

The background is a dark blue gradient. On the left, there is a large, semi-transparent circular graphic containing a detailed image of a circuit board. Overlaid on this are two large, overlapping triangles: a blue one in the foreground and a light green one behind it. In the top right corner, there is a faint, 3D-rendered pattern of interconnected lines and squares, resembling a microchip or a data network.

Exploring Social and Psychological Patterns in Human Behavior through Data

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Introduction

- Explore social and psychological determinants of behavior and well-being.
- Examine societal influences (e.g., technology, cultural identity) and intrinsic factors (e.g., age, emotions).
- Understand how external and internal factors shape behavior and mental health outcomes.



Research Questions

- 01 How does social media use per day affect people's feeling for others?
- 02 Is Indigenous people's acceptance of Covid vaccines different from those who are from another race?
- 03 How does age impact loneliness in adults?



Research Question #1: Does social media disconnects us?

Hypothesis:

Less frequent social media use is associated with higher satisfaction with time spent with others.

Variables Used:

- CONNECTION_time_with_others_satisfied:
Are you satisfied with the amount of time you spend with others?
- CONNECTION_social_media_visits_per_day:
How many times per day do you visit social networking websites (e.g., Instagram, Facebook, Twitter), on Average?
- CONNECTION_social_media_time_per_day:
In the past week, on average, approximately how much time PER DAY have you spent actively using social networking websites?

Data Wrangling:

- Dropped all the rows where these variables have missing entry
- Converted CONNECTION_time_with_others_satisfied to a binary variable with either “Yes” or “No” for logistic regression

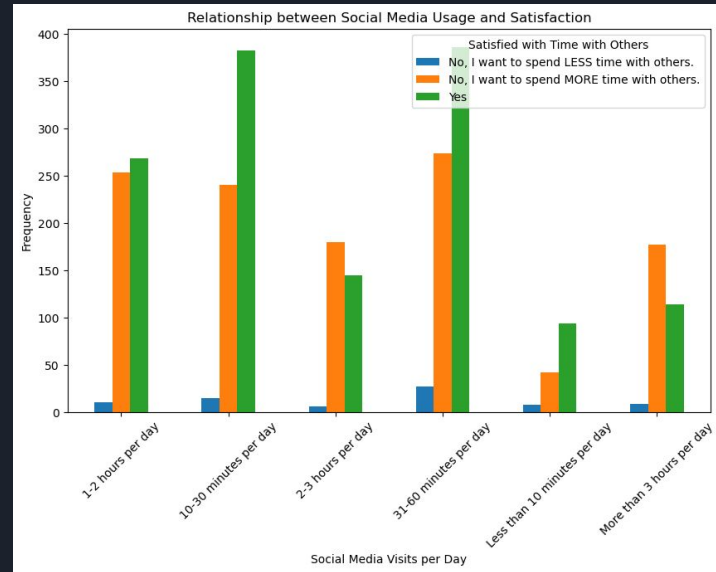
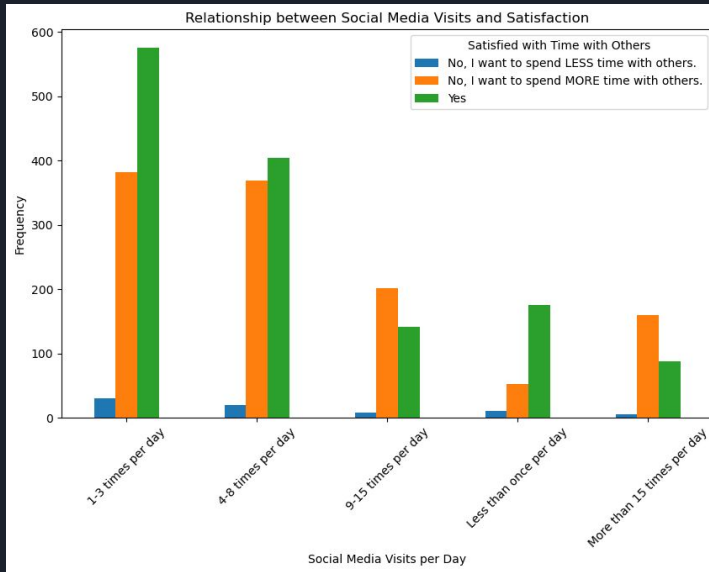
Research Question #1: Does social media disconnects us?

