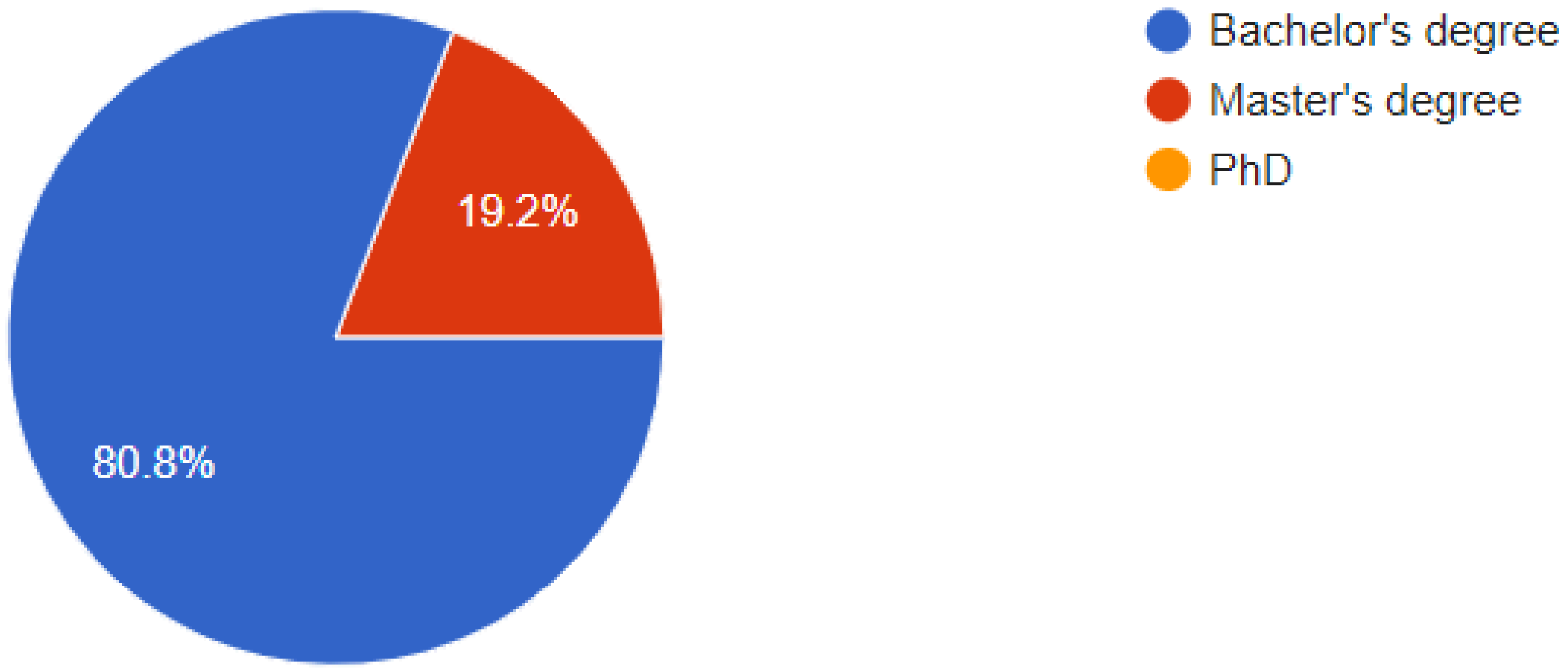
Annual income (In Lakhs)

146 responses

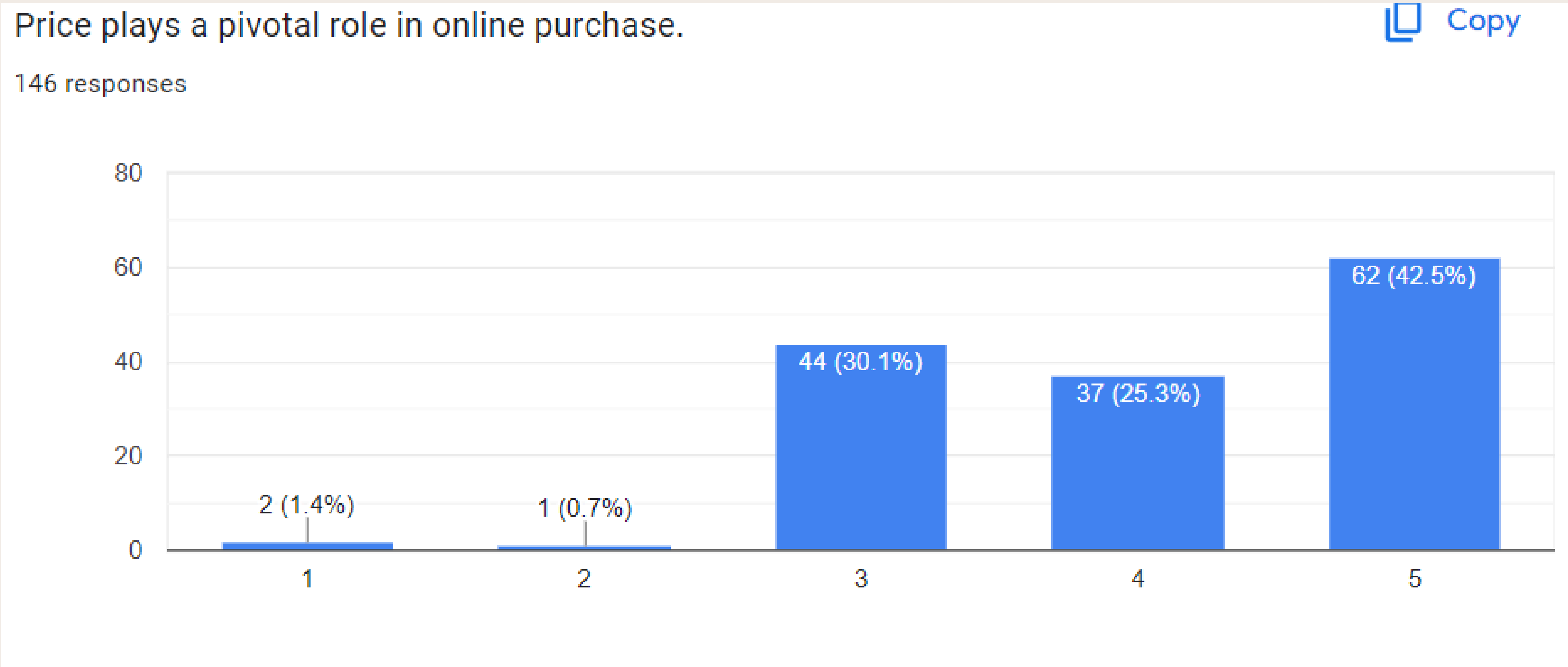


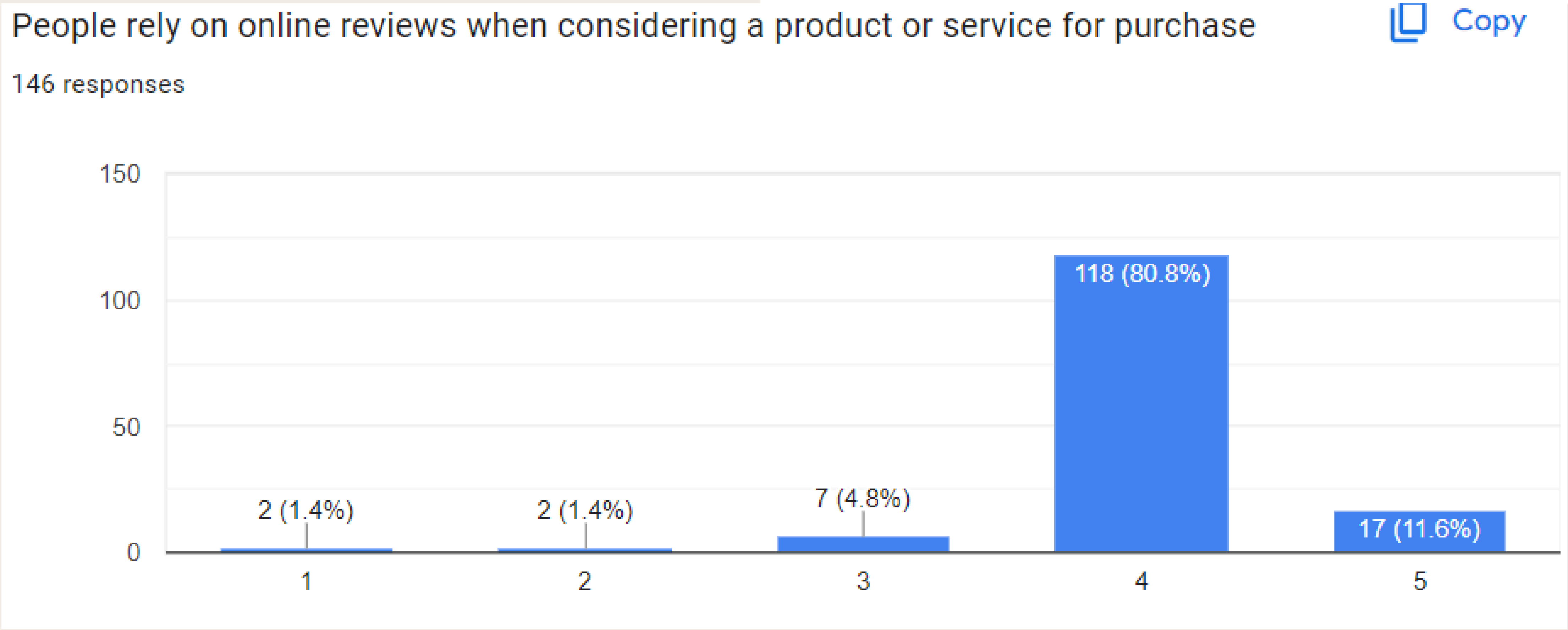
Education level

146 responses



Feedback

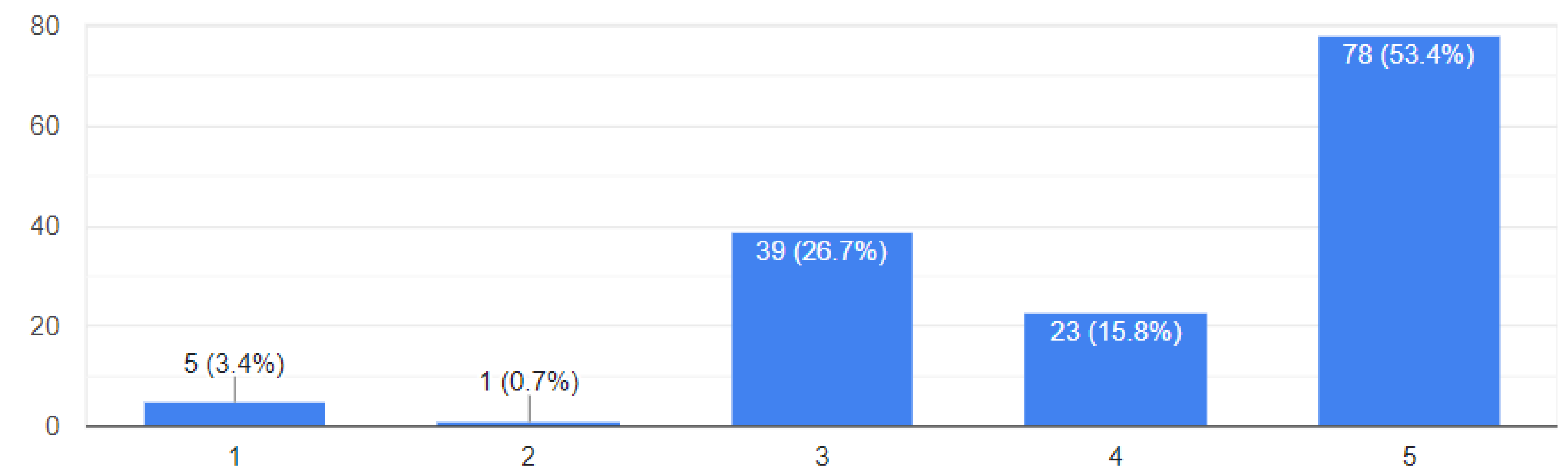

Price plays a pivotal role in online purchase.
Copy
146 responses
80
60
40
20
0
2 (1.4%)
1 (0.7%)
44 (30.1%)
37 (25.3%)
62 (42.5%)
1
2
3
4
5


People rely on online reviews when considering a product or service for purchase
Copy
146 responses
150
100
50
0
2 (1.4%)
2 (1.4%)
7 (4.8%)
118 (80.8%)
17 (11.6%)
1
2
3
4
5

Feedback

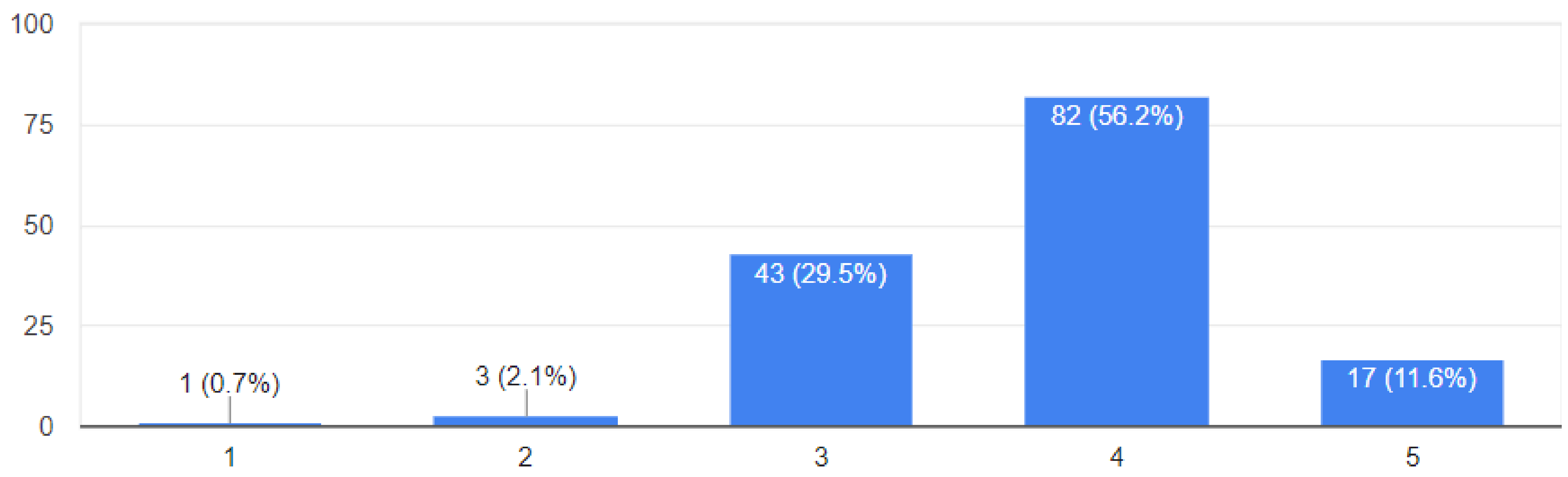
People look for ratings and comments in online reviews to determine the usefulness.

146 responses

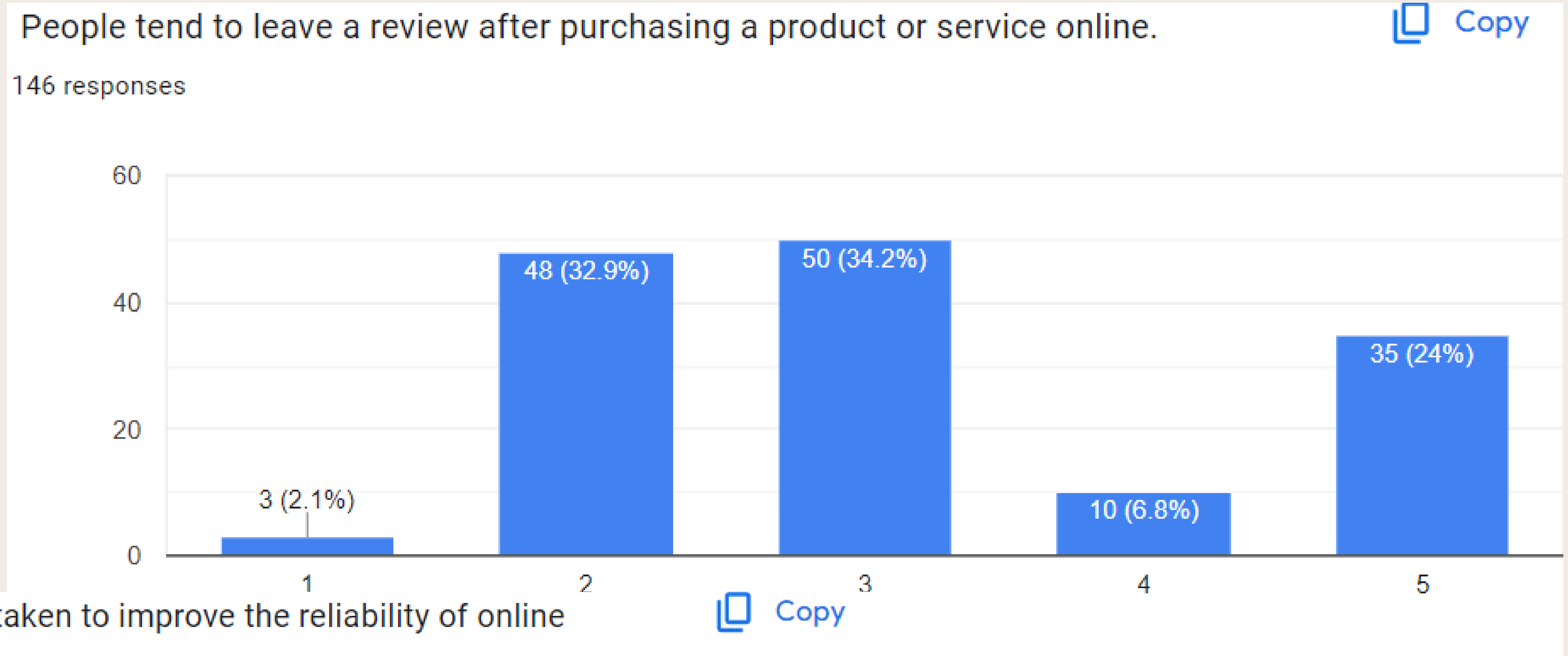


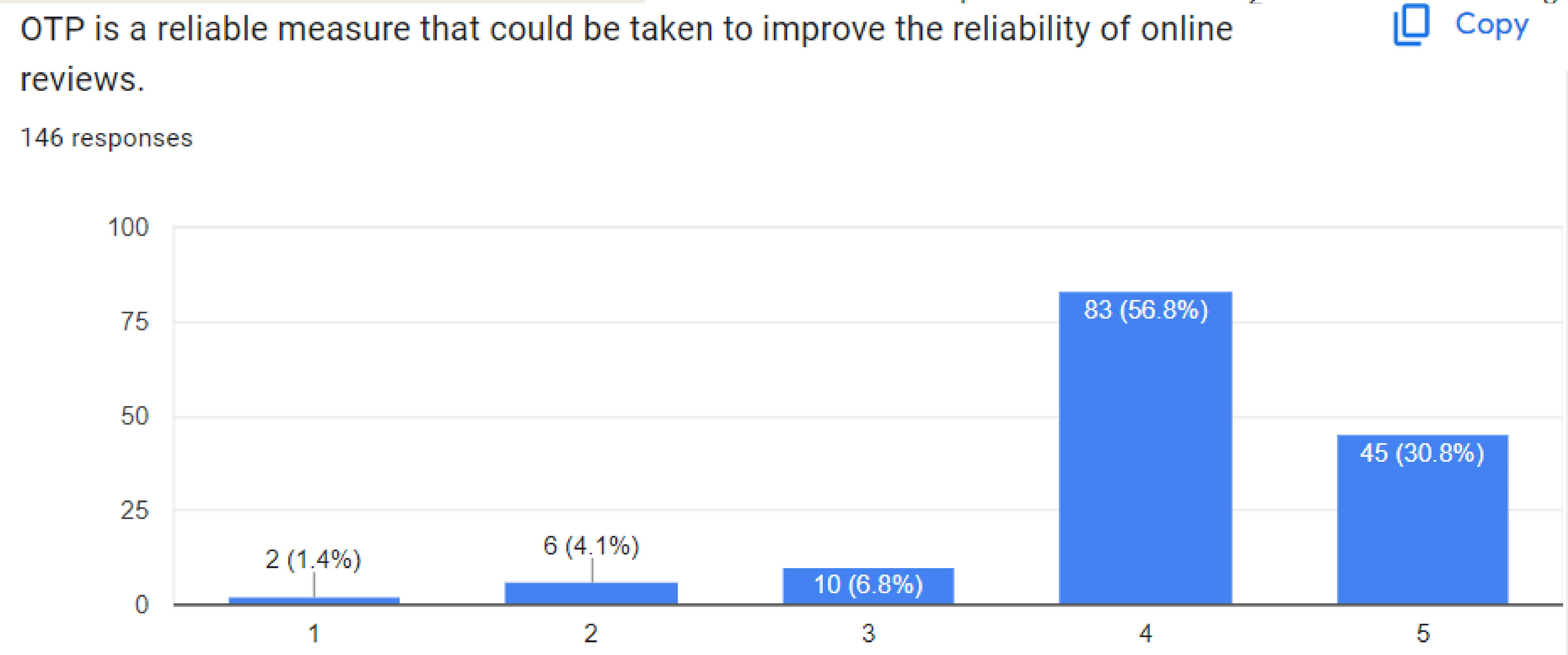
Conflicting online reviews make it difficult for people to make a purchase decision.

