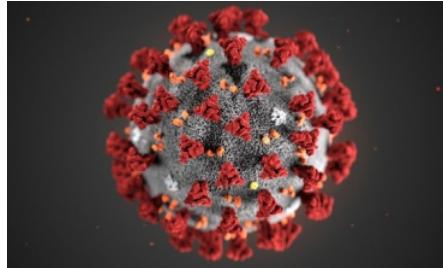


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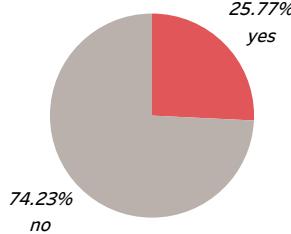
Analysis of Social Interactions & Trust during the COVID-19 Pandemic

Using the Covid Impact Survey - Public Data to analyze shifts in social interactions, trust, and mental well-being, as well as interrelationship of values of metrics indexed during the survey



Total Survey Respondents
25,269

Less social during-pandemic?



MAIN OBJECTIVES

How can we identify the significant changes in social behavior that took place at the onset of the COVID-19 pandemic in April-June of 2020? Additionally, how can we analyze those changes in behavior as potential mental health or well-being indicators, and design..

INSIGHTS

* Overall respondent social scores **increased** during the pandemic

* Respondent mental well-being:

INCREASED from April to May

DECREASED to near April levels in June

* 2 of 3 social metrics indicate **less** sociality during the pandemic
---> *Neighborhood sociality, volunteering sociality*

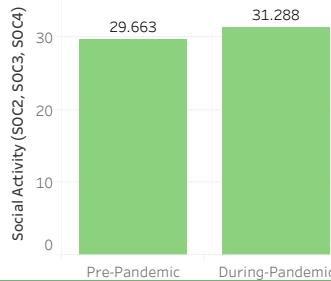
* 1 of 3 social metrics indicate **more** sociality
---> *Friends and family sociality*
..

Our data source is the COVID Impact Survey - Public Data set, which includes data for three months (April, May, and June of 2020)

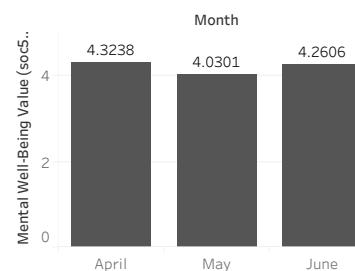
DATA SOURCE LINK: <https://data.world/associatedpress/covid-impact-survey-public-data>

Overview

*Social Activity Score
(Higher = more sociality)*



*Mental Well-Being Metric
(higher values = less mentally well)*



Changes in Social Metrics

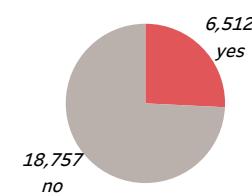
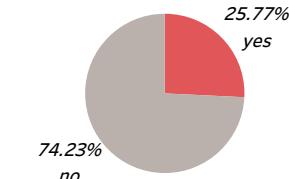
Friends and Family	2.320
Neighbors	-0.562
Volunteering	-0.129

Mean Household Income

\$73,079

Average change in sociality
+1.615

Less social during-pandemic?



KEY TAKEAWAYS

Counterintuitively, overall social score increased from pre-pandemic to during-pandemic; additionally markers of mental well-being dropped from April to May, reflecting an increase in overall average self-reported mental well-being. These two observations point to some increases in sociality of respondents during the pandemic.

We see some insights consistent with our hypothesis of less sociality as the pandemic progresses. The average values of the metrics diffsoc2 (-0.5) and diffsoc4 (-0.13) reflect decreases in sociality with neighbors and volunteering organizations. The average values of the metric diffsoc3 (+2.3) reflects increased levels of social activity with friends and family during the pandemic when compared to pre-pandemic levels.