	coef	std err	z	P> z	[0.025	0.975]
Intercept	0.7329	0.200	3.664	0.000	0.341	1.125
C(CONNECTION_social_media_time_per_day, Treatment(reference='Less than 10 minutes per day'))[T.1-2 hours per day]	-0.7569	0.223	-3.398	0.001	-1.193	-0.320
C(CONNECTION_social_media_time_per_day, Treatment(reference='Less than 10 minutes per day'))[T.10-30 minutes per day]	-0.3890	0.219	-1.774	0.076	-0.819	0.041
C(CONNECTION_social_media_time_per_day, Treatment(reference='Less than 10 minutes per day'))[T.2-3 hours per day]	-0.9030	0.234	-3.855	0.000	-1.362	-0.444
C(CONNECTION_social_media_time_per_day, Treatment(reference='Less than 10 minutes per day'))[T.31-60 minutes per day]	-0.4179	0.218	-1.920	0.055	-0.845	0.009
C(CONNECTION_social_media_time_per_day, Treatment(reference='Less than 10 minutes per day'))[T.More than 3 hours per day]	-1.2590	0.240	-5.250	0.000	-1.729	-0.789

	coef	std err	z	P> z	[0.025	0.975]
Intercept	1.1575	0.173	6.697	0.000	0.819	1.496
C(CONNECTION_social_media_visits_per_day, Treatment(reference='Less than once per day'))[T.1-3 times per day]	-0.8236	0.187	-4.396	0.000	-1.191	-0.456
C(CONNECTION_social_media_visits_per_day, Treatment(reference='Less than once per day'))[T.4-8 times per day]	-1.1102	0.190	-5.837	0.000	-1.483	-0.737
C(CONNECTION_social_media_visits_per_day, Treatment(reference='Less than once per day'))[T.9-15 times per day]	-1.5316	0.210	-7.297	0.000	-1.943	-1.120
C(CONNECTION_social_media_visits_per_day, Treatment(reference='Less than once per day'))[T.More than 15 times per day]	-1.7942	0.225	-7.959	0.000	-2.236	-1.352

The coefficients are decreases as the usage of social media increases when the references are set to the smallest amount of social media usage.

Research Question #1: Does social media disconnects us?



These statistics show that people who spent less time on social media are significantly more likely to report satisfaction with their time spent with others.

Is Indigenous people's acceptance of Covid vaccines different from those who are from another race?

The goal of this question is to find out if the indigenous people with different cultures and histories treat their health the same way as other groups.

