

**Title page**

**Title:** Time trends in the incidence of spinal pain in China, 1990 to 2019 and its prediction to 2030:

The Global Burden of Disease Study 2019

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## **Appendix. Supplementary data**

**Supplementary Fig. S1** Time series autocorrelation of LBP in males.

**Supplementary Fig. S2** Time series partial autocorrelation of LBP in males.

**Supplementary Fig. S3** Time series autocorrelation of LBP in females.

**Supplementary Fig. S4** Time series partial autocorrelation of LBP in females.

**Supplementary Fig. S5** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for LBP incidences in males.

**Supplementary Fig. S6** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for LBP incidences in females.

**Supplementary Fig. S7** Time series autocorrelation of NP in males.

**Supplementary Fig. S8** Time series partial autocorrelation of NP in males.

**Supplementary Fig. S9** Time series autocorrelation of NP in females.

**Supplementary Fig. S10** Time series partial autocorrelation of NP in females.

**Supplementary Fig. S11** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for NP incidences in males.

**Supplementary Fig. S12** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for NP incidences in females.

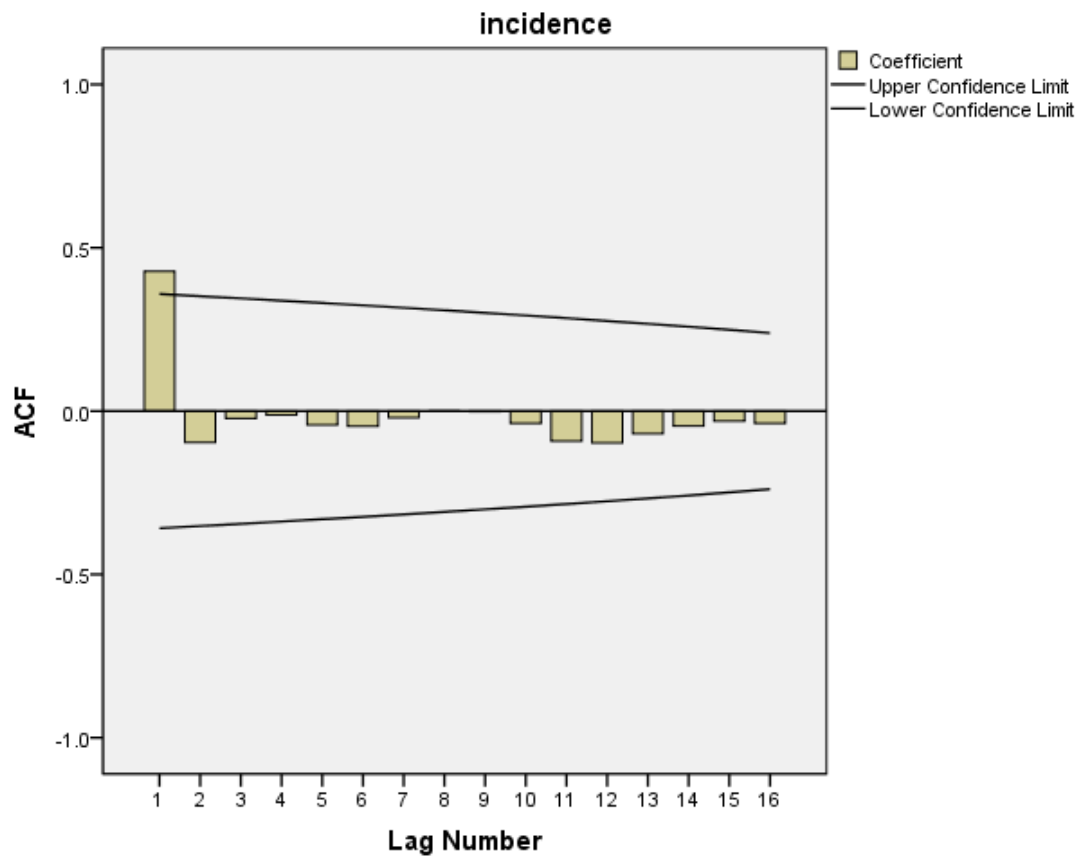
**Supplementary Table S1.** ARIMA (0,2,1) Model Parameters for LBP in males.