When we look at average change in sociality, we see a value of +1.615 ; this reflects an increase (on average) of respondent's social

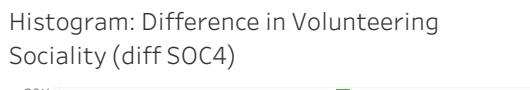
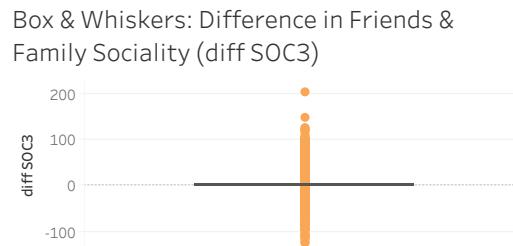
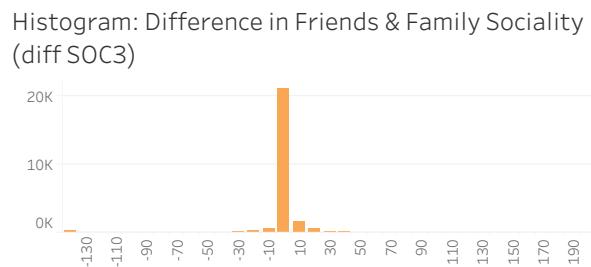
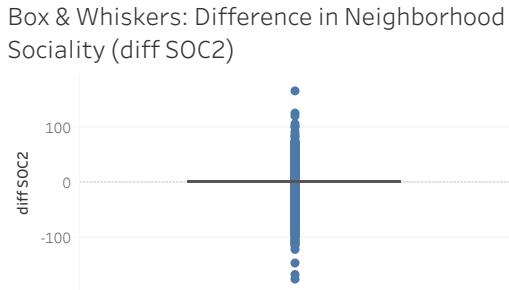
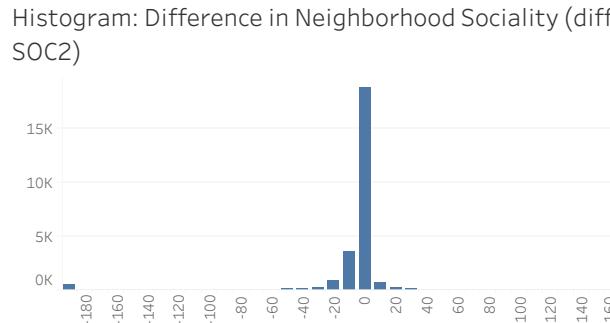
*social change by month



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ANALYSIS ~ Shifts in social trust & interactions

Investigating SOC1, SOC2A, SOC2B, SOC3A, SOC3B, SOC4A and SOC4B



KEY TAKEAWAYS

The histograms for diff_SOC2, diff_SOC3, and diff_SOC4 predominantly peak at 0, indicating stable social interactions during the pandemic.

Noticeable trend toward **decreased interactions** amongst **neighbors and regarding volunteering** among those who experienced changes.

With regard to **sociality with friends and family**, there is the highest amount of **increased sociality** reported amongst variables.

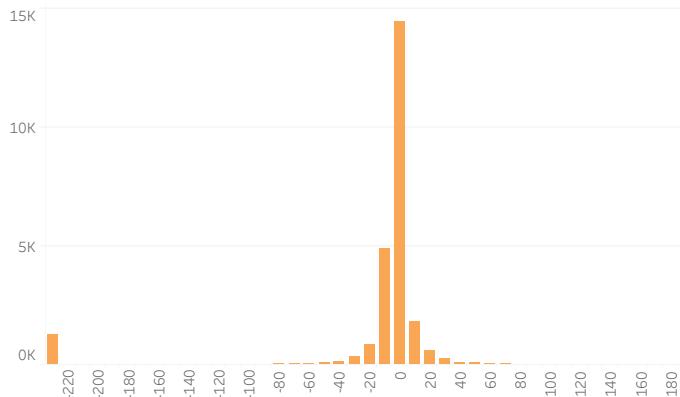
Box plots for diff_SOC3 and diff_SOC4 emphasize this stability but also underscore significant individual variances.

