Using Data Science to Assess the Impact of Disaster Event on Climate Change Belief: Case of Australian Bushfire Catastrophe

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Abstract. Australia, vulnerable to bushfire incidents due to its unique climatic conditions, witnessed a transformative event in the 2019-2020 bushfire season. This research examines the impact of these bushfires on public perception of climate change. Leveraging robust statistical techniques, including McNemar's hypothesis testing and logistic regression, the study deciphers survey data collated pre and post these fires. The study's hypothesis that post-fire respondents are more likely to acknowledge climate change's role is confirmed. Factors such as education, political affiliation, and support for fossil fuel reduction are identified as influential predictors of climate change belief. The analysis also highlights the complex interplay of demographic characteristics and media exposure in shaping attitudes. Notably, direct firebush exposure showed a nuanced relationship with belief. The research underscores a significant shift in Australian attitudes toward climate change following the bushfires. These findings contribute to our understanding of public opinion dynamics and the role of experiential factors in climate change belief.

1. Introduction

Australia, due to its unique combination of geographical and climatic conditions, stands out as a hotspot for bushfire incidents. As the world's driest inhabited landmass (Hennessy, 2011), it is particularly vulnerable and worsened by anthropogenic factors of human activities (Stanley, 2019). In 2019-2020, Australia experienced an intense bushfire season, marked not just by the widespread devastation of natural environments, but also by its severe impact on urban areas. According to Britannica (2023), the quantity and composition of fuel, meteorological conditions, and topographical features are the principal determinants of the size and intensity of bushfires. But recently, a lot of people have been talking about the relation of climate change and bushfires (ABC News, 2022; Murphy, 2019).

The Sustainable Development Goals (SDGs) set by the United Nations provide a comprehensive framework for addressing global challenges, including climate change (Goal 13). They emphasise the need for collective efforts to achieve sustainable development, and climate action is at the heart of these goals. This research delves into the impact of the 2019-2020 Australian bushfire event on public perceptions of climate change, aligning with the SDGs' overarching objectives to promote climate action and sustainable communities. By employing data science techniques to analyze pre- and post-bushfire

survey data, the study sheds light on the evolving landscape of climate change beliefs and factors that influence them. The research contributes to the broader discourse on achieving SDGs targets by uncovering critical insights into the transformative power of natural disasters in shaping public opinion and policy decisions related to climate change mitigation and adaptation.

While numerous studies have delved into the effects of climate anomalies on bushfires, there is a gap in understanding the broader societal implications, especially the shifts in public perception post such events. This research aims to fill this void by investigating the impact of the 2019-2020 bushfires on the Australian public's perception of climate change. Specifically, it aims to reveal how demographic variables, like the highest level of education completed, age, gender, political affiliation, and direct exposure to the fires, shape these perceptions.

This research explores how the bushfires caused a shift in the public's perception of climate change. The hypothesis of this study is "In a comparison of people surveyed before and after the 2019 bushfires in Australia, those surveyed after the bushfires will be more likely to acknowledge the role of climate change's contribution to bushfires than those surveyed before the bushfires".

2. Literature and Theory

Climate change is widely acknowledged as a substantial contributor to natural disasters (Abatzoglou & Williams, 2016; Phillips et al., 2015). These climatic shifts and their possible effect on extreme weather events are believed to have a considerable impact on public opinion (Akerlof et al., 2013; Howe et al., 2013; Myers et al., 2013). Researchers predict that these climate shifts and the possibility that they may influence extreme weather occurrences will have a significant influence on public perception. According to Weber (2010) and Whitmarsh (2008), personal experience with extreme weather events such as floods or heatwaves, may increase awareness and concern about climate change.

In contrast, there is some disagreement over how demographic characteristics influence how people perceive climate change. Teyton and Abramson's study (2021) indicated that demographic attributes like age and gender played a marginal role in climate change perceptions. On the other hand, Karlsson (2019) discovered that these factors were influential in determining an individual's attitude towards climate change. This discrepancy implies that demographic factors, while playing a role, might interact with other influences on shape attitudes towards climate change.

Political affiliation (McCright & Dunlap, 2011), level of education (Levi, 2021), and media exposure (Fisher & Park, 2020) are three additional variables considered critical to understanding climate change perceptions. Political ideology and affiliation often dictate environmental attitudes, as political leaders and parties can significantly influence public opinion. Education level also appears to shape climate change beliefs, as a higher degree of education often corresponds to a better understanding of scientific concepts and evidence. Media exposure is another instrumental factor, considering its potential to either enlighten or mislead the public about climate change. Fisher & Park (2020) noted that the type and source of media consumption significantly influence perceptions. Hence, understanding the role of media is crucial, given its capacity to shape narratives and influence public opinion.

In the case of Australia, Biddle et al. (2020) linked bushfires and climate change to a reduction in support for coal mines. According to the Lowy Institute's (2019) poll on views towards climate change, 61% Australians believe that climate change is occurring and the public demand action from the government. Further reinforcing this, a study by The Australia Institute (Martin & Wishart, 2021) found that 75% of Australians express concern about climate change. This indicates how a substantial majority of Australians are already aware of and concerned about climate change.

To recap from all research mentioned previously, a wide range of factors that can influence the attitudes and behaviours of Australians toward climate change are demographic characteristics of gender and age, education level, political affiliation, media consumption, fossil fuel reduction support, and direct exposure of firebush. Each of these components contributes to a deeper understanding of public attitudes towards climate change, forming the theoretical foundation of this research.