**Supplementary Table S2.** ARIMA (1,2,1) Model Parameters for LBP in females.

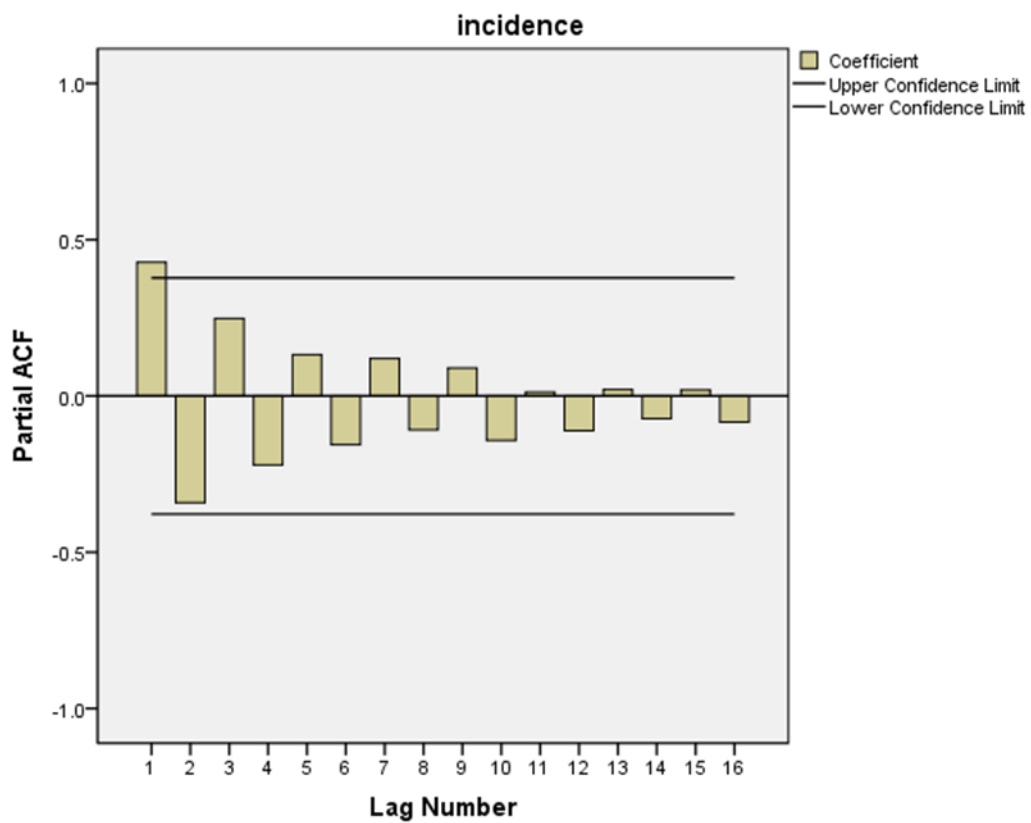
**Supplementary Table S3.** ARIMA (3,1,0) Model Parameters for NP in males.

**Supplementary Table S4.** ARIMA (2,1,1) Model Parameters for NP in females.

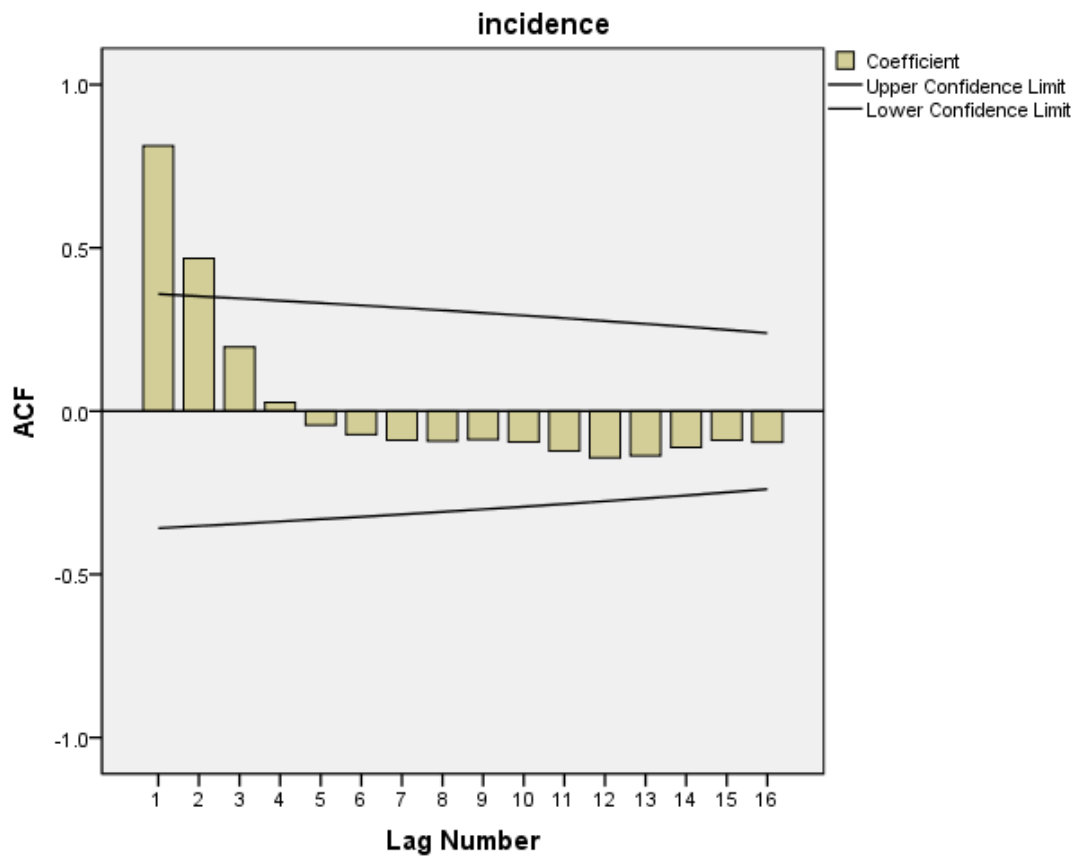
**Supplementary Fig. S1** Time series autocorrelation of LBP in males.



