

3.3.3 Gastroenteritis Report

We tried analyzing Gastroenteritis, but due to insufficient data, we were not able to achieve adequate results. There are three major causes of gastroenteritis:

- **Viral**

It is a cause in 60% of the cases

Table 6 Types of Viral gastroenteritis

Types of Viral gastroenteritis	
Virus	Seasonality
Rotavirus	Predominantly in winter and occasionally in fall
Norovirus	Year-round, but especially in Winter
Sapovirus	Year-round
Astrovirus	Predominantly in Winter
Enteric adenovirus	Predominantly in Summer

Here in Table-6, we can see that it different viruses have different seasonality. Thus, it is difficult to analyze the effect of various weather parameters with the data of monthly reported gastroenteritis cases without any knowledge about its cause.

- **Bacterial**

10% to 20% of total cases are bacterial gastroenteritis ^[29]. Bacterial gastroenteritis is common in summer.

- **Parasitic**

Another 10% to 15% of total gastro cases have parasitic cause.

Let us analyze the time series data of Gastroenteritis.

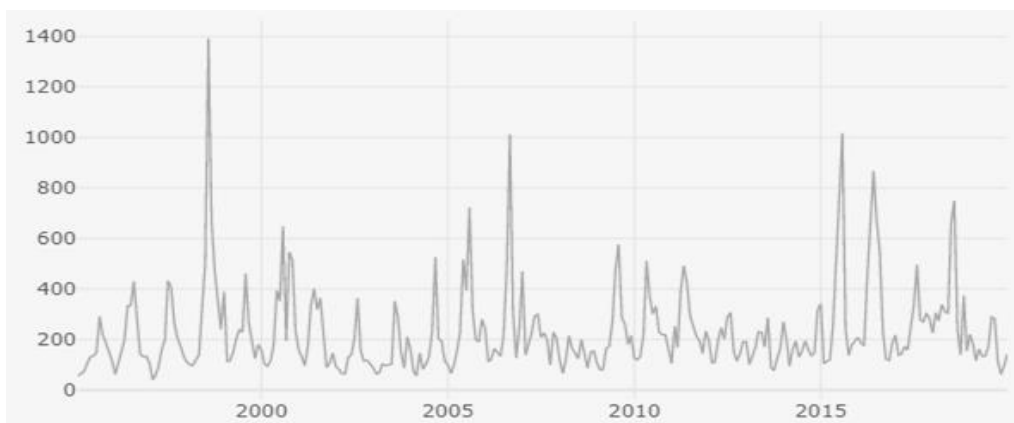


Figure 3.40 Gastro Cases 1995-2019

Here, we can see that sudden increase and decrease occur in gastroenteritis cases. Though using the boxcox transformation and the taking its difference, we were able to predict the trend of the time series but seasonality was difficult to analyze. Due to insufficient in data, we were unable to analyze the seasonality and relations with weather factors like Temperature, Humidity or Rainfall. We use many methods like RNN using LSTM, prophet, SARIMA, etc., but no acceptable result was achieved. Due to Lack of seasonality, no consistent trend or without any significant relation with other weather factors, it was extremely difficult to comprehend enough knowledge about gastroenteritis to train our model on.