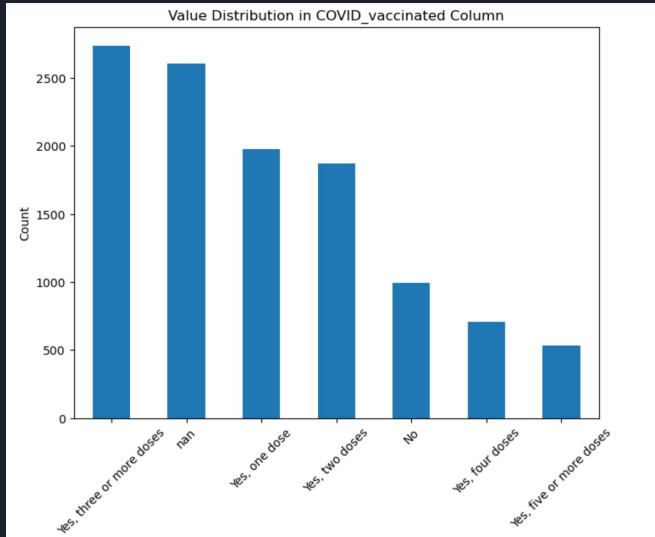


Figure 2

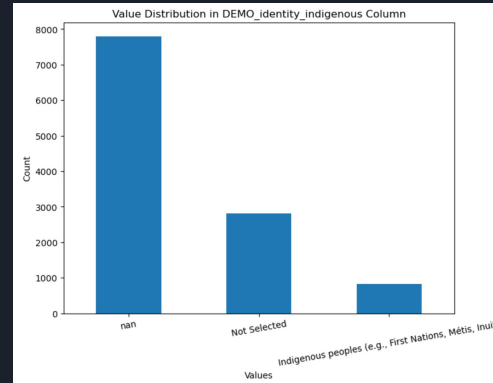
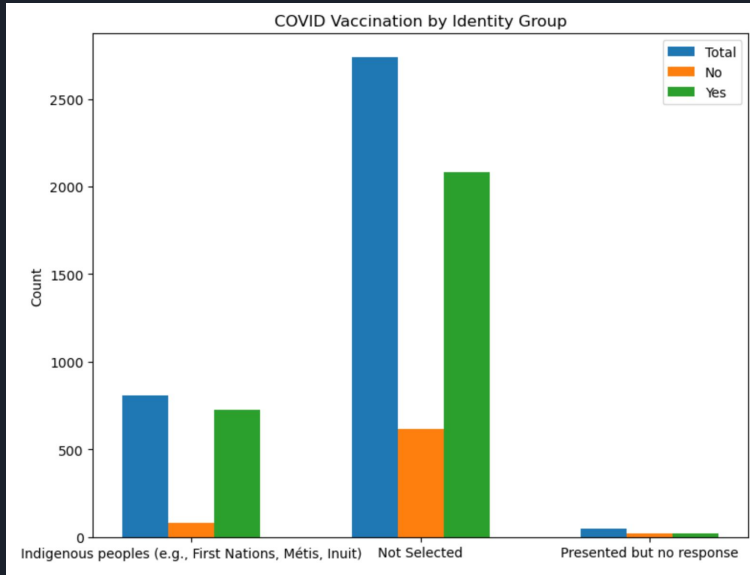


Figure 1

The variable columns are "Demo_identity_indigenous" (figure 1) and "COVID_vaccinated." (figure 2) Representing whether someone considers themselves Indigenous and whether they have taken the Covid vaccine in the year 2021.

Assumptions and the data



The blue bars show the number of people in each group (Indigenous/non-indigenous). The bars in orange show the number of people in each group who had not taken the vaccine, and the bars in green show the number of people in each group who had taken the vaccine.



Hypothesis Test

We will use the proportion hypothesis test (one tailed). We will assume that there IS difference in preference for the vaccine in those two groups (Indigenous/non-indigenous).

Null Hypothesis: Percentage(1) of Indigenous taken the vaccine $\leq$ Percentage(2) of non-indigenous taken the vaccine.

The proportion of Indigenous people who have taken the vaccine (90.16%) is significantly greater than the proportion of Non-Indigenous people who have taken the vaccine (77.12%)