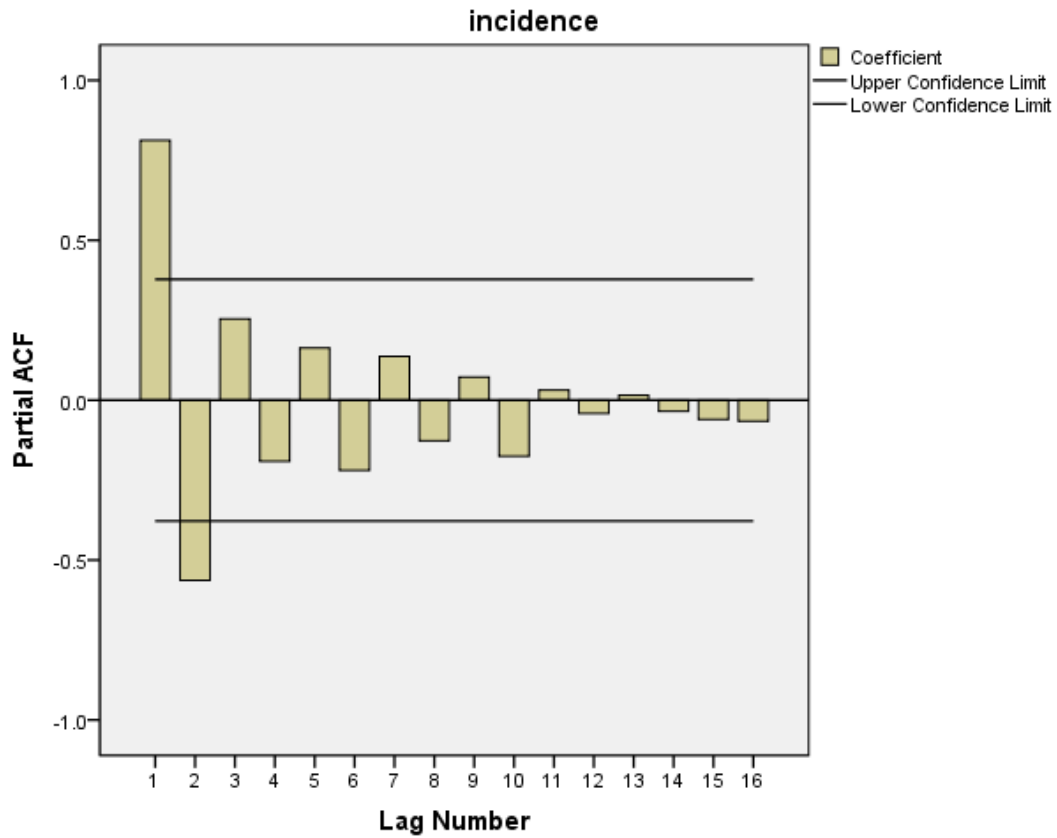
**Supplementary Fig. S2** Time series partial autocorrelation of LBP in males.



