

Paper Reference(s) 31494H

Pearson BTEC Level 3 Nationals Diploma, Extended Diploma

Health and Social Care

Unit 4: Enquiries into Current Research in Health and Social Care

Part B

Monday 13 May 2019

Supervised hours: 3 hours plus your additional time allowance

INSTRUCTIONS TO CANDIDATES

Write your centre number, learner registration number, surname, other names and your signature in the boxes below. Check that you have the correct question paper.

Centre No.							
Learner Registration No.							
Surname							
Other names							
Signature							
Paper Reference	3	1	4	9	4	H	



- Use **BLACK** ink or ball-point pen.
- Answer **ALL** activities.
- Answer the activities in the spaces provided – there may be more space than you need.
- **PART A** will need to have been used in preparation for completion of **PART B**.
- **PART B** booklet must be issued to learners as defined by Pearson and should be kept securely.
- **PART B** booklet must be issued to learners on the specified date.
- **PART B** is specific to each series and this material must only be issued to learners who have been entered to undertake the task in that series.
- **PART B** should be kept securely until the start of the supervised assessment periods.

MATERIALS REQUIRED FOR EXAMINATION

Notes prepared in PART A

ITEMS INCLUDED WITH QUESTION PAPERS

Nil

INFORMATION FOR CANDIDATES

- The total mark for this paper is **65**.
- The marks for **EACH** activity are shown in brackets – use this as a guide as to how much time to spend on each activity.

(Instructions continue on next page)

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ADVICE TO CANDIDATES

- **Read each activity carefully before you start to answer it.**
- **Try to answer every activity.**
- **Check your answers if you have time at the end.**

Instructions to Teachers/Tutors

PART B set task is undertaken under supervision in a single session of 3 HOURS in the timetabled session. Centres may schedule a supervised rest break during the session.

PART B set task requires learners to apply research. Learners should bring in notes as defined in PART A. The teacher/tutor needs to ensure that notes comply with the requirements.

Learners must complete the set task using this task and answer booklet.

The set task is a formal external assessment and must be conducted with reference to the instructions in this task booklet and the Instructions for Conducting External Assessments (ICEA) document to ensure that the supervised assessment is conducted correctly and that learners submit evidence that is their own work.

Learners must not bring anything into the supervised environment or take anything out without your approval.

Centres are responsible for putting in place appropriate checks to ensure that only permitted material is introduced into the supervised environment.

Maintaining security:

- **During supervised assessment sessions, the assessment areas must only be accessible to the individual learner and to named members of staff.**

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- Learners can only access their work under supervision.
- Any work learners produce under supervision must be kept secure.
- Only permitted materials for the set task can be brought into the supervised environment.
- During any permitted break and at the end of the session materials must be kept securely and no items removed from the supervised environment.
- Learners are not permitted to have access to the internet or other resources during the supervised assessment period.
- Learner notes related to PART A must be checked to ensure length and/or contents meet limitations.
- Learner notes will be retained securely by the centre after PART B and may be requested by Pearson if there is suspected malpractice.

After the session the teacher/tutor will confirm that all learner work had been completed independently as part of the authentication submitted to Pearson.

Outcomes for Submission

One document will need to be submitted by each learner.

- A completed taskbook.

Each learner must complete an authentication sheet.

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Instructions for Learners

This session is of 3 HOURS. Your teacher/tutor will tell you if there is a supervised break. Plan your time carefully.

Read the set task information carefully.

Complete all your work in this taskbook in the spaces provided.

You have prepared for the set task given in this PART B booklet. Use your notes prepared during PART A if relevant. Attempt all of PART B.

You will complete this set task under supervision and your work will be kept securely during any breaks taken.

You must work independently throughout the supervised assessment period and should not share your work with other learners.

Outcomes for Submission

You will need to submit one document on completion of the supervised assessment period.

- **A completed taskbook.**

You must complete a declaration that the work you submit is your own.

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Set Task Information

Select EITHER Section 1 beginning on page 8 OR Section 2 beginning on page 56 and answer the questions in the spaces provided.

