"Modelling interval-censored event times in the presence of a cure fraction : from building to refining"

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**Abstract**

In standard survival analysis, it is generally assumed that every individual will eventually experience the event of interest. However, this is not always the case, as some individuals may not be susceptible to this event. In the statistical literature, this feature is referred to as the presence of a cure fraction. Moreover, it is frequent that patients come to scheduled visits and that the time to the event is only known up to an interval of time. That is, the data are interval-censored. This thesis develops methods to handle interval-censored data in which there is a fraction of cured individuals. We first study the impact of these features and then propose two flexible models, allowing to use classical parametric maximum likelihood theory. The extension of a variable selection method to our model is also studied. Lastly, we propose a new diagnostic check procedure as well as a goodness-of-fit test to assess the adequacy of our model.

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Additional plots to the thesis:
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Sylvie Scolas
Figure 1: Global Cox-Snell residuals for scenario $A_l$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 2: Global Cox-Snell residuals for scenario $B_l$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 3: Global Cox-Snell residuals for scenario $C_l$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 4: Global Cox-Snell residuals for scenario $D_l$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG(q).
Figure 5: Global Cox-Snell residuals for scenario $A_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, EGG($q$).
Figure 6: Global Cox-Snell residuals for scenario $B_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, EGG($q$).
Figure 7: Global Cox-Snell residuals for scenario $C_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, EGG($q$).
Figure 8: Global Cox-Snell residuals for scenario $D_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, EGG($q$).
Figure 9: Global Cox-Snell residuals for scenario $B_1$, with interval-censored event times. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, EGG($q$).
Figure 10: Global Cox-Snell residuals for scenario $D_l$, with interval-censored event times. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, EGG($q$).
Figure 11: Uncured Cox-Snell residuals for scenario $A_t$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 12: Uncured Cox-Snell residuals for scenario $B_t$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG(q).
Figure 13: Uncured Cox-Snell residuals for scenario $C_t$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 14: Uncured Cox-Snell residuals for scenario $D_l$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 15: Uncured Cox-Snell residuals for scenario $A_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 16: Uncured Cox-Snell residuals for scenario $B_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 17: Uncured Cox-Snell residuals for scenario $C_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 18: Uncured Cox-Snell residuals for scenario $D_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: based on log-Normal, Weibull, and EGG($q$).
Figure 19: Deviance residuals for scenario $A_I$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 20: Deviance residuals for scenario $B_t$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 21: Deviance residuals for scenario $C_l$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 22: Deviance residuals for scenario $D_1$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 23: Deviance residuals for scenario $A_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 24: Deviance residuals for scenario $B_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 25: Deviance residuals for scenario $C_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 26: Deviance residuals for scenario $D_p$. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 27: Deviance residuals for scenario $C_1$, with interval-censored event times. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.
Figure 28: Deviance residuals for scenario $D_1$, with interval-censored event times. Above to bottom: light to heavy cured/right-censored proportion; left to right: global, latency and incidence deviance residuals.