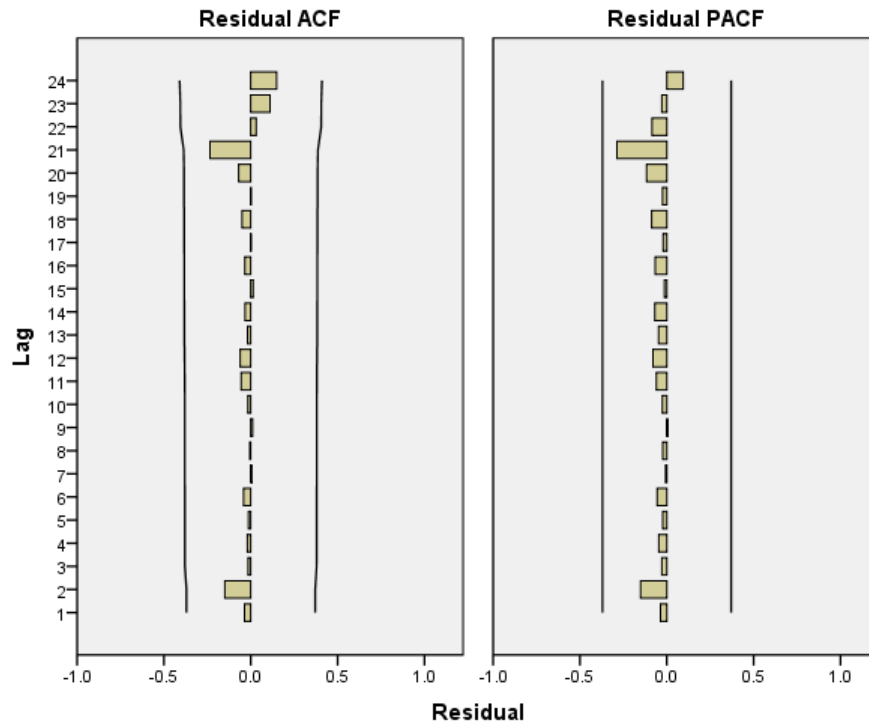
Supplementary Fig. S3 Time series autocorrelation of LBP in females.



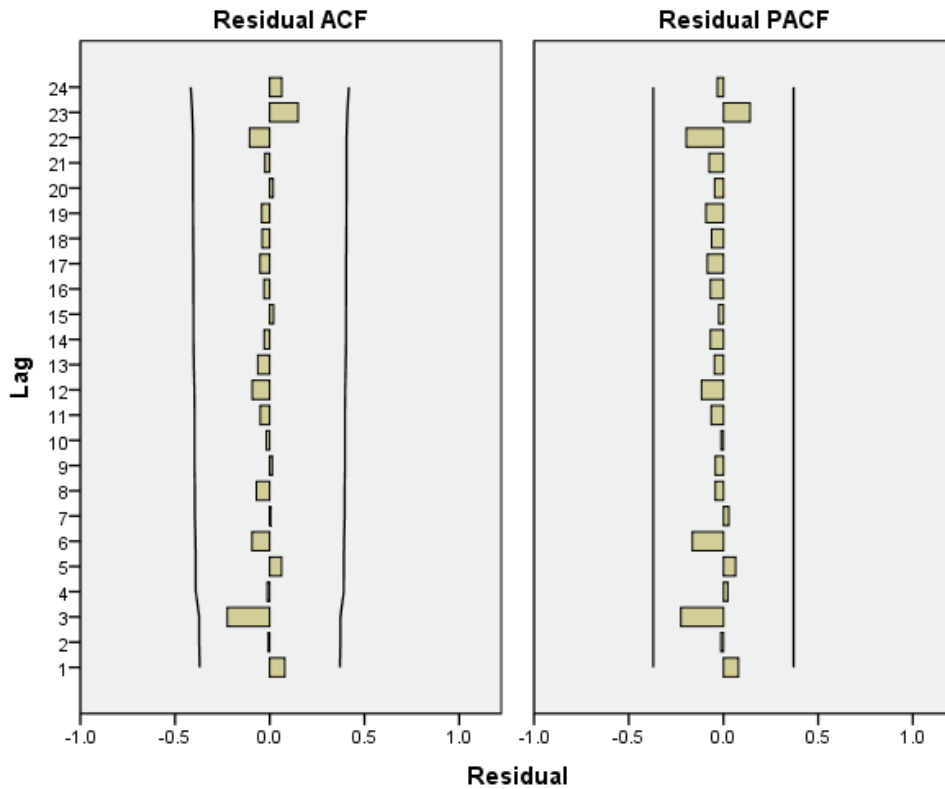
Supplementary Fig. S4 Time series partial autocorrelation of LBP in females.



