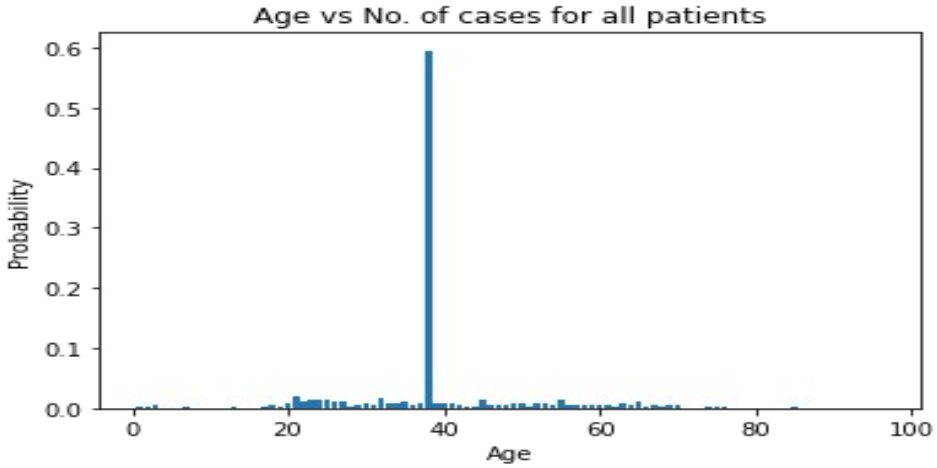
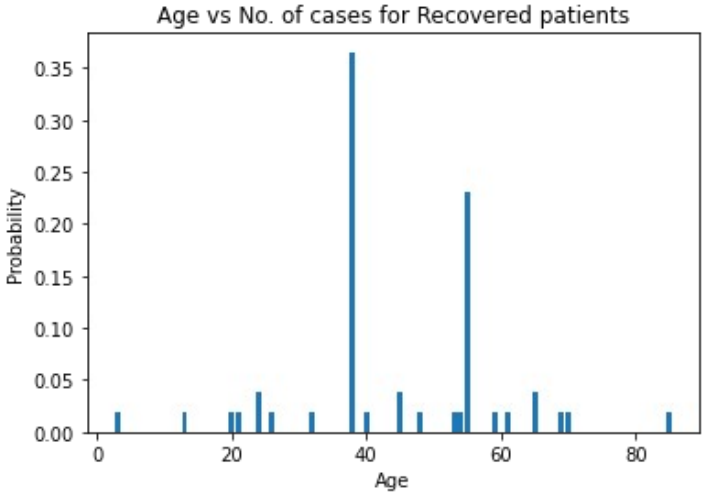
Q1 (a) PMF of Patients (Age wise)



Expectation = 38.89961977186311 Variance = 127.63859301132106 As variance is large, we can say that the data is spread out i.e. covid is present in a lot of age groups

Q1 (b)(i) PMF of Recovered Patients (Age wise)



Expectation = 44.307692307692314 Variance = 225.7514792899401

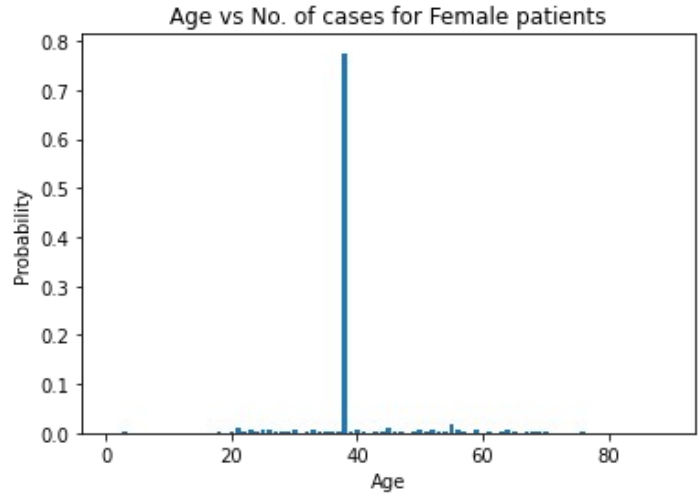
Q1 (b)(ii) PMF of Dead Patients (Age wise)

Expectation = 62.89473684210526 Variance = 152.83102493074784 Therefore it can be said that the chances of death due to Covid-19 increases with age and people with less age have more chances to be recovered

Q1 (c)(i) PMF of Male Patients (Age wise)

