

# A STUDY ON CONSUMER AWARENESS OF SOLAR MOBILE CHARGER WITH SPECIAL REFERENCE TO COIMBATORE

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## ABSTRACT:

*Cell phone batteries are topped off using solar panels using solar phone chargers. These are occasionally proposed as a way to charge phones without using mains energy, unlike electrical cell phone chargers, and they can be used when there is no electricity supply available, whether it be mains or, for example, a vehicle battery. Instead of using an internal battery to power the phone, solar chargers can directly power the device, but if the output is not carefully controlled, such as by giving too much voltage under direct sunshine, the device may be damaged.*

**keywords:** Solar battery, Charger, Cell phone.

## INTRODUCTION:

There are two types of energy resources: renewable and non-renewable. Water, wind, solar, and other natural resources have not been used effectively. Electricity may be conserved and used for important purposes if renewable energy sources like wind and solar power are utilised effectively. The use of smartphones has been growing quickly in the modern world, and they have had a revolutionary impact on online banking and shopping, among other commercial activities. The main issue with using smartphones is that the battery will run out of power extremely rapidly. Solar mobile chargers can potentially be utilised to address this issue and meet the increased need for electricity.

"I would rather spend my money in solar where coal and oil get depleted," Thomas Alva Edison reportedly said. Mobile chargers that use solar panels to recharge cell phone batteries in direct sunshine are known as solar mobile chargers. While the weather in our nation is tropical, it is still useful. We can bring it wherever and it uses less electricity because it is a portable device. The traditional cell phone chargers can be replaced with these. The power produced by a solar panel is identical to the electricity produced by a chemical reaction when a conventional battery is utilised. Certain mobile phone models come with a built-in solar charger, which is also available on more affordable variants. Folding solar cell phone chargers are available in a variety of designs and configurations (goal zero, endless sun solar). Modern smartphones may be charged by solar power in three hours or longer. This is helpful in rural areas with low electricity use.

## OBJECTIVES OF THE STUDY

- ✚ To study about the respondents' socioeconomic status in usage of solar mobile charger
- ✚ To understand the consumers awareness of solar mobile-chargers encounter.
- ✚ To analyse the customer satisfaction and challenges of solar mobile charger.

## STATEMENT OF THE PROBLEM:

The study focuses on how satisfied customers are with solar-powered mobile chargers. When a product on the market satisfies the needs of the customer, the customer will purchase it. Due to the high cost and heavy electricity usage in today's society, consumers are turning to solar products as alternatives to electronic goods. The electrical devices will find a replacement in the solar energy charger. However, consumers demand more from the solar energy charger. To determine the degree of consumer satisfaction with solar energy mobile chargers, the current poll is being done. It is necessary to look into the reason why solar mobile chargers are not more popular.

**SCOPE OF THE STUDY:**

The use of a solar mobile charger can lower the use of electricity, which is rising day by day. To understand who the consumers are, the study on consumer awareness will be useful. We should be aware of the degree of awareness as well as the financial advantages.

**RESEARCH METHODOLOGY:**

Research methodology refers to the theoretical analysis of the methods appropriate to a field of study or to the body of methods and principles particular to a branch of knowledge.

**SOURCE OF DATA:****Primary data:**

The first-hand information was collected by the researcher after finalizing the study area. Through well-structured questionnaire primary data was collected. It was collected from 50 respondents.

**Secondary data:**

The secondary data was collected from the study related websites, journals, and magazines. It was collected through the library to facilitate proper understanding of the conceptual frame work about the study.

**Area of study:**

The study is conducted in Coimbatore district.

**Area of period:**

The study is conducted for a period of 2<sup>nd</sup> Jan to March 31<sup>st</sup> 2023.

**Sample size:**

Due to the limited period of study, only 50 customers selected as sample unit from the population. The study is conducted on the basis of the responds of the selected sample and findings are drawn based on their responds.