146 responses

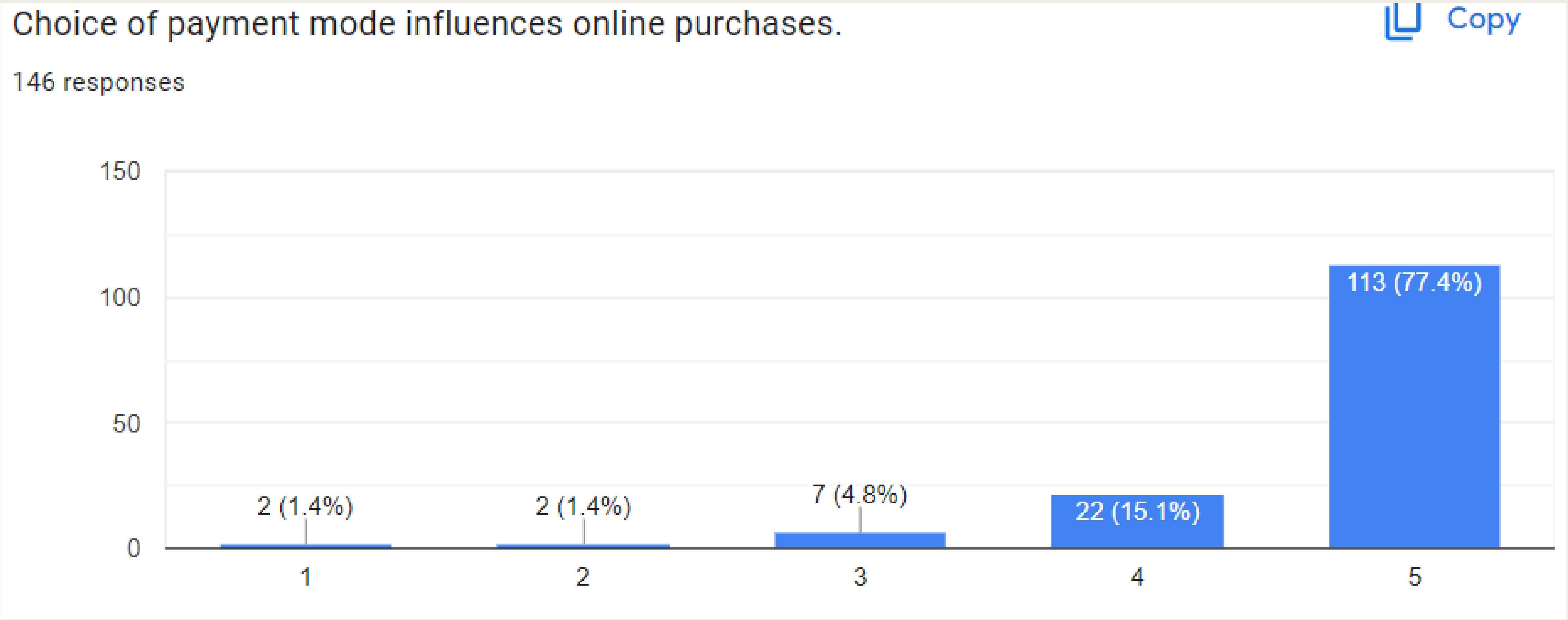


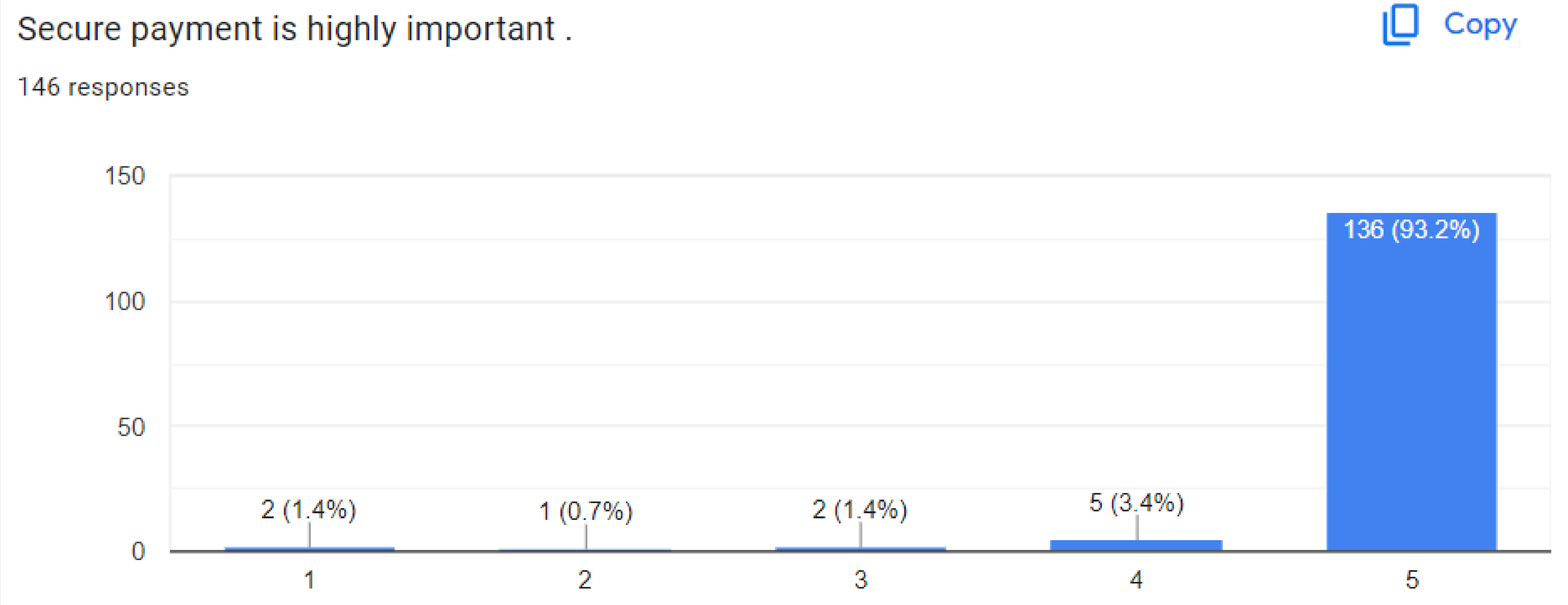
Feedback


People tend to leave a review after purchasing a product or service online.
Copy
146 responses
60
40
20
0
3 (2.1%)
48 (32.9%)
50 (34.2%)
10 (6.8%)
35 (24%)
1
2
3
4
5

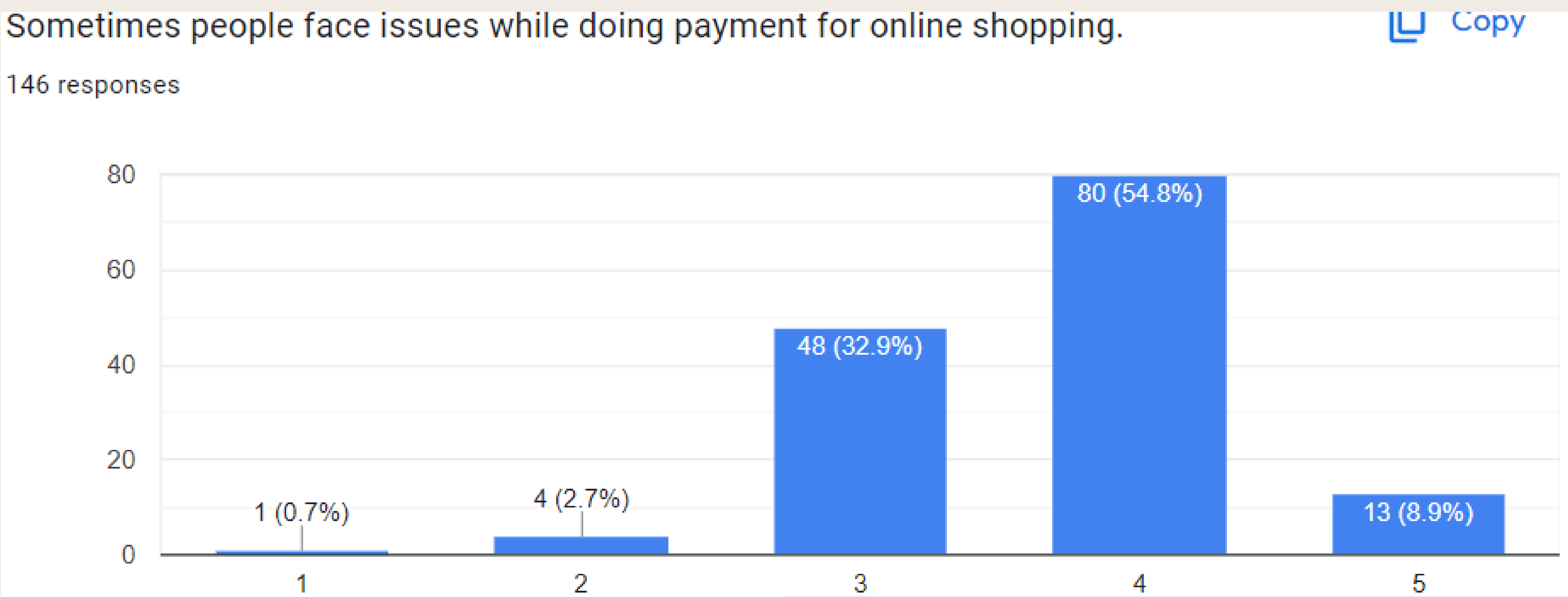

OTP is a reliable measure that could be taken to improve the reliability of online reviews.
Copy
146 responses
100
75
50
25
0
2 (1.4%)
6 (4.1%)
10 (6.8%)
83 (56.8%)
45 (30.8%)
1
2
3
4
5

Feedback

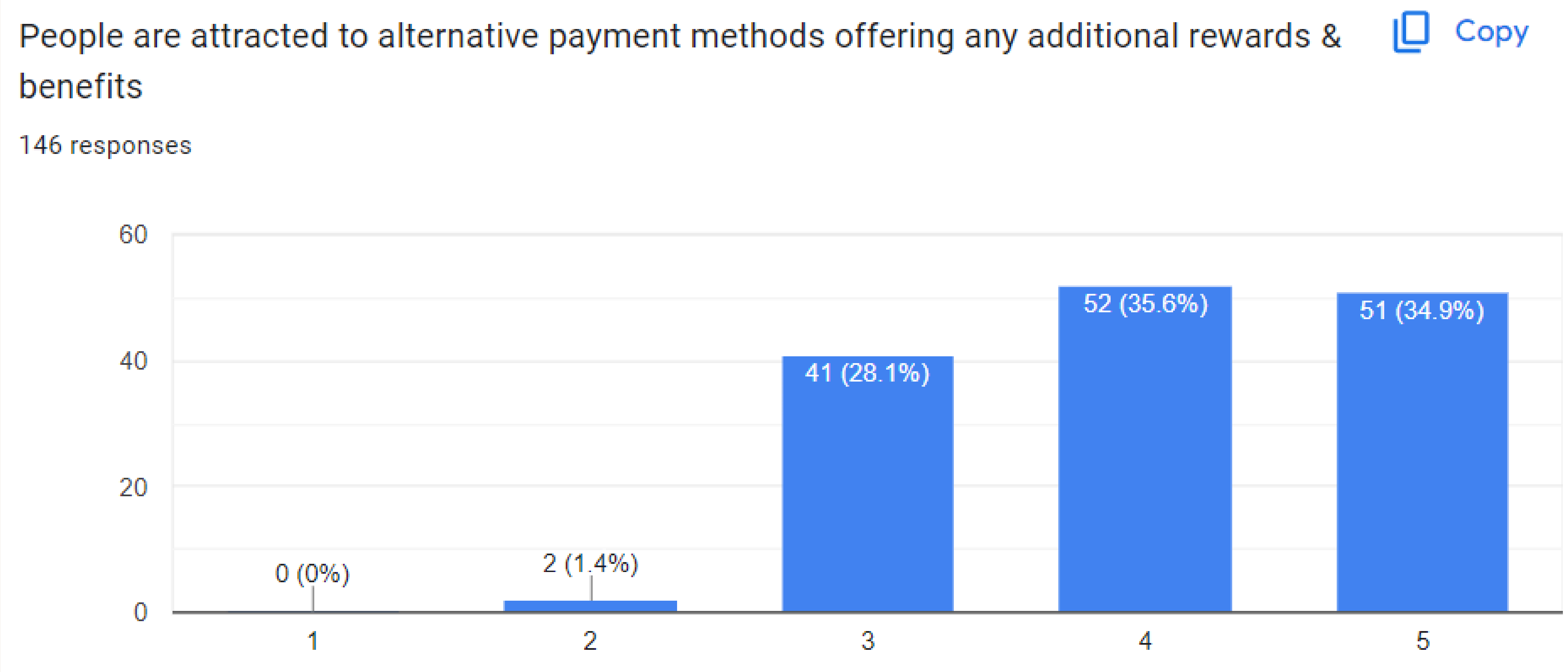

Choice of payment mode influences online purchases.
Copy
146 responses
150
100
50
0
2 (1.4%)
2 (1.4%)
7 (4.8%)
22 (15.1%)
113 (77.4%)
1
2
3
4
5


Secure payment is highly important .
Copy
146 responses
150
100
50
0
2 (1.4%)
1 (0.7%)
2 (1.4%)
5 (3.4%)
136 (93.2%)
1
2
3
4
5

Feedback

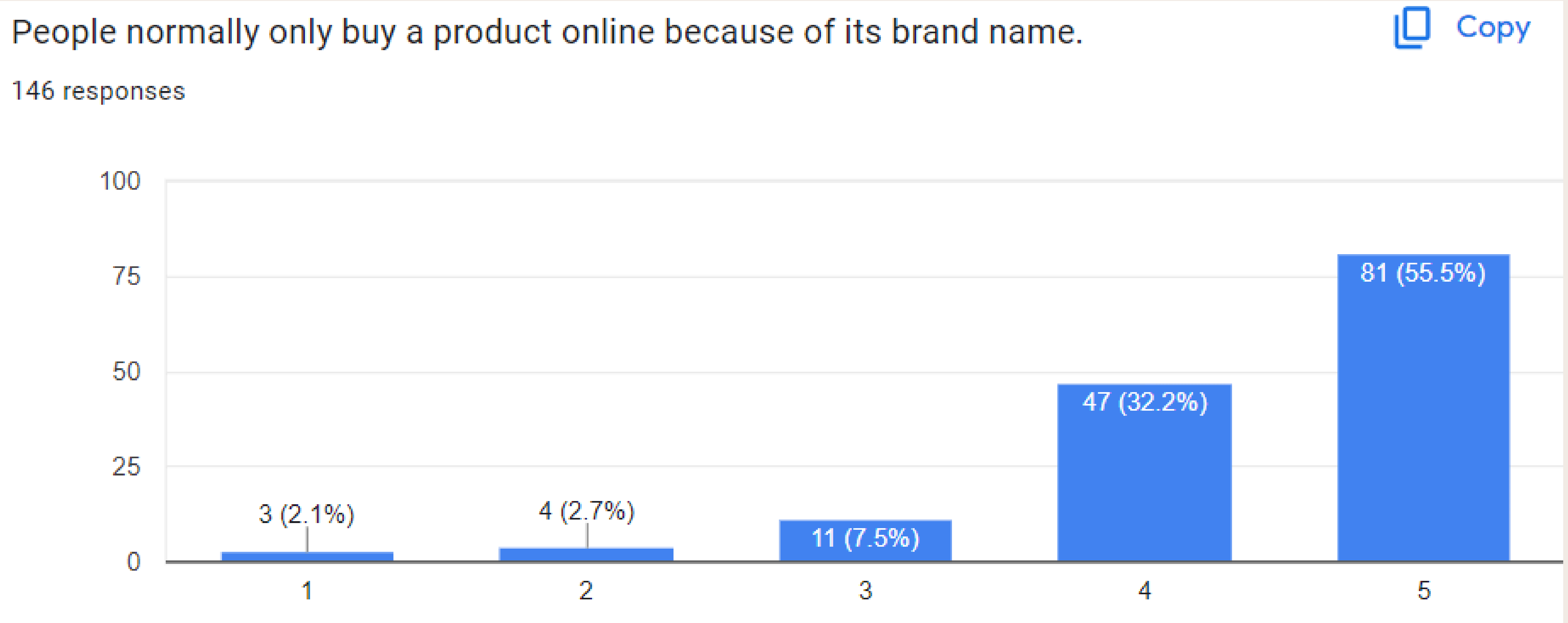


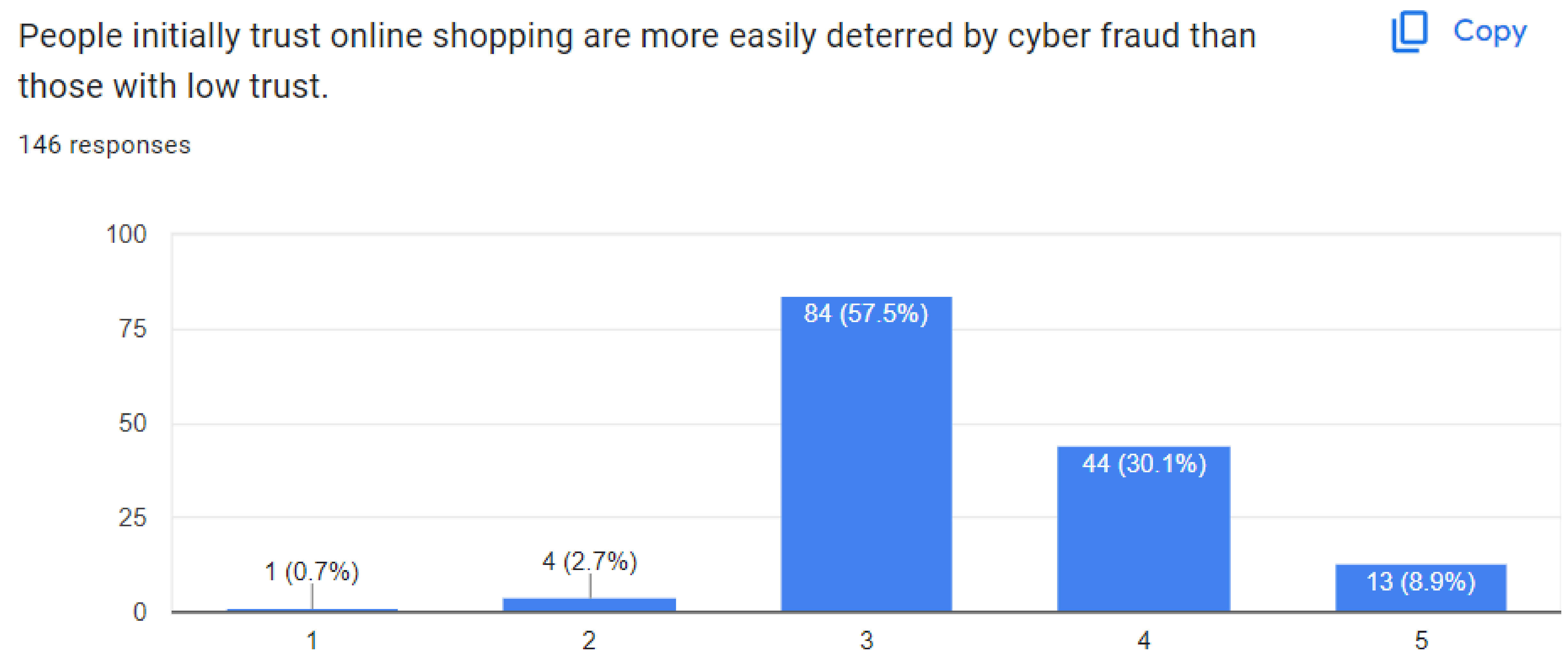
Sometimes people face issues while doing payment for online shopping.
Copy
146 responses
80
60
40
20
0
1 (0.7%)
4 (2.7%)
48 (32.9%)
80 (54.8%)
13 (8.9%)
1
2
3
4
5



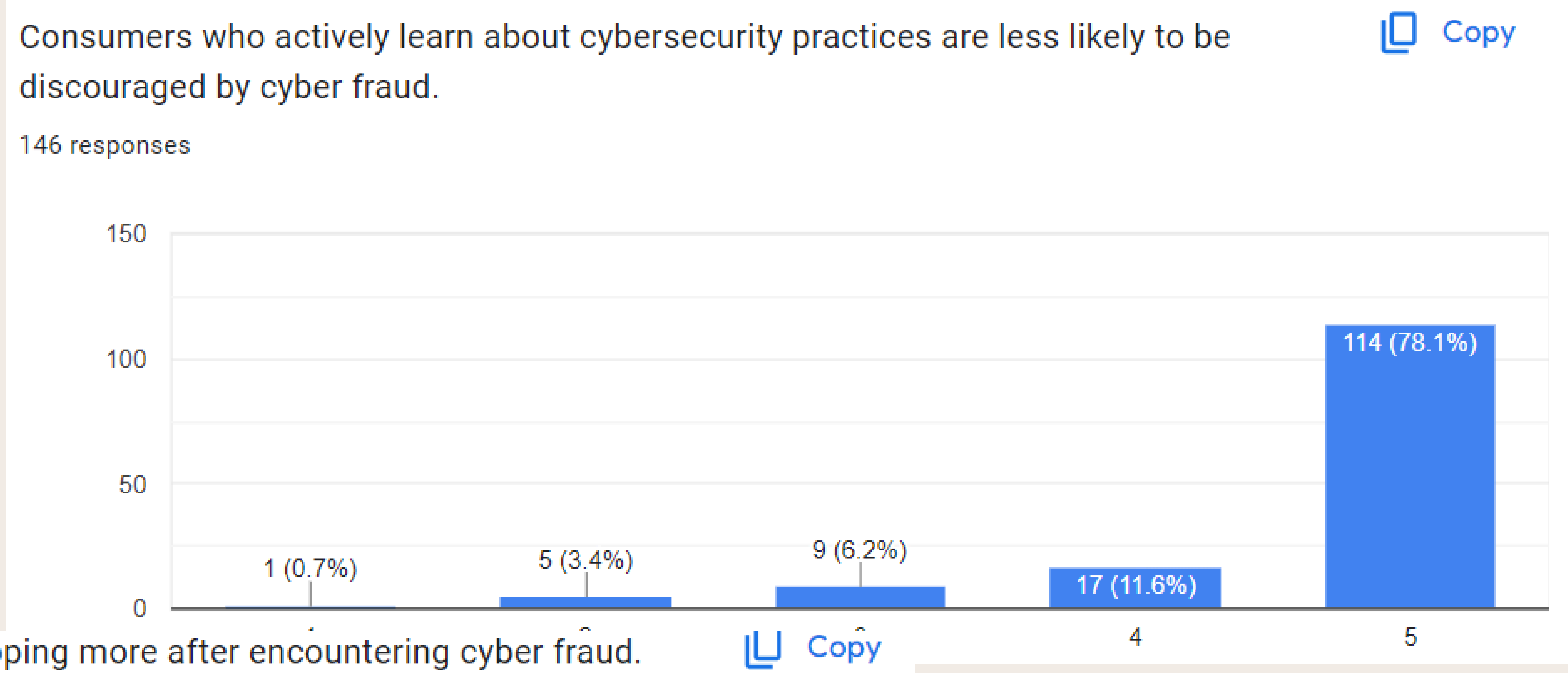
People are attracted to alternative payment methods offering any additional rewards & benefits
Copy
146 responses
60
40
20
0
0 (0%)
2 (1.4%)
41 (28.1%)
52 (35.6%)
51 (34.9%)
1
2
3
4
5

