

MPhil Population Health Sciences – Example Dissertation Topics by Theme

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You cannot decide on your final dissertation project before you join the MPhil – there is a full process for that during the Michaelmas term, including our dissertation fair in November. However, here are just some example dissertation titles from the last couple of years. This is just for flavour – topics vary from year to year, and depend on both researcher and student interests.

## Epidemiology

Predicting Multi-Morbidity in Diabetes Patients Through Trustworthy AI: A Multi-Modal Analysis Using the UK Biobank

Mediation of the association between residential environment and adiposity by diet and physical activity

Development of a multifactorial endometrial cancer risk prediction model

The role of deep learning in genetic prediction of complex traits

Futility bound for drop-the-losers clinical trial designs

The association between residential environment and biomarkers of cardiometabolic health

Exploring the impact of screening for breast cancer by taking into account the tumour growth kinetics

Association of meat consumption with adiposity markers in the Fenland study

Investigating the Links Between Depression, Cognition, and Inflammation in the Northern Finland 1966 Birth Cohort

Mapping Current Standards of Blood Transfusion in Global Trauma Care

Uncovering how genetic variants shape protein networks to influence disease risk

 Understanding mental health service use patterns over time and their association with informant discordance in reports of child mental health

Child, parent and teacher report of child mental health difficulties: discrepancies and differential implications for mental health services

Disentangling causality between sleep apnea and cardiovascular diseases using Mendelian Randomization

Exploring the potential insights from serological surveillance using routinely collected blood samples

Polygenic modelling of gene-environment interactions of Type 2 Diabetes

Modelling the reliability of diagnoses in screening for atrial fibrillation

Neutrophil cell counts as a predictor of clozapine response in schizophrenia patients: A Systematic Review

Investigating the performance deterioration of cross-ancestry polygenic scores

A systematic review of social mobility and risk of dementia

Associations between Drought and Health Indicators in Low- and Middle-Income Countries

## Global Health

Assessing Employment Variables as Predictors of Ultra Processed Foods(UPF) and High Fat, Salt, Sugar(HFSS) Foods Consumption in the UK.

Effect of Heat Stress and Built Environment on Public Health: A Temporal Analysis of UK’s Mortality Rates with Temperature and Housing Conditions

The association of informal savings group (chama) with household food expenditure, household food security and childhood (under five) malnutrition (stunting and wasting) in Kenya

Age of Diagnosis of Syndromic Autism

Closing the research-implementation gap for clinical prediction models.

The relationship between Free School Meals and childhood outcomes globally: a systematic review of evidence

Violence Against Women and Girls Prevention

A Policy Analysis of Tanzania’s National Action Plan for Antimicrobial Resistance (NAP-AMR) and Implications for Implementation through a One Health Lens

The Variation in Medicaid Covered Services for Pregnant People in 5 U.S. States: A Qualitative Analysis

Associations between racialized economic segregation and retail food environments in the United States

Decarbonising Healthcare in East Africa: An Evidence Review and Synthesis for Global Health Policy Development.

Understanding trajectories of mental health among lesbian, gay and bisexual participants in Understanding Society

Prevent with Pleasure: A Global Systematic Review and Meta-Analysis of HIV Prevention Methods that Incorporate a Pleasure-Based Approach

Impact of Gender Disparities on Access to Public Spaces for Physical Activities and Its Association with Obesity Risks in Lagos, Nigeria.

Evaluating the Effectiveness of One Health versus Species-specific Intervention Strategies in the Control of Rabies in Sub-Saharan Africa.

