

204 - Social Health and Dementia

Mapping the complexity of factors influencing cognitive functioning in dementia with a special focus on social health

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Introduction: Over the past years the scientific discourse on health moved beyond unidimensional approaches, focusing on a more complex bio-psycho-social understanding. Regarding dementia and cognitive health, several studies have shown that various multidimensional factors (risk/protective) and their interactions, as well as existing individual and social resources, contribute to the heterogeneity observed for onset and further course of dementia. This presentation will a) give a systematic overview of causal factors in relation to the onset and progression of cognitive functioning and dementia b) show results of a first generic system dynamics model as Causal Loop Diagram (CLD) visualizing how different factors of the system are interrelated.

Methods: A mixed methods approach was used. First, we conducted a systematic literature review on factors influencing cognitive health with an emphasis on social factors. Second, the Group Model Building (GMB) approach was used to further elaborate the knowledge base from the literature review and to start building a Causal Loop Diagram as a first comprehensive system dynamics working model. In a final third phase we integrated both strands, agreed on the knowledge base by stepwise discursive consensus and created the CLD.

Results: The CLD model includes 73 unique factors directly or indirectly influencing cognitive functioning. Those factors show the basic causal structure of the interplay of variables present in the

development and trajectory of dementia. These factors could be grouped into six thematic/disciplinary clusters, such as personal factors, socioeconomic factors, lifestyle factors, neuro-bio-medical factors, environmental factors and social health factors. The model indicates a significant role of social health indicators for cognitive health in dementia.

Conclusion: The generic CLD model reflects the knowledge of a multidisciplinary group of researchers, merged with results from a systematic literature overview and supplemented by discussion and iterative feedback processes. The mixed methods approach as well as the integration of system thinking methods turned out to be a reasonable approach to develop and graphically represent the complex structure of factors influencing cognitive functioning in dementia. This model facilitates the development of novel hypotheses about causal relationships between social health and dementia.

Translational dementia research on social health and cognitive functioning in rodents and humans

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Rational

The paucity in dementia research requires finding new knowledge on factors that influence the onset of dementia and on related interventions. One of these factors might be social health. New neurobiological insights in this area can be derived from studying social health in rodents. To determine the cross-species translational value of social health, in this project, homologies between social health in rodents and humans are being investigated.

Aim

The aim of the study presented in this symposium is to identify social behavioural components in rodents in order to eventually derive and test hypotheses on the relationship between social health, brain mechanisms, cognitive functioning and dementia in the overall study.

Methods

A first step is the adaptation of the definition of social health in order to allow use of this concept in rodent research. A next step is the selection of observational markers reflecting social health.

Results

Departing from a definition of social health as domain of positive health (Huber) we adapted the concept of social health by focussing on its actors: the individual and the social environment. Social health relates to the influence the competencies of the individual to participate in social activities and the influence of interactions with the social environment have on the dynamic balance between capacities and limitations. Quantifiable features of social behaviour in rodents concern hierarchy, social approach and avoidance behaviour, aggressive behaviour, sexual behaviour, among others. Interestingly, the core neural circuitries in the brain regulating (healthy) social behaviours have been identified, and seem evolutionary well-preserved, thus showing substantial neuro-anatomical overlap between distant species.

Conclusion

Comparison between rodent and human behaviour reveals comparable behaviour of rodents and humans such as social companionship, information on the emphasis on the physical expression of