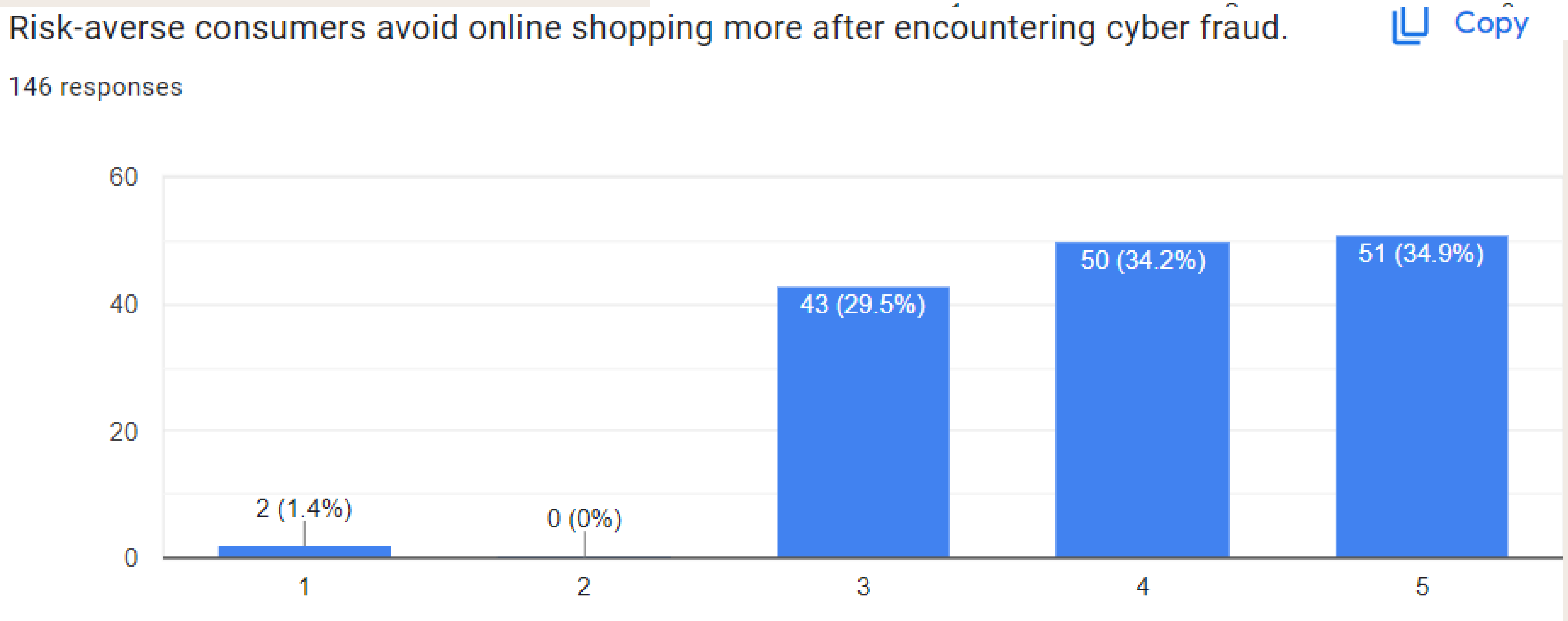
Feedback


People normally only buy a product online because of its brand name.
Copy
146 responses
100
75
50
25
0
3 (2.1%)
4 (2.7%)
11 (7.5%)
47 (32.2%)
81 (55.5%)
1
2
3
4
5


People initially trust online shopping are more easily deterred by cyber fraud than those with low trust.
Copy
146 responses
100
75
50
25
0
1 (0.7%)
4 (2.7%)
84 (57.5%)
44 (30.1%)
13 (8.9%)
1
2
3
4
5

Feedback


Consumers who actively learn about cybersecurity practices are less likely to be discouraged by cyber fraud.
146 responses
Copy
150
100
50
0
1 (0.7%)
5 (3.4%)
9 (6.2%)
17 (11.6%)
114 (78.1%)
4
5

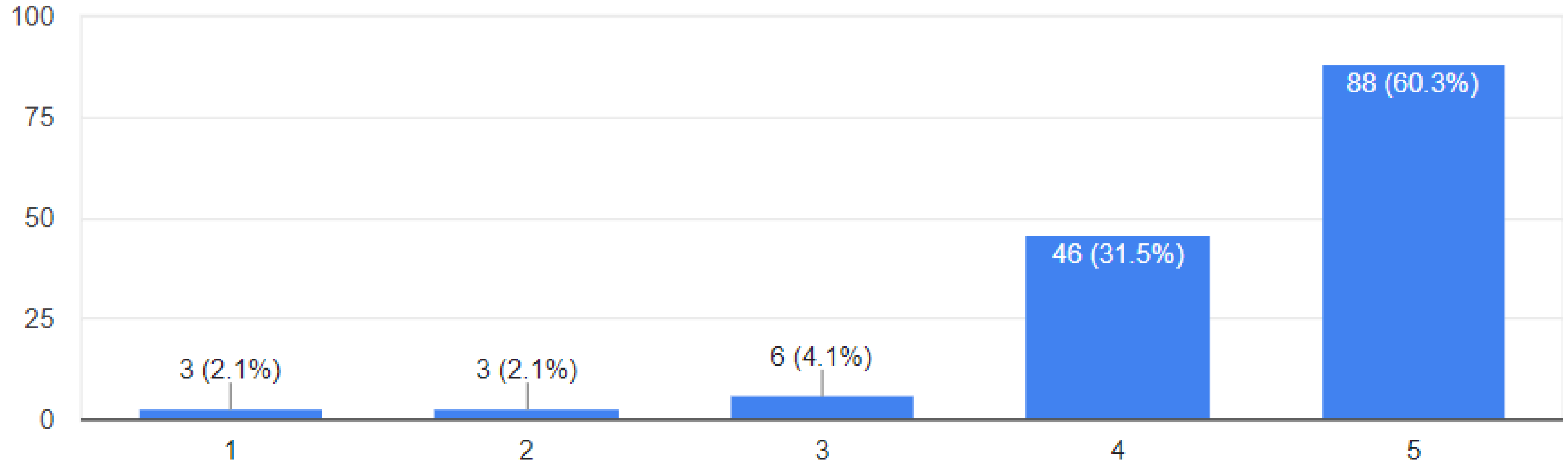

Risk-averse consumers avoid online shopping more after encountering cyber fraud.
146 responses
Copy
60
40
20
0
2 (1.4%)
0 (0%)
43 (29.5%)
50 (34.2%)
51 (34.9%)
1
2
3
4
5

Feedback

Severe cyber fraud incidents, such as losing money make people afraid to buy things online.

Copy

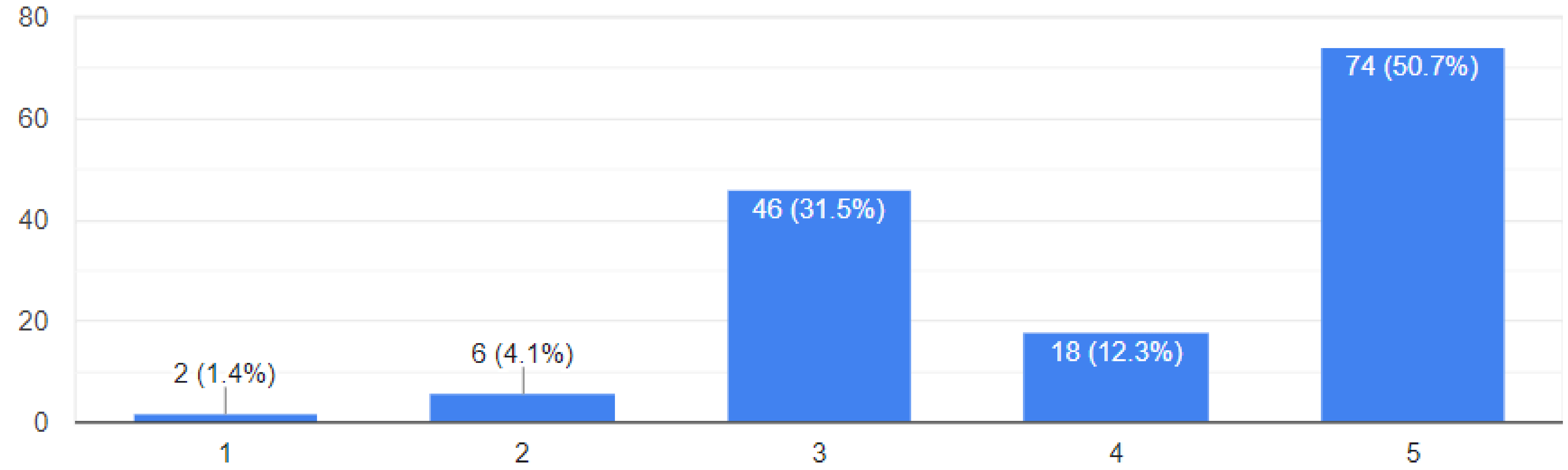
146 responses



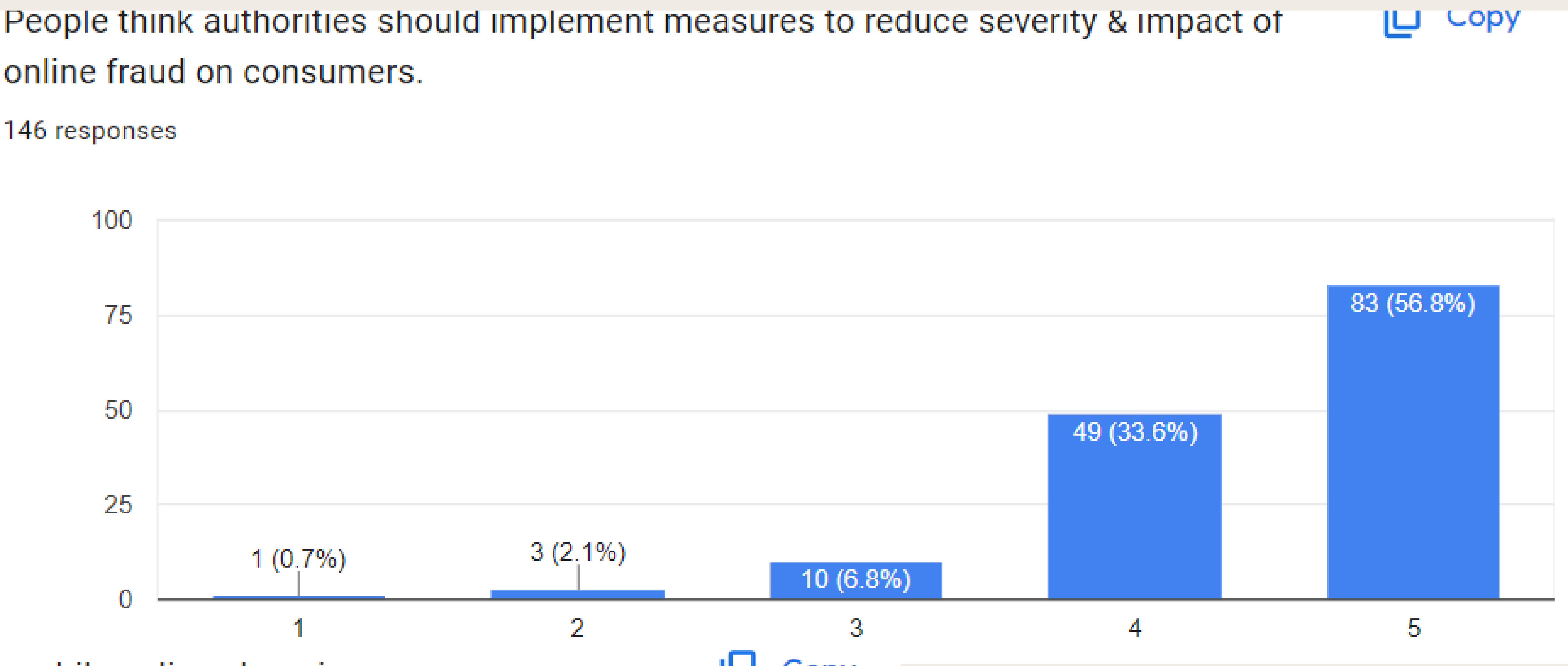
People think online fraud is a threat to certain demographics or groups of people.

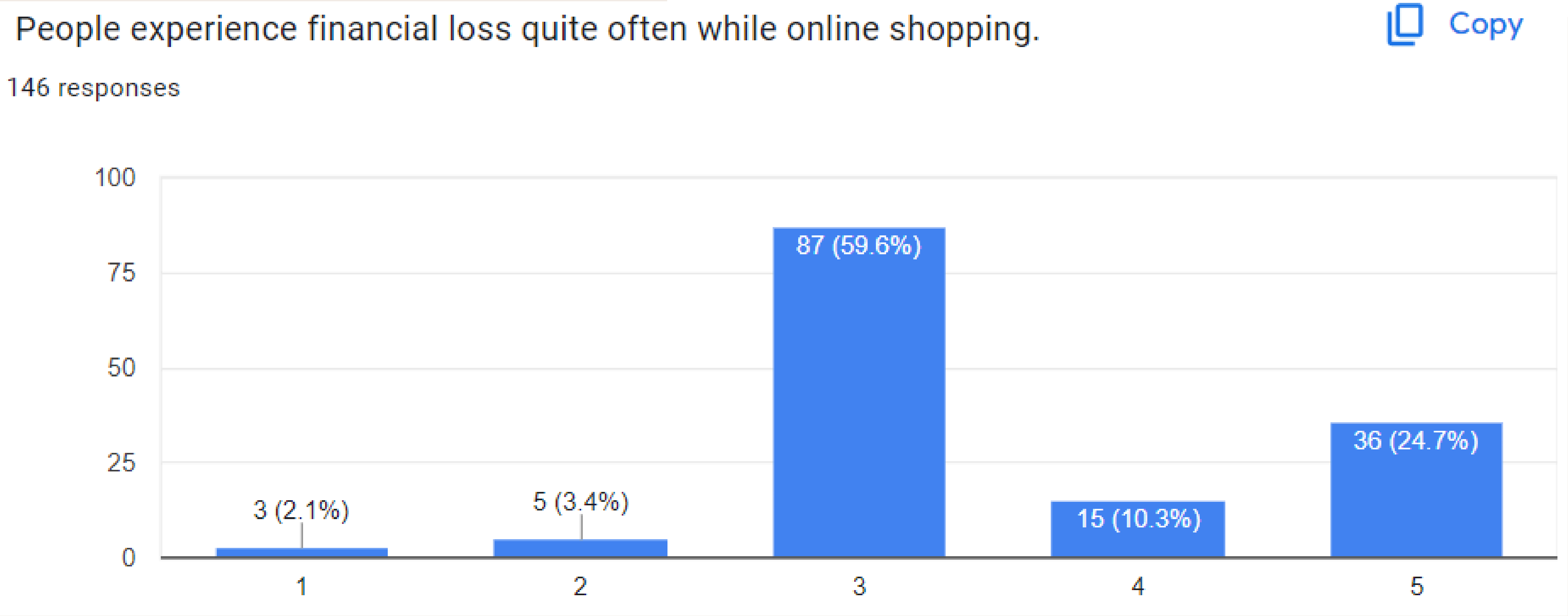
Copy

146 responses



Feedback

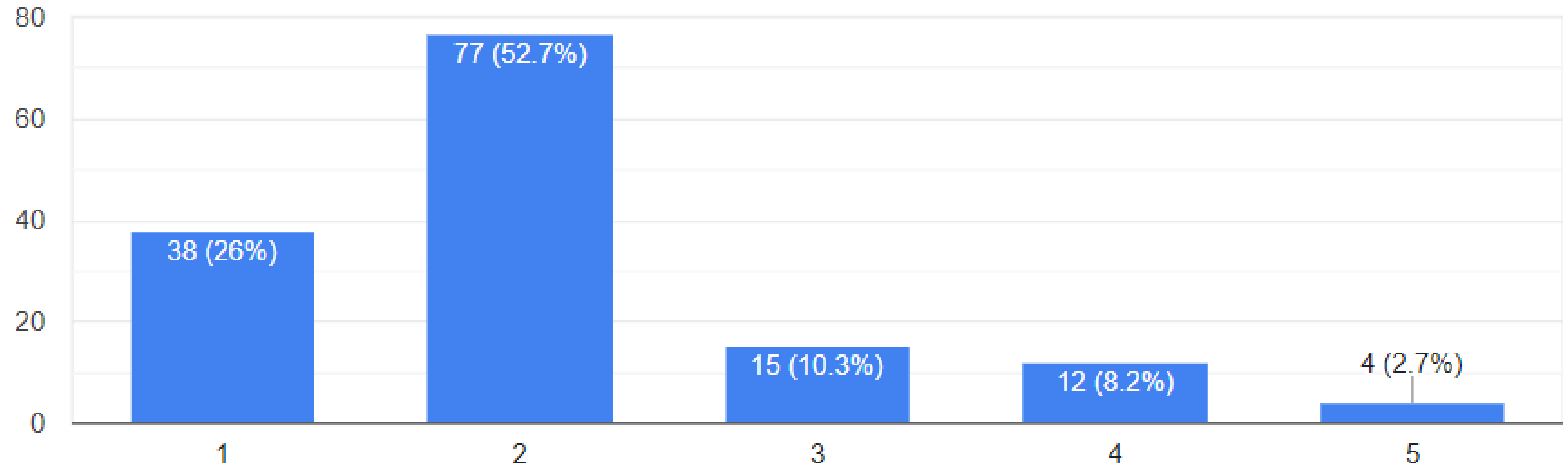

People think authorities should implement measures to reduce severity & impact of online fraud on consumers.
Copy
146 responses
100
75
50
25
0
1 (0.7%)
3 (2.1%)
10 (6.8%)
49 (33.6%)
83 (56.8%)
1
2
3
4
5


People experience financial loss quite often while online shopping.
Copy
146 responses
100
75
50
25
0
3 (2.1%)
5 (3.4%)
87 (59.6%)
15 (10.3%)
36 (24.7%)
1
2
3
4
5

Feedback

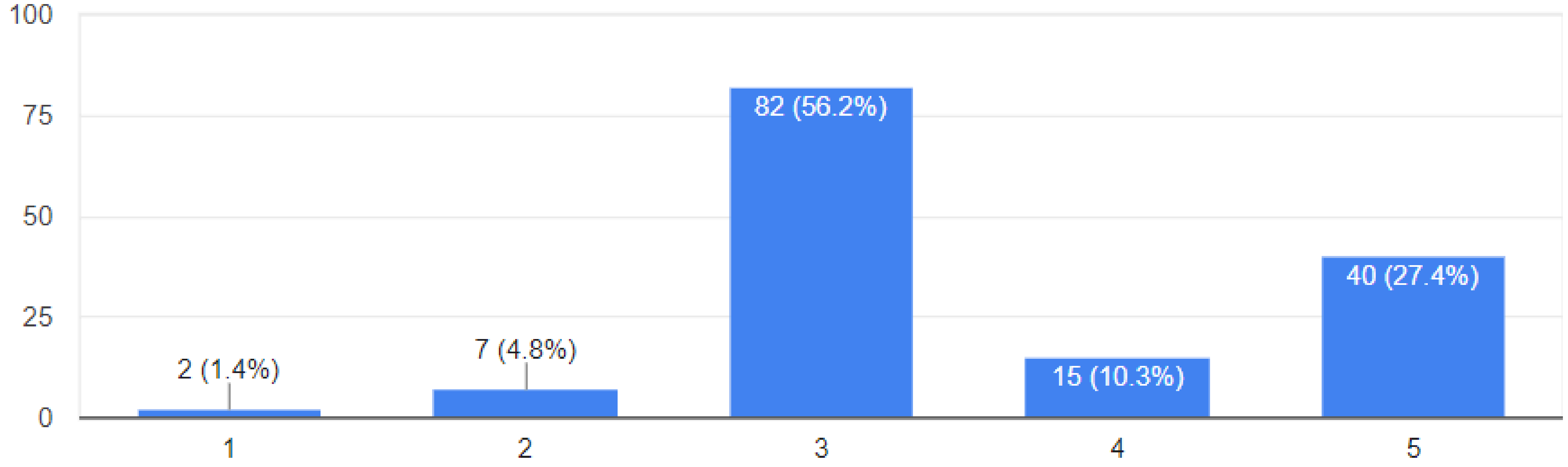
People are interested in participating in educational programs or workshops aimed at improving consumer awareness and knowledge regarding online shopping practices.