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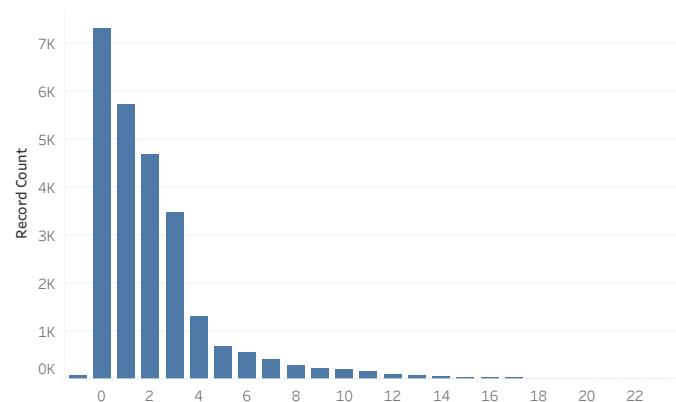
ANALYSIS ~ Shifts in social trust & interactions

Investigating SOC1, SOC2A, SOC2B, SOC3A, SOC3B, SOC4A and SOC4B

Histogram: Social Change



Histogram: SOC1 / Trust Score



KEY TAKEAWAYS

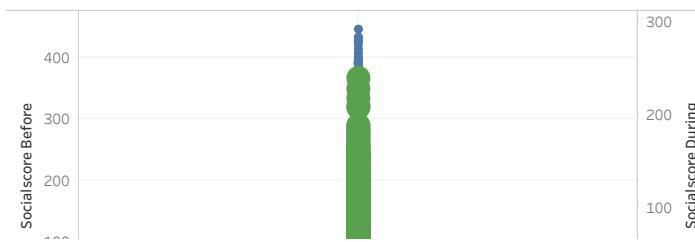
Most respondents report **low trust** in neighborhoods, with SOC1 (Trust value) being right-skewed and most scores below 5.

Most respondents maintained their pre-pandemic social behaviors, as seen from the dense cluster at (0,0) in the scatter plot.

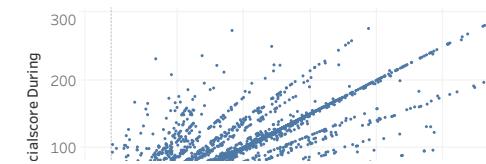
Again, we notice an observable **up tick in communication with friends/family**, potentially a coping mechanism during the pandemic.

Notably, some outliers in the scatter plot depict *atypical social behaviors*, warranting deeper analysis. Overall, while many kept consistent social scores, those with initially higher scores showed more variance during the pandemic.

Social Score pre-pandemic VS. Social Score during-pandemic



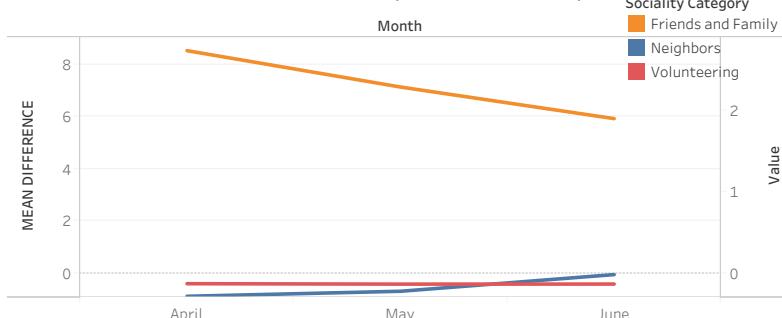
Scatterplot: Social Score pre-pandemic VS. Social Score during-pandemic



ANALYSIS ~ Mental Well-Being

Examining the behaviors (SOC2-4) and self-reported feelings of loneliness and depression during the pandemic.