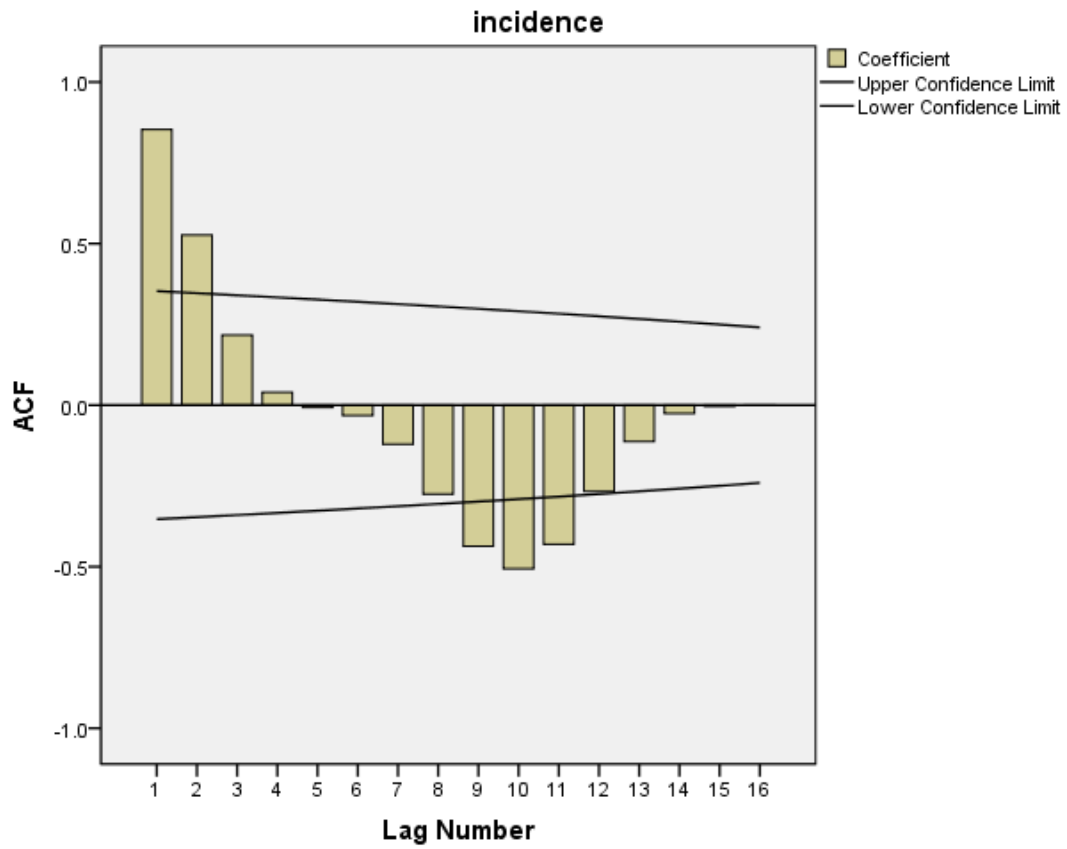
**Supplementary Fig. S5** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for LBP incidences in males.



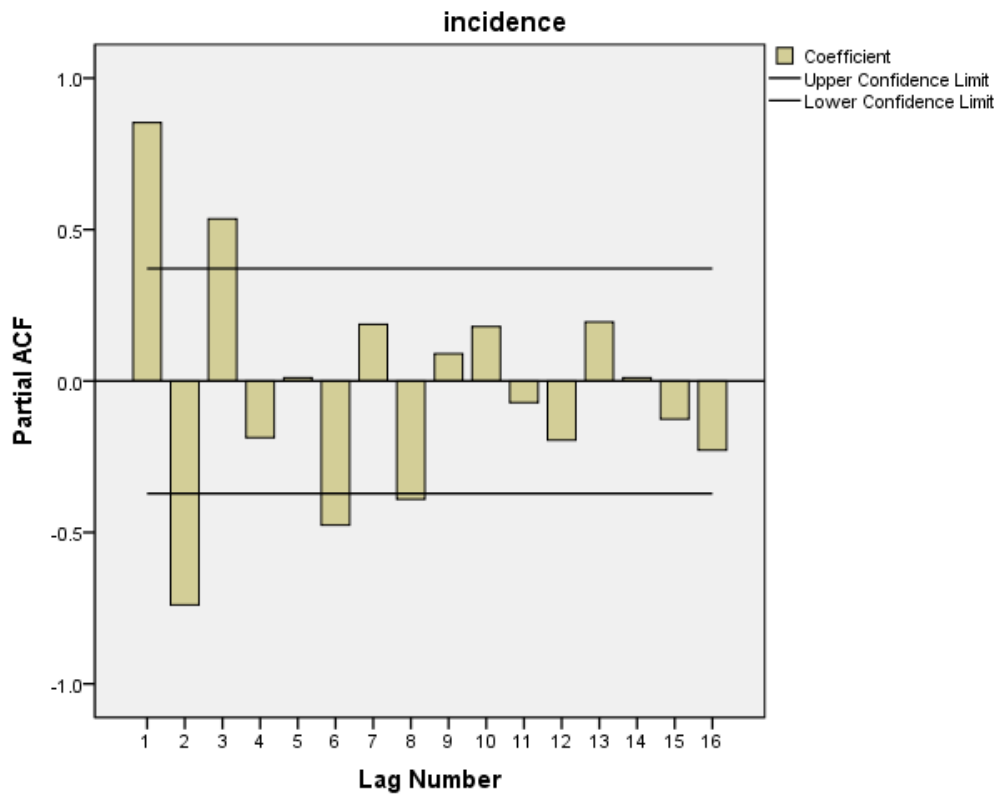
**Supplementary Fig. S6** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for LBP incidences in females.



