

# KI und COVID

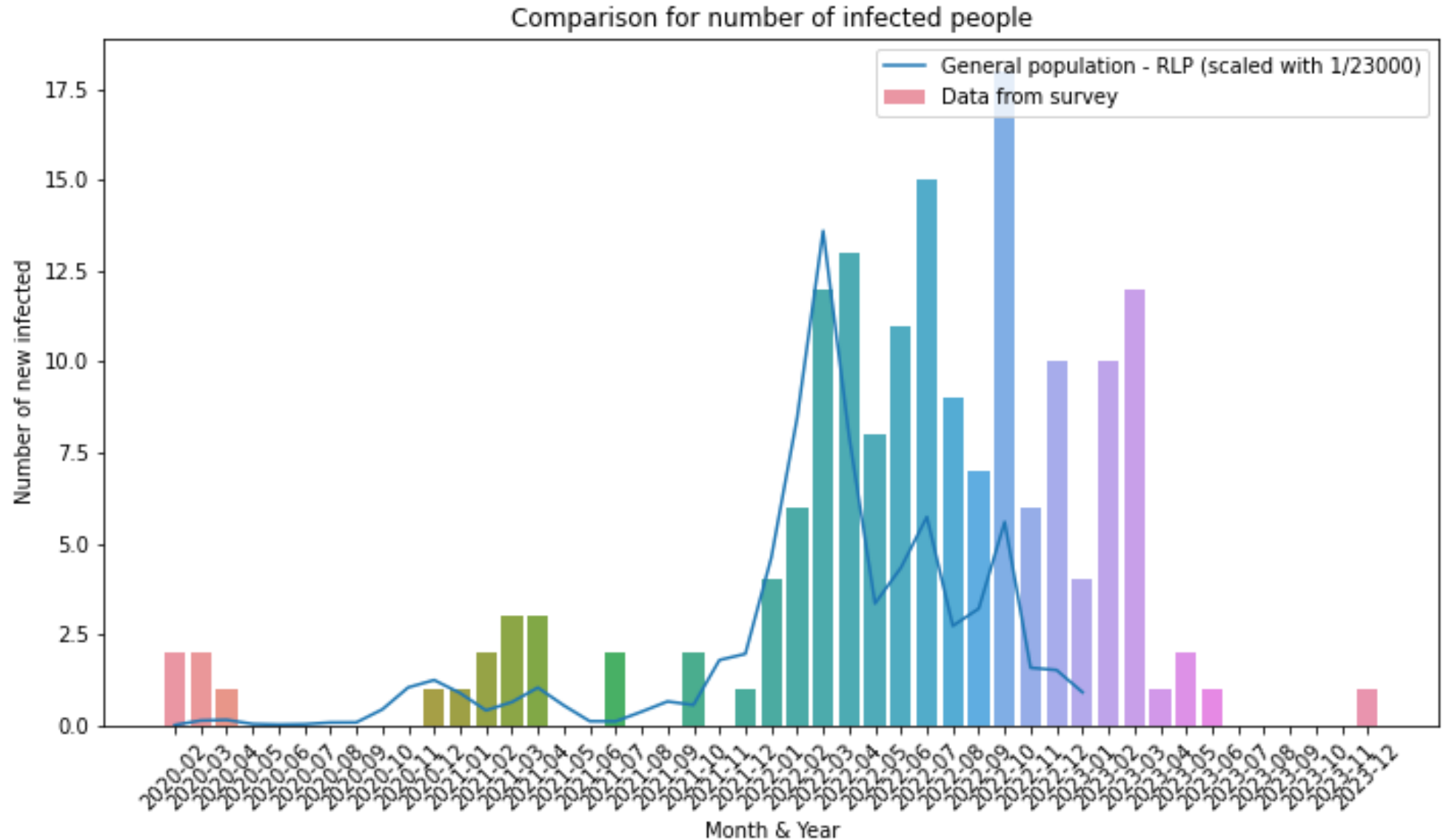
Erklärbarkeit und Entscheidungsunterstützung  
durch KI in Pandemie-Situationen

## COVID-19 in Higher Education

---

Dr. Radomir Pestow, Dr. Ulf Lotzmann, Nataliia Kruchinina, Jan Herschel,  
Prof. Dr. Andreas Mauthe, Prof. Dr. Thomas Götz, Prof. Dr. Maria Wimmer

# History of Infections



# Household Size and Infections

		How many people live in your household (including you)?				
		1	2	3	4	5 or more
0	Count	7	21	9	4	0
	% within How many people live in your household (including you)?	28.0%	32.3%	20.9%	10.3%	0.0%
	Count	25	65	43	39	12
	% within How many people live in your household (including you)?	100.0%	100.0%	100.0%	100.0%	100.0%

# Smoking and Infections

		0	Total
No	Count	35	170
	% within Do you smoke?	20.6%	100.0%
Yes	Count	5	14
	% within Do you smoke?	35.7%	100.0%

odds ratio for infection (smokers v. non-smokers) 0.81

# Smoking and Infections

## Results

Among the 1688 crewmembers (87% men; median age = 28 [interquartile range 23–35]) included, 1279 (76%) developed Covid-19 (1038 [62%] reverse-transcriptase- polymerase chain reaction testing–positive and 241 [14%] with only clinical signs). One hundred and seven patients were hospitalized. The univariable analysis odds ratio (OR) for Covid-19 infection was 0.59 (95% confidence interval [CI], 0.45–0.78;  $p < .001$ ) for current smokers versus former and nonsmokers; sex, body mass index or blood group had no significant impact. Crewmembers >50 years old had an increased risk of contracting Covid-19 (OR, 2.84 [95% CI, 1.30–7.5];  $p = .01$ ). Multivariable analysis retained the lower risk of current smokers becoming infected (OR, 0.64 [0.49–0.84];  $p < .001$ ) and age >50 years was significantly associated with Covid-19 (OR, 2.6 [1.17–6.9];  $p = .03$ ).

Paleiron et al. 2021

# Vaccinations and Infections

		How many times have you received a COVID-19 vaccine?					
		0	1	2	3	4	5
0	Count	2	0	5	21	12	1
	% within How many times have you received a COVID-19 vaccine?	25.0%	0.0%	16.1%	18.8%	41.4%	20.0%
	Count	8	1	31	112	29	5
	% within How many times have you received a COVID-19 vaccine?	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



# Beliefs and Behaviour

Rotated Component Matrix<sup>a</sup>

	Component	
	1	2
How many times have you knowingly been infected with COVID-19?		.715
How many times have you received a COVID-19 vaccine?	.583	-.384
How many people live in your household (including you)?		.774
Do you think vaccination was helpful in preventing COVID-19?	.875	
Do you think the vaccine helped to protect you from getting infected with COVID-19?	.806	
Do you take COVID-19 as a serious disease?	.767	
Were you scared to go to the university in person during the pandemic?	.438	
Do you believe that the regulations introduced during the pandemic helped a lot in controlling the spread of COVID-19?	.762	

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 3 iterations.



# Statistical Analyses

- ❖ Initial statistical analyses have been performed to explore the data set
  - Finding correlations between variables with cross tabulation based statistics
  - Finding hidden structures using factor analysis
  - Estimating the statistical significance of the sample using inferential statistics
    - ❖ Experiences so far: For some analyses, results are statistically significant, for others the sample size is too small to draw inferences about the University “population”
- ❖ Plans for further analyses with data from the survey
  - Exploring effects of travel behaviour and means of transport
  - Looking deeper into the effects of vaccinations, even with differentiating various vaccines





# Thank you for your attention!

Questions ...