Analyze of Conventional and Electric Car use: Benefits, Disadvantages, and Consumer Choices using Jasp (Jeffrey's Amazing Statistics Program)

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Abstract:- The development of electric vehicles is a social answer to technological advances and reduces the impact of air pollution (CO_2) caused by many conventional transportation. However, there is still a limited level of use of electric cars, especially in Indonesia. Given how fast the electric vehicle market is growing, it's important to understand customer opinions, and how consumers perceive conventional and electric vehicles. The review is based on opinions conducted to examine public acceptance and perception of electric vehicles as well as a literature review. Those who drive electric cars (EV) and are at least 18 years old are the target respondents for this questionnaire. The advantages and disadvantages of electric and conventional cars are covered in the questionnaire. Purposive sampling was used to obtain 75 respondents. After being collected online using the Google Form platform, empirical data is examined and processed using the JASP (Jeffrey's Amazing Statistics Program) application to perform quantitative descriptive analysis techniques. From this verified data, 75 respondents indicated that the public generally has a positive impression of electric car (EV) users, as shown in the table with the code. EV 11: Electric cars compared to conventional cars. Electric cars can produce cleaner air and reduce their adverse effects on the environment, scoring 335 points, which is the maximum value in points. With the code KNV 330, conventional cars have a greater and longer mileage than electric cars. The findings of this study suggest that people who drive electric cars generally have positive opinions and are aware of their benefits. which includes reduced operating costs, environmental sustainability, and energy efficiency. However, there are obstacles in terms of charging infrastructure (SPKLU) that are inadequate and require exorbitant costs to increase the number of electric vehicle use in Indonesia.

Keywords:- *Public Perception; Electric Cars and Conventional Cars; Quantitative Descriptive Analysis; Jasp.*

I. INTRODUCTION

The automotive sector in Indonesia mostly uses natural gasses. The greater distribution of fuel subsidies is one of the drawbacks of a strong reliance on fossil fuels. Concerns about energy sustainability and elevated CO_2 emissions.

Due to the widespread usage of fossil fuel – powered cars, the transportation sector is the primary source of elevated CO_2 levels in the atmosphere . (Gandajati &; Mahyuni, 2022).

Electric cars have become an attractive alternative to conventional internal combustion engine vehicles for various reasons such as environmental sustainability, energy efficiency, and lower operating costs. However, despite these advantages, the adoption of electric cars is still relatively low. This study aims to understand user perceptions related to electric cars and factors influencing the acceptance and adoption of this technology. (Ramadhani &; Yuliana, 2023) However, people only know about electric cars andlack interest in the use of electric cars because the price of electric vehicles is expensive compared to conventional vehicles making electric vehicles less competitive with conventional vehicles. Vehicles as a mode of transportation will certainly travel a certain distance, the limited mileage of an EV is aninterrelated risk with the availability of SPKLU infrastructure (General Electric Vehicle ChargingStation),

This study aims to analyze consumer perceptions of electric and conventional cars. Where this research has been done from several researchers, from all the results obtained by the panelites are still the same that the public or consumers are only interested in the concept brought by electric cars and are reluctant to switch to electric cars themselves. So that This research is expected to contribute theoretically and practically in the development of electric vehicles in Indonesia

> *Library Research and Hypothesess*
> Perception can be interpreted as the process that a person goes through in selecting, organizing and interpreting information with a purpose form a meaningful picture of his world (Sopha, 2019). Perception is the immediate result of absorption or human processes that enable knowledge of specifics acquired through sensing (According to Purwodaminto).

II. METHOD

This research was conducted through a quantitative approach using Java Island as the research location. The target of this study is at least 18 years of age, That understand the development of electric vehicles in Indonesia. Through purposive sampling, a total of 75 research respondents were obtained. Empirical data is collected online through Google Forms. The questionnaire link is then disseminated online through social media platforms. The collected data is then analyzed with quantitative descriptives using the jasp platform.

III. RESULTS AND DISCUSSION

Below is a table containing the results of thequestionnaire with a total of 30 perceptions that we have collected from several sources and divided into 15 perceptions about electric cars (EV) and conventional cars (KNV) as follows