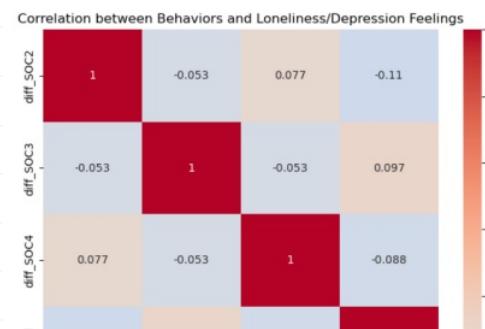
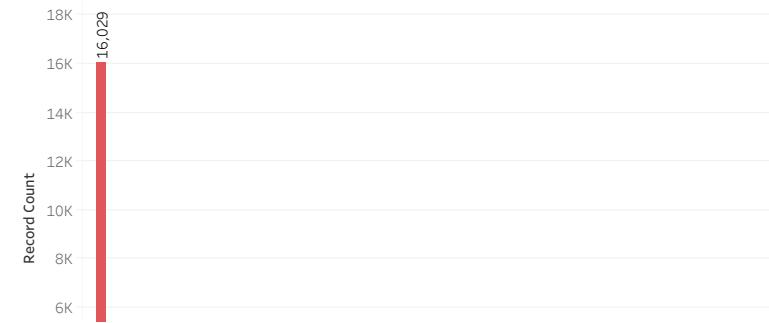
Mean difference in social metrics (April-June 2020)



Soc5Total Score: April-June 2020



Self-Reported Feelings of Loneliness/Depression



KEY TAKEAWAYS

During the pandemic, **diff_SOC3** indicates an initial **boost in communication** with friends and family that later diminishes.

diff_soc4 reveals a consistent **decline in volunteering**.

diff_soc2 indicates **increasing levels of decline in neighborhood sociality** as time in the pandemic increases.

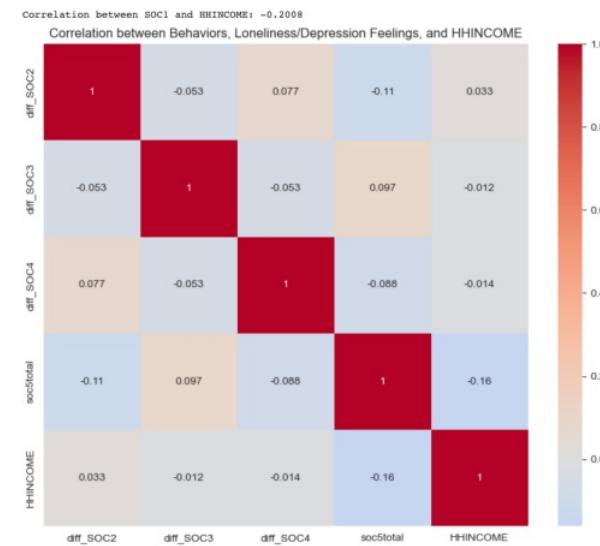
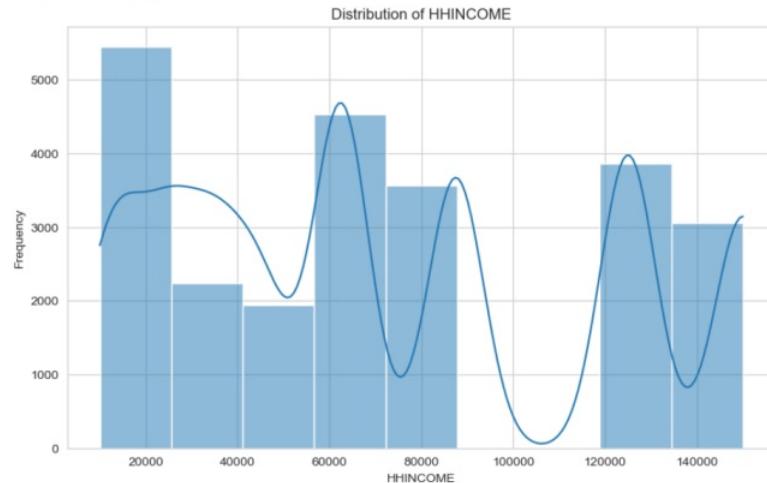
Soc5total displays a temporary dip and subsequent rise in feelings of loneliness/depression.

Data largely shows low feelings of loneliness, and correlation analysis suggests only **weak associations**, notably a **0.11 link between diff_SOC2 and soc5total**.