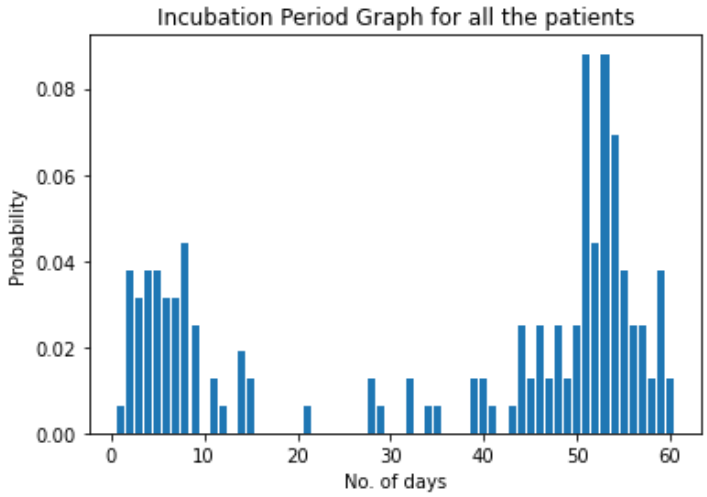
Expectation = 38.71717171717171 Variance = 243.86950311192777

Q1 (c)(ii) PMF of Female Patients (Age wise)



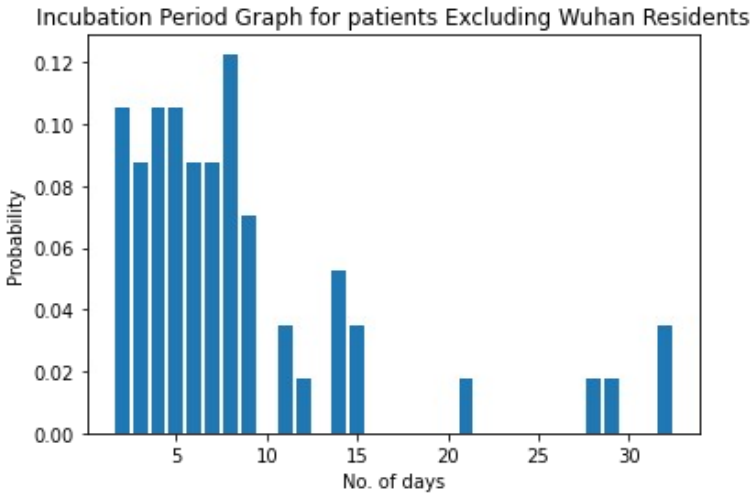
Expectation = 38.97823721436345 Variance = 77.53380276853841 With expected age of male and female patients almost similar but variances different, we can conclude that in the case of males, covid is spread out to many age group in enough amounts, while for females, covid is more concentrated at women aged 38-39

Q2 (a) PMF of the all patients (including Wuhan Residents) Note: 1. Only Travel to Wuhan, Contact with case, Contact with Wuhan resident and Lives-works-studies in Wuhan cases are considered for plotting this graph and calculation of the Incubation Period 2. For Lives-works-studies in Wuhan, those whose ExposurL was not given, is assumed as 01-12-2019 i.e. the reporting date of first covid patient



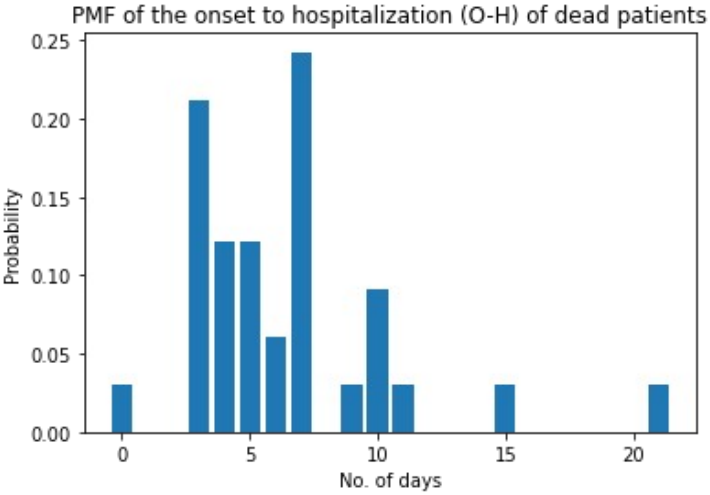
Expectation = 35.509433962264154 Variance = 461.9102883588462

Q2 (b) PMF of the patients excluding Wuhan Residents Note: Only Travel to Wuhan, Contact with case, Contact with Wuhan residens are considered for plotting this graph and calculation of the Incubation Period