146 responses

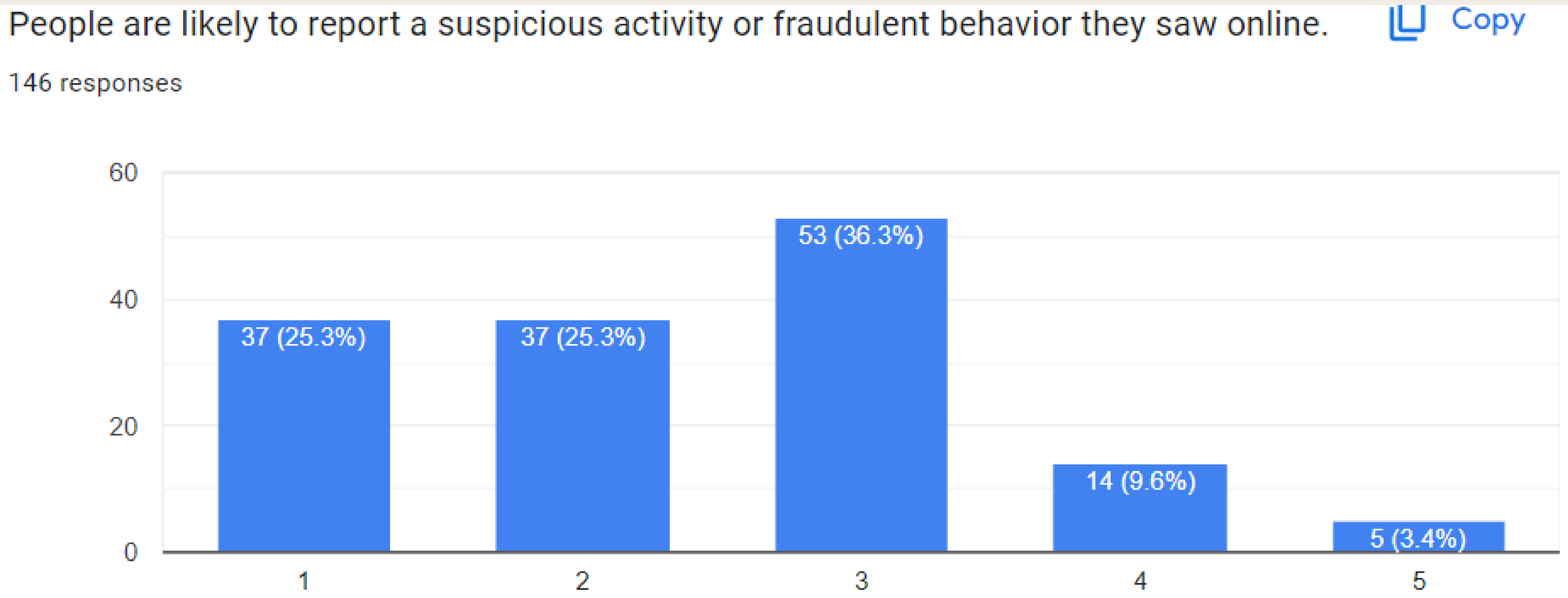


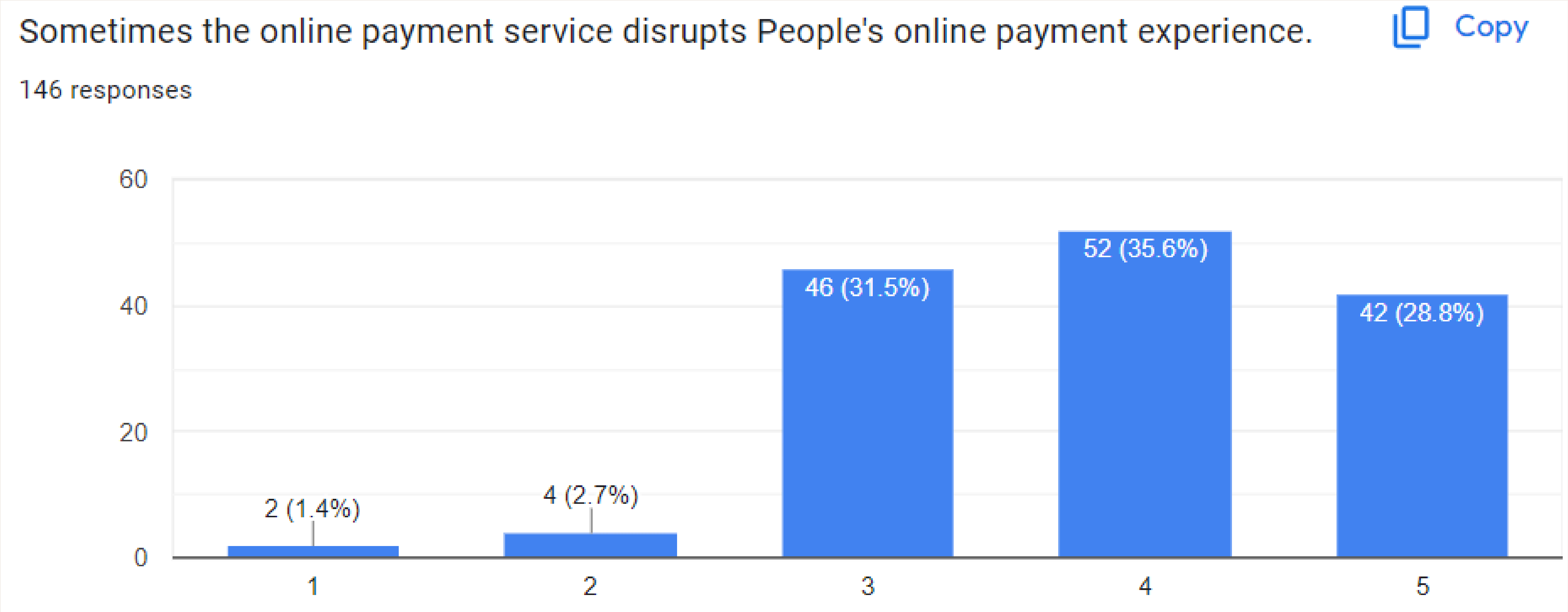
People take certain steps to verify the credibility of information or claims presented by online sellers or advertisers.

146 responses



Feedback


People are likely to report a suspicious activity or fraudulent behavior they saw online.
Copy
146 responses
60
40
20
0
37 (25.3%)
37 (25.3%)
53 (36.3%)
14 (9.6%)
5 (3.4%)
1
2
3
4
5

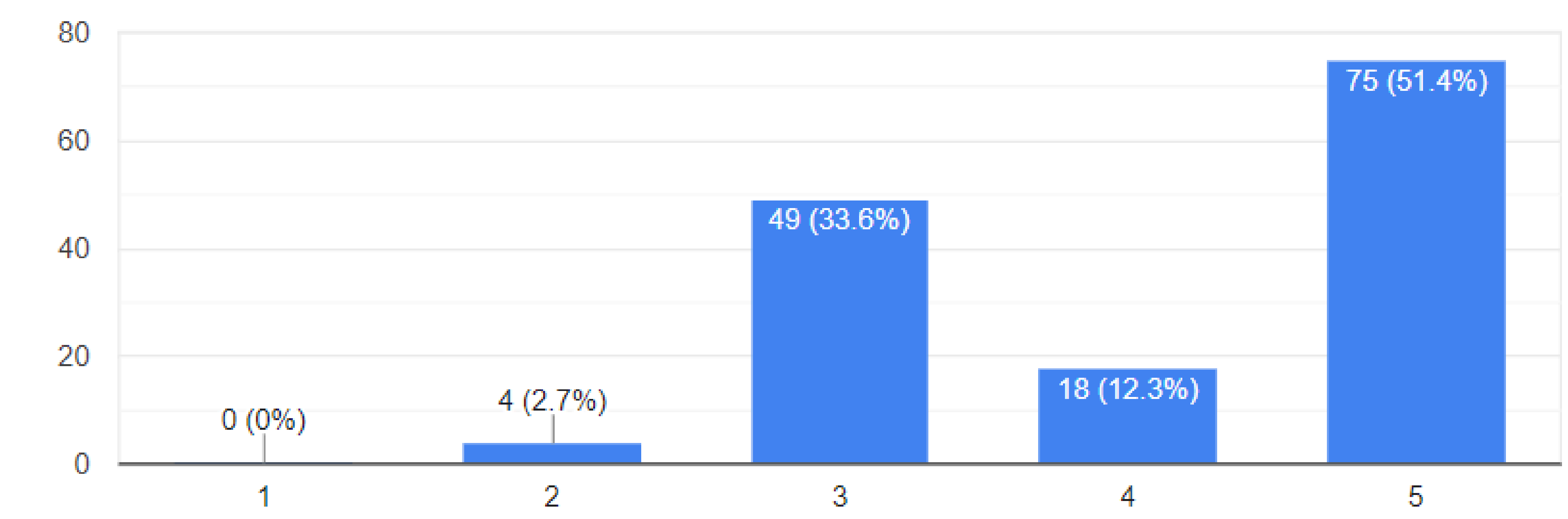

Sometimes the online payment service disrupts People's online payment experience.
Copy
146 responses
60
40
20
0
2 (1.4%)
4 (2.7%)
46 (31.5%)
52 (35.6%)
42 (28.8%)
1
2
3
4
5

Feedback

People explore unfamiliar brands that are recommended by friends and family.

Copy

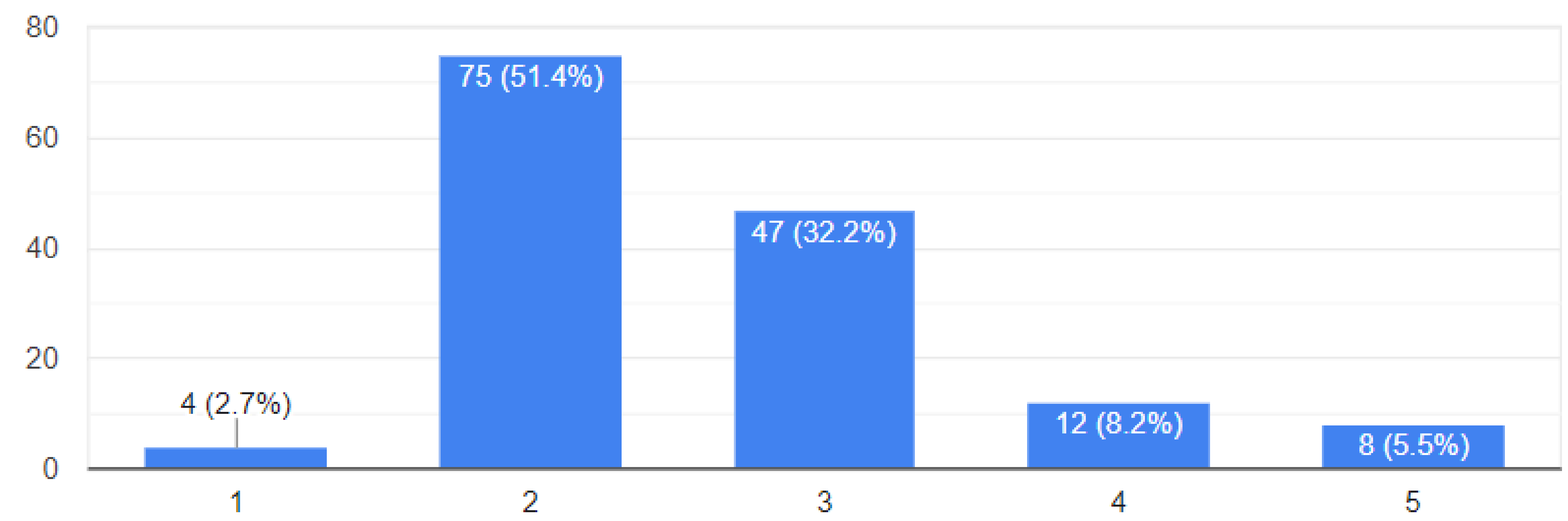
146 responses



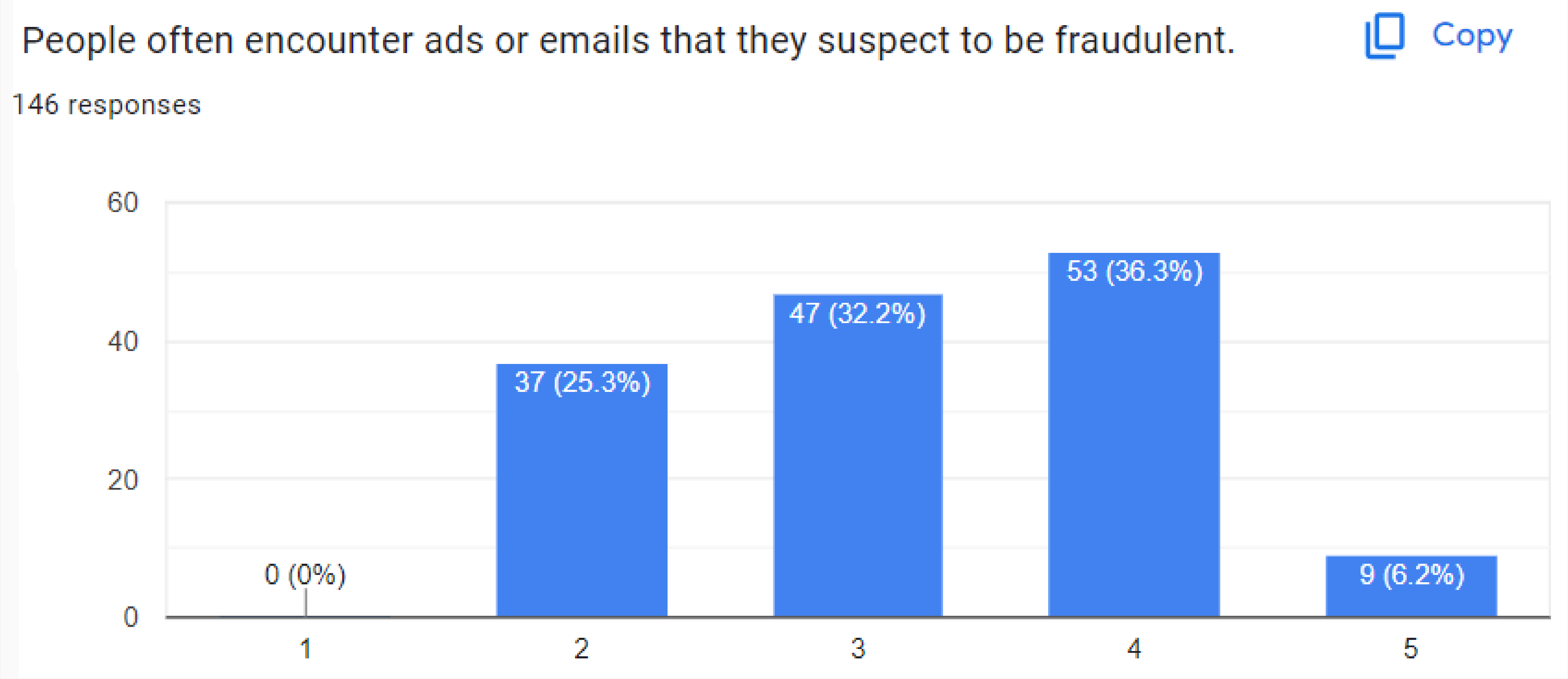
Brand loyalty rarely influences online people purchase behavior.

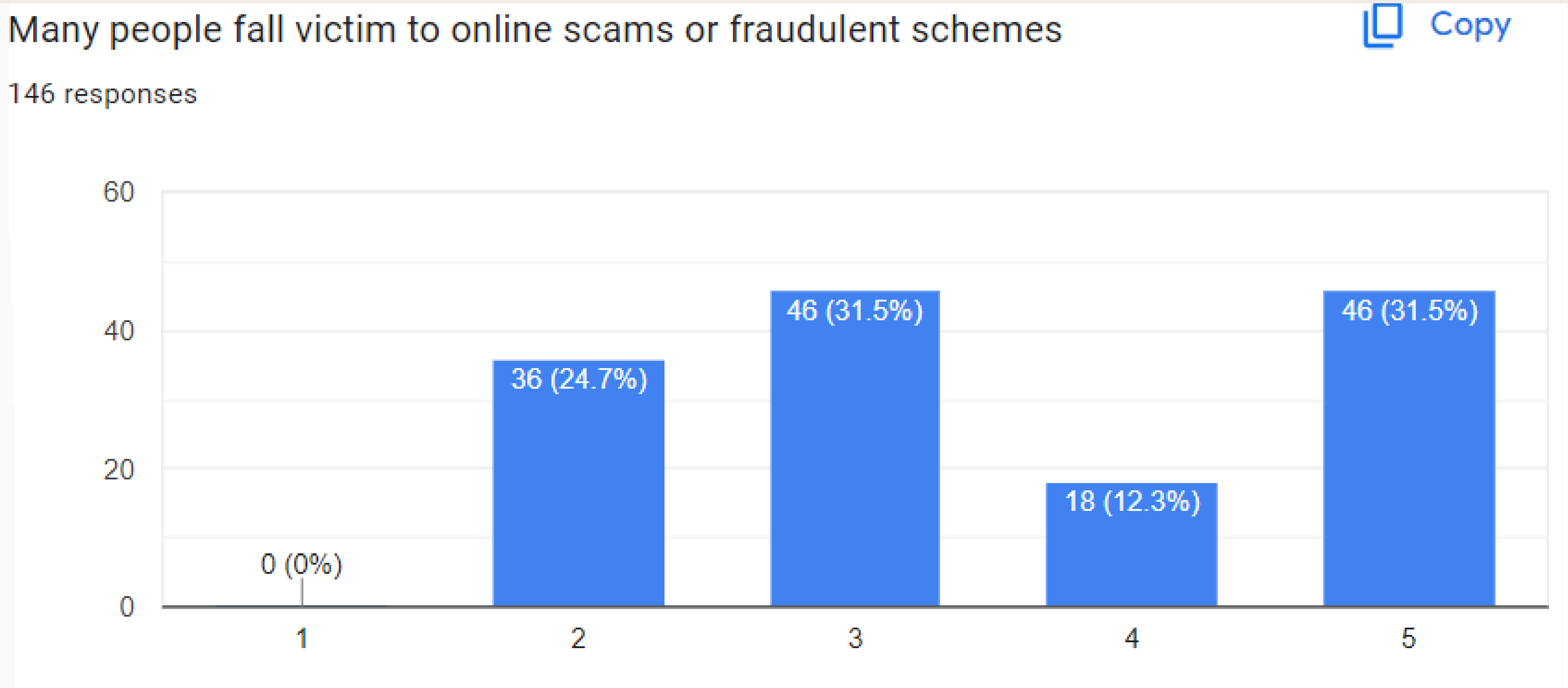
Copy

146 responses

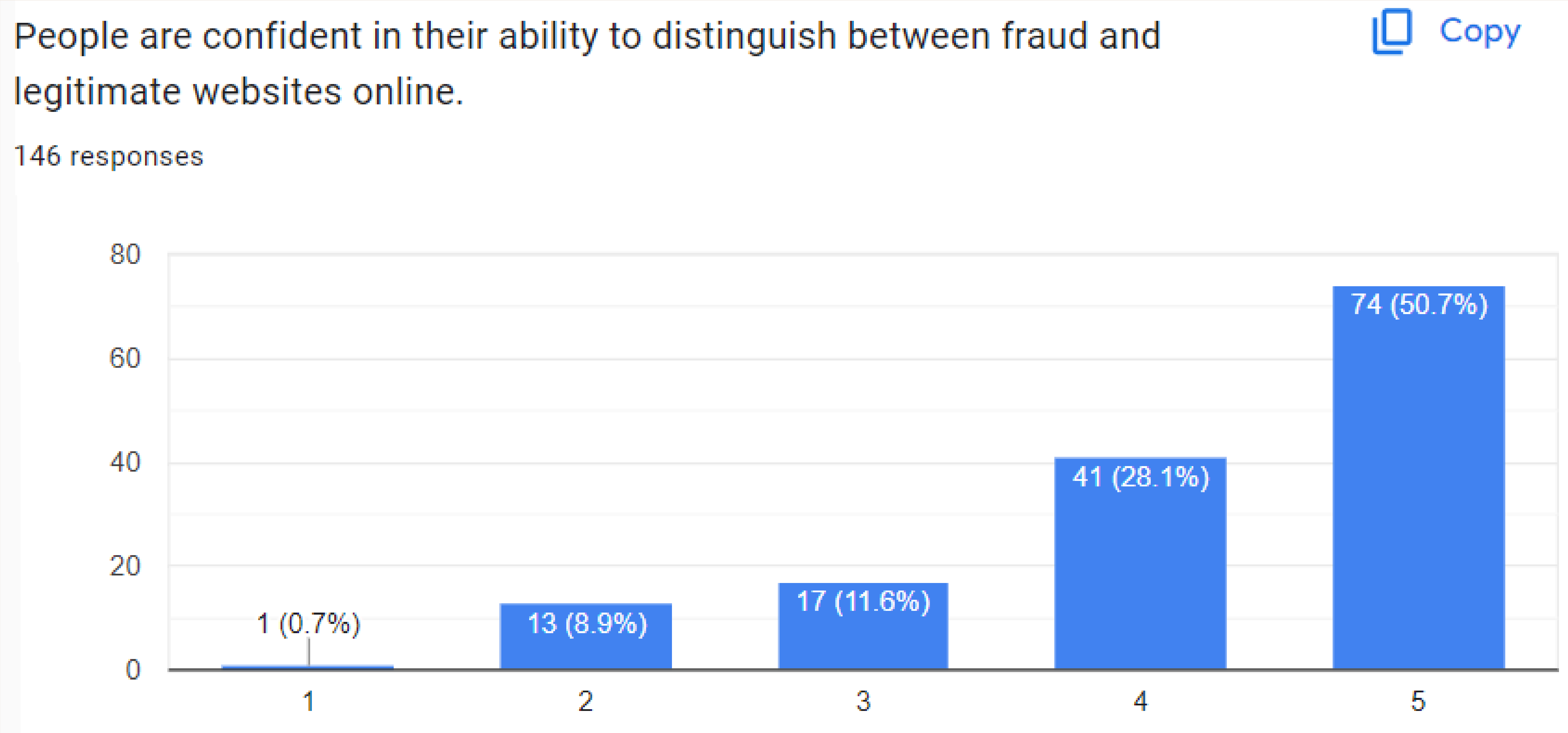


Feedback


People often encounter ads or emails that they suspect to be fraudulent.
Copy
146 responses
60
40
20
0
0 (0%)
37 (25.3%)
47 (32.2%)
53 (36.3%)
9 (6.2%)
1
2
3
4
5


Many people fall victim to online scams or fraudulent schemes
Copy
146 responses
60
40
20
0
0 (0%)
36 (24.7%)
46 (31.5%)
18 (12.3%)
46 (31.5%)
1
2
3
4
5

Feedback


People are confident in their ability to distinguish between fraud and legitimate websites online.
Copy
146 responses
80
60
40
20
0
1 (0.7%)
13 (8.9%)
17 (11.6%)
41 (28.1%)
74 (50.7%)
1
2
3
4
5