3. Data and methodology

This study examines survey data by YouGov, an international market research firm, before and after the 2019 Australian bushfires, to see if there was a shift in public opinion on climate change. YouGov (2019, 2020) employed a stratified sampling technique to ensure a diverse and representative cohort of Australian citizens. Using this method, they conducted a panel online survey on an identical cohort of 1,800 Australian citizens aged 18 and above. Participants were selected based on various demographic categories, including age, gender, region, and socio-economic status, to mirror the overall distribution of the Australian population. This stratification ensured that the sample was reflective of the broader community, enhancing the validity of the survey results. The survey covers all the data required to test the hypothesis of this study. Some statistical methods of exploratory data analysis (including factor analysis), McNemar test, and ordinal logistic regression are applied in the research. These data science methods are particularly valuable as they can uncover hidden patterns and insights that might not be immediately observed upon a brief review of the data, offering a deeper understanding of complex datasets.

The dependent variable in this study is the individual's belief in climate change, specifically the acknowledgement of its existence and its contribution to bushfires. The data on this variable is obtained from two questions in the YouGov surveys - question Q29a from the 2019 wave 1 survey and question Q29_a from the 2020 survey. Both questions asked respondents about their perceptions of climate change, more specifically if they believe climate change is real and if they think it had a role in intensifying the bushfires.

The response options for these questions are illustrated in Figure 1. For statistical analysis using ordinal logistic regression, these responses have been numerically coded to represent an ordinal scale:

- 'Has probably been happening' is coded as '3'
- 'Probably hasn't been happening' is coded as '2'
- 'Don't know' responses, reflecting the respondents' uncertainty or lack of knowledge, are based on Mondak (2001) and coded as '1'.
- The 'Skipped' and 'Not Asked' responses are coded as '0'. However, these latter responses will not be included in the analyses.

In this study, three main ordered categories are used for the purpose of the regression: 'Has probably been happening', 'Probably hasn't been happening', and 'Don't know'. The numerical coding establishes an ordinal relationship among the categories, with '3' indicating the highest level of certainty about the occurrence, '2' indicating scepticism, and '1' denoting uncertainty or lack of knowledge.

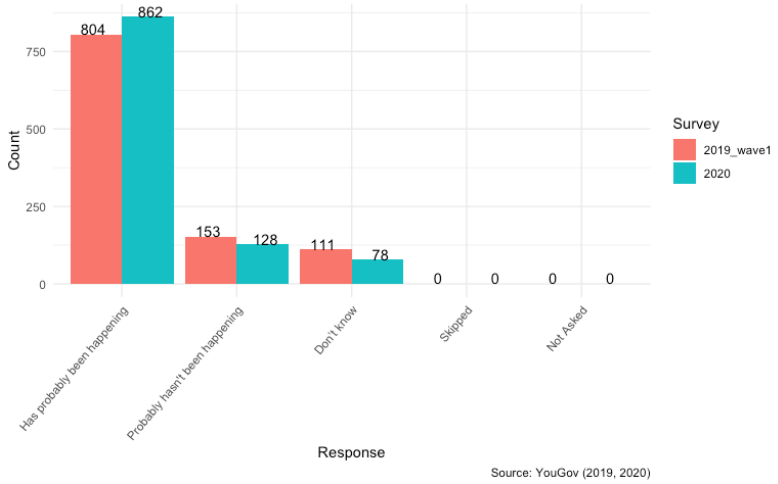


Figure 1. The number of respondents by their perceptions on climate change, 2019 & 2020

Then, for implementing the factors discussed in the prior literature theory, this study uses independent variables from the YouGov survey as potential determiners of climate change opinion. See Table 1.

Table 1. Summary of the independent variables from the YouGov Survey

Variable	Definition
Gender	1 = Male, 2 = Female
Age Group	1 = 18-24, 2 = 25-34, 3 = 35-44, 4 = 45-54, 5 = 55-64, 6 = 65-above
Education Level	1 = Less than year 12, 2 = Year 12 or equivalent, 3 = Advanced Diploma and Diploma, 4 = Bachelor's Degree, 5 = Graduate Diploma or Graduate Certificate, 6 = Postgraduate Degree
Political Party	Political Party of the respondents: Labor, Liberal, National, LNP, Greens, Other
Online Media	Online (via websites, apps, social media, and other) media consumed to access news (26 categories, details see Appendix 6.1)
Offline Media	Offline (via TV, radio, print, and other) media consumed to access news (13 categories, Appendix 6.2)
Fossil Fuel Reduction Support	Don't know, Strongly oppose, Oppose, Neither support nor oppose, Support, Strongly Support, Skipped, Not Asked
Direct Exposure of Firebush	Effect of firebush in exercise/outdoor time, holiday plans, property damage, health, and business workplace

For determining the change in public opinion from 2019 to 2020, the McNemar Test will be applied to test for significance in the categorical dependent variable (Agresti, 2012). For the McNemar test, based on the Section 1, the hypotheses will be stated as:

- Null Hypothesis (H_0): There is no significant difference in the proportion of respondents acknowledging the role of climate change in contributing to bushfires before and after the 2019 bushfires.
- Alternative Hypothesis (H_a)): There is a significant difference in the proportion of respondents acknowledging the role of climate change in contributing to bushfires before and after the 2019 bushfires.

Statistical significance, as indicated by the p-value, will determine decisions regarding the null hypothesis. If the p-value is below the 0.05 threshold, it will be concluded that the change in public opinion is statistically significant.

Ordinal logistic regression will also be used in this study. Logistic regression is a common modelling for predicting discrete variables, and the ordinal logistic regression type is used when the dependent variable is categorical and ordered (ordinal). It is an extension of the binary logistic regression, which is used to predict a binary outcome. In this research, the ordinal will be used to model the ordered responses regarding belief in climate change. The coded responses to the survey questions will be treated as ordinal in the regression models. One model will be fitted to the responses to question Q29a from the 2019 survey and another model to the responses to question Q29_a from the 2020 survey. The two models can inform the influencing factor for climate change shifting opinion.

4. Results

The main findings of this study are presented in two parts. First is the exploratory data analysis of the independent factors plus an association exploration among them, and the second part is the statistical analysis.