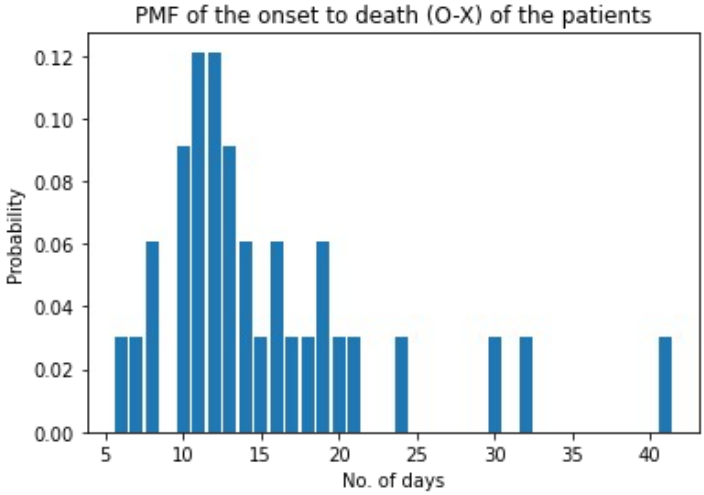
Expectation = 8.526315789473683 Variance = 50.98614958448755 There is a large difference between the Incubation Period in both cases which shows that Wuhan residents were exposed to the virus a long time before and thus it could have been controlled way back if the matter was dealt seriously

Q2 (c) (i) PMF of the onset to hospitalization (O-H) of dead ptients



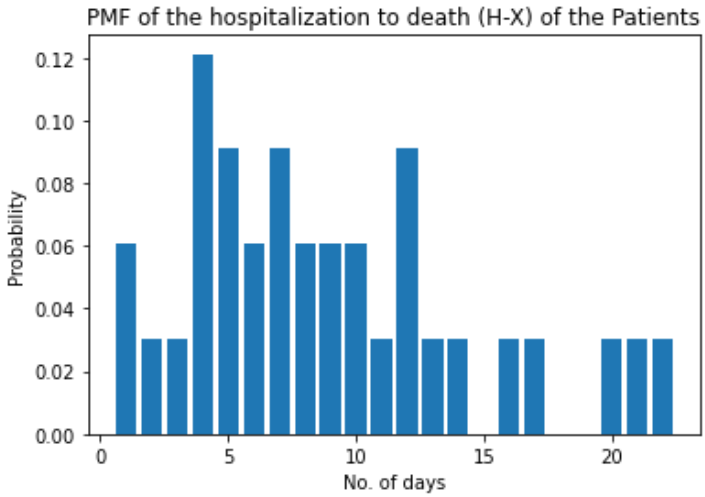
Expectation = 6.3939393939393945 Variance = 15.450872359963256

Q2 (c) (ii) PMF of the onset to death (O-X) of the patients



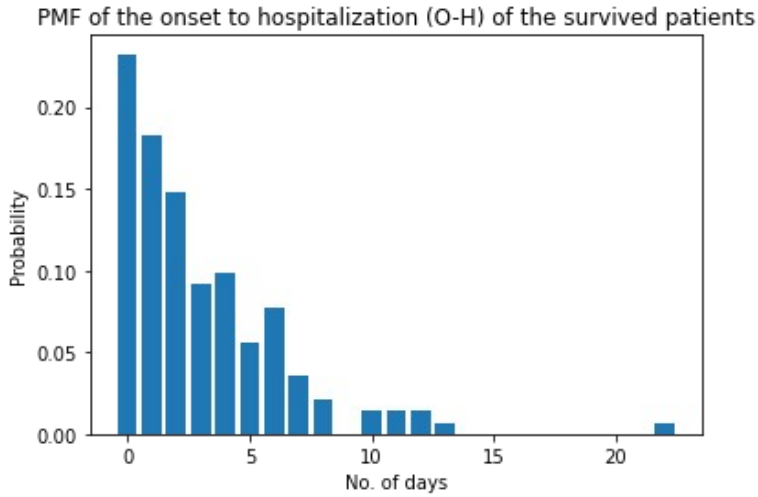
Expectation = 15.333333333333332 Variance = 54.76767676767679

Q2 (c) (iii) PMF of the hospitalization to death (H-X) of the patients



Expectation = 8.939393939393938 Variance = 30.72359963269058 The three graphs are quite similar and it can be said that, more the days it took for the patients to visit the hospital, their chance of surviving became less

Q2 (c) (iv) PMF of the onset to hospitalization (O-H) of the survived patients
Note: All the cases of survived patients have been included in this plot



Expectation = 3.02112676056338 Variance = 11.06293394167824 It is clear by the plot that the sooner the sooner the patient was reported to the hospital, more became his chances of surviving