Screenshots of code

```
install.packages("interactionR")
install.packages("interactions")
library(readxl)
library(caTools)
library(psych)
library(dplyr)
library(interactions)
library(ggplot2)
```

```
getwd()
data = read_xlsx("C:/Users/DELL/Downloads/CyberFraud_part2.xlsx")
# View(data)

#alpha_complete = alpha
#alpha_complete

head(data)
```

```
> getwd()
[1] "C:/Users/DELL/Downloads"
> data = read_xlsx("C:/Users/DELL/Downloads/CyberFraud_part2.xlsx")
> head(data)
# A tibble: 6 × 33
  Timestamp           `Email Address`  M1    M2    M3    M4     MVP1  MVR1  MVR2  MVR3  MVR4  MVR5 MVMP1
  <dttm>              <chr>            <chr> <chr> <chr> <chr> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
1 2024-04-09 09:51:13 ddeepansh_mba23… 20 -… Male  10 a… Mast…     3     1     1     3     1     4     1
2 2024-04-09 09:52:46 imahajan_mba23@… 20 -… Fema… 10 a… Mast…     1     4     1     2     4     2     2
3 2024-04-09 09:59:09 jkaur1_mba23@th… 20 -… Fema… 10 a… Bach…     1     1     1     4     3     2     1
4 2024-04-10 10:45:47 lubanasingh239@… 20 -… Male  10 a… Mast…     4     5     5     3     4     4     4
5 2024-04-10 11:01:00 lmalhotra_mba23… 20 -… Male  10 a… Mast…     5     4     4     3     4     4     4
6 2024-04-10 11:10:15 kjohar_mba23@th… 20 -… Fema… 0 - … Bach…     4     3     4     3     3     3     5
# ℹ 20 more variables: MVMP2 <dbl>, MVMP3 <dbl>, MVMP4 <dbl>, MVMP5 <dbl>, MVBA1 <dbl>, MVBA2 <dbl>,
#   MVBA3 <dbl>, MVFF1 <dbl>, MVFF2 <dbl>, MVFF3 <dbl>, MVFF4 <dbl>, MVCK1 <dbl>, MVCK2 <dbl>,
```

```r
MVR <- data.frame(data[,8:12])
MVR
```

```
> MVR <- data.frame(data[,8:12])
> MVR
   MVR1 MVR2 MVR3 MVR4 MVR5
1     1    1    3    1    4
2     4    1    2    4    2
3     1    1    4    3    2
4     5    5    3    4    4
5     4    4    3    4    4
6     3    4    3    3    3
7     2    2    1    4    2
8     5    5    4    1    4
9     4    4    5    4    4
10    4    4    5    3    3
11    3    4    5    1    1
```

Main Variable-Review

```
###MVR
MVR <- data.frame(data[,8:12])
MVR

alpha_MVR = psych::alpha(MVR, check.keys=TRUE)
alpha_MVR

MVR_new <- data.frame(MVR[,-3])
MVR_new

alpha_MVR_new = psych::alpha(MVR_new)
alpha_MVR_new
```

```
> MVR <- data.frame(data[,8:12])
> head(MVR)
  MVR1 MVR2 MVR3 MVR4 MVR5
1    1    1    3    1    4
2    4    1    2    4    2
3    1    1    4    3    2
4    5    5    3    4    4
5    4    4    3    4    4
6    3    4    3    3    3
> alpha_MVR = psych::alpha(MVR, check.keys=TRUE)
> alpha_MVR

Reliability analysis
Call: psych::alpha(x = MVR, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r  S/N  ase mean  sd median_r
      0.43      0.45    0.61      0.14 0.83 0.07  3.8 0.5     0.18
```

```
 Reliability if an item is dropped:
     raw_alpha std.alpha G6(smc) average_r   S/N alpha se var.r med.r
MVR1      0.32     0.263    0.52     0.082 0.357    0.085 0.126 0.077
MVR2     -0.17     0.058    0.23     0.015 0.062    0.163 0.077 0.081
MVR3      0.56     0.572    0.62     0.251 1.338    0.055 0.050 0.319
MVR4      0.55     0.567    0.55     0.247 1.310    0.057 0.025 0.242
MVR5      0.34     0.350    0.54     0.118 0.537    0.082 0.127 0.148
```

Main variable - Mode of Payment

```
> MVMP <- data.frame(data[,13:17])
> head(MVMP)
  MVMP1 MVMP2 MVMP3 MVMP4 MVMP5
1     1     1     1     3     1
2     2     3     3     4     2
3     1     1     3     2     1
4     4     5     4     4     4
5     4     4     3     3     3
6     5     5     5     4     5
> alpha_MVMP = psych::alpha(MVMP)
> alpha_MVMP

Reliability analysis
Call: psych::alpha(x = MVMP)

  raw_alpha std.alpha G6(smc) average_r S/N   ase mean   sd median_r
      0.65      0.68    0.75       0.3 2.1 0.048  4.2 0.49     0.28
```

Main Variable - Brand Awareness

```
> MVBA <- data.frame(data[,18:20])
> head(MVBA)
  MVBA1 MVBA2 MVBA3
1     1     3     1
2     3     2     2
3     1     2     5
4     4     4     4
5     4     4     3
6     4     4     2
> alpha_MVBA = psych::alpha(MVBA)
> alpha_MVBA

Reliability analysis
Call: psych::alpha(x = MVBA)

  raw_alpha std.alpha G6(smc) average_r S/N   ase mean   sd median_r
      0.48      0.47    0.51      0.23 0.9 0.075  3.7 0.64    0.026

    95% confidence boundaries
         lower alpha upper
Feldt     0.32  0.48  0.61
Duhachek  0.34  0.48  0.63

 Reliability if an item is dropped:
      raw_alpha std.alpha G6(smc) average_r   S/N alpha se var.r med.r
MVBA1     0.043     0.043   0.022     0.022 0.045    0.158    NA 0.022
MVBA2     0.050     0.050   0.026     0.026 0.053    0.157    NA 0.026
MVBA3     0.782     0.784   0.645     0.645 3.635    0.036    NA 0.645
```

Main Variable - Brand Awareness

```
> MVBA_new <- data.frame(MVBA[,-3])
> head(MVBA_new)
  MVBA1 MVBA2
1     1     3
2     3     2
3     1     2
4     4     4
5     4     4
6     4     4
> alpha_MVBA = psych::alpha(MVBA_new)  #here we increased alpha value
> alpha_MVBA

Reliability analysis
Call: psych::alpha(x = MVBA_new)

  raw_alpha std.alpha G6(smc) average_r S/N   ase mean   sd median_r
      0.78      0.78    0.65      0.65 3.6 0.036  4.2 0.85     0.65
```

Main Variable - Frequency of Frauds

```
> MVFF <- data.frame(data[,21:24])
> head(MVFF)
  MVFF1 MVFF2 MVFF3 MVFF4
1     4     4     5     3
2     3     4     4     3
3     4     3     2     1
4     4     4     4     4
5     4     4     4     4
6     4     5     5     3
> # ?alpha()
> alpha_MVFF = psych::alpha(MVFF,check.keys=TRUE)
Warning message:
In psych::alpha(MVFF, check.keys = TRUE) :
  Some items were negatively correlated with the first principal compor
ically reversed.
 This is indicated by a negative sign for the variable name.
> alpha_MVFF

Reliability analysis
Call: psych::alpha(x = MVFF, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r  S/N   ase mean   sd median_r
      0.81      0.16    0.54     0.045 0.19 0.026  2.7 0.83    0.052
```

Main Variable - Consumer Knowledge

```
> MVCK <- data.frame(data[,25:26])
> head(MVCK)
  MVCK1 MVCK2
1     1     3
2     3     3
3     4     2
4     4     3
5     3     4
6     5     5
> alpha_MVCK = psych::alpha(MVCK)
> alpha_MVCK

Reliability analysis
Call: psych::alpha(x = MVCK)

  raw_alpha std.alpha G6(smc) average_r  S/N  ase mean   sd median_r
      0.15      0.15   0.083     0.083 0.18 0.14  2.8 0.72    0.083
```

Main Variable - Severity of Frauds

```
> MVSF <- data.frame(data[,27:29])
> head(MVSF)
  MVSF1 MVSF2 MVSF3
1     3     1     3
2     3     4     4
3     2     3     2
4     4     3     4
5     4     4     3
6     3     4     5
> alpha_MVSF = psych::alpha(MVSF)
Some items ( MVSF3 ) were negatively correlated with the first principal compon
probably should be reversed.
To do this, run the function again with the 'check.keys=TRUE' optionWarning mes
In psych::alpha(MVSF) :
  Some items were negatively correlated with the first principal component and
should be reversed.
To do this, run the function again with the 'check.keys=TRUE' option
> alpha_MVSF

Reliability analysis
Call: psych::alpha(x = MVSF)

  raw_alpha std.alpha G6(smc) average_r   S/N  ase mean   sd median_r
      0.13      0.037    0.18      0.012 0.038 0.11    4 0.57   0.0052
```

Main Variable - Purchase Behavior

```
> ##OVPB
> OVPB <- data.frame(data[,30:33])
> head(OVPB)
  OVPB1 OVPB2 OVPB3 OVPB4
1     1     1     3     3
2     4     4     2     2
3     2     1     2     2
4     4     4     4     4
5     4     4     4     4
6     5     4     5     5
> alpha_OVPB = psych::alpha(OVPB)
> alpha_OVPB

Reliability analysis
Call: psych::alpha(x = OVPB)

  raw_alpha std.alpha G6(smc) average_r  S/N   ase mean   sd median_r
      0.49      0.49     0.5      0.19 0.95 0.068  4.1 0.51     0.14
```

Moderating Variables

Age (M1)
Gender (M2)
Annual income (M3)
Education level (M4)

```
# M1 = Age
M1 <- data.frame(data[,3])
M1
```

```
> M1 <- data.frame(data[,3])
> M1
        M1
1   20 - 40
2   20 - 40
3   20 - 40
4   20 - 40
5   20 - 40
6   20 - 40
7   20 - 40
8   20 - 40
9   20 - 40
```

```
M1_data = M1%>%mutate(M1 = recode(M1, '20 - 40'= 0,'40 - 60'= 1))
M1_data
```

```
> M1_data = M1%>%mutate(M1 = recode(M1, '20 - 40'= 0,'40 - 60'= 1))
> M1_data
  M1
1  0
2  0
3  0
4  0
5  0
6  0
7  0
8  0
```

```
#M2 = Gender

M2 <- data.frame(data[,4])
M2

M2_data = M2%>%mutate(M2 = recode(M2, 'Male'=1,'Female'=0))
M2_data

#M3 = Income

M3 = data.frame(data[,5])
M3

M3_data = M3%>%mutate(M3 = recode(M3, '0 - 2.5'=0,'2.5 - 5'=1,'5 - 10'=2,'10 and 
above'=3))
M3_data

# ?recode()


#M4 - Education

M4 = data.frame(data[,6])
M4

M4_data = M4%>%mutate(M4 = recode(M4, "Master's degree"=1,"Bachelor's degree"=0))
M4_data
```

```r
#### CALCULATING MEAN FOR EACH OF THE VARIABLES
MVR_new$mean = rowMeans(MVR_new)
MVMP$mean = rowMeans(MVMP)
MVBA$mean = rowMeans(MVBA)
MVFF$mean = rowMeans(MVFF)
MVCK$mean = rowMeans(MVCK)
MVSF$mean = rowMeans(MVSF)
OVPB$mean = rowMeans(OVPB)

MVR_new$mean
MVMP$mean
MVBA$mean
MVFF$mean
MVCK$mean
MVSF$mean
OVPB$mean
```

```
> MVR_new$mean
  [1] 2.25 2.25 2.00 4.25 3.75 3.25 1.75 4.50 4.25 4.00 3.25 4.00 4.00 3.50 3.25 4.00 5.00 2.75 4.00
 [20] 4.50 4.50 4.25 4.50 3.50 3.50 3.25 4.50 3.25 5.00 3.75 4.00 4.25 3.50 3.50 5.00 4.00 4.50 4.25
 [39] 4.00 4.50 4.25 4.50 3.75 4.25 5.00 2.50 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00
 [58] 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00
 [77] 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75
 [96] 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 3.75 4.50 4.50 4.50
[115] 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50
[134] 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50
```

```
> MVMP$mean
  [1] 1.4 2.8 1.6 4.2 3.4 4.8 3.4 4.6 5.0 4.2 3.8 4.2 5.0 4.8 3.8 5.0 4.8 3.8 3.6 4.4 4.0 3.6 4.0 3.4
 [25] 3.6 4.4 4.2 4.2 5.0 4.6 3.4 4.8 3.8 3.8 4.8 3.6 4.8 4.2 4.2 3.2 4.2 4.2 4.0 3.6 4.2 4.4 4.6 4.6
 [49] 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6 4.6
 [73] 4.6 4.6 4.6 4.6 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
 [97] 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4
[121] 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4
[145] 4.4 4.4
```

```
# creating a data frame combining all average column,moderating column and outcome column
MODERATING_DATA =data.frame(MVR_new$mean,MVMP$mean,MVBA$mean,MVFF$mean,MVCK$mean,MVSF$mean,M1_data
,M2_data,M3_data,M4_data,OVPB$mean)
MODERATING_DATA

head(MODERATING_DATA)
```

```
> head(MODERATING_DATA)
```

	MVR_new.mean	MVMP.mean	MVBA.mean	MVFF.mean	MVCK.mean	MVSF.mean	M1	M2	M3	M4	OVPB.mean
1	2.25	1.4	1.666667	4.00	2.0	2.333333	0	1	3	1	2.00
2	2.25	2.8	2.333333	3.50	3.0	3.666667	0	0	3	1	3.00
3	2.00	1.6	2.666667	2.50	3.0	2.333333	0	0	3	0	1.75
4	4.25	4.2	4.000000	4.00	3.5	3.666667	0	1	3	1	4.00
5	3.75	3.4	3.666667	4.00	3.5	3.666667	0	1	3	1	4.00
6	3.25	4.8	3.333333	4.25	5.0	4.000000	0	0	0	0	4.75

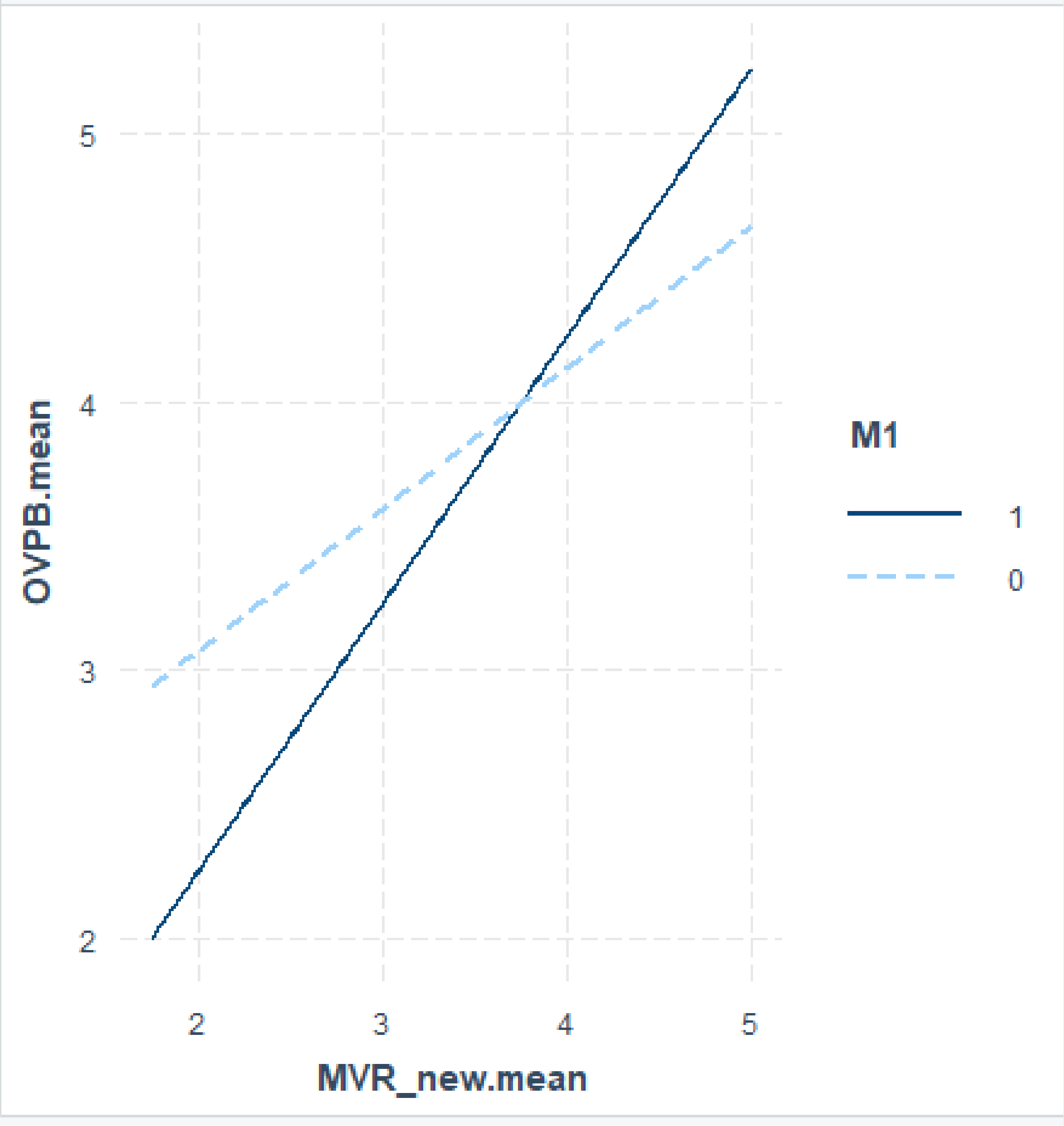
```r
############# LINEAR REGRESSION ############

split = sample.split(MODERATING_DATA, SplitRatio = 0.7)
train = subset(MODERATING_DATA, split = 'TRUE')
test  = subset(MODERATING_DATA, split = 'FALSE')

Model = lm(MODERATING_DATA, data = train)
summary(Model)
```

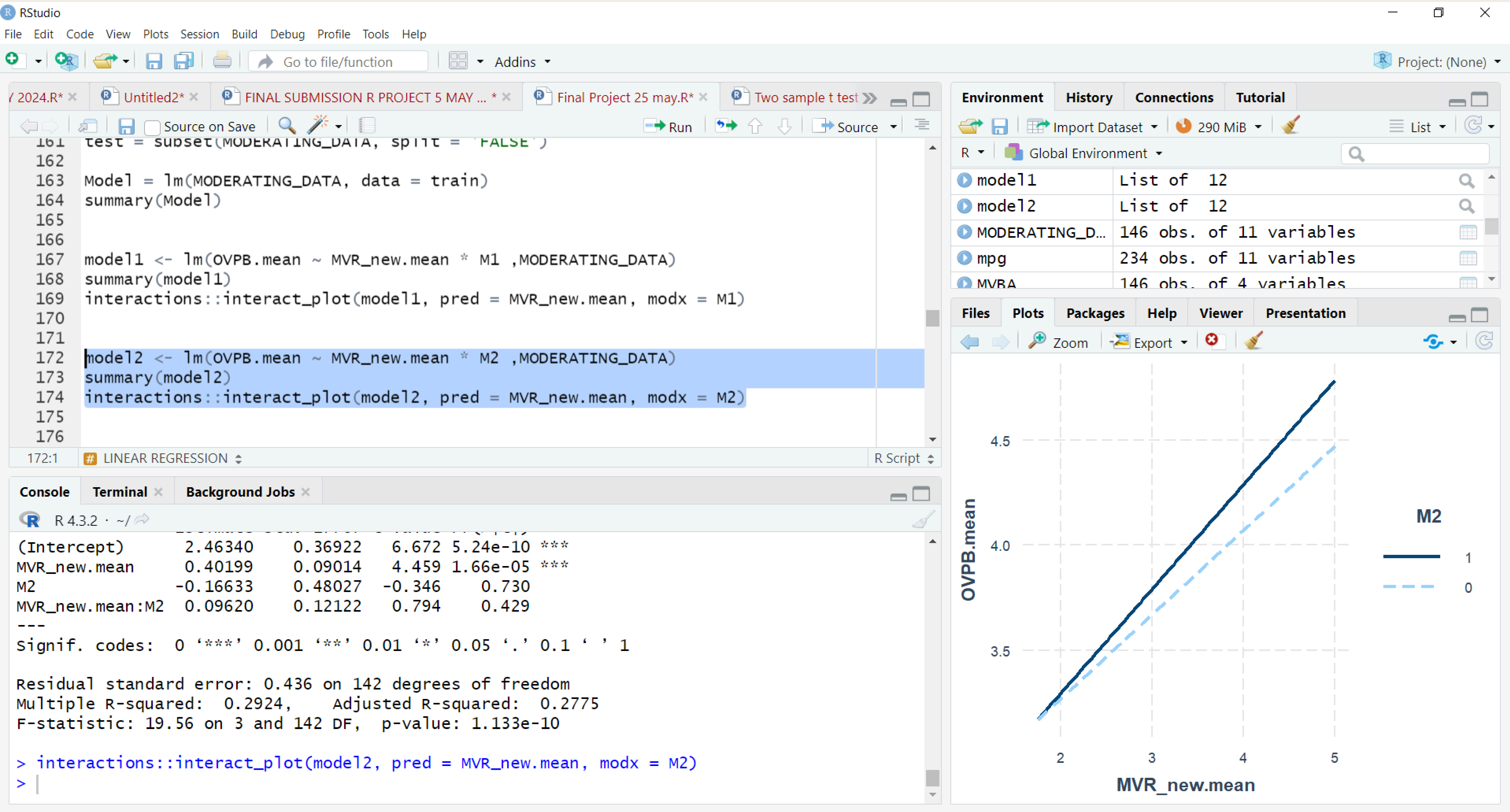
```
Call:
lm(formula = MODERATING_DATA, data = train)

Residuals:
     Min       1Q   Median       3Q      Max 
-1.34710 -0.03158 -0.02315  0.07076  1.30048 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept)  1.18287    0.48505   2.439   0.0160 *  
MVMP.mean    0.59531    0.09615   6.191 6.71e-09 ***
MVBA.mean    0.07090    0.07540   0.940   0.3487    
MVFF.mean   -0.13623    0.10399  -1.310   0.1924    
MVCK.mean   -0.13385    0.07506  -1.783   0.0768 .  
MVSF.mean    0.01337    0.08176   0.163   0.8704    
M1          -0.86243    0.15579  -5.536 1.56e-07 ***
M2           0.42362    0.09743   4.348 2.69e-05 ***
M3           0.08641    0.04435   1.948   0.0535 .  
M4          -0.01899    0.09622  -0.197   0.8439    
OVPB.mean    0.16016    0.07477   2.142   0.0340 *  
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3443 on 135 degrees of freedom
Multiple R-squared:  0.6061,	Adjusted R-squared:  0.5769 
F-statistic: 20.77 on 10 and 135 DF,  p-value: < 2.2e-16
```

```r
model1 <- lm(OVPB.mean ~ MVR_new.mean * M1 ,MODERATING_DATA)
summary(model1)
```

```
Call:
lm(formula = OVPB.mean ~ MVR_new.mean * M1, data = MODERATING_DATA)

Residuals:
    Min      1Q  Median      3Q     Max 
-2.1303  0.0000  0.1049  0.1197  1.4140 

Coefficients:
                Estimate Std. Error t value Pr(>|t|)    
(Intercept)      2.01217    0.29249   6.880 1.77e-10 ***
MVR_new.mean     0.52954    0.07082   7.478 7.16e-12 ***
M1              -1.76217    6.62274  -0.266    0.791    
MVR_new.mean:M1  0.47046    1.76240   0.267    0.790    
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4341 on 142 degrees of freedom
Multiple R-squared:  0.2985,	Adjusted R-squared:  0.2836 
F-statistic: 20.14 on 3 and 142 DF,  p-value: 6.226e-11
```

```
interactions::interact_plot(model1, pred = MVR_new.mean, modx = M1)
```