Table 1 Table of Perception

Perception	Code
1.The power generated by electric cars is more responsive than conventional cars	EV1
2. Electric cars are more efficient in energy consumption than conventional	EV2
3. Electric cars are free of odd-even tickets.	EV3
4. Lack of service and mechanical support in electric cars.	EV4
5. Low resale value of electric cars	EV5
6. Electric cars have advanced and modern technology and features, becauseSome features can be accessed through touch layers	EV6
7. Electric car maintenance is relatively easier than conventional cars becauseelectric cars have fewer moving parts	EV7
8. One of the advantages of electric cars is that they can charge the battery at homewithout Have to queue to buy fuel outside	EV8
9. Electric car operating costs are lower compared to carsconventional gasoline fueled	EV9
10. Electric car mileage is more limited	EV10
11. Electric cars Can reduce negative impacts on the environment andcreating cleaner air.	EV11
12. Electric cars are also quieter than conventional cars because they do not use noisyinternal combustion engines.	EV12
13. Reduce dependence on oil imports and strengthennational energy sustainability.	EV13
14. Further technological development will encourage developmenttechnology and innovation in the automotive sector.	EV14
15. The price of electric cars is still relatively high, the cost of spare parts is higherCompared to conventional cars	EV15
16. Conventional cars are tougher than electric cars	KNV1
17. Conventional cars have more different models and variants.	KNV2
18. Wide availability of spare parts holders.	KNV3
19. Conventional cars emit exhaust emissions such as CO2, NOx, andparticles that harm the environment and human health.	KNV4
20. Conventional cars are more at risk of damage due to the large number of componentsthat moves	KNV5
21. Conventional cars have a longer and more travel rangefar compared to electric cars.	KNV6
22. If a conventional car has problems with the engine, it is easy to recognize thesymptoms of engine damage and repair costs tend to be more affordable	KNV7
23. Refueling conventional cars is faster compared to electric cars	KNV8
24. Conventional cars remain the first choice even in the zero emission era	KNV9
25. Operating costs of conventional cars are higher than electric carsDue to fluctuating fuel prices and expensive maintenance.	KNV10
26. Conventional Cars Are Generally More Affordable in terms of Spare Part Pricesand maintenance Compared to electric cars	KNV11
27. Conventional cars produce damaging air and noise pollutionMilieu	KNV12
28. More Available and Widespread Charging Infrastructure in various places,making it easy for drivers to find and use	KNV13
29. Conventional cars rely heavily on petroleum supply chains that can be disruptedby political changes, conflicts and natural disasters	KNV14
30. Conventional cars are generally more affordable in terms of price compared towith electric cars and easier to find on the market.	KNV15

Table 2 Perceptual Value Table

Point	Information	
5	SS	Totally Agree
4	S	Accept
2	TS	Dispute
1	STS	vehemently disagree

Table 3 Frequenc for the Power Generated by Electric Cars is More Responsive than Conventional Cars

Ev1	Frequenc	Percent	Percent Valid	Percent Cumulative
2	8	9.877	9.877	9.877
4	64	79.012	79.012	88.889
4.13160173	1	1.235	1.235	90.123
5	6	7.407	7.407	97.531
298	1	1.235	1.235	98.765
4772	1	1.235	1.235	100.000
Count	81	100.000		

Table 4 Frequenc for Electric Cars are More Efficient inEnergy Consumption than Conventional

Ev2	Frequenc	Percent	Percent Valid	Percent Cumulative
2	10	12.346	12.821	12.821
4	41	50.617	52.564	65.385
5	26	32.099	33.333	98.718
314	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 5 Frequenc for Electric Cars are Free of Odd-Even Tickets.

Ev3	Frequenc	Percent	Percent Valid	Percent Cumulative
2	22	27.160	28.205	28.205
4	33	40.741	42.308	70.513
5	22	27.160	28.205	98.718
286	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 6 Frequenc for Lack of service and mechanical support in electric cars.

Ev4	Frequency	Percent	Percent Valid	CumulativePercent
1	1	1.235	1.282	1.282
2	6	7.407	7.692	8.974
4	46	56.790	58.974	67.949
5	24	29.630	30.769	98.718
317	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 7 Frequenc for Low resale value of electric cars

ev5	Frequency	Percent	Percent Valid	CumulativePercent
2	7	8.642	8.974	8.974
4	46	56.790	58.974	67.949
5	24	29.630	30.769	98.718
318	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 8 Frequenc for Electric Cars have Advanced andModern Technology and Features, Becausesome Features can be Accessed Through Touch Layers

Ev6	Frequency	Percent	Percent Valid	CumulativePercent
2	3	3.704	3.846	3.846
3	1	1.235	1.282	5.128
4	42	51.852	53.846	58.974
5	31	38.272	39.744	98.718
332	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 9 Frequenc for Electric Car Maintenance is Relatively Easier than Conventional Cars Because Electric Cars have Fewer Moving Parts

Ev7	Frequency	Percent	Percent Valid	Cumulative Percent
1	1	1.235	1.282	1.282
2	13	16.049	16.667	17.949
4	44	54.321	56.410	74.359
5	19	23.457	24.359	98.718
298	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 10 Frequenc for One of the Advantages of ElectricCars is that they can Charge the Battery at Home without have to Queue to Buy Fuel Outside

