

## Causes of Household Fires in Rural Areas: an Exploratory Research

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### ABSTRACT

Household fire is a societal problem. Much has been known about the causes of fires; however, little is known about the causes of rural fires. This research addresses this gap in the fire-related literature by delineating the causes of household fires in rural areas. Data were drawn from 30 household members who participated in the online interviews. The data gathered were analyzed using a thematic analysis. The results show that the most common causes of rural household fires are incidental fires, electricity, candles, appliances, building materials, human error, and human behavior. The findings of this study may serve as supplements for crafting fire prevention strategies and intervention programs for households in rural areas.

## INTRODUCTION

Household fire is a societal problem (Nilson & Bonander, 2019). Due to the damages it may have caused to buildings and infrastructure, fire is deemed to have critical consequences for human society (Shokouhi et al., 2019). Fire may not just be a reason for property damage but could also cause an injury or loss of life (Hsu et al., 2019). Burns resulted in more than 7.1 million injuries and a loss of approximately 18 million disability-adjusted life years (Rybarczyk, 2017). Over 30,000 people were reported to suffer from burns daily globally (Stokes & Johnson, 2017). These injuries and deaths caused by fire are deliberately major health problems (Jonsson et al., 2017; Stokes & Johnson, 2017).

Fire is the fourth most prominent cause of accidental injury, next to road accidents, falls, and drowning (Twigg et al., 2017). According to the World Health Organization, as cited in Jonsson et al. (2017), Shokouki et al. (2019), and Twigg et al. (2017), more than 300,000 deaths are recorded annually due to fire-induced burns. Out of this figure, more than 95 percent occurred in low-income and middle-income countries (Shokouki et al., 2019; Twigg et al., 2017). The figures have increased from 250,000 deaths each year and more than 90% occurrence in low- and middle-income countries reported by Rybarczyk et al. (2017).

The Philippines is one of the low- and middle-income countries aforementioned above. In the latest statistics, the Bureau of Fire Protection has recorded 94,399 fire incidents during the six years (2013-2018), with an average of 15,733 incidents yearly. A total of 5,131 fire-related injuries were also recorded, an average of 855 a year, and 1,517 fire-related death, or an average of 253 a year. Meanwhile, the Bureau has mitigated the fire incidents and fire-related deaths and injuries above the targets, from 3.0% fire incidents in 2018 to 5.1% fire incidents in 2019 (House of Representative, 2020). However, fatal fires continuously exist as a problem despite a decrease in incidences and much effort from the Philippine government and its agencies (e.g., knowledge dissemination and preventive interventions).

Much has been known about the causes of fires. However, more is needed to know about the causes of rural fires in the country. Most previous studies concentrate on urban areas where the risk of fire is perceived to be high. This research addresses this gap in the fire-related literature by delineating the causes of household fires in the rural area.

## IMPLEMENTATION AND METHODS

Thirty (30) households, represented by one (1) family member, served as the study's respondents. The participants are recruited through snowballing techniques (i.e., referrals and suggestions from family, friends, and friends' friends). The majority of the respondents are female (70%), single (43.33%), ages 18 to 36 (63.33%), non-working (26.67%), college graduate (43.33%), with below P10,000 monthly income (50%), and composed of 3 to 6 household members (66.67%). The data collected were analyzed using thematic analysis. This kind of analysis is helpful when the researcher wants to identify, analyze, and report patterns or themes within the data. The study followed Braun and Clarke (2006): (1) familiarize yourself with the data, (2) generate initial codes, (3) search

for themes, (4) review the themes, (5) define and name the themes, and (6) produce the report, to identify the causes of household fires. All interviews were transcribed verbatim and reviewed for accuracy. Transcripts formed the data for thematic analysis and were initially content-coded. The student carried out coding and cross-checked by the parent with experience in qualitative research.

## RESULTS AND DISCUSSION

“What are the most common causes of household fires?” This study explored the causes of household fires based on the observations, perspectives, and experiences of household members in the rural area. The results revealed six patterns or themes: accidental fires, electricity, candles, appliances, building materials, human errors, and human behaviors (*refer to Figure 1*).

The study’s findings show that most household fires in the rural area occur incidentally. ‘*Electricity*’ remains to be one of the top causes of fire. Accordingly, illegal connections or jumpers, octopus wiring, faulty electrical wirings, electric short circuit, and overloading were reasons why household fires happened. Fires caused by home appliance usage are also electric-related. Overheated appliances tend to make electrical sockets explode, which may eventually result in electrical fires. Low-quality appliances tend to produce the same results.

Lighted candles also emerged as one of the most common causes of fires among households in rural areas since some households still used candles as energy sources. In addition, low-income households opt to use a candle as it is cheaper than other alternatives to electricity. Household fires also occur because materials used in building houses (e.g., wood) can easily be burnt.

Based on the results, another cause of the fire is ‘*human error*’ (e.g., leaving the lights or fire, gas stoves, electrical appliances, candles, and gadgets unattended, using pyrotechnics, improper connections, leaving children playing with candles and matches, unattended children, and using broken or damaged electrical materials). The result confirms the findings of the previous studies that one of the reasons for increased fire incidents is the inadequate supervision of children.

Past studies also stated that the most common fire causes relate to people's behaviors. The present study also shows the same result. ‘*Human behaviors*’ such as irresponsible, clumsy, and carelessness caused household fires. In addition, people’s negligence and stubbornness (e.g., *not following instructions*) can also increase the risks of fire accidents. This result implies that some fires do not happen naturally. Instead, fires occur due to some human factors.

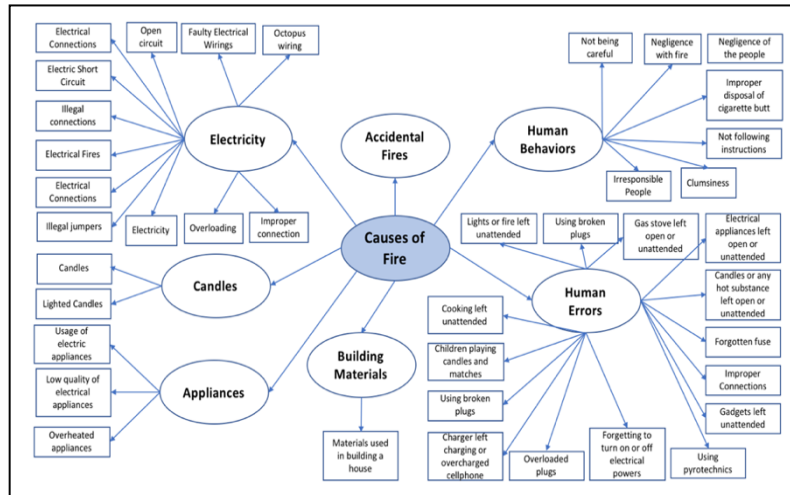


Figure 1. Causes of Fire

### CONCLUSIONS AND RECOMMENDATIONS

In this study, human errors are the most common cause of house fires. The study’s result suggests that parents or guardians should pay close attention and supervise children closely. Although the reasons cited were electricity-related, the root cause is still human acts. The manner people utilize electricity is the main reason the risk of fire incidents increases. Overall, the results imply that people must be more alert and cautious since many other things around them can cause fires.

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