4.1. Exploratory Data Analysis

4.1.1. Demographic Factors (Gender and Age). Based on Table 2 and Figure 2, there are differences in the average belief in climate change across various age groups and genders. However younger and older people tend to have a stronger belief in climate change, and there seems to be a slightly more stable

value in these groups based on the standard deviation. The idea that climate change is probably happening in 2020 is also slightly higher generally than in 2019.

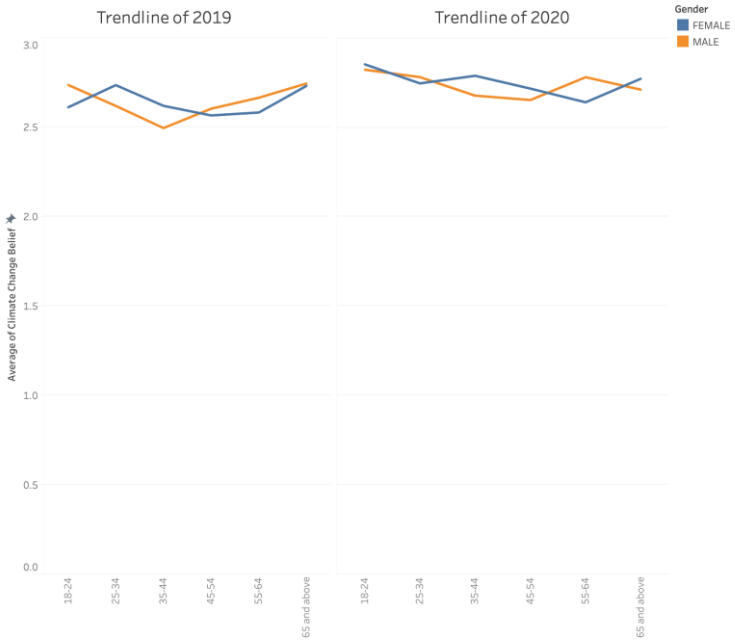


Figure 2. Trend Line of Average of Climate Change Belief based on Gender and Age Group in 2019 and 2020

Table 2. Numeric summary of climate change belief by Gender and Age.

age group	gender	2019_avg	2019_stdev	2020_avg	2020_stdev
18-24	Female	2.61	0.77	2.85	0.53
18-24	Male	2.74	0.62	2.82	0.46
25-34	Female	2.73	0.61	2.75	0.59
25-34	Male	2.62	0.71	2.78	0.57
35-44	Female	2.62	0.73	2.79	0.55
35-44	Male	2.49	0.78	2.68	0.67
45-54	Female	2.56	0.76	2.72	0.63
45-54	Male	2.60	0.65	2.65	0.64
55-64	Female	2.58	0.73	2.64	0.68
55-64	Male	2.66	0.63	2.78	0.51
65 and above	Female	2.73	0.57	2.77	0.48
65 and above	Male	2.74	0.49	2.71	0.60

Note: Higher average values correspond to the belief that climate change is probably happening

4.1.2. Education Level. In general, Australians who hold bachelor's degrees or higher (code 4, 5, 6) are more likely to believe climate change is happening than those with lower education levels. In addition, there is evidence of a strengthening consensus on climate change from 2019 to 2020 on all educational levels, as shown in Figure 3. Most notable shift is among respondents with advanced diplomas, bachelor's degrees, and graduate diplomas or certificates (code 3, 4, 5).

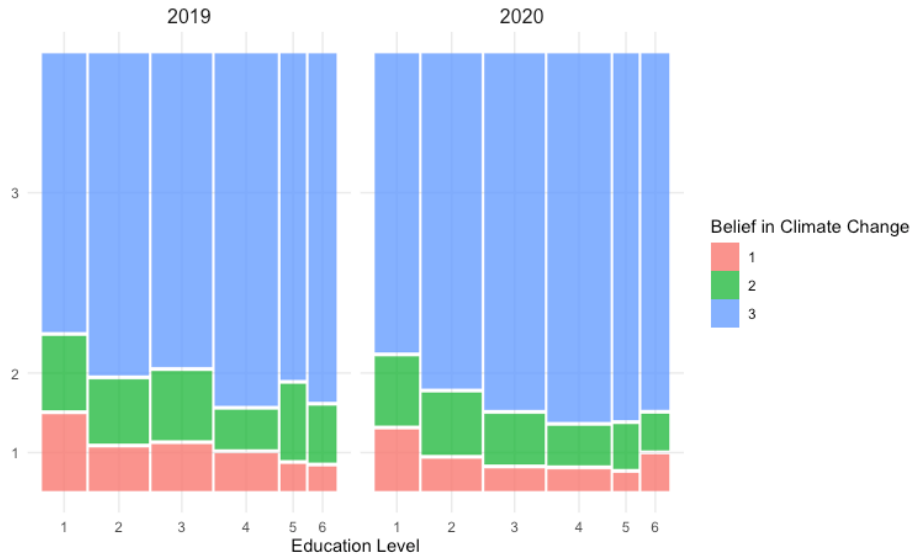


Figure 3. Comparison of Education Level and Climate Change Belief in 2019 and 2020

4.1.3. Political Party. Respondents with the Labor, Liberal, and Greens party mostly support that climate change is happening, while those affiliated with the National party have a higher proportion believing climate change probably hasn't been happening. Although individual perspectives can differ, Figure 4 suggests that political affiliation could have a significant correlation with their belief in climate change. It shows the proportion of Political Party of the respondents for each climate change belief.