Ev8	Frequency	Percent	Percent Valid	Cumulative Percent
2	2	2.469	2.564	2.564
4	48	59.259	61.538	64.103
5	27	33.333	34.615	98.718
331	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 11 Frequenc for Electric Car Operating Costs are Lower Compared to Carsconventional Gasoline Fueled

Ev9	Frequency	Percent	Percent Valid	CumulativePercent
2	13	16.049	16.667	16.667
4	44	54.321	56.410	73.077
5	20	24.691	25.641	98.718
302	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 12 Frequenc for Electric Car Mileage is More Limited

Ev10	Frequency	Percent	Percent Valid	CumulativePercent
1	1	1.235	1.282	1.282
2	4	4.938	5.128	6.410
4	44	54.321	56.410	62.821
5	28	34.568	35.897	98.718
325	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 13 Frequenc for Electric Cars can Reduce NegativeImpacts on the Environment Andcreating Cleaner Air

Ev11	Frequency	Percent	Percent Valid	CumulativePercent
2	5	6.173	6.410	6.410
4	35	43.210	44.872	51.282
5	37	45.679	47.436	98.718
335	1	1.235	1.282	100.000
Missing	3	3.704		

Count	81	100.000		

Table 14 Frequenc for Electric Cars are Also Quieter than Conventional Cars Because they do not use Noisy Internal Combustion Engines

Ev12	Frequency	Percent	Percent Valid	CumulativePercent
2	2	2.469	2.564	2.564
4	46	56.790	58.974	61.538
5	29	35.802	37.179	98.718
333	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 15 Frequenc for Reduce Dependence on OilImports and Strengthennational Energy Sustainability

Ev13	Frequency	Percent	Percent Valid	Cumulative Percent
2	4	4.938	5.128	5.128
4	44	54.321	56.410	61.538
5	29	35.802	37.179	98.718
329	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 16 Frequenc for Further Technological Development will Encourage Development Technology and Innovation in the Automotive Sector

Ev14	Frequency	Percent	Percent Valid	CumulativePercent
2	3	3.704	3.846	3.846
4	49	60.494	62.821	66.667
5	25	30.864	32.051	98.718
327	1	1.235	1.282	100.000
Missing	3	3.704		
count	81	100.000		

Table 17 Frequenc for the Price of Electric Cars is Still Relatively High, the Cost of Spare Parts is Higher Compared to Conventional Cars

ev15	Frequency	Percent	Percent Valid	Cumulative Percent
2	3	3.704	3.704	3.704
4	49	60.494	60.494	64.198
5	25	30.864	30.864	95.062
327	1	1.235	1.235	96.296
median	1	1.235	1.235	97.531
modus	1	1.235	1.235	98.765
total	1	1.235	1.235	100.000
Count	81	100.000		

Table 18 Frequenc for Conventional Cars are Tougher than Electric Cars

Knv 1	Frequenc	Percent	Percent Valid	Cumulative Percent
2	11	13.580	13.580	13.580
4	39	48.148	48.148	61.728
4.05714285	1	1.235	1.235	62.963
5	28	34.568	34.568	97.531
320	1	1.235	1.235	98.765
4686	1	1.235	1.235	100.000
Count	81	100.000		

Table 19 Frequenc for Conventional Cars have More Different Models and Variants

Knv2	Frequency	Percent	Percent Valid	Cumulative Percent
1	1	1.235	1.282	1.282
2	8	9.877	10.256	11.538
4	44	54.321	56.410	67.949
5	24	29.630	30.769	98.718
326	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 20 Frequenc for Wide Availability of Spare Parts Holders

Knv3	Frequency	Percent	Percent Valid	CumulativePercent
1	1	1.235	1.282	1.282
2	16	19.753	20.513	21.795
4	39	48.148	50.000	71.795
5	21	25.926	26.923	98.718
308	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 21 Frequenc for Conventional Cars Emit Exhaust Emissions such as CO2, Nox, Andparticles that Harm the Environment and Human Health.

Knv4	Frequency	Percent	Percent Valid	CumulativePercent
1	1	1.235	1.282	1.282
2	10	12.346	12.821	14.103
4	43	53.086	55.128	69.231
5	23	28.395	29.487	98.718
318	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 22 Frequenc for Conventional cars have a Longerand More Travel Rangefar Compared to Electric Cars

Knv6	Frequency	Percent	Percent Valid	CumulativePercent
2	11	13.580	14.103	14.103
4	41	50.617	52.564	66.667
5	25	30.864	32.051	98.718
330	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 23 Frequenc for if a Conventional Car has Problems with the Engine, it is Easy to RecognizeThesymptoms of Engine Damage and Repair Costs Tend to be More Affordable