A Systematic Review of Breast and infant feeding in Conflict and Disaster Zones

Problematic Internet Use: Policy Mapping of Current Policy Across Europe

## Health Data Science

Effect of patient socio-economic status on outpatient pathway completion time and healthcare equality

Networks of Depressive Symptoms in Adolescents using Routinely Collected NHS data

Using auxiliary information to improve biological network estimation

Machine learning algorithm for clustering ADHD age of diagnosis with comorbidities and clinical presentation

Prediction of IC10 Subtypes in Breast Cancer Using Methylation Data

Piecewise longitudinal models with random change-points

Applying Mendelian randomisation to appraise causality in relationships between smoking, schizophrenia and inflammation

Multi-omics prediction of common cardiometabolic comorbidities (including diabetes) of hypertension

Fuzzy vs Crisp clustering of single-cell RNAseq expression data and its potential of revealing Gene Regulatory Networks dynamics

Evaluation of super-efficient estimator of average treatment effect

Identify genetic risk factors underlying multimorbidities

The joint impact of age, sex and genetics on multi-omic traits

Novel prognostic markers in breast cancer using cell-free DNA

Bayesian models for survival analysis with many covariates

Designing matrix factorization method to identify comorbidity-specific genetic risk factors while controlling single disease GWAS

Investigating the relationship between retinal features from multimodal imaging and dementia

Tailored Bayes to high dimensional settings

Machine Learning Methods for breast cancer prognosis

Environmental factors impacting brain development

## Infectious Diseases

Examining similarities between receptor binding domains across coronavirus spike proteins

Vaccine impact assessment in country X

Estimating the number of people living with transmissible levels of diagnosed HIV in England’

The genomic epidemiology of Klebsiella pneumoniae in Malawi

Understanding the spread of dengue virus

Modelling the impact of heterogeneity in vaccine coverage on the size and geographic spread of measles outbreaks

Investigating the link between length of stay in Emergency Departments (ED) and adverse events.

Estimating the potential benefits of a Plasmodium vivax vaccine

Monitoring the Prevalence of Hepatitis C through Surveillance and Use of Multiple Imputation

Do cohort-specific trends in first exposure to influenza A group explain age-specific patterns of influenza mortality?

 Exploring Census, population and migration data by country of birth and ethnicity, to inform HIV burden estimation

A Comparative Analysis of Human Genetic Relatedness and Dengue Antibody Titres in Thailand

Modelling Survival from Oesophageal Adenocarcinoma: External Validation of the AUGIS- Survival Model.

Exploration into the emergence and spread of AMR in specific populations

Reviewing Thresholds for Indicators of Influenza Activity

Lab escapes: infectious disease outbreaks caused by biosecurity failures, a thematic review

## Primary Care Research

Are non-injectable end-of-life anticipatory medications a viable intervention in the community? A Systematic Review and Narrative Synthesis

Evaluating the Effectiveness of Digital Antimicrobial Stewardship Initiatives in Community Healthcare Settings Across Low- and Middle-Income Countries

Exploring the First Two Delays in Prehospital Trauma Care: A Mixed-Methods Scoping Review of Community Stakeholder Roles

An Analysis of Socio-Economic Inequality in Health and Healthcare Utilization Among Australian Children with Cerebral Palsy and Adults with Disabilities

How can we best manage uncertainty in serious illness? What outcomes are important?

Polygenic risk scores for lung cancer in UK Biobank: systematic review and validation in UKB

Blood biomarkers in neurodegenerative diseases; a systematic review and assessment using the Cantest framework.

Muslim Communities' Perspectives and Preferences Regarding End-of-Life Symptom Management: Systematic Review and Narrative Synthesis

Mendelian randomisation to identify causal pathways for disease: ACE2 in pulmonary hypertension

Systematic Review and Metanalysis of Semaglutide in Substance Use Disorder

## Public Health

Associations between Nutrition Knowledge, Ultra-Processed Food Awareness, and Dietary Behaviours: A Multi-Country Study

Digital kinning and identity among transnational healthcare workers in the UK: a scoping review

Exploring the association between exposure to the retail food environment and diet and obesity outcomes in the UK: re-analysis of a systematic review

Predictors of poor response to lipid-lowering medications: a systematic review

The effect of retirement on health behaviours: analysis of the Fenland cohort study

Impact of Risk-Stratification for Cancer Screening on Health Inequalities: A Systematic Review

Developing a polysocial risk score model for dementia

A systematic review of process evaluations of interventions aiming to improve healthfulness and sustainability within the consumer food environment

Early Intervention Psychosis: A Cost-Effectiveness Analysis

The influence of Interactions with healthcare professionals on the value of self for children and young people with social work involvement who have used CAHMS.