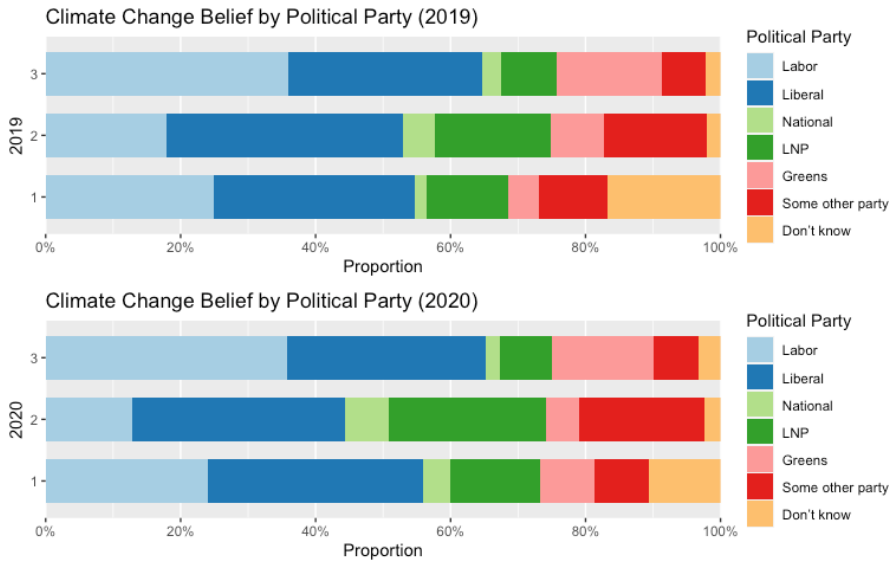


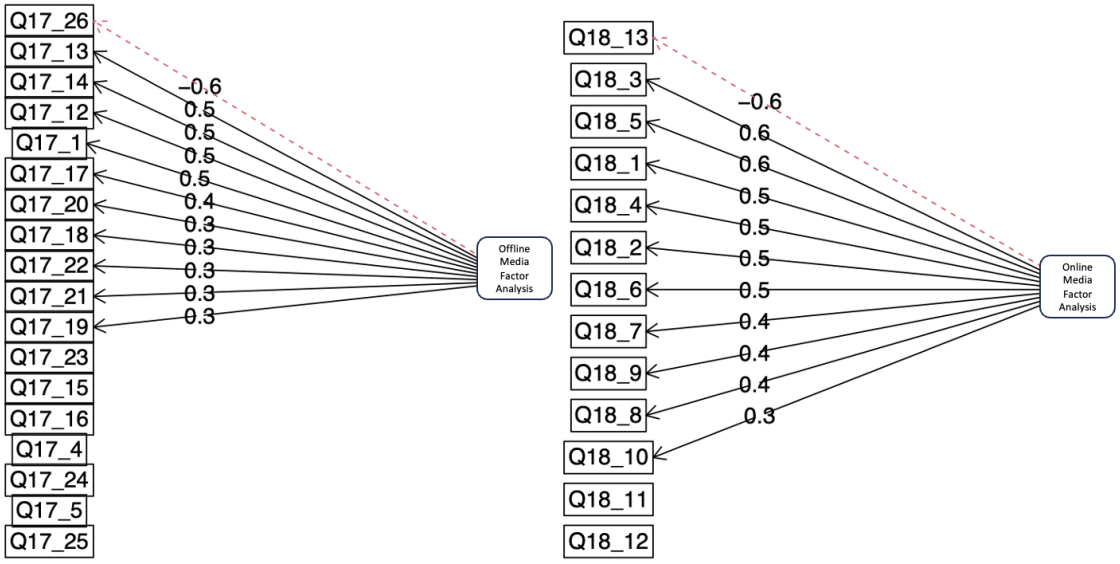
Figure 4. Climate Change Belief by Political Party in 2019 and 2020

4.1.4. Offline & Online Media Consumption. The original dataset included data on media consumption from 26 online and 13 offline media options. The data type for these variables was categorical, indicating if a respondent engaged with a specific media source or not. The categorization into 'offline' and 'online' is based on the primary mode of access and consumption. These categories are crucial because they help delineate where respondents are primarily getting their information, which can subsequently influence their beliefs about climate change. It is proposed that varying media platforms might have differing levels of coverage or perspectives on climate change, potentially shaping public opinion in distinct ways.

The need for factor analysis arises from the volume of the original categories (26 online and 13 offline). Simplifying these many categories into two broader constructs - 'online media consumption' and 'offline media consumption' - helps in achieving a better model. Although the individual media sources are manifest variables, 'online' and 'offline' media consumption can be conceptualized as latent constructs that represent underlying tendencies or preferences of respondents to consume information in a particular manner. Factor analysis aids in capturing the essence of these underlying tendencies from the excess of manifest variables.

The factor analysis results (illustrated in Figure 5 and detailed variables in Appendix 6.3 & 6.4) suggest different preferences in media consumption. The diagrams show the factor analysis result and the score that represent an individual's propensity or inclination towards a particular type of media consumption, with higher scores indicating more frequent consumption.

Offline media sources like Channel 10, Channel 9, and Channel 7 are the most consumed. Conversely, online media preferences lean towards BBC, Guardian Australia, and New York Times. The negative value in the diagram represents other media options, implying that a significant portion of media consumed by respondents has been accounted for in this analysis. It is also observed that some media sources do not correlate significantly with the latent constructs, as indicated by the absence of arrow connections in Figure 5. By reducing the dimensionality of the dataset and obtaining these factor scores from factor analysis, a more efficient analysis on the impact of media consumption on climate change beliefs can be obtained.



(a) Offline Media Consumption (b) Online Media Consumption

Figure 5. Factor Analysis Diagram of Offline and Online Media Consumption

From the trend shown in Figure 6, offline media appears to have a slightly positive influence on climate change belief in 2019 and 2020. The histogram shows most respondents' factor analysis scores are negative, meaning that a specific kind of media is consumed rather than the 'other media' option. Specific to the probably happening class, the plot reveals that there are increasing believers from higher scores of offline media consumption.