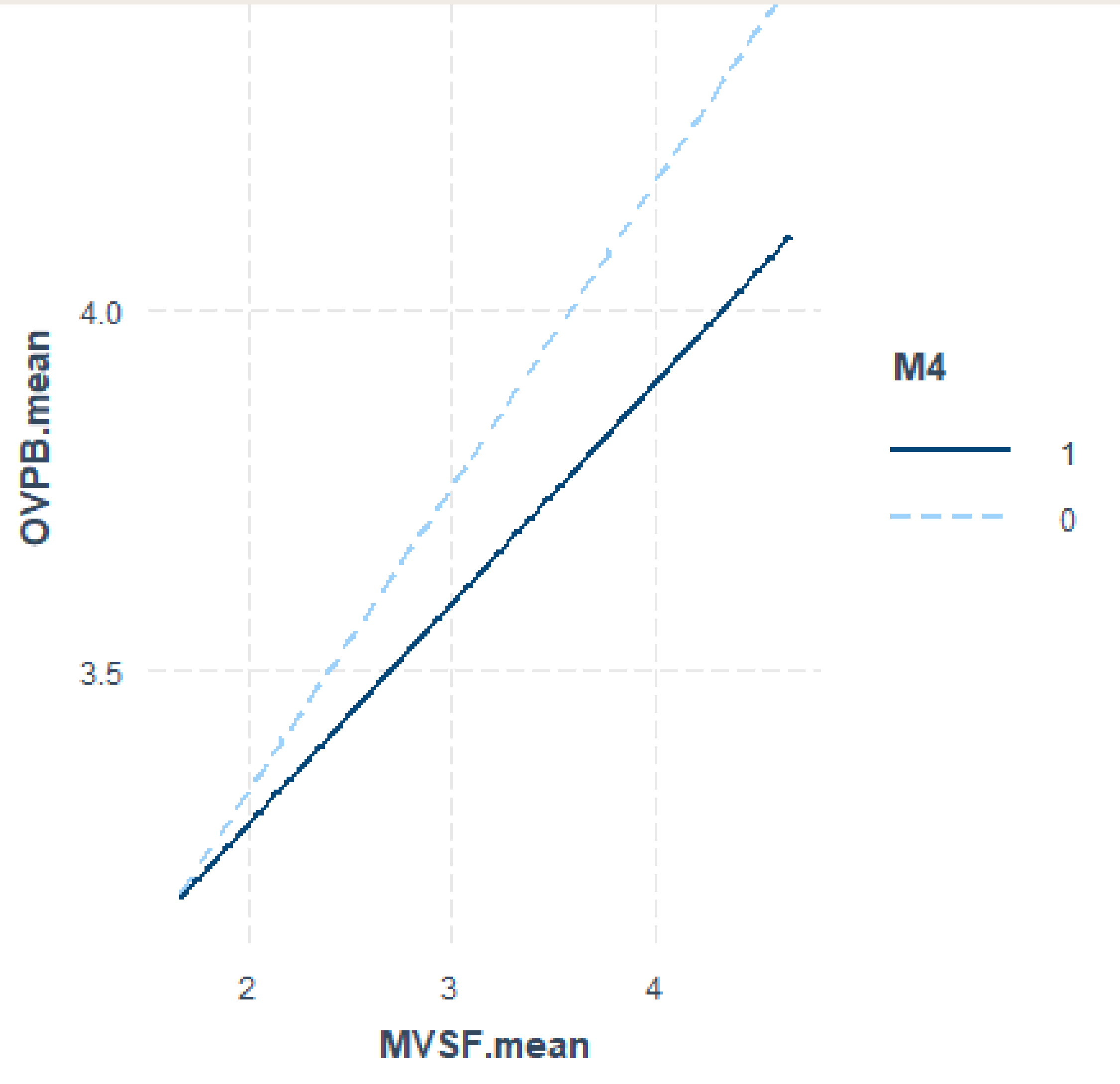


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Project: (None)
/ 2024.R*
Untitled2*
FINAL SUBMISSION R PROJECT 5 MAY ... *
Final Project 25 may.R*
Two sample t test
Source on Save
Run
Source
test = subset(MODERATING_DATA, split = "FALSE")
Model = lm(MODERATING_DATA, data = train)
summary(Model)
model1 <- lm(OVPB.mean ~ MVR_new.mean * M1 ,MODERATING_DATA)
summary(model1)
interactions::interact_plot(model1, pred = MVR_new.mean, modx = M1)
model2 <- lm(OVPB.mean ~ MVR_new.mean * M2 ,MODERATING_DATA)
summary(model2)
interactions::interact_plot(model2, pred = MVR_new.mean, modx = M2)
172:1
LINEAR REGRESSION
R Script
Console
Terminal
Background Jobs
R 4.3.2 · ~/
(Intercept) 2.46340 0.36922 6.672 5.24e-10 ***
MVR_new.mean 0.40199 0.09014 4.459 1.66e-05 ***
M2 -0.16633 0.48027 -0.346 0.730
MVR_new.mean:M2 0.09620 0.12122 0.794 0.429

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Residual standard error: 0.436 on 142 degrees of freedom
Multiple R-squared: 0.2924, Adjusted R-squared: 0.2775
F-statistic: 19.56 on 3 and 142 DF, p-value: 1.133e-10
> interactions::interact_plot(model2, pred = MVR_new.mean, modx = M2)
>
Environment
History
Connections
Tutorial
Import Dataset
290 MiB
List
Global Environment
model1 List of 12
model2 List of 12
MODERATING_D... 146 obs. of 11 variables
mpg 234 obs. of 11 variables
MVBA 146 obs. of 4 variables
Files
Plots
Packages
Help
Viewer
Presentation
Zoom
Export
OVPB.mean
4.5
4.0
3.5
2
3
4
5
MVR_new.mean
M2
1
0

```
model24 <- lm(OVPB.mean ~ MVSF.mean * M4 ,MODERATING_DATA)
summary(model24)
interactions::interact_plot(model24, pred = MVSF.mean, modx = M4)
```

```
Call:
lm(formula = OVPB.mean ~ MVSF.mean * M4, data = MODERATING_DATA)

Residuals:
     Min       1Q   Median       3Q      Max 
-2.10364 -0.20759 -0.03647  0.18278  1.20172 

Coefficients:
             Estimate Std. Error t value Pr(>|t|)    
(Intercept)   2.49237    0.33243   7.497 6.43e-12 ***
MVSF.mean     0.42112    0.08061   5.224 6.11e-07 ***
M4            0.18626    0.57312   0.325    0.746    
MVSF.mean:M4 -0.11576    0.14931  -0.775    0.439    
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4413 on 142 degrees of freedom
Multiple R-squared:  0.2749,	Adjusted R-squared:  0.2596 
F-statistic: 17.95 on 3 and 142 DF,  p-value: 6.248e-10
```



RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins Project: (None)

2024.R* | Untitled2* | FINAL SUBMISSION R PROJECT 5 MAY ... * | Final Project 25 may.R* | Two sample t test

Source on Save Run Source

```r
interactions::interact_plot(model1, pred = MVR_new.mean, modx = M1)


model2 <- lm(OVPB.mean ~ MVR_new.mean * M2 ,MODERATING_DATA)
summary(model2)
interactions::interact_plot(model2, pred = MVR_new.mean, modx = M2)


model3 <- lm(OVPB.mean ~ MVR_new.mean * M3 ,MODERATING_DATA)
summary(model3)
interactions::interact_plot(model3, pred = MVR_new.mean, modx = M3)


model4 <- lm(OVPB.mean ~ MVR_new.mean * M4 ,MODERATING_DATA)
summary(model4)
```

177:1 LINEAR REGRESSION R Script

Environment History Connections Tutorial

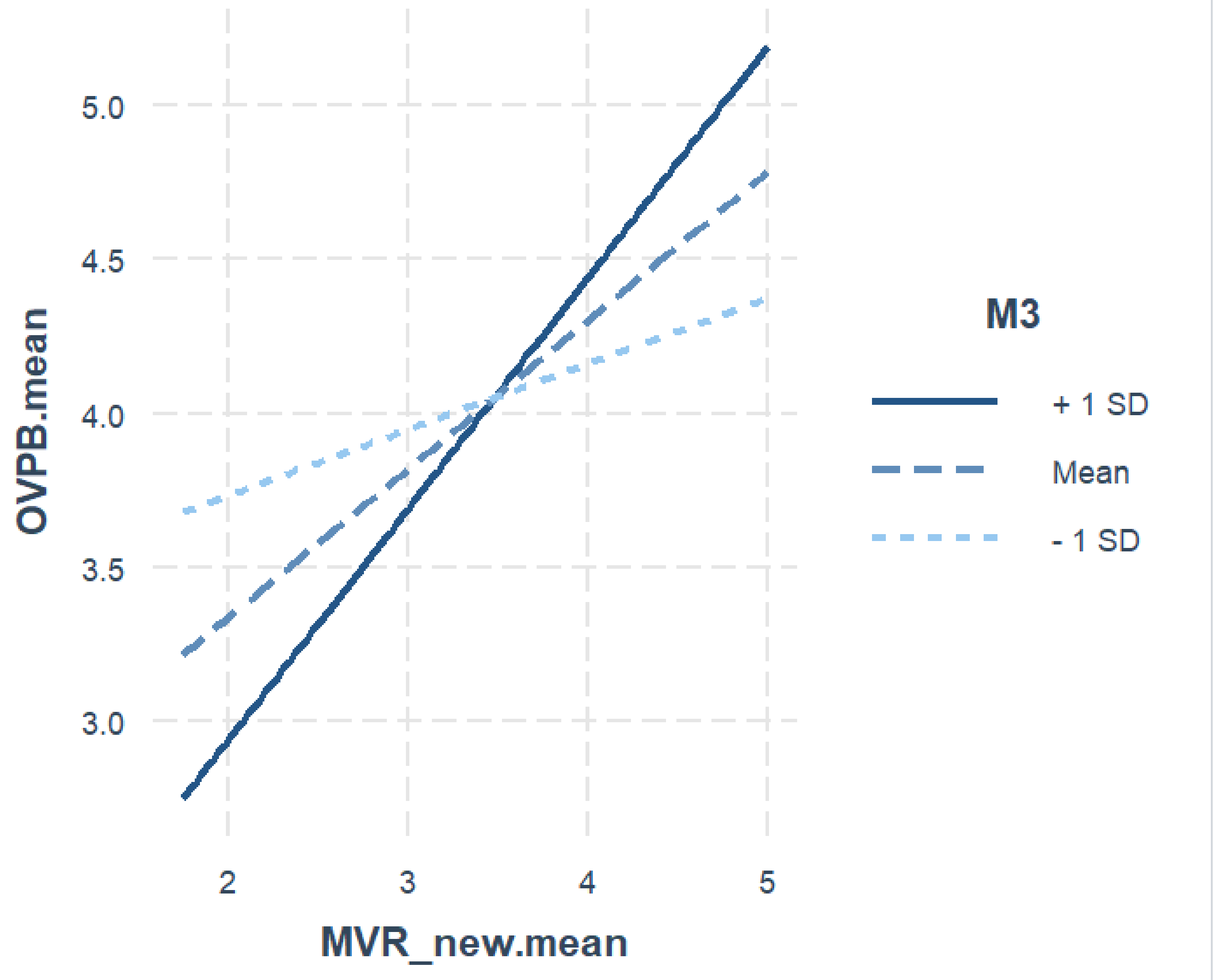
Import Dataset 291 MiB List

R Global Environment

model2	List of 12
model3	List of 12
MODERATING_D...	146 obs. of 11 variables
mpg	234 obs. of 11 variables
MVBA	146 obs. of 4 variables

Files Plots Packages Help Viewer Presentation

Zoom Export



Console Terminal Background Jobs

R 4.3.2 · ~/

```
(Intercept)       3.41027    0.40094   8.506 2.28e-14 ***
MVR_new.mean      0.18393    0.09607   1.914 0.057572 .
M3               -0.75645    0.19184  -3.943 0.000126 ***
MVR_new.mean:M3   0.21750    0.05213   4.173 5.22e-05 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4222 on 142 degrees of freedom
Multiple R-squared:  0.3363,	Adjusted R-squared:  0.3223 
F-statistic: 23.99 on 3 and 142 DF,  p-value: 1.285e-12

> interactions::interact_plot(model3, pred = MVR_new.mean, modx = M3)
>
```

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

/ 2024.R* | Untitled2* | FINAL SUBMISSION R PROJECT 5 MAY ... * | Final Project 25 may.R* | Two sample t test

```r
model2 <- lm(OVPB.mean ~ MVR_new.mean * M2 ,MODERATING_DATA)
summary(model2)
interactions::interact_plot(model2, pred = MVR_new.mean, modx = M2)


model3 <- lm(OVPB.mean ~ MVR_new.mean * M3 ,MODERATING_DATA)
summary(model3)
interactions::interact_plot(model3, pred = MVR_new.mean, modx = M3)


model4 <- lm(OVPB.mean ~ MVR_new.mean * M4 ,MODERATING_DATA)
summary(model4)
interactions::interact_plot(model4, pred = MVR_new.mean, modx = M4)
# ?interact_plot

model5 <- lm(OVPB.mean ~ MVMP.mean * M1 ,MODERATING_DATA)
```

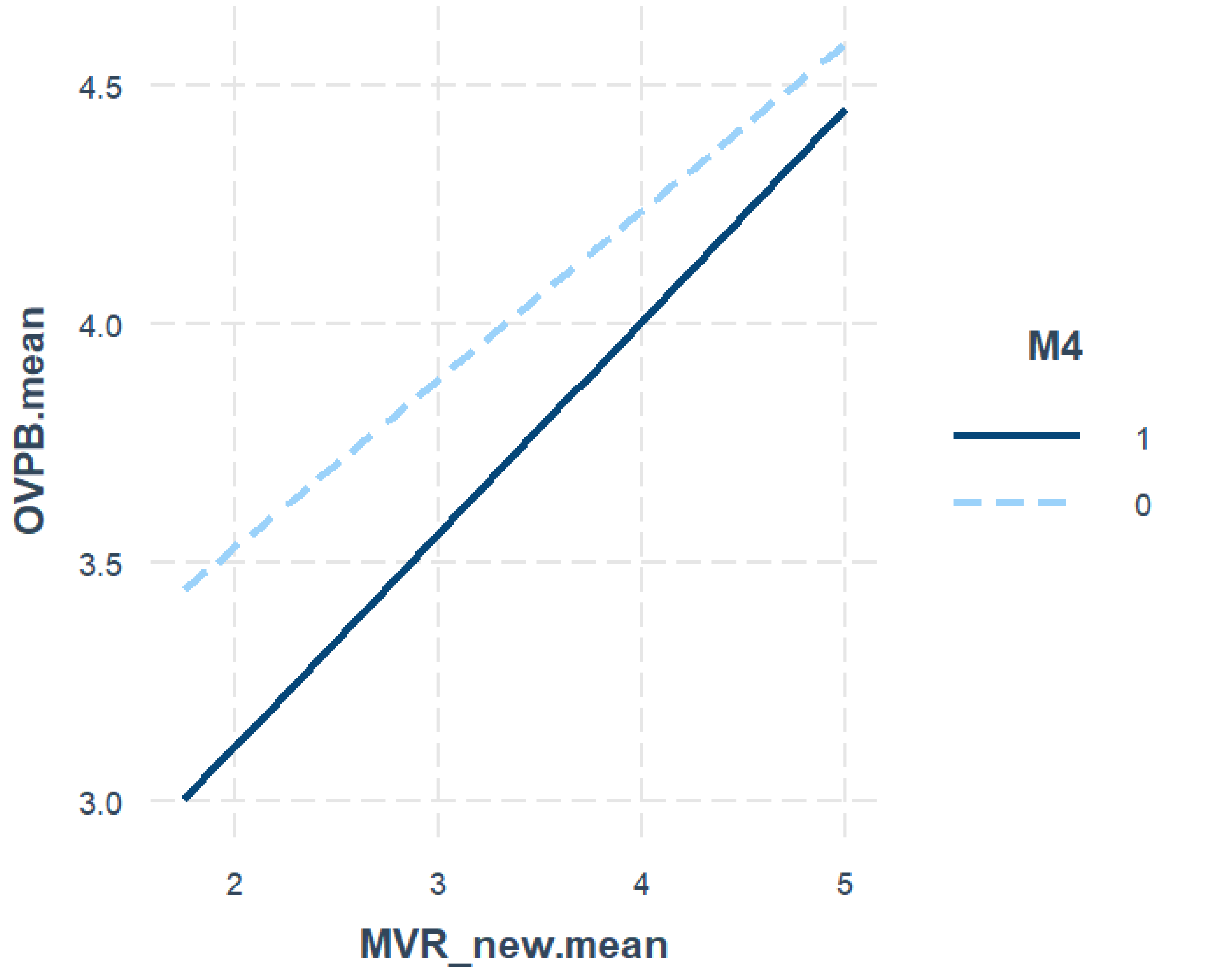
182:1 | LINEAR REGRESSION | R Script

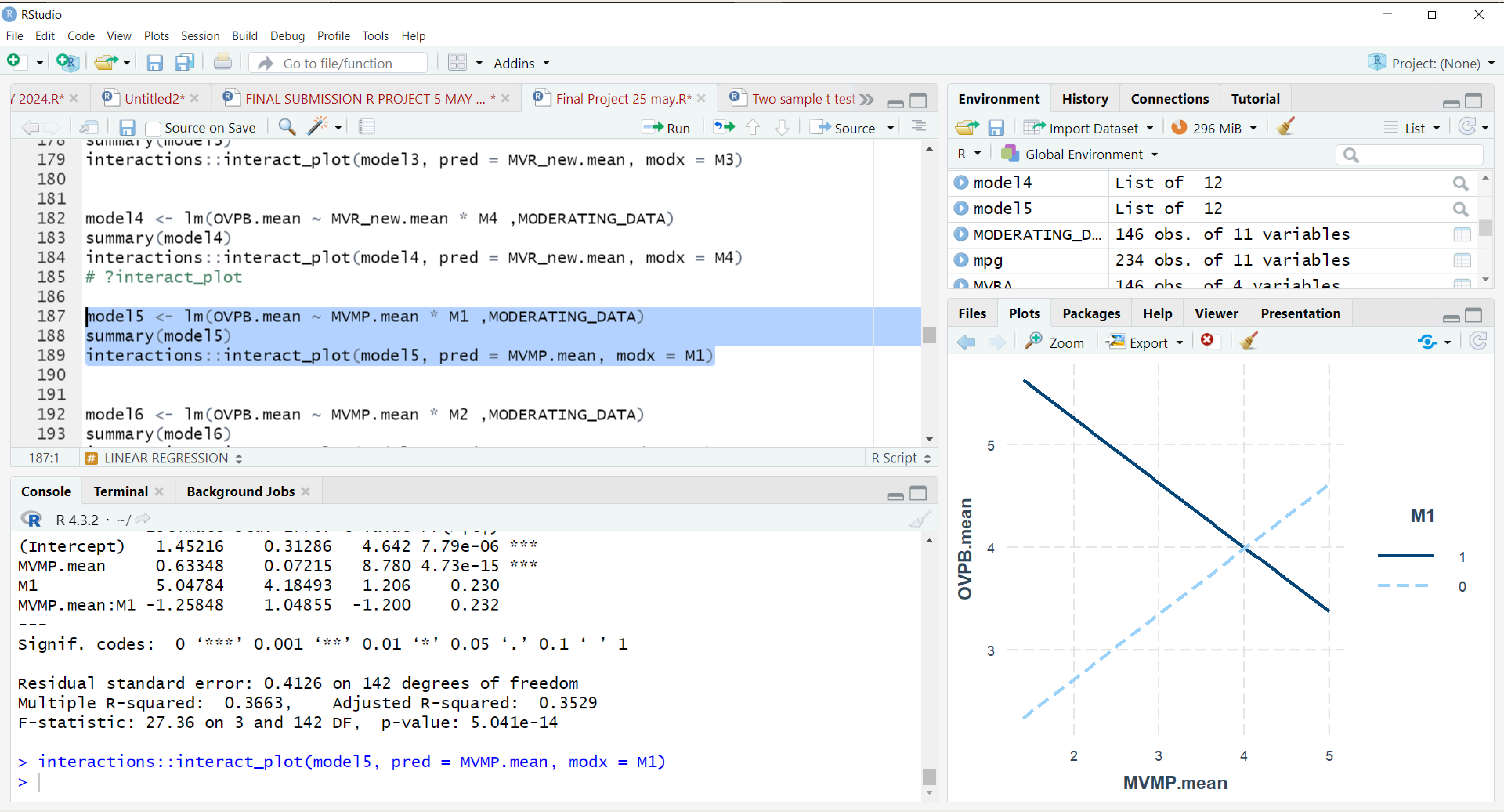
Environment	
model3	List of 12
model4	List of 12
MODERATING_D...	146 obs. of 11 variables
mpg	234 obs. of 11 variables
MVBA	146 obs. of 4 variables

