

INHALTSVERZEICHNIS

Inhaltsverzeichnis	III
Abbildungsverzeichnis	V
Tabellenverzeichnis	VI
1 Einleitung	1
1.1 Motivation	1
1.2 ICF - Das Modell und das System	3
1.3 Graphische Modelle	4
1.3.1 Aufbau von graphischen Modellen	4
1.3.2 Beispiel: Graphisches Modell zur Framingham-Herzstudie	6
1.4 Vorstellung der Beiträge	7
1.4.1 Graphical models illustrated complex associations between variables describing human functioning	7
1.4.2 Graphical modeling of binary data using the LASSO: a simulation study	8
1.4.3 Dimension reduction in human functioning and disability outcomes research: graphical models versus principal components analysis	9
1.4.4 Graphical modeling to illustrate associations between variables describing functioning in head and neck cancer patients	9
1.5 Zusammenfassung	9
1.6 Summary	11
2 Graphical models illustrated complex associations between variables describing human functioning	15
2.1 Introduction	17
2.2 Methods	18

2.2.1	Principles of graphical models	18
2.2.2	Study design and database	19
2.2.3	Overview on International Classification of Functioning, Disability and Health coding	20
2.2.4	Model building	21
2.2.5	Representation of the graphs	24
2.3	Results	24
2.4	Discussion	28
2.4.1	Issues of clinical validity	29
2.4.2	Methodological considerations and applications	29
2.4.3	Comparison with other multivariate exploratory methods	31
2.4.4	Limitations	31
2.5	Conclusion	32
3	Graphical modeling of binary data using the LASSO: a simulation study	37
3.1	Background	39
3.2	Methods	41
3.2.1	Data generation	41
3.2.2	Real-Life Data: Aspects of functioning in Head and Neck cancer patient	42
3.2.3	Principles of graphical models	43
3.2.4	Principles of LASSO for logistic regression	44
3.2.5	Binary graphical model using single LASSO regressions	45
3.2.6	Binary graphical model using Bolasso	46
3.2.7	Assessment of performance	47
3.3	Result	49
3.3.1	Simulation Results	49
3.3.2	HNC Data	52
3.4	Discussion	54
3.5	Conclusion	55
4	Dimension reduction in human functioning and disability outcomes research: graphical models versus principal components analysis	59
4.1	Introduction	61
4.2	Methods	62
4.2.1	Design	62
4.2.2	Sample	62
4.2.3	Measurement	62
4.2.4	Procedures for data analysis	62
4.2.5	Graphical models	63

4.2.6	Principal component analysis	63
4.2.7	Comparison of procedures	65
4.3	Results	66
4.4	Discussion	72
5	Graphical modeling can be used to illustrate associations between variables describing functioning in head and neck cancer patients	78
5.1	Introduction	80
5.2	Methods	81
5.2.1	Extended ICF checklist	81
5.2.2	Data collection	82
5.2.3	Analysis	82
5.2.4	Graphical modeling	83
5.3	Results	85
5.4	Discussion	88
Danksagung		97