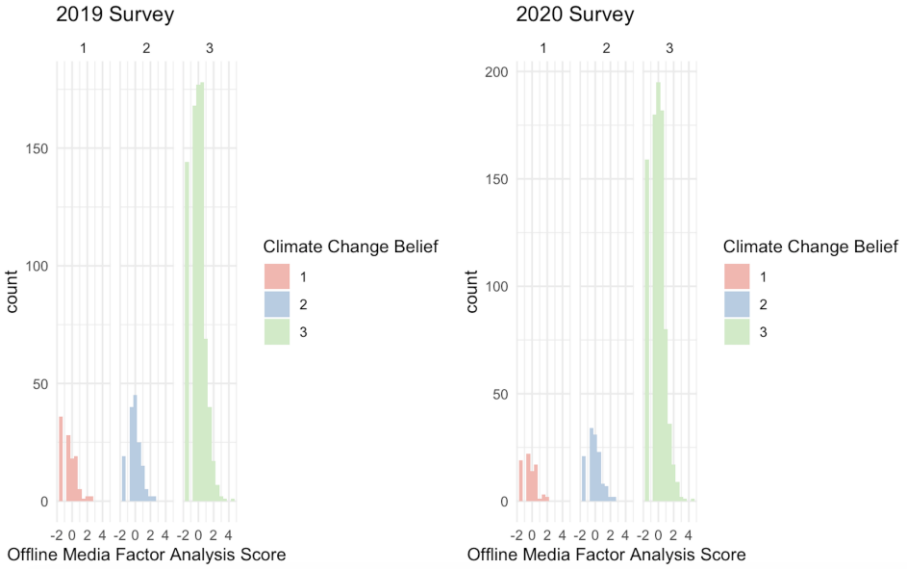


Figure 6. Histogram of Offline Media Consumption and Climate Change Belief

Similar to offline media, Figure 7 shows that online media consumption also potentially plays a role in climate change beliefs. Even though there is a slight decrease in consumption for the 'probably happening', the number is still significant. But compared to offline media, the online media consumption has a slightly higher correlation to the climate change belief.

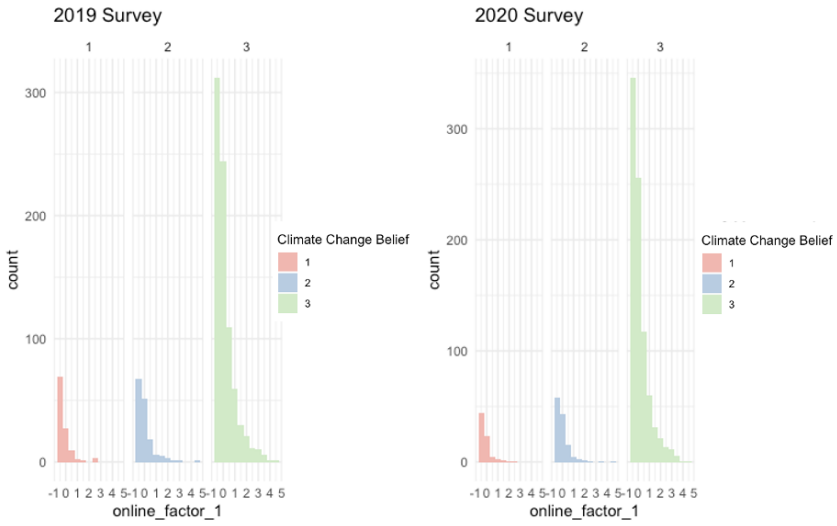


Figure 7. Histogram of Online Media Consumption and Climate Change Belief

4.1.5. Fossil Fuel Reduction Support. Examining the distribution of responses as visualized in Figure 8 and 9, the analysis suggests a positive correlation between belief in climate change and support for fossil fuel reduction. In 2019, a significant majority of respondents expressed support or strong support for reducing fossil fuel usage. The proportion of those opposing or strongly opposing the reduction remained relatively low. This indicates a high level of awareness and willingness to address climate change through sustainable energy practices. The pattern persisted in 2020, reinforcing the ongoing

recognition of the importance of mitigation efforts. Moreover, respondents who expressed belief in climate change generally also supported efforts to curb fossil fuel usage, reflecting an understanding of the role fossil fuels play in climate change.

Figure 8. Climate change belief among fossil fuel reduction support

4.1.6. Direct Exposure of Firebush. Using factor analysis, the firebush exposure variable can be constructed from five distinct variables that measure the effect of direct exposure in various ways: exercise/outdoor time, holiday plans, property damage, health, and business workplace. Figure 9 (more detailed in Appendix) illustrates that all five variables are highly correlated with the new variable. Higher value means those variable impacts more to the firebush direct exposure factor analysis result.