Console | Terminal | Background Jobs

R 4.3.2 · ~/

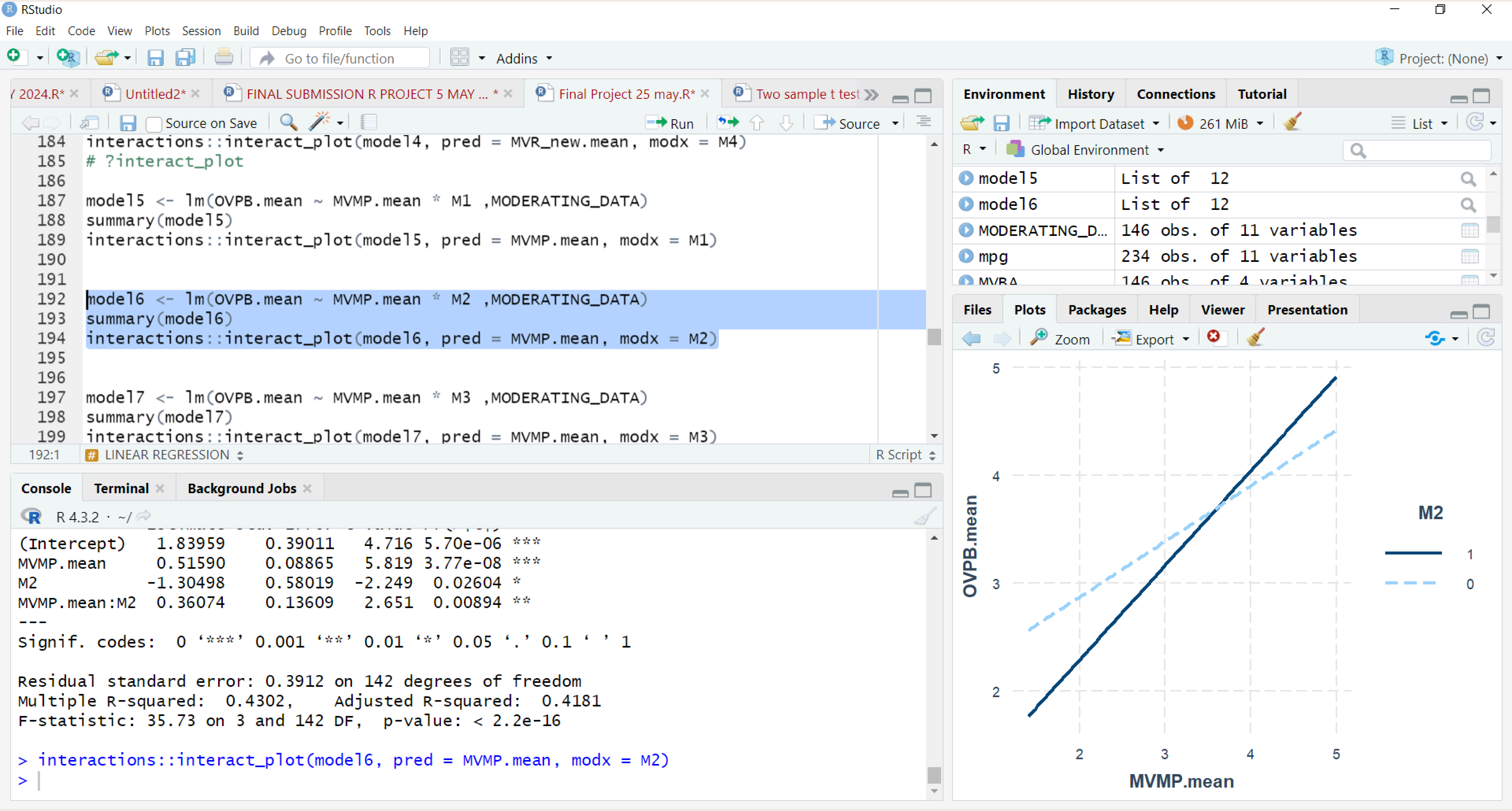
```
(Intercept)      2.82656    0.27009  10.465  < 2e-16 ***
MVR_new.mean     0.35261    0.06778   5.202 6.74e-07 ***
M4              -0.60291    0.55860  -1.079    0.282
MVR_new.mean:M4  0.09283    0.15255   0.609    0.544
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4358 on 142 degrees of freedom
Multiple R-squared:  0.293,	Adjusted R-squared:  0.2781
F-statistic: 19.62 on 3 and 142 DF,  p-value: 1.067e-10

> interactions::interact_plot(model4, pred = MVR_new.mean, modx = M4)
>
```





RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Project: (None)
/ 2024.R*
Untitled2*
FINAL SUBMISSION R PROJECT 5 MAY ... *
Final Project 25 may.R*
Two sample t test
Source on Save
Run
Source
interactions::interact_plot(model3, pred = MVR_new.mean, modx = M3)
model4 <- lm(OVPB.mean ~ MVR_new.mean * M4 ,MODERATING_DATA)
summary(model4)
interactions::interact_plot(model4, pred = MVR_new.mean, modx = M4)
# ?interact_plot
model5 <- lm(OVPB.mean ~ MVMP.mean * M1 ,MODERATING_DATA)
summary(model5)
interactions::interact_plot(model5, pred = MVMP.mean, modx = M1)
model6 <- lm(OVPB.mean ~ MVMP.mean * M2 ,MODERATING_DATA)
summary(model6)
187:1
LINEAR REGRESSION
R Script
Console
Terminal
Background Jobs
R 4.3.2 · ~/
(Intercept)   1.45216   0.31286   4.642 7.79e-06 ***
MVMP.mean   0.63348   0.07215   8.780 4.73e-15 ***
M1   5.04784   4.18493   1.206   0.230
MVMP.mean:M1 -1.25848   1.04855 -1.200   0.232

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Residual standard error: 0.4126 on 142 degrees of freedom
Multiple R-squared: 0.3663,   Adjusted R-squared: 0.3529
F-statistic: 27.36 on 3 and 142 DF, p-value: 5.041e-14
> interactions::interact_plot(model5, pred = MVMP.mean, modx = M1)
>
Environment
History
Connections
Tutorial
Import Dataset
296 MiB
List
Global Environment
model4 List of 12
model5 List of 12
MODERATING_D... 146 obs. of 11 variables
mpg 234 obs. of 11 variables
Files
Plots
Packages
Help
Viewer
Presentation
Zoom
Export
OVPB.mean
5
4
3
2
3
4
5
MVMP.mean
M1
1
0

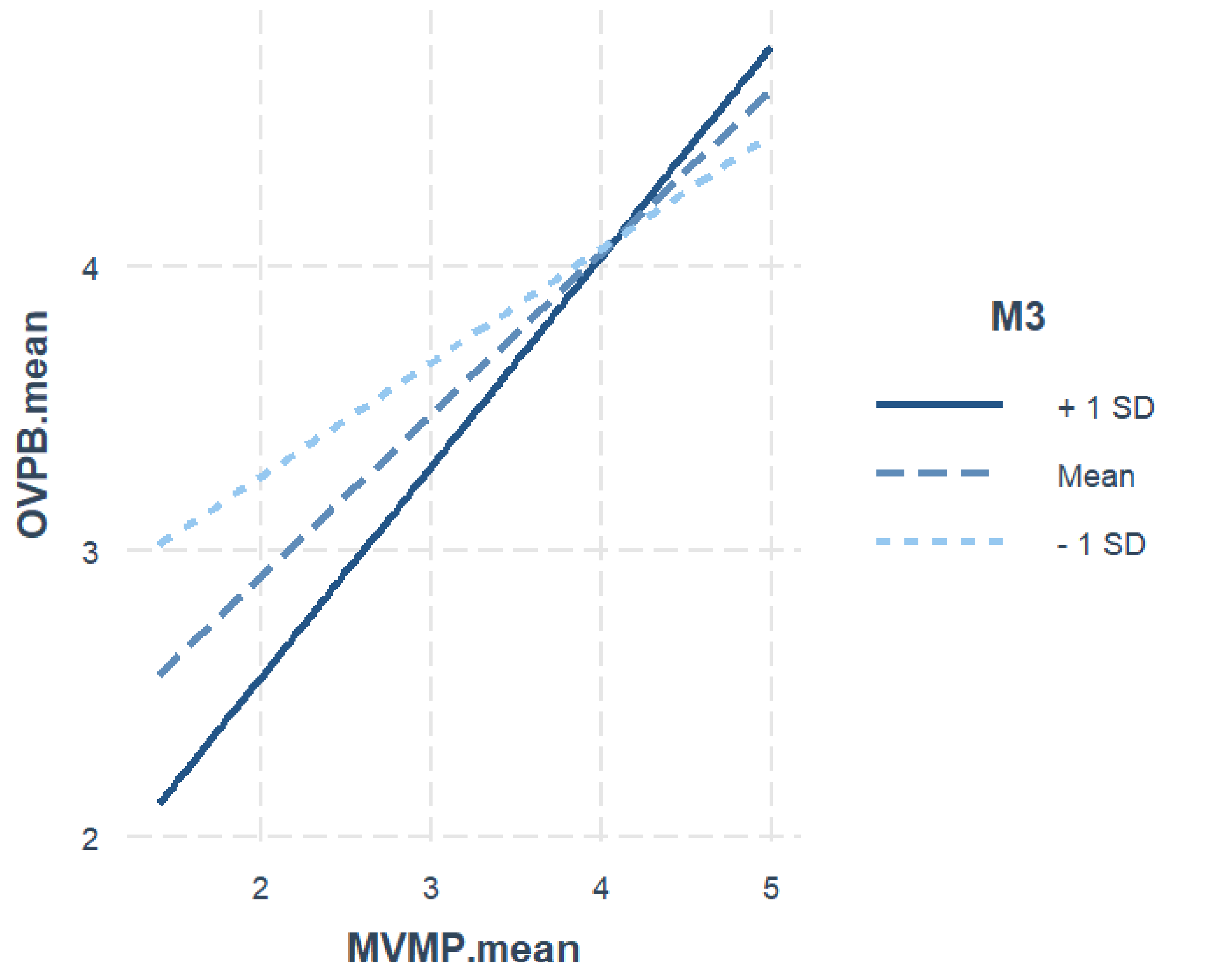

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Project: (None)
/ 2024.R*
Untitled2*
FINAL SUBMISSION R PROJECT 5 MAY ... *
Final Project 25 may.R*
Two sample t test
Source on Save
Run
Source
interactions::interact_plot(model4, pred = MVR_new.mean, modx = M4)
# ?interact_plot
model5 <- lm(OVPB.mean ~ MVMP.mean * M1 ,MODERATING_DATA)
summary(model5)
interactions::interact_plot(model5, pred = MVMP.mean, modx = M1)
model6 <- lm(OVPB.mean ~ MVMP.mean * M2 ,MODERATING_DATA)
summary(model6)
interactions::interact_plot(model6, pred = MVMP.mean, modx = M2)
model7 <- lm(OVPB.mean ~ MVMP.mean * M3 ,MODERATING_DATA)
summary(model7)
interactions::interact_plot(model7, pred = MVMP.mean, modx = M3)
192:1
LINEAR REGRESSION
R Script
Console
Terminal
Background Jobs
R 4.3.2 · ~/
(Intercept)   1.83959   0.39011   4.716 5.70e-06 ***
MVMP.mean   0.51590   0.08865   5.819 3.77e-08 ***
M2   -1.30498   0.58019 -2.249 0.02604 *
MVMP.mean:M2   0.36074   0.13609   2.651 0.00894 **

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Residual standard error: 0.3912 on 142 degrees of freedom
Multiple R-squared: 0.4302,   Adjusted R-squared: 0.4181
F-statistic: 35.73 on 3 and 142 DF, p-value: < 2.2e-16
> interactions::interact_plot(model6, pred = MVMP.mean, modx = M2)
>
Environment
History
Connections
Tutorial
Import Dataset
261 MiB
List
R
Global Environment
model5   List of 12
model6   List of 12
MODERATING_D...   146 obs. of 11 variables
mpg   234 obs. of 11 variables
MVBA   146 obs. of 4 variables
Files
Plots
Packages
Help
Viewer
Presentation
Zoom
Export
OVPB.mean
MVMP.mean
M2
1
0

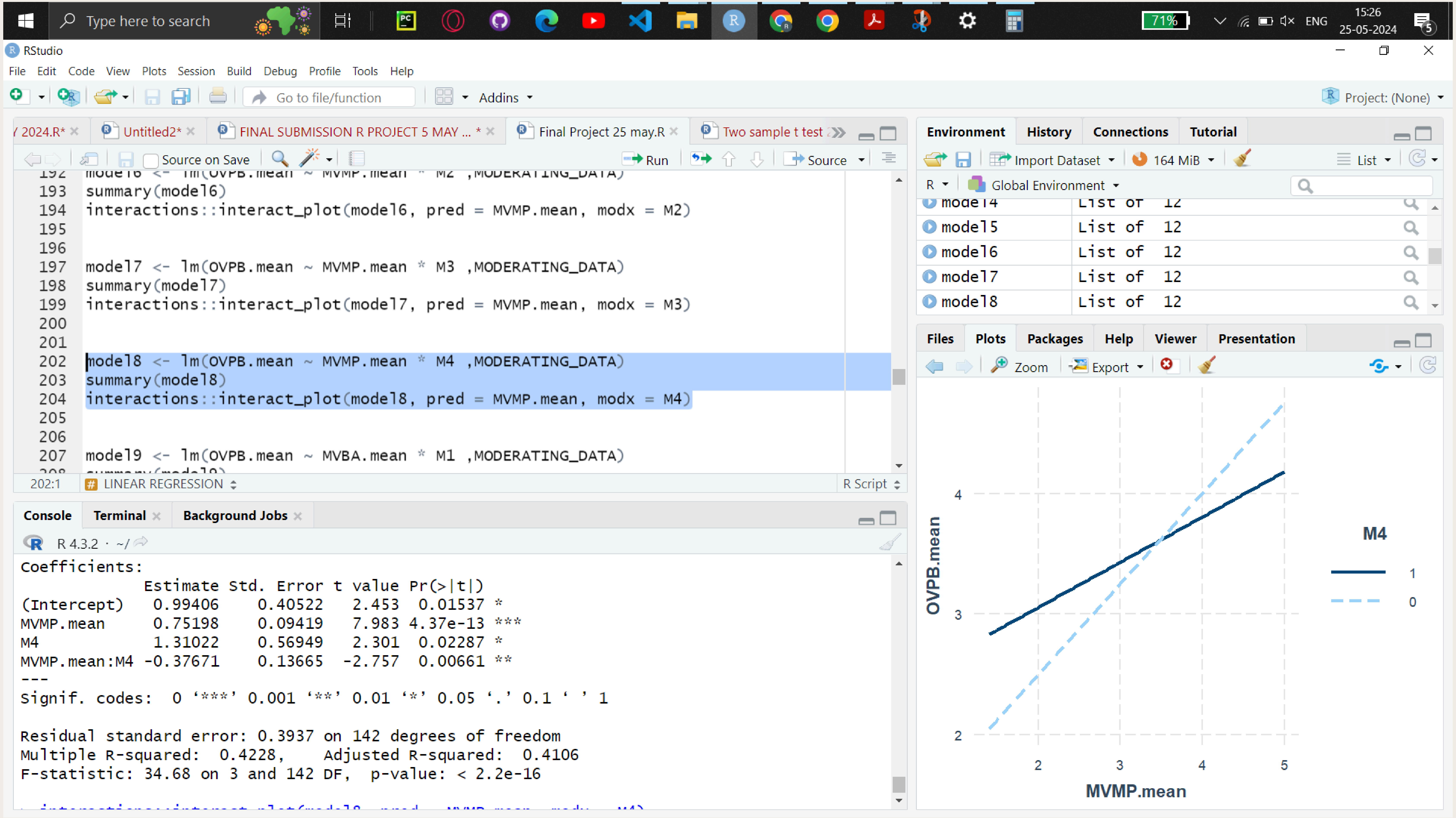
```r
summary(model5)
interactions::interact_plot(model5, pred = MVMP.mean, modx = M1)


model6 <- lm(OVPB.mean ~ MVMP.mean * M2 ,MODERATING_DATA)
summary(model6)
interactions::interact_plot(model6, pred = MVMP.mean, modx = M2)


model7 <- lm(OVPB.mean ~ MVMP.mean * M3 ,MODERATING_DATA)
summary(model7)
interactions::interact_plot(model7, pred = MVMP.mean, modx = M3)


model8 <- lm(OVPB.mean ~ MVMP.mean * M4 ,MODERATING_DATA)
summary(model8)
```

model14	List of	12
model15	List of	12
model16	List of	12
model17	List of	12

```
             Estimate Std. Error t value Pr(>|t|)    
(Intercept)   2.53982    0.59686   4.255 3.77e-05 ***
MVMP.mean     0.38088    0.13477   2.826  0.00539 ** 
M3           -0.55796    0.24308  -2.295  0.02318 *  
MVMP.mean:M3  0.13667    0.05717   2.391  0.01812 *  
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4062 on 142 degrees of freedom
Multiple R-squared:  0.3856,	Adjusted R-squared:  0.3727 
F-statistic: 29.71 on 3 and 142 DF,  p-value: 5.71e-15

> interactions::interact_plot(model7, pred = MVMP.mean, modx = M3)
```

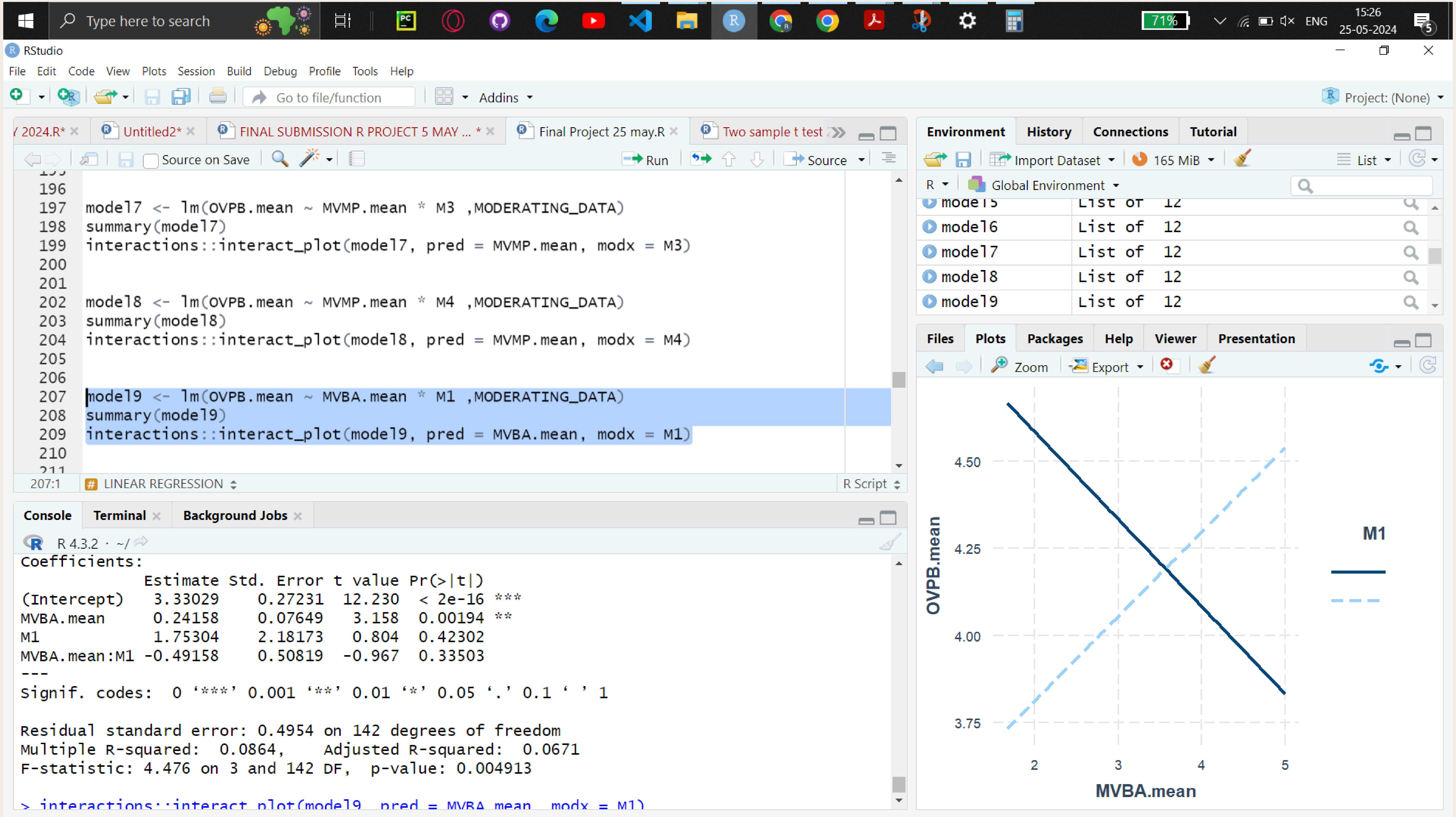


Similarly we create 24 models and visualized it using interactions

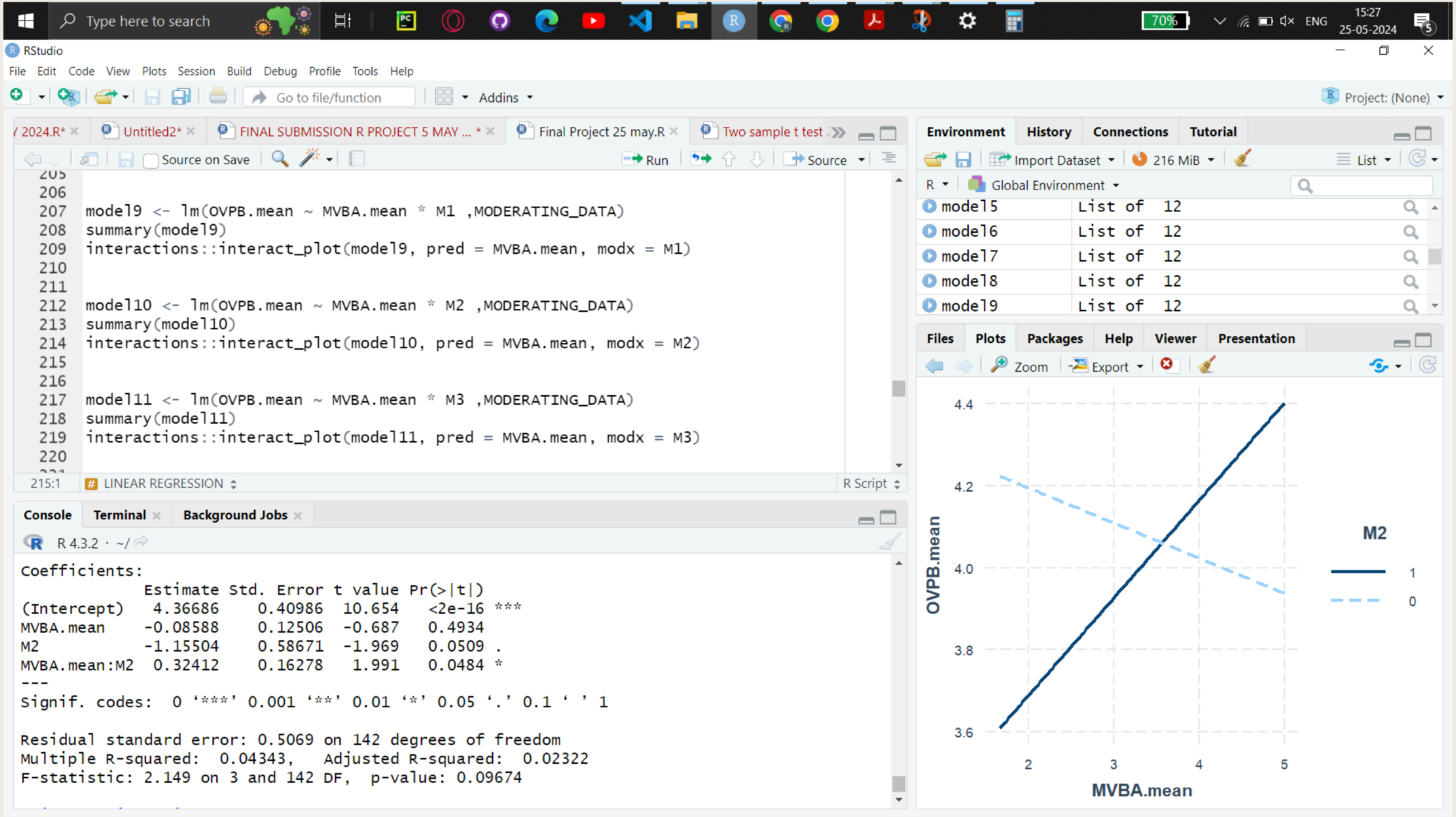


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Final Project 25 may.R
summary(model6)
interactions::interact_plot(model6, pred = MVMP.mean, modx = M2)
model7 <- lm(OVPB.mean ~ MVMP.mean * M3 ,MODERATING_DATA)
summary(model7)
interactions::interact_plot(model7, pred = MVMP.mean, modx = M3)
model8 <- lm(OVPB.mean ~ MVMP.mean * M4 ,MODERATING_DATA)
summary(model8)
interactions::interact_plot(model8, pred = MVMP.mean, modx = M4)
model9 <- lm(OVPB.mean ~ MVBA.mean * M1 ,MODERATING_DATA)
LINEAR REGRESSION
R Script
Console
R 4.3.2
Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept) 0.99406 0.40522 2.453 0.01537 *
MVMP.mean 0.75198 0.09419 7.983 4.37e-13 ***
M4 1.31022 0.56949 2.301 0.02287 *
MVMP.mean:M4 -0.37671 0.13665 -2.757 0.00661 **