**Tools used for analysis:**

- ✓ Percentage Analysis
- ✓ Chi square

**Limitations of the Study:**

- ✓ Time was a constraint
- ✓ The data collected may lack accuracy.
- ✓ Customers satisfaction can be change from time to time

**REVIEW OF LITERATURE:**

**Alitha Divya, Prathyusha, Reshma (2021):** In solar mobile charger ripples will not be there as we use DC power to charge the mobile. Life of the battery will be high as we use solar mobile charger is the suggestion of this study.

**Maeve Duffy (2020):** The overall aim of this project was to develop a small-scale battery charging system which include power management functions and a user interface. It require research various solar cell technologies and the understanding of various characteristics of photovoltaic panels to ensure and optimum solution for project.

**Shravan (2019):** The sun is a powerful source that can help our planet by giving us clean, reusable energy is free, does not create pollution, and if used wisely can help us become less dependent on other more costly and damaging forms of power, shravan has proposed in this study.

### **OVERVIEW OF LITERATURE:**

Solar battery chargers are devices that extract energy from the sunlight to produce electricity for charging cell phones, car batteries, laptops, personal fans, and reading lights. The best part about these solar battery chargers is that they are portable. So, they can be used anywhere and anytime. Sometimes, a series of solar panel charging units are installed at a location. These can be linked to a battery bank for storing energy for off-peak usage. If you run out of battery, you can still charge your devices, provided there is sufficient sunlight. Another fun fact is that solar chargers come in all sizes. They can fit within a palm or be as big as a picnic table. Needless to say, these are quite convenient for daily use.

#### **Advantages:**

One of the main benefits of solar mobile chargers is that they are lightweight and portable, which is only one of many benefits. These may be comfortably transported in your bag. In addition, since these charging gadgets are solar-powered, you won't need to bother about bringing chargers with you to use them. They don't require an electrical outlet to be charged and can be done anywhere. Moreover, there is no extra effort required to charge these devices. The batteries magically begin charging whenever they come into contact with sunshine. The batteries magically begin charging whenever they come into contact with sunshine. The device's ability to charge other electronic gadgets including tablets, laptops, and other mobile devices in addition to charging mobile phones is an added benefit.

#### **Disadvantage:**

Every piece of technology has disadvantages, and the device's main one is that it might not work as well in areas with lower temperatures or without sunlight. But daily improvements are being made, bringing new technologies to address the problem. Among them are hybrid chargers. But, when looking at the bigger picture, a solar mobile charger should still be the preferred choice because it not only proves to be convenient but also eco-friendly. There are many different types and capacities of solar mobile chargers on the market. It's important to bear in mind, though, that there are often more practical and affordable alternatives when purchasing a solar mobile charger. Please be mindful of the panel capacity when purchasing one of these inexpensive devices as they typically have tiny panels that store relatively little energy. Without a doubt, it is preferable to spend a little more money than to sacrifice quality.

### **DATA ANALYSIS AND INTREPRETATION:**

This chapter analyse and interprets changes in consumer behaviour patterns. A sociological study of people visiting a mall, particularly in the city of Coimbatore. A specimen of 50 respondents selected from Coimbatore city is presented. The opinion and relevant information of respondents were collected through a questionnaire consisting of personal and learning factors. The collected data were classified and tabulated and completed according to the research objectives by using statistical tools.

**Percentage analysis:**

**Table:1 Socio economic status of the respondents**

From the above table 1, it is clear that the general profile of the respondents shows that

Demographic Variable		Frequency	Percentage
Gender	Male	29	58
	Female	21	42
	<b>Total</b>	<b>50</b>	<b>100</b>
Age	Below 25	24	48
	25to 35 years	18	36
	35 to 45 years	6	12
	Above 45 years	2	4
	<b>Total</b>	<b>50</b>	<b>100</b>
Educational qualification	school level	17	34
	ug level	24	48
	others	9	18
	<b>Total</b>	<b>50</b>	<b>100</b>
Occupational status	Student	24	48
	self employed	8	16
	professional	10	20
	others	8	16
	<b>Total</b>	<b>50</b>	<b>100</b>
Marital Status	Married	15	36
	Unmarried	35	64
	<b>Total</b>	<b>50</b>	<b>100</b>
Monthly income	Below 10,000	14	27
	10,000-20,000	13	24
	20,000-50,000	17	34
	above50,000	6	12
	<b>Total</b>	<b>50</b>	<b>100</b>