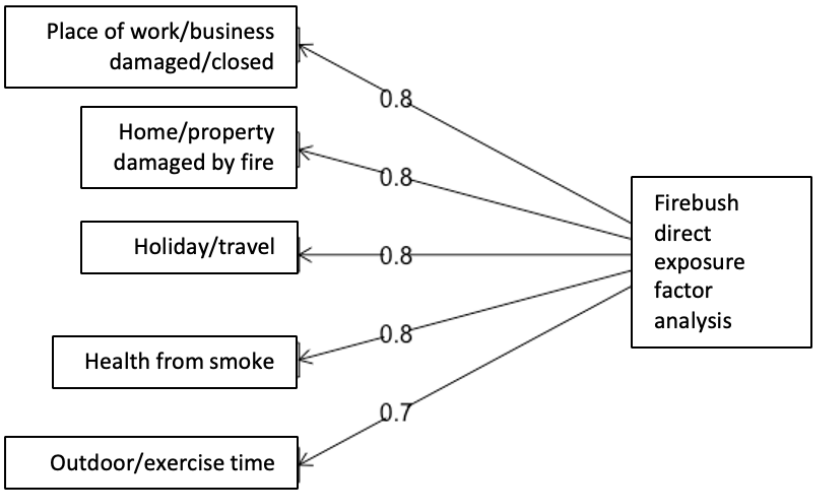


Figure 9. Factor Analysis Diagram of Firebush Exposure

Analyzing the relationship between firebush exposure and climate change beliefs (as shown in Figure 11), it appears that the correlation between direct firebush exposure and climate change beliefs slightly weakened from 2019 to 2020. However, the change is minimal, and in both years, the correlation remains very weak. This reveals a consistency in how direct firebush exposure impacts climate change beliefs over time, although the effect is minimal. Meaning that, interestingly, as direct firebush exposure increases, the belief in climate change slightly decreases, creating a disconnect between the perceived causes of bushfire events and the understanding of climate change.

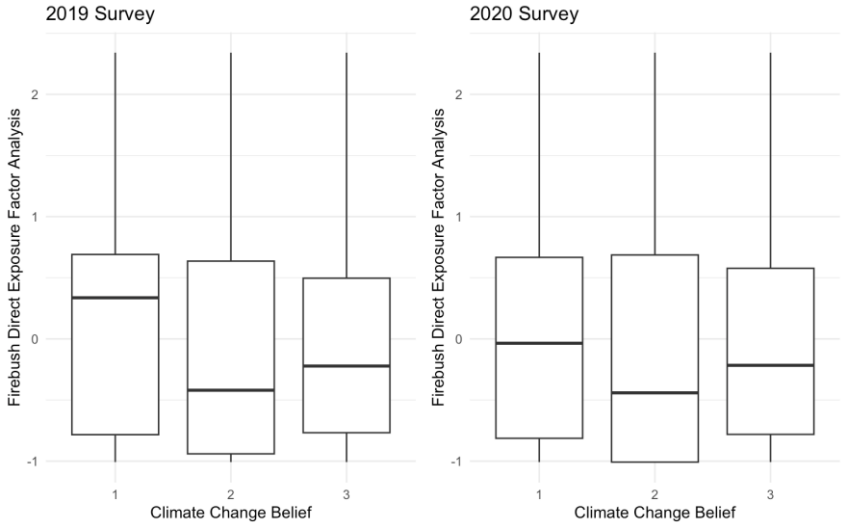
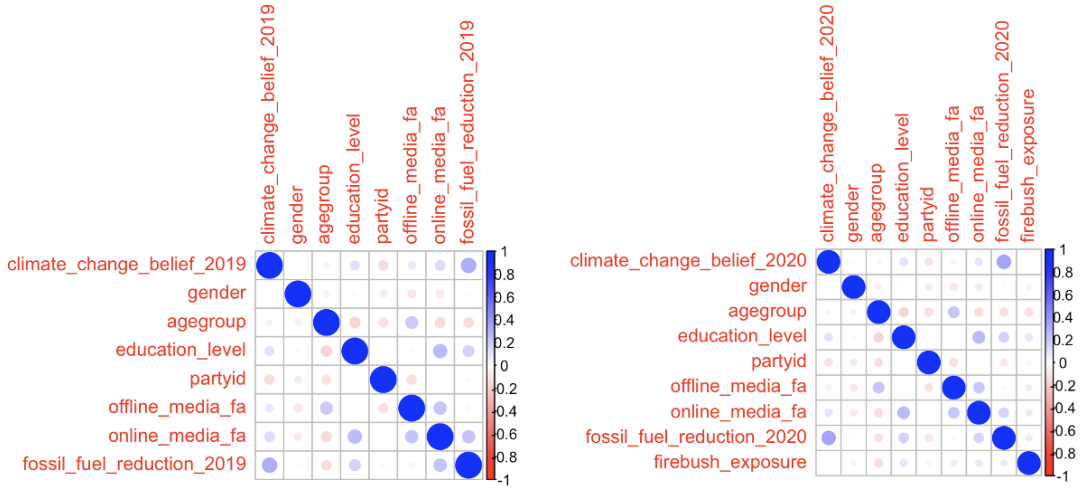


Figure 10. Boxplot of Firebush Exposure for each level of Climate Change Belief

4.1.7. Association Exploration. Figure 11 illustrates a correlation between the analyzed variable and the belief in climate change. In both years, the reduction of fossil fuels, online media consumption, and education have a stronger positive correlation compared to the political party. Given that political party is categorical rather than ordinal data, this should be interpreted cautiously.



(a) 2019 Data (b) 2020 Data

Figure 11. Correlation Plot of Dataset

4.2. Statistical Analysis

4.2.1. McNemar Test. Following the McNemar test for determining the significance of opinion change (Table 3), the change in public perception of climate change between 2019 and 2020 is supported by the p-value of 0.0007914, which is lower than the threshold of 0.05. This transition is further clarified by the mosaic plot, which reveals an increase in the proportion of respondents moving from categories 1 to category 3. This indicates an increase in the likelihood that climate change is occurring, representing a significant shift in public opinion during the study period.