Knv7	Frequency	Percent	Percent Valid	Cumulative Percent
1	1	1.235	1.282	1.282
2	7	8.642	8.974	10.256
4	46	56.790	58.974	69.231
5	23	28.395	29.487	98.718
324	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 24 Frequenc for Refueling Conventional Cars is Faster Compared to Electric Cars

Knv8	Frequency	Percent	Percent Valid	Cumulative Percent
2	9	11.111	11.538	11.538
4	46	56.790	58.974	70.513
5	22	27.160	28.205	98.718
312	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 25 Frequenc for Conventional Cars areMore at Risk of Damage due to the Large Number of components that Moves

Knv5	Frequency	Percent	Percent Valid	Cumulative Percent
1	2	2.469	2.564	2.564
2	9	11.111	11.538	14.103
4	43	53.086	55.128	69.231
5	23	28.395	29.487	98.718
318	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 26 Frequenc for Operating Costs of Conventional Cars are Higher than Electric Carsdue to Fluctuating Fuel Prices and Expensive Maintenance

Knv10	Frequency	Percent	Percent Valid	Cumulative Percent
2	10	12.346	12.82	12.821
4	43	53.086	55.12	67.949
5	24	29.630	30.76	98.718
314	1	1.235	1.282	100.000
Missing		3.704		
Count	81	100.00		

Table 27 Frequenc for Conventional Cars are Generally More Affordable in Terms of Spare Part Pricesand Maintenance Compared to Electric Cars

Knv11	Frequency	Percent	Percent Valid	CumulativePercent
1	1	1.235	1.282	1.282
2	9	11.111	11.538	12.821
4	42	51.852	53.846	66.667
5	25	30.864	32.051	98.718
316	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 28 Frequenc for Conventional Cars Produce Damaging Air and Noise Pollution Milieu

Knv12	Frequency	Percent	Percent Valid	CumulativePercent
2	5	6.173	6.410	6.410
4	51	62.963	65.385	71.795
5	21	25.926	26.923	98.718
351	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 29 Frequenc for Conventional Cars Remain the First Choice Even in the Zero Emission Era

Knv9	Frequency	Percent	Percent Valid	Cumulative Percent
2	9	11.111	11.538	11.538
4	46	56.790	58.974	70.513
5	22	27.160	28.205	98.718
322	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 30 Frequenc for More Available and Widespread Charging Infrastructure in Various Places,Making it Easy for Drivers to Find and use

Knv13	Frequency	Percent	Percent Valid	CumulativePercent
1	1	1.235	1.282	1.282
2	5	6.173	6.410	7.692
4	51	62.963	65.385	73.077
5	20	24.691	25.641	98.718
319	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

Table 31 Frequenc for Conventional Cars Rely Heavily on Petroleum Supply Chains that can be Disrupted by Political Changes, Conflicts and Natural Disasters

Knv14	Frequency	Percent	Percent Valid	Cumulative Percent
2	3	3.704	3.846	3.846
4	42	51.852	53.846	57.692
5	32	39.506	41.026	98.718
342	1	1.235	1.282	100.000
Missing	3	3.704		
count	81	100.000		

Table 32 Frequenc for Conventional Cars are Generally more Affordable in Terms of Price Compared Towith Electric Cars and Easier to Find on the Market

Knv15	Frequency	Percent	Percent Valid	CumulativePercent
2	13	16.049	16.667	16.667
4	37	45.679	47.436	64.103
5	27	33.333	34.615	98.718
316	1	1.235	1.282	100.000
Missing	3	3.704		
Count	81	100.000		

IV. CONCLUSION

The study concluded that perceptions of electric car users are generally positive, with users recognizing the advantages of electric cars such as environmental sustainability, energy efficiency, and lower operating costs. Based on data analysis, it was found that the perception of electric car (EV) users tends to be positive, this is evidenced in the table with the code EV 11 or Electric car Can reduce negative impacts on the environment and create cleaner air with a result of 335 points. The advantages of electric cars recognized by users include low carbon emissions, cheaper operating costs. However, some of the challenges faced by users include limited charging infrastructure, limited range, and still high prices as evidenced in the EV 15 table. In conventional cars themselves, there is a high value in points: Conventional cars have a longer and longer travel range than electric cars with a value of 330 in the KNV code 6 and high values also in negative points, namely Conventional cars are very dependent on petroleum supply chains that can be disrupted by political changes, conflicts, and natural disasters with point 342 in the KNV 14 code and conventional cars are still the main choice in the zero emission era. However, challenges such as limited charging infrastructure and still-high prices need to be overcome to increase the use of electric cars.Harmful effects of electric car on society includes reduced air pollution and reliance on fossil fuels, as well as the potential for new jobs in the renewable energy sector. The research provides valuable insights into government policy, automotive companies, and marketing efforts in promoting electric car adoption.

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