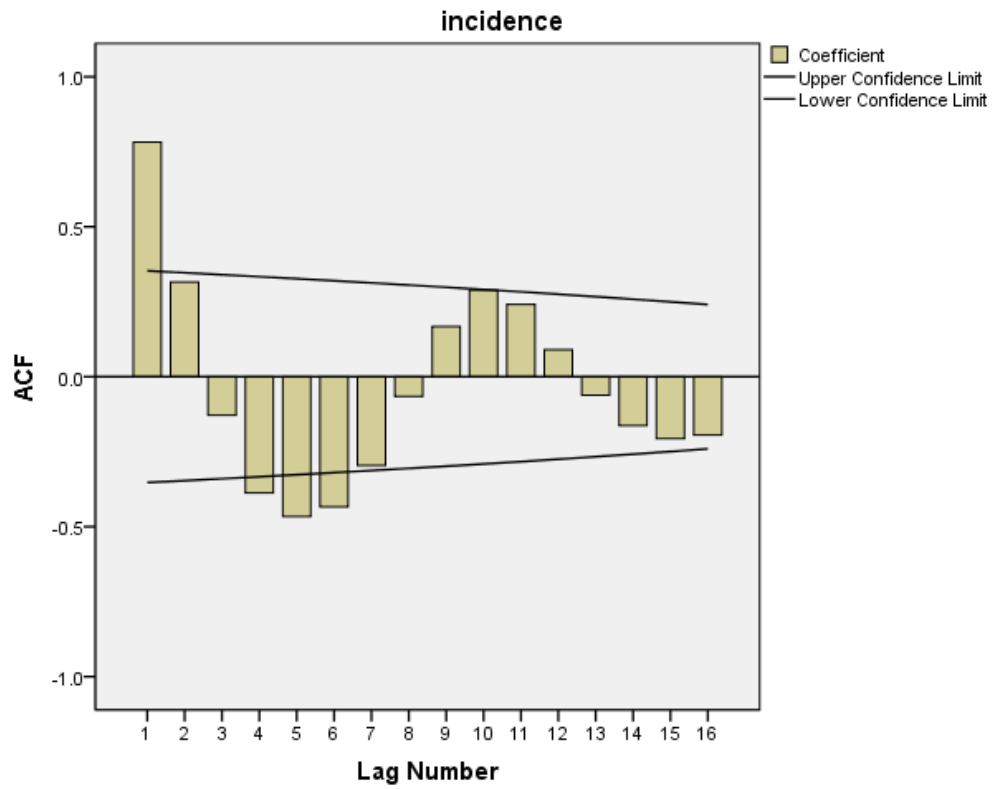
**Supplementary Fig. S7** Time series autocorrelation of NP in males.