Framing Pain: An Analysis of Industry Influence on WHO Pain Guidelines and Implications for Commercial Determinants of Health

A Review Exploring the Migration of Healthcare Professionals to Canada in the Context of Climate Resilience

A latent profile analysis to explore eating behaviour traits, psychosocial indicators, and associations with BMI in a cohort of individuals enrolled in an Acceptance and Commitment Therapy based weight management intervention during the COVID-19 pandemic.

Effectiveness of guidelines and policies in addressing antimicrobial resistance in Sub-Saharan Africa in the context of self-medication and the role of community pharmacies and other drug dispensing outlets.

Cost-Effectiveness Analysis of Interventions for Severe and Enduring Eating Disorders: A Health Economics Perspective

Mixed methods systematic review of physical and social affordances for risky play in children

Experiences of women breastfeeding and needing medication: A qualitative systematic review

Understanding inhaler prescribing trends and their carbon footprint in the UK

Cost-Effectiveness Analysis of the SEDU versus Day Patient Pathway for Eating Disorders: A Health Economic Perspective

Key Influences on Sexual Violence Prevention Policy Effectiveness: A Comparative Study

Investigating 'omic predictors of mood disorder symptoms in the UK Biobank dataset.

Evaluation of Public Health education in UK medical schools curriculum – a discourse analysis

Qualitative Study on Public Responses to Media Reports on Ultra-Processed Foods (UPF)

Is climate change driving meningococcal meningitis outbreaks in Angola?

Exploring the dynamics of food outlet availability from 2011-2023 in Great Britain: A repeated cross-sectional study of socioeconomic disparities and food outlet distribution

The role of ‘balance’ in the policy discourses of the ultra-processed food and beverage industries

Effectiveness of oseltamivir in obstetric patients with COVID-19

Urban policy interventions to reduce traffic-related air pollution and improve health: Developing WHO web repository tool

A scoping review and policy mapping of the managerial regulation of health service leaders across 11 high income Organisation for Economic Co-operation and Development (OECD) countries.

Evaluating the long-term impact of the introduction of the London ULEZ on children's mode of travel to school

The impact of digital therapies on mental health and wellbeing outcomes for families of children with special educational needs and disabilities (SEND): A systematic review and meta-analysis

Autism Prevalence Among Migrants and Minority Ethnic Groups: A Systematic Review and Meta-analysis

What corporate activities do ultra-processed food industries engage in that are potentially detrimental to population health, and do these mirror the activities of the tobacco industry?

Policy Evaluation, Sunset Clauses and the Politics of Minimum Unit Pricing of Alcohol in Scotland

Exploring health behaviour clusters, screen time/ social media use and socio-economic status among adolescents: analysis of the Millennium Cohort Study

Drivers of rapid large-scale change in healthcare: an evidence review

A systematic review of interventions to address persistent school absenteeism in compulsory education

Estimated Impact of Behavioural Modifications on Major Noncommunicable Diseases in the United Kingdom

How do referral source and sociodemographic characteristics impact on referral decisions, waiting times and number of re-referrals to child and adolescent mental health services?

A systematic review examining the association between the retail food environment, and diet and obesity in the United Kingdom

Digital Health Interventions in Oncology: Implementation Challenges and Facilitators

Informed Consent in Screening: A Literature Review and Secondary Qualitative Analysis

By what mechanisms does a behavioral weight management programme for type 2 diabetes influence outcomes? A secondary analysis of the GLoW trial

The UPF Controversy: A Thematic Analysis of Scientific Perspectives

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