ANALYSIS ~ Household Income

Understanding household incomes (HHINCOME); correlation to SOC5, SOC1

HHINCOME mean: 73079.23242322204
HHINCOME median: 62500.0



KEY TAKEAWAYS

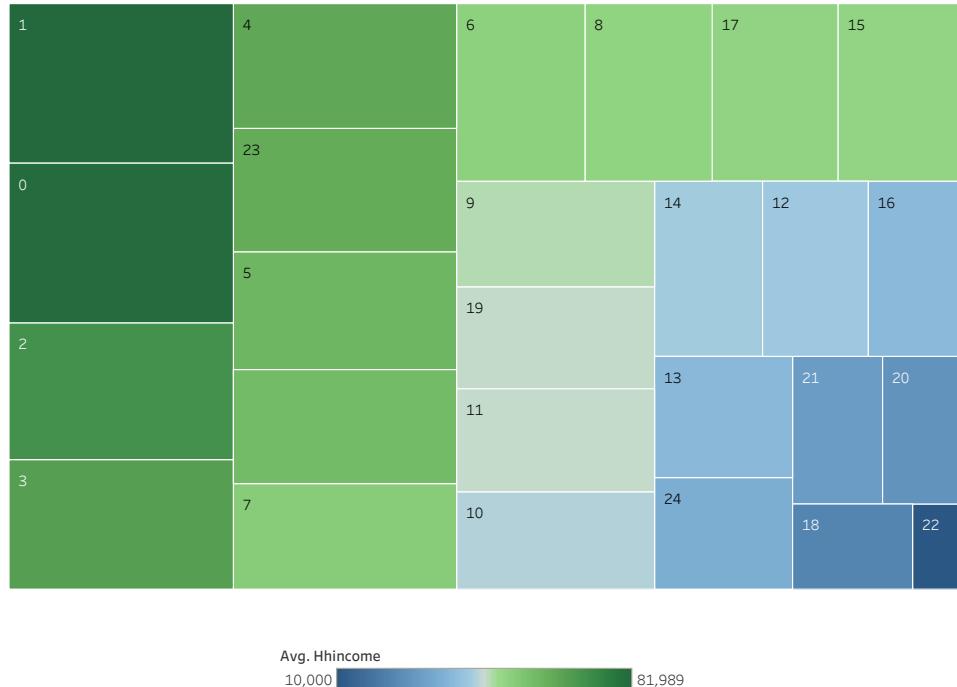
Most respondents earn between \$10k-\$30k, followed by a substantial group in the \$60k-\$70k bracket.

The HHINCOME has a mean of approximately \$73,079 and a median of \$62,500.

No significant correlations were observed, however:

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Treemap: SOC1 and HHINCOME

**KEY TAKEAWAYS**

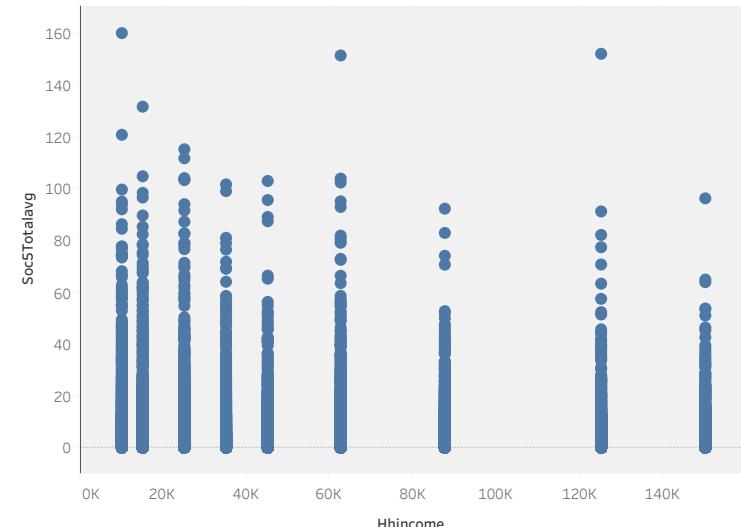
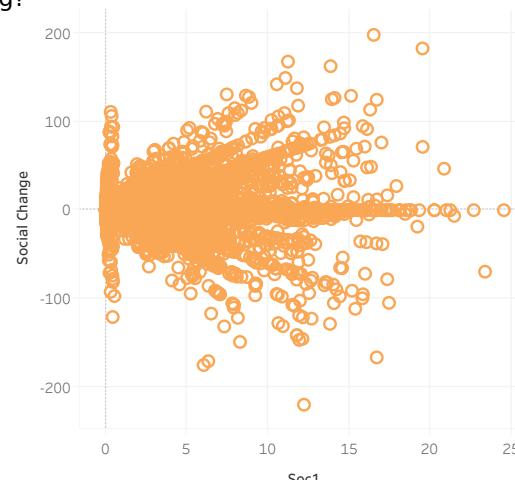
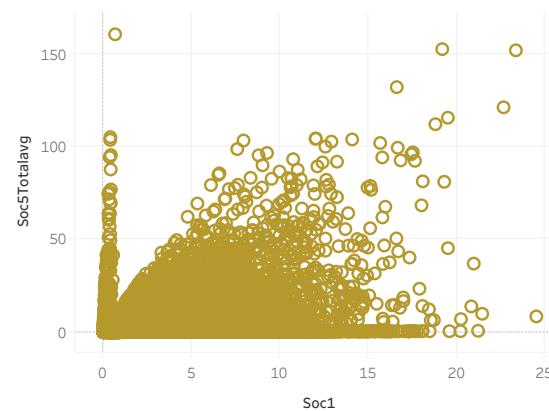
The biggest earners seem to have lower SOC1 values (indicating less trust in society), although there are some high earners with high societal trust values (23, \$62,500 ; 19, \$46,500).

Generally, it seems that many of the bins for higher values of societal trust correspond to lower HHINCOME values, indicating perhaps that those with higher levels of trust are perhaps less savvy earners. Conversely, maybe lower HHINCOME values correlate to higher SOC1 values (indicating more trust in society).

ANALYSIS ~ Correlations

Correlation between SOC1 and SOC5? HHINCOME and SOC5? Do more drastic changes in social behavior correlate with a worse mental well-being?

Scatterplot between Soc1 and Soc5Totalavg



Correlation between SOC1 and soc5totalavg: 0.42
 Correlation between HHINCOME and soc5totalavg: -0.16
 Correlation between SOC1 and social_change: 0.03

KEY TAKEAWAYS

The first scatter plot shows most data in the bottom left, suggesting a **correlation between low soc5totalavg and low soc1 scores**; however, many points near the axes hint at variable independence.

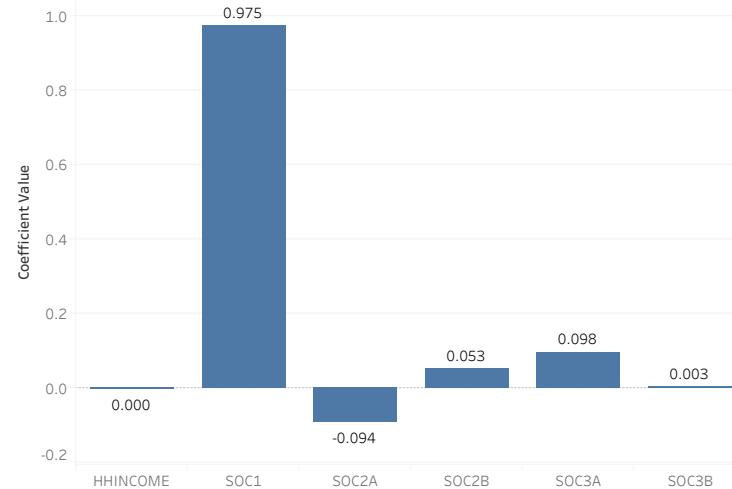
The second scatter plot between soc1 and social_change suggests that **low soc1 scores correlate with more variability in social_change**. Higher soc1 values show increased variability and outlier extremity.

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ANOVA ~ Regression Analysis

Dependent Variable : SOC5A

Inependent Variables : SOC1, SOC2A, SOC2B, SOC3A, SOC3B, HHINCOME



KEY TAKEAWAYS

The model accounted for 15.9% of the variance in SOC5A with an R^2 of 0.159.