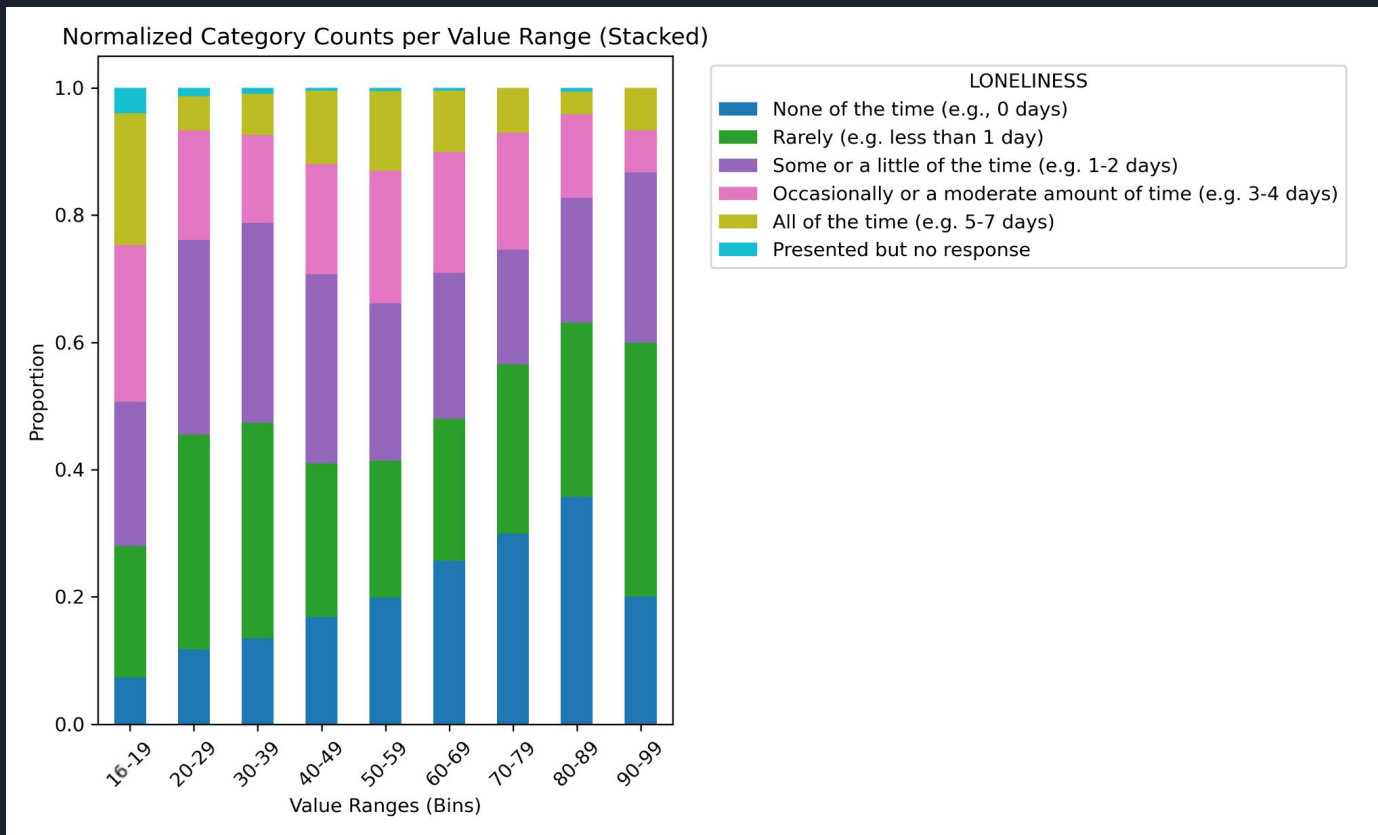
Research Question #3

How does
someone's age
affect their
feelings of
loneliness?

Variables:

- Age
- How often does one feel lonely in a week

A simple graph





Mean level of loneliness in every age bins

On a scale of 1 to 5:

```
"None of the time (e.g., 0 days)": 0.0,  
"Rarely (e.g. less than 1 day)": 1.0,  
"Some or a little of the time (e.g. 1-2 days)": 2.0,  
"Occasionally or a moderate amount of time (e.g. 3-4 days)": 3.0,  
"All of the time (e.g. 5-7 days)": 4.0
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From 16 to 19 years old: 2.3194444444444446  
From 20 to 29 years old: 1.7156019656019657  
From 30 to 39 years old: 1.6673928830791576  
From 40 to 49 years old: 1.8387978142076502  
From 50 to 59 years old: 1.8316831683168318  
From 60 to 69 years old: 1.6164167324388319  
From 70 to 79 years old: 1.44947209653092  
From 80 to 89 years old: 1.186046511627907
```

This suggests that:

1. The linear relation may be different between age groups
2. 16-19 year olds are outliers, who have more feelings of loneliness than any other ages