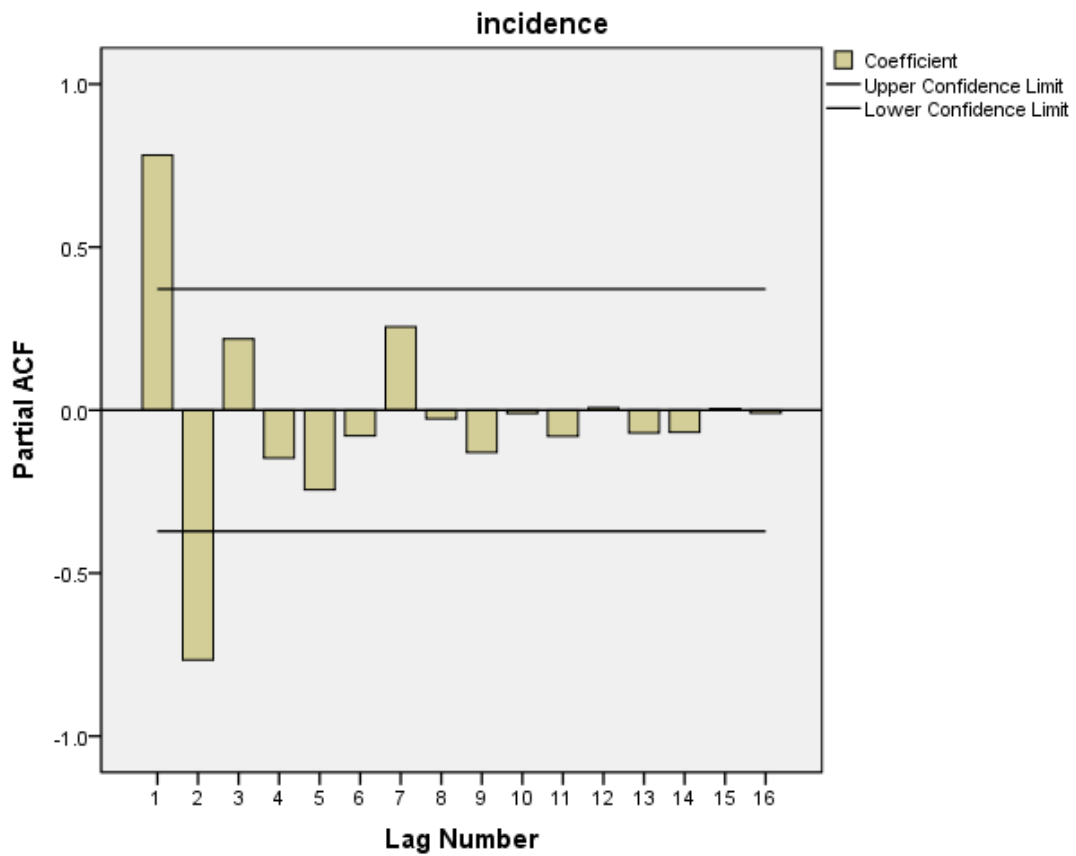
**Supplementary Fig. S8** Time series partial autocorrelation of NP in males.



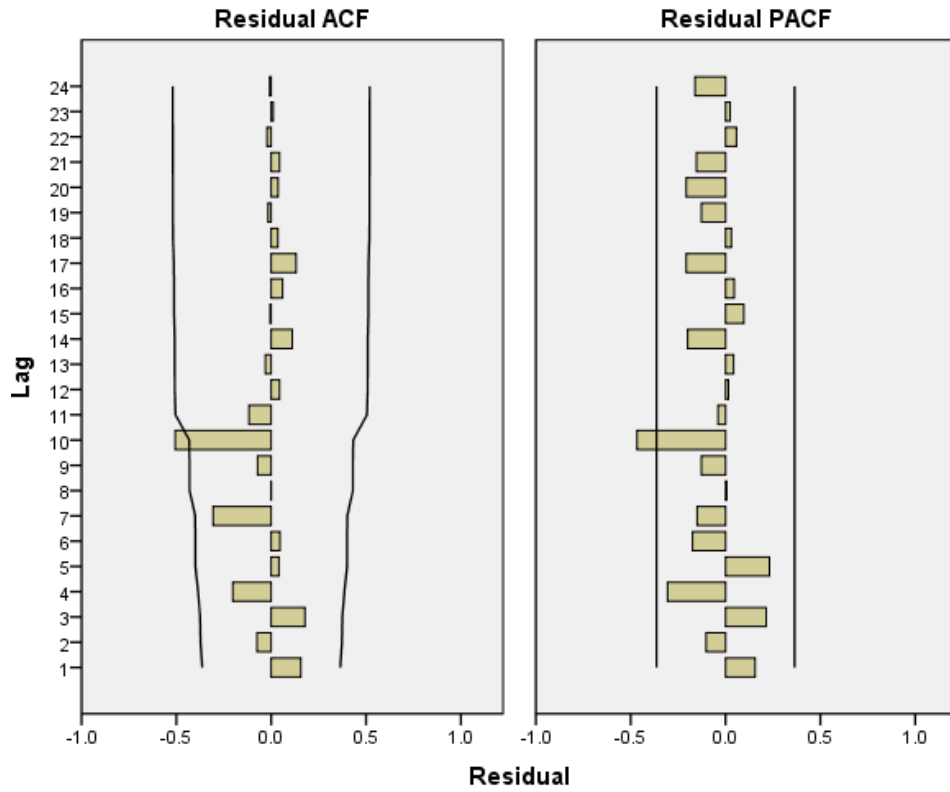
**Supplementary Fig. S9** Time series autocorrelation of NP in females.



