

THE COAST AND HUMAN HEALTH

An analysis of psychological, physiological,
and social phenomena

Alexander Hooyberg

Doctoral thesis

submitted to fulfil the requirements for the degree of
“Doctor of Health Sciences and of Sociology”

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CONTEXT

This doctoral research was performed from October 2018 to May 2024 within the Ocean and Human Health research group at VLIZ, and within the Department of Public Health and Primary Care and the Department of Sociology at UGent. Since the start, the research team aimed to perform internationally groundbreaking science towards potential societal applications. During his research, Alexander has published his work in top international scientific journals, which now also ask him to review other’s research. He has also eagerly presented his work on over 30 international and local scientific and public events, has gained insights from over 250 hours of courses, and has guided 13 students towards successfully completing their internship or master project, of which 4 are still ongoing. He also received a Brilliant Marine Research Idea grant (€5000) and the Dr. Edouard Delcroix Incentive Award (€2500).

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WHY

- A better understanding of the effects of exposure to the coast on human health will help to combat poor mental health and to meet sustainable development goals.
- There was very little scientific evidence about the effects of the coast on our health.

EXAMINATION

COMMITTEE

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KEY FINDINGS

- Coastal residents report to have a better general health than inland residents
- Coastal nature lets people recover from stress mentally and physically
- The coastal visit behaviors of different kinds of visitors were mapped

SUMMARY (ENG)

Chapter I describes how the aims of this dissertation fit within the international scientific literature. **Chapter II** outlines an analysis on Belgian health data acquired from Sciensano (N = 60 939, 1997-2013). It shows that coastal residents report to have a better general health than inland residents (Hooyberg et al., 2020). **Chapter III** shows how a picture-rating experiment on students (N = 102, 18-30y) demonstrated that natural environments at the coast (e.g., beaches, dunes) are more efficient for restoring mental health than urban coastal environments (e.g., dyke, cities; Hooyberg et al., 2022). **Chapter IV** outlines the results from a virtual-reality experiment (N = 164, 18-65y). This study highlights that beaches reduce the perceived stress, negative mood, breathing rate, and sympathetic nervous system activity more than inland green and urban environments (Hooyberg et al., 2023). **Chapter V** presents new open data on the coastal visit characteristics of a representative sample of the Flemish population (N = 1939; Hooyberg et al., 2024). **Chapter VI** analyzed the coastal visitors in this data (N = 1302) to map the different visitor profiles. **Chapter VII** discusses the scientific yield and directions for future research.

SAMENVATTING (NL)

De kust en menselijke gezondheid: een analyse van psychologische, fysiologische, en sociale fenomenen.

Hoofdstuk I beschrijft hoe de doelstellingen binnen dit doctoraat passen binnen de internationale wetenschappelijke literatuur. **Hoofdstuk II** zet een analyse van Belgische gezondheidsdata van Sciensano (N = 60 939, 1997-2013) uiteen. Deze analyse toont aan dat kustbewoners een betere gezondheid aangeven dan bewoners uit het binnenland (Hooyberg et al., 2020). **Hoofdstuk III** rapporteert de resultaten van een foto-beoordelingstaak (N = 102, 18-30y) waarin studenten aanduidden zich beter mentaal te kunnen herstellen in natuurlijke dan in stedelijke omgevingen aan de kust (Hooyberg et al., 2022). **Hoofdstuk IV** beschrijft een virtual-reality experiment (N = 164, 18-65y). Dit experiment toonde aan dat stranden effectiever zijn in het verlagen van het gevoel van stress, het negatief gemoed, de ademhalingsnelheid, en de activiteit van het sympathische zenuwstelsel dan groene en stedelijke omgevingen uit het binnenland (Hooyberg et al., 2023). **Hoofdstuk V** presenteert nieuw verzamelde data over de eigenschappen van de kustbezoeken van Vlamingen (N = 1939). Die gegevens werden openbaar ter beschikking gesteld (Hooyberg et al., 2024). **Hoofdstuk VI** analyseerde de gegevens van Vlamingen die de kust in het afgelopen jaar bezochten (N = 1302). Verschillende kustbezoekersprofielen werden geïdentificeerd en beschreven. **Hoofdstuk VII** bespreekt de wetenschappelijke bijdragen en richtlijnen voor toekomstig onderzoek.

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