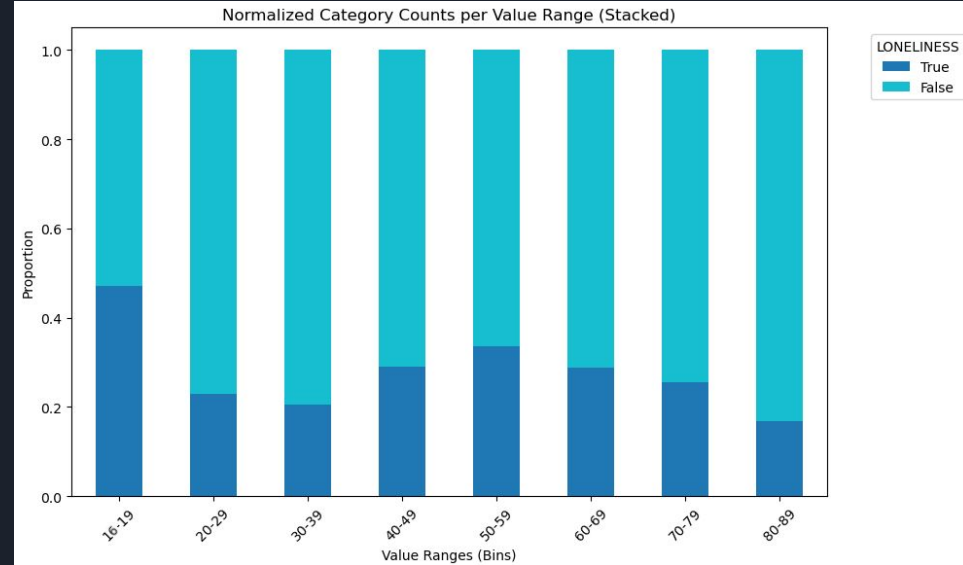
A binary study: data wrangling

Not Lonely

Lonely

None of the time (e.g., 0 days)
Rarely (e.g. less than 1 day)
Some or a little of the time (e.g. 1-2 days)
Occasionally or a moderate amount of time (e.g. 3-4 days)
All of the time (e.g. 5-7 days)

	coef	std err	t	P> t	[0.025	0.975]
Intercept	0.2218	0.014	16.260	0.000	0.195	0.249
DEMO_age	0.0009	0.000	3.129	0.002	0.000	0.001



A more in-depth study in parts

Ages 16 to 19:
Loneliness is
very high

	coef	std err	t	P> t	[0.025	0.975]
Intercept	1.2201	0.787	1.551	0.123	-0.335	2.775
DEMO_age	-0.0418	0.044	-0.952	0.343	-0.129	0.045

Ages 20 to 59:
Loneliness goes up

	coef	std err	t	P> t	[0.025	0.975]
Intercept	0.1203	0.029	4.195	0.000	0.064	0.177
DEMO_age	0.0034	0.001	3.992	0.000	0.002	0.005

Ages 60 to 89:
Loneliness goes
down

	coef	std err	t	P> t	[0.025	0.975]
Intercept	0.5840	0.058	10.029	0.000	0.470	0.698
DEMO_age	-0.0046	0.001	-5.100	0.000	-0.006	-0.003



A contrarian result?

A big limitation of this analysis

This study has an opposite result: “loneliness follows a U-shaped curve, decreasing from young adulthood to midlife and increasing in older adulthood” (Graham, Eileen K et al. “Do We Become More Lonely With Age? A Coordinated Data Analysis of Nine Longitudinal Studies.” Psychological science vol. 35,6 (2024): 579-596. doi:10.1177/09567976241242037)

Adj. R-squared:

0.001



Limitation

Self reported bias

Missing data



Conclusion

- Social Media Use & Interpersonal Satisfaction: Lower social media use leads to more meaningful face-to-face interactions, reducing stress and promoting better psychological well-being.
- Vaccination Rates & Cultural Influence: Higher vaccination rates among Indigenous populations show how cultural values, trust in community leaders, and collective action can improve public health outcomes.
- Loneliness & Life Stage Transitions: The inverted U-shape in loneliness, with higher levels in young adults, highlights how psychological development and social transitions during this life stage contribute to feelings of isolation.
- Overall Interconnectedness: These examples illustrate how well-being is shaped by the complex interplay of social, psychological, and cultural factors, emphasizing the need for a holistic approach to understanding and improving well-being.



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THANK YOU
FOR
LISTENING