- The table shows that out of 50 respondents 58% of the respondents are male, 42% of the respondents are female.
- The table shows that out of 50 respondents 48% of the respondents are below25, 36% of the respondents are between 25-35 years, 12% of the respondents are between 35-45years, and 4% of the respondents are above 45 years.



- The table shows that out of 50 respondents 17% of the respondents are school level, 24% of the respondents are UG level, 9% of the respondents are others.
- The table shows that out of 50 respondents 24% of the respondents are Student, 8% of the respondents are self-employed, 10% of the respondents are Professionals, 8% of the respondents are others.
- The table shows that out of 50 respondents 36% of the respondents are Married and 64% of the respondents are Unmarried
- The table shows that out of 50 respondents 27% of the respondents are below 10,000, 24% of the respondents are between 10,000-20,000, 34% of the respondents are 20,000-50,000, 12% of the respondents are above 50,000.

**CHI-SQUARE ANALYSIS:**

Ho: There is no significant relationship between age and number of times they charge their mobile phones.

H1: There is a significant relationship between age and number of times they charge their mobile phones.

**Table no 2: describes the age and number of times they charge their mobile phones.**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.618 <sup>a</sup>	1	.432
Likelihood Ratio	.615	1	.433
N of Valid Cases	50		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.72.

From the above table it is found that the hypothesis is rejected (significant) in two cases.

It has concluded that customers age has significant effect on number of times they charge their mobile phones.

**Table No 3: describes the customers gender and number of mobile phones they have in their home.**

Ho: There is no significant relationship between customers gender and number of mobile phones they have in their home.

H1: There is a significant relationship between customers gender and number of mobile phones they have in their home

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.843 <sup>a</sup>	4	.933
Likelihood Ratio	.853	4	.931
N of Valid Cases	50		

a.5 cells (55.6%) have expected count less than 5. The minimum expected count is 1.44.

From the above table it is found that the hypothesis is rejected (significant) in two cases.

It has concluded that customers gender has significant effect on number of mobile phones they have in their home.

**FINDINGS:**

- Male responders make up 50.67% of the total.
- The majority of responses (52.66%) are under 25 years old.
- In terms of educational background 73.33% of responders are students at the undergraduate level.
- According to occupational status, 62.67% of respondents are students.
- Most responses come from nuclear families. 81.33%
- 40% of respondents strongly agree, making up the majority, that mobile phone manufacturers should include solar mobile chargers with the handset.
- 32% of respondents, who are the majority, concur that it saves power.
- The majority of responders, 66%, say they would advise others to use solar mobile charger.

## SUGGESTIONS:

- The government should take the initiative to offer incentives to businesses that make solar mobile chargers in order to generate demand.
- Some individuals are unaware of solar mobile charger products+, thus manufacturing firms must be established.
- To save energy, more non-profit organisations ought to promote this product.
- Mission to promote renewable energy will use a variety of media.
- The government should also take action to promote the product in rural areas where there is a severe lack of electricity.
- Manufacturers fought to run a campaign to show the public the benefits of their product.

## CONCLUSION:

We draw the conclusion that fewer people are aware of solar mobile chargers. One of the factors is that the producers have not made the initiative to market the product, and at the same time, people sense the need for it. The solar mobile charger would be very advantageous for the environment and help conserve the limited supply of electricity. In the future, if there is a shortage of electricity, it would be useful to encourage and inform people about solar energy. Although there is still a shortage of knowledge about solar products, this needs to change because using solar energy offers several advantages over other forms of renewable energy. Solar mobile charger manufacturing is not increased by more solar producers; nonetheless, this would result in a variety of electric chargers, including solar chargers.

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