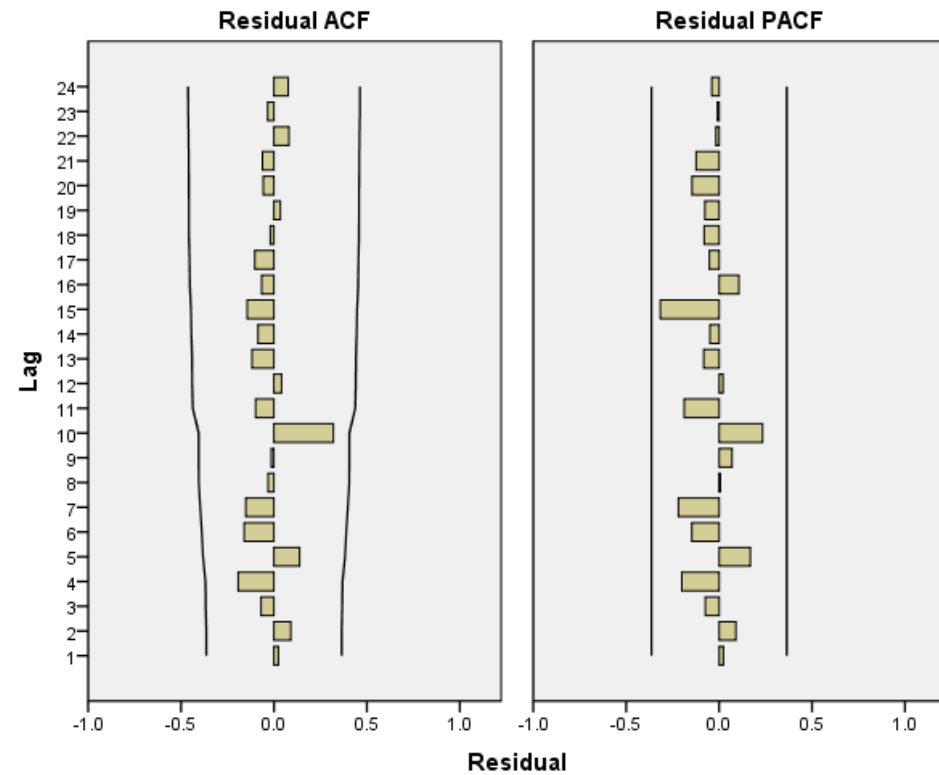
**Supplementary Fig. S10** Time series partial autocorrelation of NP in females.



**Supplementary Fig. S11** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for NP incidences in males.



**Supplementary Fig. S12** Autocorrelation functions (ACF) and partial autocorrelation functions (PACF) of model residuals for NP incidences in females.





**Supplementary Table S1.** ARIMA (0,2,1) Model Parameters for LBP in males.

Parameters		Estimate	Standard Error	t-statistic	p-value
Constant		1164.983	1499.620	0.777	0.445
Difference		2			
MA	Lag 1	-0.873	0.145	-6.033	0.000
Numerator	Lag 0	-0.577	0.748	-0.772	0.447

**Supplementary Table S2.** ARIMA (1,2,1) Model Parameters for LBP in females.

Parameters		Estimate	Standard Error	t-statistic	p-value
Constant		269.451	1615.499	1.666	0.109
AR	Lag 1	0.546	0.180	3.033	0.006
Difference		2			
MA	Lag 1	-0.898	0.179	-5.032	0.000
Numerator	Lag 0	-1.337	0.806	-1.660	0.110

**Supplementary Table S3.** ARIMA (3,1,0) Model Parameters for NP in males.

Parameters		Estimate	Standard Error	t-statistic	p-value
Constant		-69.958	120.436	-0.581	0.567
AR	Lag 1	1.804	0.177	10.197	0.000
	Lag 2	-1.421	0.285	-4.977	0.000
	Lag 3	0.469	0.178	2.634	0.015
Difference		1			
Numerator	Lag 0	0.035	0.060	0.582	0.566

**Supplementary Table S4.** ARIMA (2,1,1) Model Parameters for NP in females.

Parameters		Estimate	Standard Error	t-statistic	p-value
Constant		8.304	35.338	0.235	0.816
AR	Lag 1	1.163	0.171	6.786	0.000
	Lag 2	-0.572	0.171	-3.335	0.003
Difference		1			
MA	Lag 1	-0.840	0.156	-5.395	0.000
Numerator	Lag 0	-0.004	0.018	-0.226	0.823