Most independent variables, especially **SOC1** (with a correlation coefficient of 0.975), significantly predicted **SOC5A**, while **SOC3B did not**.

NOTE: Potential multicollinearity among predictors was indicated, needing further exploration.

OLS Regression Results	
Dep. Variable:	SOC5A
Model:	OLS
Method:	Least Squares
Date:	Wed, 18 Oct 2023
Time:	10:06:26
No. Observations:	23280
Df Residuals:	23273
Df Model:	6
R-squared:	0.159
Adj. R-squared:	0.159
F-statistic:	733.8
Prob (F-statistic):	0.00
Log-Likelihood:	-87548.
AIC:	1.751e+05
BIC:	1.752e+05

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Insights and Summary

Stable Pre-pandemic Social Patterns: Many respondents maintained their pre-pandemic levels of social interactions, particularly in neighborhood and volunteering activities.

Roughly 25% of respondents classified as 'Less Social' (June '20 compared to April '20)

Diverse Responses to Pandemic:

Despite the overall trend of stability, a noticeable segment of respondents **actually** ramped up or their social activities during the pandemic.

Increase in Friends/Family sociality:

A slight uptick in communication with close friends and family possibly indicates a search for solace amidst the uncertainty. However, this uptrend did take a minor dip from April to June.

Decline in Volunteering/Neighborhood sociality:

A consistent drop was observed in volunteering efforts, hinting at some pulling back during the pandemic. Additionally, a slight drop was observed in levels of interactions with neighbors when compared to pre-pandemic levels.

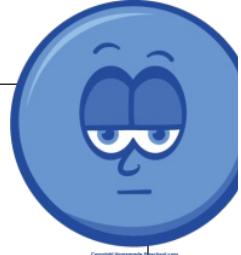
General Mood and Loneliness:

Most reported low feelings of loneliness/depression, but a pattern of initially decreased feeling of loneliness/depression was followed with a subsequent uptick in these same feelings leading into June of 2020.

Regarding Regression & Correlations:

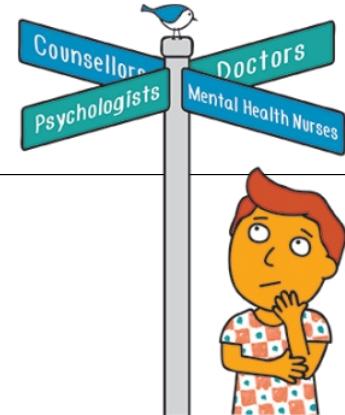
Incomplete Regression Picture: While factors like trust and income were mildly predictive of social behaviors and feelings, they don't offer a complete explanation.

*Additional regression analysis done between **Income and Mental Well-being**: a faint correlation between household income and feelings of loneliness suggests economic factors play a role in mental health.*



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Action Steps for Stakeholders



1) Community Engagement:

Strengthen neighborhood bonds through community events and workshops to enhance trust and solidarity.

2) Mental Health Focus:

Recognizing the subtle rebound in reported feelings of loneliness, consider implementing community-based mental wellness programs and support groups.

3) Support Volunteering:

Address the decline in volunteering by introducing incentives or safe, pandemic-adjusted volunteer opportunities that resonate with community needs.

4) Enhanced Communication:

Promote regular check-ins among family and friends, perhaps through community-based initiatives or campaigns that emphasize the importance of staying connected.

5) Economic Support:

Given the slight correlation between household income and feelings of loneliness, explore ways to provide financial assistance or job opportunities for those most affected by the pandemic.

6) Deep Dive Research:

Since regression models don't capture the full story, invest in comprehensive studies to better understand the underlying dynamics affecting social behaviors during disruptions.

7) Feedback Mechanisms:

Establish feedback channels for community members to voice concerns or provide insights into their needs and preferences, ensuring efforts are in tune with ground realities.

8) Collaborate with Experts:

Partner with sociologists, psychologists, etc., to draft and implement more holistic strategies, leveraging their expertise in understanding and shaping social behaviors.

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Questions? Comments?