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Residual standard error: 0.3937 on 142 degrees of freedom
Multiple R-squared: 0.4228, Adjusted R-squared: 0.4106
F-statistic: 34.68 on 3 and 142 DF, p-value: < 2.2e-16
Environment History Connections Tutorial
model5 List of 12
model6 List of 12
model7 List of 12
model8 List of 12
Files Plots Packages Help Viewer Presentation
OVPB.mean
MVMP.mean
M4
1
0


model7 <- lm(OVPB.mean ~ MVMP.mean * M3 ,MODERATING_DATA)
summary(model7)
interactions::interact_plot(model7, pred = MVMP.mean, modx = M3)
model8 <- lm(OVPB.mean ~ MVMP.mean * M4 ,MODERATING_DATA)
summary(model8)
interactions::interact_plot(model8, pred = MVMP.mean, modx = M4)
model9 <- lm(OVPB.mean ~ MVBA.mean * M1 ,MODERATING_DATA)
summary(model9)
interactions::interact_plot(model9, pred = MVBA.mean, modx = M1)
Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept) 3.33029 0.27231 12.230 < 2e-16 ***
MVBA.mean 0.24158 0.07649 3.158 0.00194 **
M1 1.75304 2.18173 0.804 0.42302
MVBA.mean:M1 -0.49158 0.50819 -0.967 0.33503

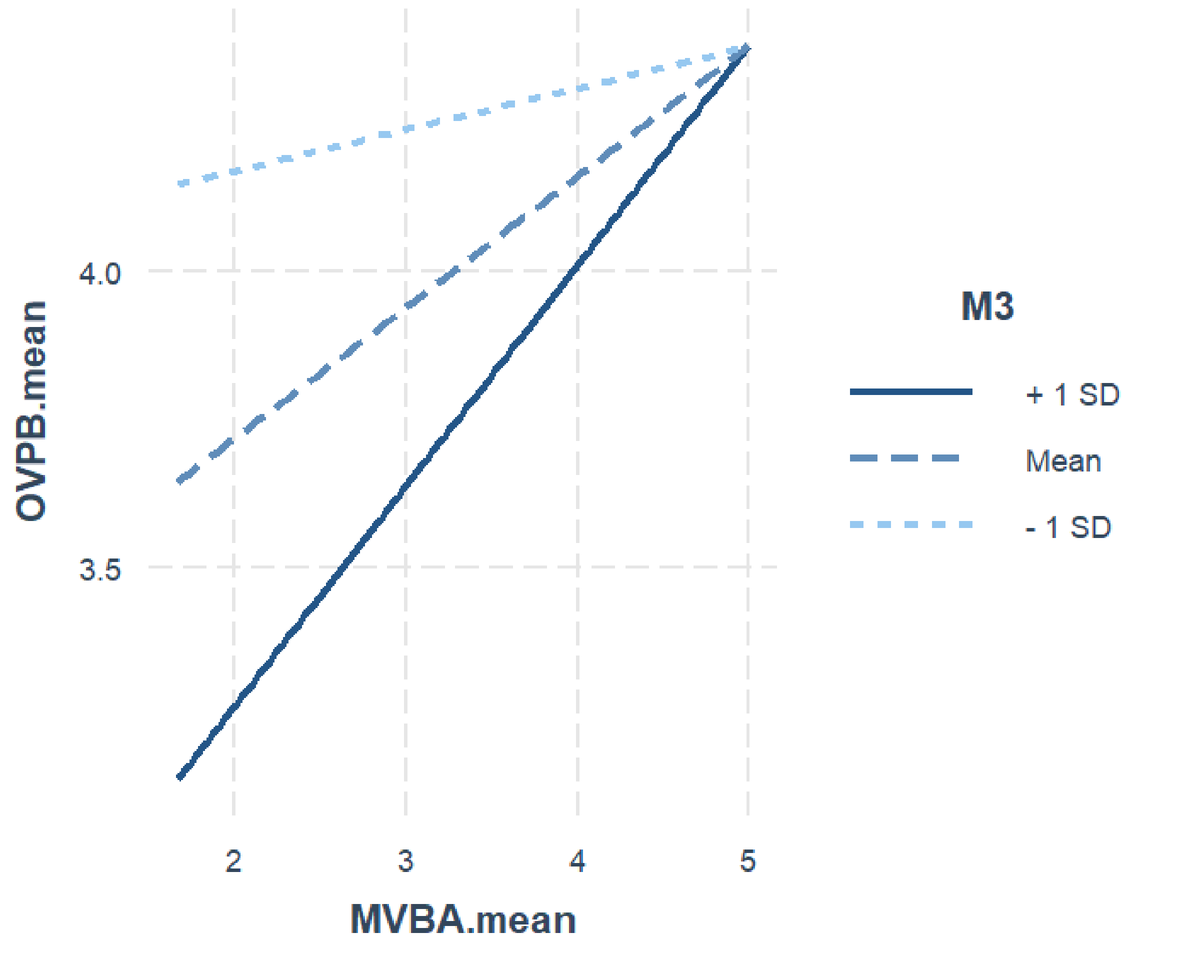
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 0.4954 on 142 degrees of freedom
Multiple R-squared: 0.0864, Adjusted R-squared: 0.0671
F-statistic: 4.476 on 3 and 142 DF, p-value: 0.004913
> interactions::interact_plot(model9, pred = MVBA.mean, modx = M1)
OVPB.mean
MVBA.mean
M1
4.50
4.25
4.00
3.75
2
3
4
5

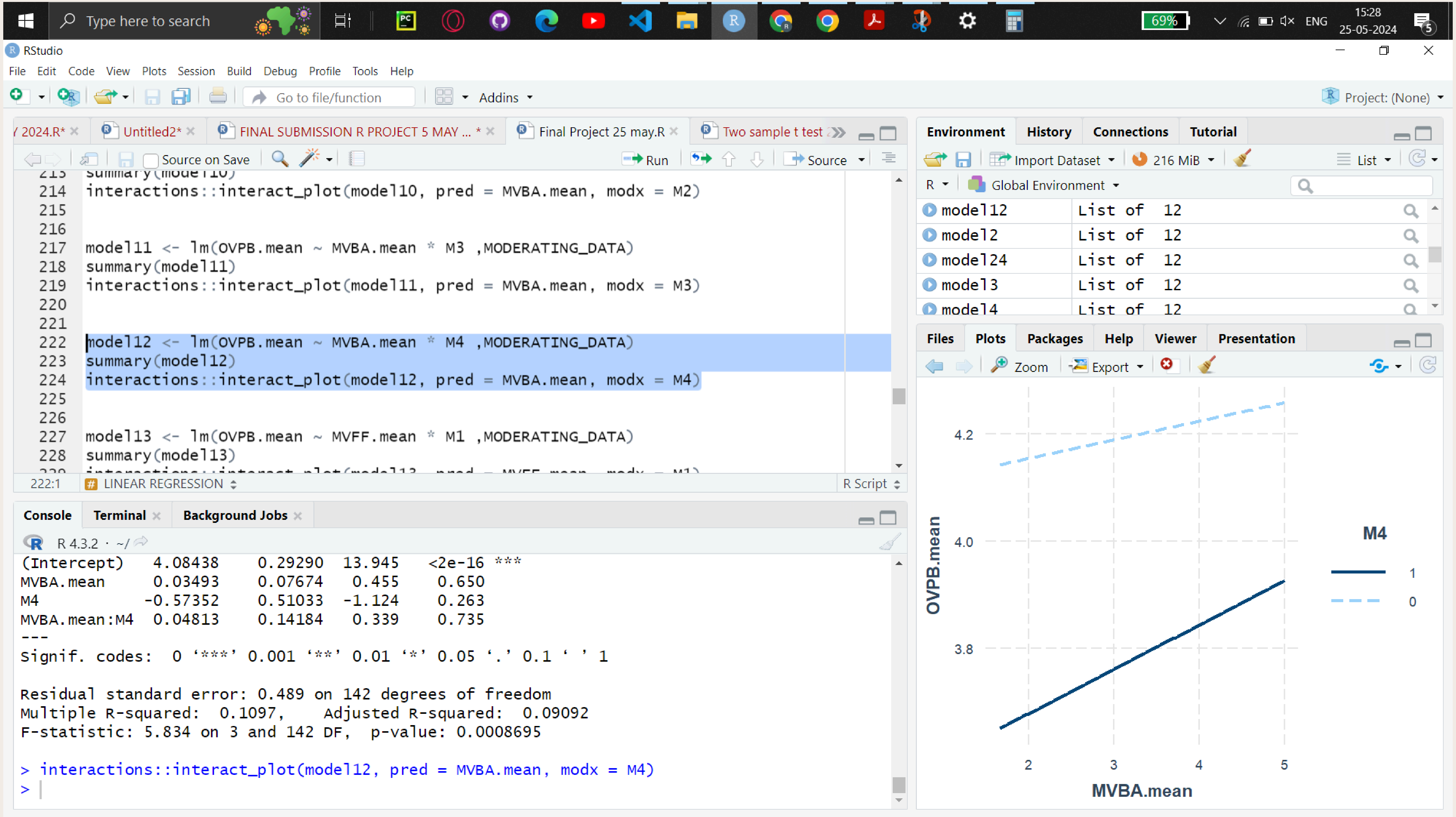

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Project: (None)
2024.R*
Untitled2*
FINAL SUBMISSION R PROJECT 5 MAY ... *
Final Project 25 may.R
Two sample t test
Source on Save
Run
Source
model9 <- lm(OVPB.mean ~ MVBA.mean * M1 ,MODERATING_DATA)
summary(model9)
interactions::interact_plot(model9, pred = MVBA.mean, modx = M1)
model10 <- lm(OVPB.mean ~ MVBA.mean * M2 ,MODERATING_DATA)
summary(model10)
interactions::interact_plot(model10, pred = MVBA.mean, modx = M2)
model11 <- lm(OVPB.mean ~ MVBA.mean * M3 ,MODERATING_DATA)
summary(model11)
interactions::interact_plot(model11, pred = MVBA.mean, modx = M3)
215:1
LINEAR REGRESSION
R Script
Console
Terminal
Background Jobs
R 4.3.2 · ~/
Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept) 4.36686 0.40986 10.654 <2e-16 ***
MVBA.mean -0.08588 0.12506 -0.687 0.4934
M2 -1.15504 0.58671 -1.969 0.0509 .
MVBA.mean:M2 0.32412 0.16278 1.991 0.0484 *

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Residual standard error: 0.5069 on 142 degrees of freedom
Multiple R-squared: 0.04343, Adjusted R-squared: 0.02322
F-statistic: 2.149 on 3 and 142 DF, p-value: 0.09674
Environment
History
Connections
Tutorial
Import Dataset
216 MiB
List
R
Global Environment
model5 List of 12
model6 List of 12
model7 List of 12
model8 List of 12
model9 List of 12
Files
Plots
Packages
Help
Viewer
Presentation
Zoom
Export
OVPB.mean
MVBA.mean
M2
1
0
4.4
4.2
4.0
3.8
3.6
2
3
4
5
Type here to search
70%
ENG
15:27
25-05-2024

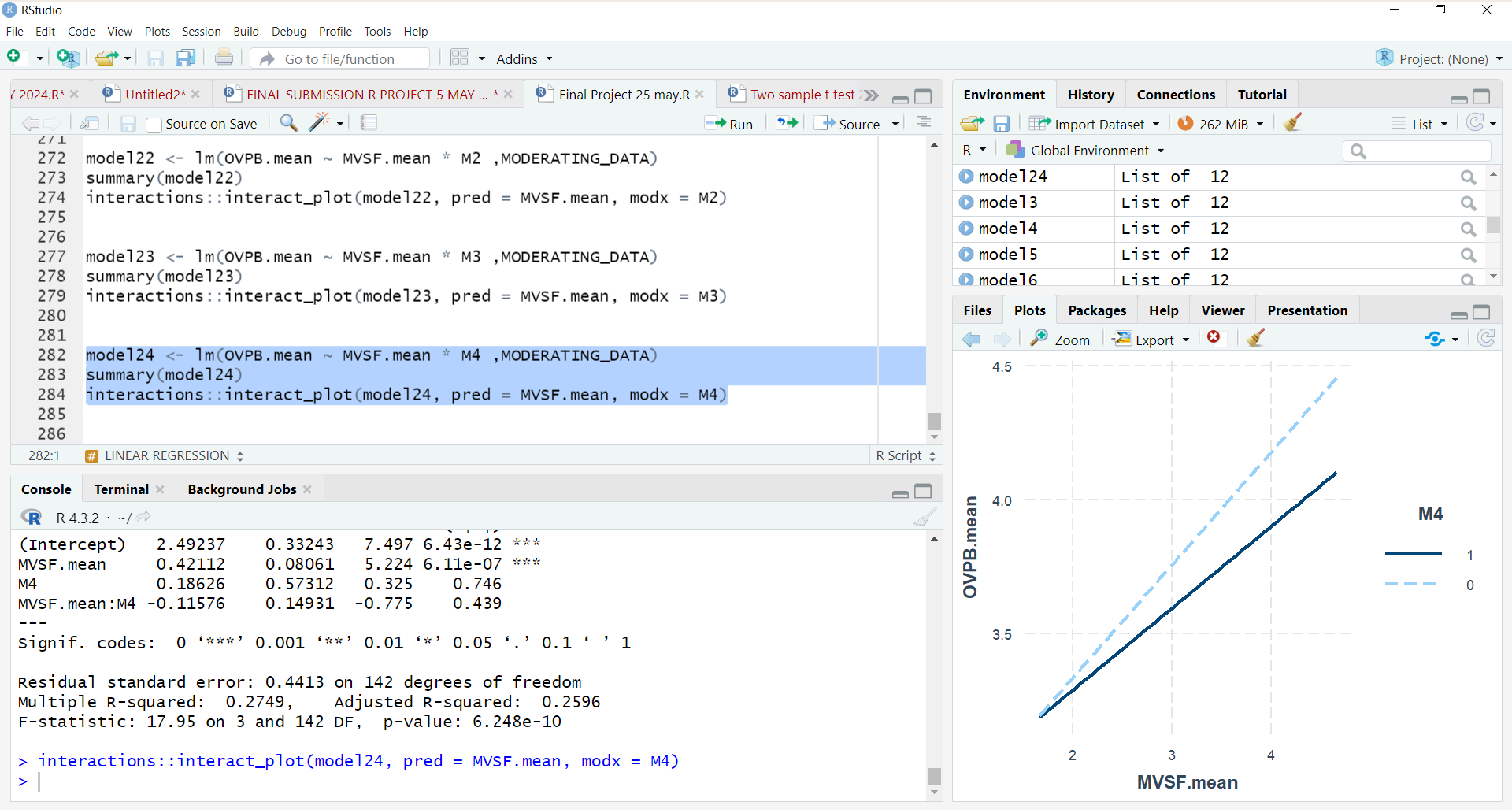
```r
model9 <- lm(OVPB.mean ~ MVBA.mean * M1 ,MODERATING_DATA)
summary(model9)
interactions::interact_plot(model9, pred = MVBA.mean, modx = M1)


model10 <- lm(OVPB.mean ~ MVBA.mean * M2 ,MODERATING_DATA)
summary(model10)
interactions::interact_plot(model10, pred = MVBA.mean, modx = M2)


model11 <- lm(OVPB.mean ~ MVBA.mean * M3 ,MODERATING_DATA)
summary(model11)
interactions::interact_plot(model11, pred = MVBA.mean, modx = M3)
```

```
Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    4.11362    0.34006  12.097  < 2e-16 ***
MVBA.mean      0.05297    0.09746   0.543  0.58766
M3            -0.60733    0.18399  -3.301  0.00122 **
MVBA.mean:M3   0.12181    0.04885   2.494  0.01378 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4719 on 142 degrees of freedom
Multiple R-squared:  0.171,	Adjusted R-squared:  0.1535
F-statistic: 9.762 on 3 and 142 DF,  p-value: 6.745e-06

> interactions::interact_plot(model11, pred = MVBA.mean, modx = M3)
```




RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Final Project 25 may.R
214 interactions::interact_plot(model10, pred = MVBA.mean, modx = M2)
217 model11 <- lm(OVPB.mean ~ MVBA.mean * M3 ,MODERATING_DATA)
218 summary(model11)
219 interactions::interact_plot(model11, pred = MVBA.mean, modx = M3)
222 model12 <- lm(OVPB.mean ~ MVBA.mean * M4 ,MODERATING_DATA)
223 summary(model12)
224 interactions::interact_plot(model12, pred = MVBA.mean, modx = M4)
227 model13 <- lm(OVPB.mean ~ MVFF.mean * M1 ,MODERATING_DATA)
228 summary(model13)
LINEAR REGRESSION
Console
R 4.3.2 · ~/
(Intercept) 4.08438 0.29290 13.945 <2e-16 ***
MVBA.mean 0.03493 0.07674 0.455 0.650
M4 -0.57352 0.51033 -1.124 0.263
MVBA.mean:M4 0.04813 0.14184 0.339 0.735

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 0.489 on 142 degrees of freedom
Multiple R-squared: 0.1097, Adjusted R-squared: 0.09092
F-statistic: 5.834 on 3 and 142 DF, p-value: 0.0008695
> interactions::interact_plot(model12, pred = MVBA.mean, modx = M4)
Environment
model12 List of 12
model2 List of 12
model24 List of 12
model3 List of 12
model4 List of 12
Plots
OVPB.mean
4.2
4.0
3.8
MVBA.mean
2
3
4
5
M4
1
0
15:28
25-05-2024


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Project: (None)
/ 2024.R*
Untitled2*
FINAL SUBMISSION R PROJECT 5 MAY ... *
Final Project 25 may.R
Two sample t test
Source on Save
Run
Source
model22 <- lm(OVPB.mean ~ MVSF.mean * M2 ,MODERATING_DATA)
summary(model22)
interactions::interact_plot(model22, pred = MVSF.mean, modx = M2)
model23 <- lm(OVPB.mean ~ MVSF.mean * M3 ,MODERATING_DATA)
summary(model23)
interactions::interact_plot(model23, pred = MVSF.mean, modx = M3)
model24 <- lm(OVPB.mean ~ MVSF.mean * M4 ,MODERATING_DATA)
summary(model24)
interactions::interact_plot(model24, pred = MVSF.mean, modx = M4)
282:1
LINEAR REGRESSION
R Script
Console
Terminal
Background Jobs
R 4.3.2 · ~/
(Intercept)   2.49237   0.33243   7.497 6.43e-12 ***
MVSF.mean   0.42112   0.08061   5.224 6.11e-07 ***
M4   0.18626   0.57312   0.325   0.746
MVSF.mean:M4 -0.11576   0.14931   -0.775   0.439

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Residual standard error: 0.4413 on 142 degrees of freedom
Multiple R-squared: 0.2749,   Adjusted R-squared: 0.2596
F-statistic: 17.95 on 3 and 142 DF, p-value: 6.248e-10
> interactions::interact_plot(model24, pred = MVSF.mean, modx = M4)
>
Environment
History
Connections
Tutorial
Import Dataset
262 MiB
List
R
Global Environment
model24 List of 12
model3 List of 12
model4 List of 12
model5 List of 12
model6 List of 12
Files
Plots
Packages
Help
Viewer
Presentation
Zoom
Export
4.5
4.0
3.5
OVPB.mean
2
3
4
MVSF.mean
M4
1
0

THANK YOU VERY MUCH!