Table 3. McNemar Test Result

	Chi-squared value	*Degrees of Freedom*	*P value*
McNemar's chi-square	*16.76087*	*3*	*0.0007914*

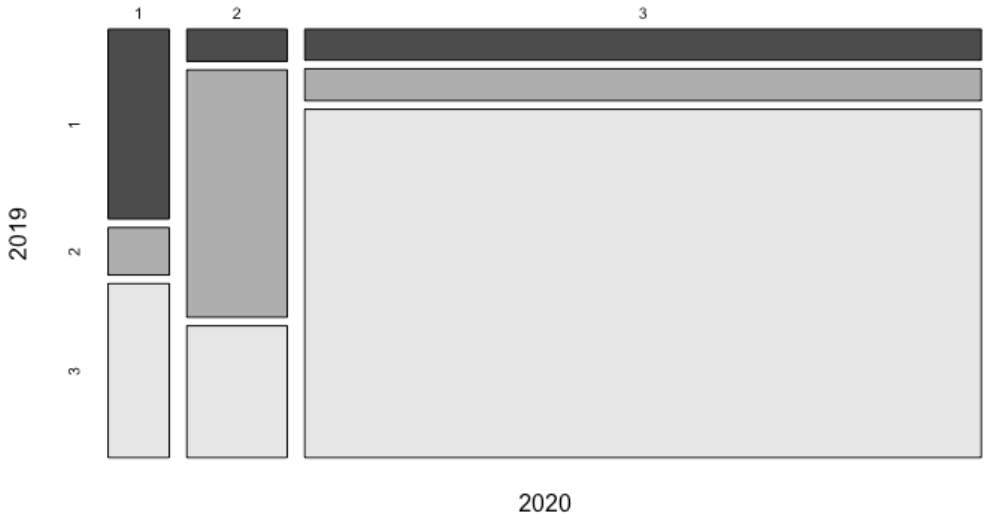


Figure 12. Mosaic Plot of Dependence Variable

4.2.2. Logistic Regression. Comparing the 2019 and 2020 models (Table 4), education level, political affiliation, and views on fossil fuel reduction remain as consistent significant predictors of climate change belief. However, their strength and significance shift between the two years. Education's positive effect on climate change belief persists, with the most influential levels shifting from level 4 in 2019 to level 5 in 2020. Negative impacts linked to specific political party affiliations also persist, although the parties with the most significant influence change. Strong support for fossil fuel reduction consistently correlates with elevated climate change belief in both years. This comparison indicates that while certain factors remain consistent influencers of climate change belief, their magnitude and significance can vary annually. Interestingly, the estimated coefficient for the "firebush_exposure" predictor is negative (-0.14839). This suggests that respondents who were exposed to the fires are less likely to believe in climate change, assuming all other variables are held constant. This result might seem counter-intuitive and could be due to other factors such as education level and fossil fuel reduction support.

Table 4. Logistic Regression Result Comparison between 2019 and 2020

Variable	2019	2020
gender2	0.208	0.031
agegroup2	-0.34	-0.319
agegroup3	-0.3	-0.238
agegroup4	-0.073	-0.57
agegroup5	0.124	-0.179

Variable	2019	2020
agegroup6	0.529	-0.136
education_level2	0.492**	0.274
education_level3	0.282	0.739***
education_level4	0.757***	0.667**
education_level5	0.556*	0.988***
education_level6	0.632*	0.188
partyid2	-0.415**	-0.342
partyid3	-0.567	-1.303***
partyid4	-0.682**	-0.899***
partyid5	-0.091	-0.338
partyid955	-0.811***	-0.922***
partyid977	-1.810***	-0.537
offline_media_fa	0.147	0.088
online_media_fa	0.146	0.108
fossil_fuel_reduction_20192	-0.195	
fossil_fuel_reduction_20193	0.361	
fossil_fuel_reduction_20194	0.552*	
fossil_fuel_reduction_20195	1.326***	
fossil_fuel_reduction_20196	2.083***	
fossil_fuel_reduction_20202		0.074
fossil_fuel_reduction_20203		0.356
fossil_fuel_reduction_20204		1.261***
fossil_fuel_reduction_20205		1.878***
fossil_fuel_reduction_20206		2.585***
firebush_exposure		-0.145

Note: *p<0.1; **p<0.05;***p<0.01

However, the study is based on self-reported survey data, which may be influenced by response bias by the respondents. Furthermore, the analysis is correlational and has minimum inference of causality. Finally, while potential confounding factors will be included in the model, there may still be unexplained variables that influence the model.

5. Conclusion

There are three key determinant factors in this case study that influence climate change belief among Australians: education level, political affiliation, and perceptions about fossil fuel reduction. Surprisingly, demographic factors like gender and age were found to be less significant predictors, unlike majority of findings in previous studies. This research found that personal experience, especially through 'firebush exposure', played a critical role in altering beliefs. It is the most prominent discovery of this research that there is a significant shift in Australian attitudes toward climate change following the 2019 bushfires, reflecting the profound impact of major environmental catastrophes on public beliefs.

As for media consumption, both online and offline media appear to have low influence on climate change belief. This is also contrary to several prior studies but emphasizes the evolving nature of public opinion and its drivers. It underscores the complex relationship between direct exposure to environmental disasters and beliefs about climate change and calls for further study.

However, this study has its limitations. First is the inability to establish causality as a result of its cross-sectional design and the possibility of self-report bias (reported beliefs may not necessarily

translate into actions). In addition, the inherent difficulty of quantifying attitudes toward complex issues such as climate change must be considered but could not be captured in this study.

The most prominent discovery of this study is the marked transition in Australian sentiments towards climate change post the 2019 bushfires, reflecting the profound impact of major environmental catastrophes on public beliefs. Nevertheless, this study has its confines. The chief among these is the challenge of establishing direct causality due to its cross-sectional design, coupled with the potential for self-report bias. This means stated beliefs might not always correspond to real-world actions. Furthermore, the innate challenge of quantifying attitudes on intricate subjects like climate change was not entirely addressed in this research.

Despite these constraints, the research offers invaluable insights into how significant environmental events can sway public opinions. It highlights the necessity for further research, especially focusing on understanding the relationship between firsthand experiences of other environmental events and climate change beliefs. With the advancements in data science, there are opportunities to delve deeper using sophisticated data exploration techniques. These techniques can unveil nuanced findings pivotal for stakeholders aiming to achieve goal 13 of the Sustainable Development Goals (SDGs) concerning climate change. Employing such innovative methods can lead to more robust policy-making, informed public discourse, and actionable insights for sustainable futures.