You will need to refer to Article 1 on pages 104–110 OR Article 2 on pages 111–118 and the notes of any research completed in PART A.

(Section 1 begins on next page)

Activity 4

Sujan is a dietician who works closely with Ada, an Alzheimer's specialist. Their work involves supporting individuals at risk of developing Alzheimer's. He wants to investigate the link between a specific diet and Alzheimer's.

Sujan and Ada are planning to carry out a scientific experiment with 20 participants to assess the relationship between a specific diet and neurological activity in individuals at risk of developing the disease. The researchers will also be carrying out interviews with the participants to assess their health and wellbeing.

What should Sujan and Ada consider when undertaking this research?

You should include judgements on:

- planning considerations
- ethical issues
- research methodologies
- research skills required to explore the issue.

(15 marks)

(Continue your answer on next page)

(Turn over)

(TOTAL FOR ACTIVITY 4 = 15 MARKS)

TOTAL FOR PAPER = 65 MARKS

END OF SECTION 1

(Section 2 begins on the next page)

(Turn over)

Activity 4

Louis conducts research for Public Health England. He has been asked to carry out research into childhood obesity in relation to the socio-economic status of families.

Louis will undertake focus groups with parents of children from a variety of areas in England. He will take into account the level of income in the home. His research will also include observations of the children over a period of three months, and food diaries kept by both parents and children to assess the diet being consumed.

What should Louis consider when undertaking this research?

You should include judgements on:

- planning considerations
- ethical issues
- research methodologies that could be used
- research skills required to explore the issue.

(15 marks)

(Continue your answer on next page)

(Turn over)

(TOTAL FOR ACTIVITY 4 = 15 MARKS)

TOTAL FOR PAPER = 65 MARKS

END OF SECTION 2

(Articles 1 and 2 begin on next page)

(Turn over)

Article 1: Health Research

Healthy diet could cut risk of Alzheimer's disease

Tuesday March 31 2015

“A new diet could more than halve a person's risk of developing Alzheimer's disease,” the Mail Online reports. In a new study, researchers looked at the effects of three diets on the risk of developing Alzheimer's disease.

These were:

- **a standard Mediterranean-type diet**
- **the Dietary Approach to Stop Hypertension diet (DASH) – designed to reduce blood pressure**
- **Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) – this combines elements of the Mediterranean diet and the DASH diet**

The study found older people whose usual diet was close to any one of these three healthy diets were less likely to develop Alzheimer's disease than those eating less healthily. The researchers say they found the greatest effect from the MIND diet, which is rich in green leafy vegetables, wholegrains, nuts and berries, even if people didn't follow it closely. Participants who did stick rigorously to the MIND diet were 52% less likely to be diagnosed with Alzheimer's disease.

This large observational study can't show that the diets protected against Alzheimer's, only that there seems to

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be a link between eating a healthy diet and a lower risk of getting Alzheimer's disease. The three diets weren't compared directly, so we can't be sure which one is best. The study provides further evidence that eating a healthy diet may reduce the chances of developing Alzheimer's disease.

Where did the story come from?

The study was carried out by researchers from Rush University Medical Center in Chicago and Harvard School of Public Health in Boston, and was funded by grants from the US National Institute on Aging. It was published in the peer-reviewed medical journal *Alzheimer's & Dementia*.

The Mail Online reported the study accurately for the most part, although it did not say that this type of study cannot prove causation. Strangely, it repeatedly said that the MIND diet called for a daily salad, although salad was not mentioned specifically in the study.

What kind of research was this?

This was a large prospective cohort study of older people who were taking part in a long-running study of memory and ageing. It aimed to see whether people whose food consumption was closest to one of three types of healthy diet were less likely to be diagnosed with Alzheimer's disease during the course of the study. As this was an observational study, it cannot prove that the diet protected

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against Alzheimer's disease or other types of dementia. A randomised controlled trial would be needed for that.

What did the research involve?

