

when the data extraction form and Summary of Findings table format were modified for extraction of relevant data, all ten MSM studies had to be re-visited and a second phase of data extraction performed.

Conclusion Routine piloting in systematic reviews facilitated production of a “bespoke” review, with time saved both through efficient extraction of required data and the avoidance of extraction of unnecessary data. In addition, the mini synthesis provided a potential version of the full review that could be discussed and agreed by all researchers at an early stage in the review process. This supported project management of the review, improved efficiency and ensured optimal usability for the researchers involved in the next stage of the research programme.

P28 MORTALITY, ETHNICITY AND NATIVITY IN ENGLAND AND WALES-DO WE SEE A HEALTHY MIGRANT EFFECT?

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Background Population diversity in England and Wales (E&W) has steadily increased since 1991; the proportion of people defining themselves as not White has since doubled and increased to 14% of the total population by 2011. However, unlike other immigration countries mortality for ethnic groups, an important population health indicator, is not collected. To fill this knowledge gap we previously developed methods to estimate mortality for ethnic groups, one of which is using information of the geographical distribution of groups. We found that life expectancies (LE) for many ethnic minorities were below those of the White British. LE for ethnic minorities were related to the degree of deprivation groups experienced and partly counter-acted by the recency of arrival. Over time, the number of second and subsequent generation migrants who still define themselves with their parents' ethnic group has increased. Here we investigate mortality differences between ethnic groups by nativity, to explore further the impact of nativity on health.

Methods We estimated mortality for ethnic groups in E&W by nativity- born in the UK and born abroad- for 18 groups as defined in the census 2011. Mortality rates are estimated using Rees *et al.* (2009) geographically weighted method. The derived mortality rates are used in standard abridged lifetable methodology to compute LE.

Results Briefly, variation in LE at birth for women is not very large but the differences between groups are in many instances significant. For LE at birth we find the highest LE for Arab women born abroad with 83.5 years and the lowest in Pakistani women born in the UK (82.2 years). Between women born in the UK, the maximum difference in LE is just over one year, for women born abroad the difference is nearly 1.3 years. In general we observe that the population born abroad has a higher LE at birth compared to the population born in the UK, but only in the White British group this difference is significant.

Conclusion We find a general trend in all ethnic groups that first generation migrants have better health compared to subsequent generations. However, due to small numbers, only 13% of the population in E&W is born abroad, variations are mostly not significant. Even though variation between groups

estimated here are small, they are significant. These results iterate the importance to collect actual ethnic mortality data, to allow us to finally research the real variation in ethnic mortality in E&W.

P29 BEST PRACTICE GUIDANCE FOR DIETARY ASSESSMENT IN RESEARCH: DIET@NET GUIDELINES

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Background Accurate assessment of dietary intake is important for planning, implementing of health promotion and when evaluating the effectiveness of public health interventions. However, measuring dietary intake is one of the most challenging aspects of public health research as no dietary method can measure dietary intake without error. Therefore, strategies that support researchers to choose the most appropriate dietary assessment method will help to strengthen research in this field. This study, undertaken for the Diet@net consortium aims to establish expert consensus on best practice guidelines (BPG) for carrying out dietary assessment in order to help non-experts in collecting dietary information.

Methods The guidelines were developed through a Delphi consultation technique (Moher recommendations). Two Delphi rounds were conducted using self-administered questionnaires, asking for prioritisation of suggested guidelines. Twelve expert members of the BPG-working group reviewed findings from participants and finalised the guidelines.

Results One hundred and thirty-experts were invited to take part, of whom 65 agreed to participate. Forty-eight completed Delphi-I and 51 Delphi-II. Overall, a total of 57 experts from different countries contributed feedback; these included nutritional epidemiologists, statisticians, and public health specialists. Initially, 47 statements were included in the guidelines. Following both Delphi rounds this was reduced to 43. The final consensus BPG includes four main stages with eight sub-sections. These stages are summarised as follows:

- Stage I. researchers need to define what is to be measured in terms of dietary intake to guide the choice of the most suitable Dietary Assessment Tool (DAT). Considering the ‘who?’, ‘what?’, and ‘when?’ of the study participants.
- Stage II. Investigate different types of DAT and appraise their appropriateness for the research question.
- Stage III. Evaluate existing tools to fine-tune choice of the most appropriate DAT by evaluating published validation studies, and considering the need for any modification or updating of the existing tools.
- Stage IV. Think about the implementation of the chosen DATs in the population of interest. Also, by addressing the source and range of the potential biases when using chosen DAT, aiming to minimise these where possible.