Appendices

Online Media Consumption

Question: Which of the following media have you used to access news **online** in the last week (via websites, apps, social media, and other forms of Internet access)? Please select all that apply.

Responses List:

Variable	*Online Media Name*
Q18_1	Q18. Online news - ABC Online
Q18_2	Q18. Online news - New York Times
Q18_3	Q18. Online news - Guardian Australia
Q18_4	Q18. Online news - CNN
Q18_5	Q18. Online news - BBC
Q18_6	Q18. Online news - Huffington Post
Q18_7	Q18. Online news - Buzzfeed
Q18_8	Q18. Online news - Crikey
Q18_9	Q18. Online news - News.com.au
Q18_10	Q18. Online news - Sky news online
Q18_11	Q18. Online news - Breitbart
Q18_12	Q18. Online news - Other
Q18_13	Q18. Online news - None of these

Offline Media Consumption

Question: Which of the following media have you used to access news **offline** in the last week (via TV, radio, print, and other traditional media)? Please select all that apply.

Response List

Variable	*Offline Media Name*
Q17_1	Q17. Offline news - ABC TV
Q17_2	Q17. Offline news - The Sydney Morning Herald
Q17_3	Q17. Offline news - The Daily Telegraph
Q17_4	Q17. Offline news - The Australian
Q17_5	Q17. Offline news - The Australian Financial Review
Q17_6	Q17. Offline news - The Age
Q17_7	Q17. Offline news - Herald Sun
Q17_8	Q17. Offline news - Courier Mail
Q17_9	Q17. Offline news - The West Australian
Q17_10	Q17. Offline news - The Adelaide Advertiser
Q17_11	Q17. Offline news - Canberra Times
Q17_12	Q17. Offline news - Channel 7
Q17_13	Q17. Offline news - Channel 9
Q17_14	Q17. Offline news - Channel 10
Q17_15	Q17. Offline news - Sky News
Q17_16	Q17. Offline news - National Indigenous Television (NITV)
Q17_17	Q17. Offline news - SBS television
Q17_18	Q17. Offline news - ABC radio
Q17_19	Q17. Offline news - AM radio
Q17_20	Q17. Offline news - FM radio
Q17_21	Q17. Offline news - Prime7
Q17_22	Q17. Offline news - WIN Television
Q17_23	Q17. Offline news - Other local or regional paper
Q17_24	Q17. Offline news - Other local or regional TV
Q17_25	Q17. Offline news - Other
Q17_26	Q17. Offline news - None of these

KMO Value & Scree Plot for Factor Analysis of Media Consumption

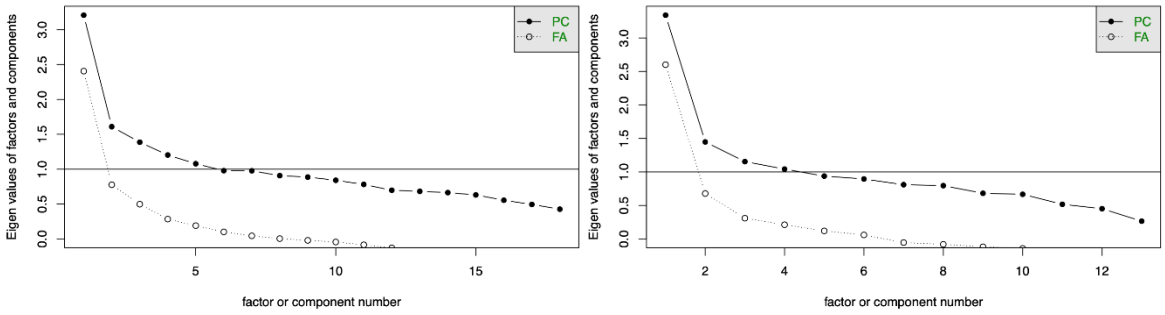


Figure 9. Scree Plot of Media

KMO Value & Scree Plot for Factor Analysis of Direct Firebush Exposure

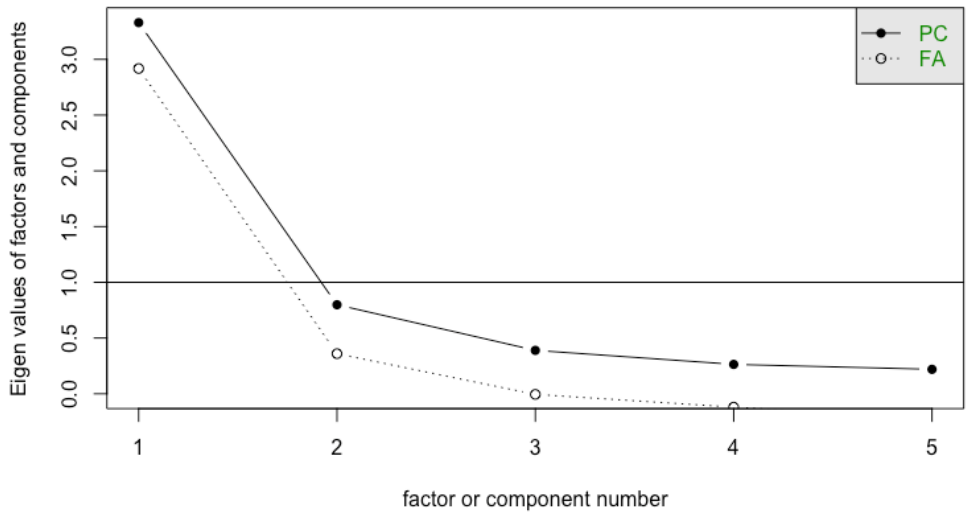


Figure 102. Scree Plot of Direct Firebush Exposure

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