Conclusion Delphi techniques allowed us to synthesise experts' consensus on best practice in assessing dietary intake. The BPG will help non-expert researchers to consider key factors when selecting a DAT. These guidelines will be included on the Nutritools website (<http://www.food.leeds.ac.uk/nutritools>). Nutritools will host interactive dietary assessment tools and guidance for nutrition researchers, healthcare practitioners and other scientists.

P30 DEVELOPING A METHODOLOGICAL FRAMEWORK FOR ORGANISATIONAL CASE STUDIES: A RAPID REVIEW AND CONSENSUS DEVELOPMENT PROCESS

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Background Organisational case study proposals can be poorly articulated and methodologically weak, raising the possible need for publication standards in this area.

This rapid review and Delphi consensus process sought to develop reporting standards for organisational case study research, with particular application to the UK National Health Service (NHS).

Methods The reporting standards were developed in three stages: 1) Rapid evidence synthesis of the existing literature. 2) A modified Delphi consensus. 3) Application of the high-consensus Delphi items to a sample of organisational case studies to assess their feasibility as reporting standards.

Results 103 unique reporting items were identified from 25 methodological texts; eight example case studies and 12 exemplar case studies did not provide any additional unique items.

Thirteen items were ultimately rated as "Should be reported for all organisational case studies" by at least 70% of respondents, with the degree of consensus ranging from 73% to 100%.

As a whole, exemplar case studies (which had been provided by the project funder as examples of methodologically strong projects) more consistently met the high-consensus Delphi items than did case studies drawn from the literature more broadly.

Conclusion The high-consensus items were translated into a set of 13 reporting standards that aim to improve the consistency and rigour and reporting of organisational case study research, thereby making it more accessible and useful to different audiences. We will present the final list of reporting items.

P31 GRIP STRENGTH DECLINE AND ITS DETERMINANTS IN THE VERY OLD: LONGITUDINAL FINDINGS FROM THE NEWCASTLE 85+ STUDY

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Background Low grip strength is a key component of sarcopenia and frailty and a powerful predictor of mortality, morbidity and disability. Despite increasing interest in understanding grip strength from a life course perspective, little is known about grip strength decline in the very old (aged 85+). We examined trajectories of grip strength in very old adults and identified the determinants.

Methods Grip strength (kg) was measured at four time points over 5 years in 319 men and 529 women participating in the Newcastle 85+ Study. Mixed models were used to establish trajectories of grip strength and associated factors in all participants, men and women separately, and in those with weak grip strength (≤ 27 kg in men, and ≤ 16 kg in women) at baseline and follow-ups.

Results In the time-only model, men experienced linear annual decline in grip strength of -1.13 (0.8) kg (β (SE), $P < 0.001$), whilst women's decline although slower, accelerated by -0.06 (0.02) kg ($P = 0.01$) throughout the follow-up above the loss experienced in the first year. In the saturated model, higher baseline physical activity, height, fat-free mass, and better self-rated health were associated with stronger grip strength initially in both sexes. Annual grip strength decline in men and participants with weak grip strength who were highly physically active was slower by 0.95 and 0.51 kg, respectively compared with inactive counterparts.

Conclusion Grip strength decline in this cohort of very old adults followed linear (men) and curvilinear (women) trends. High levels of physical activity were protective in men and in those with overall weak grip strength. These findings have relevance to the design of interventions to improve muscle strength in later life.

P32 CHILDHOOD MALTREATMENT AND BIOMARKERS FOR CARDIOMETABOLIC DISEASE IN MID-ADULTHOOD: ASSOCIATIONS AND POTENTIAL EXPLANATIONS

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Background Childhood maltreatment (neglect and abuse) has been associated with cardiometabolic disease in adults, but evidence is sparse. Using a population cohort we aimed to investigate whether different forms of child maltreatment were associated with cardiometabolic biomarkers in mid-life and potential explanations for the associations.

Methods The 1958 British birth cohort includes all born in one week in 1958, followed to mid-adulthood. Information was collected on childhood neglect and abuse (physical, sexual, psychological) and adult (45 y) cardiometabolic markers (blood pressure, lipids, glycated haemoglobin (HbA1c) ($n \sim 9000$)). The associations between child maltreatment and cardiometabolic markers were tested using linear regression or logistic regression, as appropriate, adjusting for (1) early life covariates and (2) child-to-adult BMI, adult social position, lifestyles and mental health.

Results Approximately 17.4% of participants were identified as neglected (≥ 2 neglect indicators at ages 7 and/or 11 y) and 12% reported childhood abuse; prevalence varied from sexual (1.6%), physical (6%) to psychological abuse (10%). Childhood neglect was associated with raised triglycerides by 3.9% (95% CI: 0.4%, 7.4%) and HbA1c by 1.2% (0.4%, 2.0%),