Researchers worked with volunteers living in retirement communities and public housing in Chicago. They were asked to complete a questionnaire to assess their diet. They all had annual neurological examinations for an average of four to five years, which checked for Alzheimer's disease. Researchers adjusted the results to take account of other factors that can affect Alzheimer's risk. They then looked for links between Alzheimer's diagnosis and people's diets.

At the start of the study, the researchers decided to assess three types of diet:

- The Dietary Approach to Stop Hypertension (DASH) has been used to reduce blood pressure and stroke risk. It includes total grains and wholegrains, fruit, vegetables, dairy products, meat and fish, nuts and legumes, but restricts fat, sweets and salt.
- The Mediterranean diet (MEDdiet) is often recommended for heart health. It includes olive oil, wholegrains, vegetables, potatoes, fruit, fish, nuts and legumes, and moderate wine, but restricts full-fat dairy products and red meat.
- The Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet is a new diet

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developed by the researchers with elements from the DASH and MEDdiet, and also includes foods thought to protect the brain. It includes olive oil, wholegrains, green leafy vegetables, other vegetables, berries, fish, poultry, beans and nuts, and a daily glass of wine, but restricts red meat and meat products, fast or fried food, cheese, butter, pastries and sweets.

Using questionnaires from 923 volunteers, the researchers assessed how well each of them scored on each diet. They divided people into three groups showing high, moderate or low scores for each diet.

They then looked at whether people in the high-scoring groups for each diet were less likely to be diagnosed with Alzheimer's disease during the average 4.5 years of follow-up, compared with people in the low-scoring groups. People diagnosed with other types of dementia, such as dementia with Lewy bodies or vascular dementia, were not included as Alzheimer's cases.

The researchers did a good job of checking for other factors that could affect Alzheimer's risk. This included testing for a type of gene (APOE) that raises the risk of Alzheimer's, as well as asking about people's education level, whether they took part in cognitively stimulating activities such as playing games and reading, how much physical activity they got, their body mass index (BMI), whether they had symptoms of depression, and their medical history.

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What were the basic results?

During the study, there were 144 cases of Alzheimer's disease among the 923 people taking part. People with the highest scores in all three diets were less likely to be diagnosed with Alzheimer's disease than people with the lowest scores.

The link was slightly stronger for the MIND and MEDdiet than the DASH diet. People who had the highest scores on the MIND diet were 52% less likely to be diagnosed with Alzheimer's disease (hazard ratio [HR] 0.48, 95% confidence interval [CI] 0.29 to 0.79).

People who had moderate scores for the MIND diet were also less likely to be diagnosed with Alzheimer's than those with the lowest scores, but the link was not as strong (HR 0.64, 95% CI 0.42 to 0.97). Moderate scores on the DASH and MEDdiet did not show a statistically significant reduction in risk.

How did the researchers interpret the results?

The researchers said their results showed that "even modest adherence" to the MIND diet "may have substantial benefits" for preventing Alzheimer's disease. They say that while the DASH and MEDdiet also showed positive results, "only the highest concordance" with those diets was linked to the prevention of Alzheimer's disease.

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They go on to speculate that the dairy and low-salt recommendations in DASH, while useful for reducing blood pressure, may not be particularly relevant to brain health. They concluded that, “High-quality diets such as the Mediterranean and DASH diets can be modified ... to provide better protection against dementia.”

Conclusion

The study found people who ate a healthy diet – with plenty of green vegetables, wholegrains, legumes and less red meat – may be less likely to get Alzheimer’s disease. However, we should be wary of saying that their diet actually protected them from Alzheimer’s, as it is a complex disease with many potential causes.

The main limitation is that observational studies cannot prove causation, even when researchers take care, as they did here, to include factors that we know affect disease risk. It’s also notable that the researchers excluded dementia, other than Alzheimer’s disease, from their calculations.

It would be interesting to see the effect of these diets on other types of dementia, too, especially as the DASH diet protects against hypertension, which can be a cause of vascular dementia. This was not taken into consideration when the authors concluded that low dairy and salt may not be needed for brain health (though they still remain part of a healthy, balanced diet).

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Another limitation is that the food frequency questionnaire may not have completely captured people's adherence to the three diets. For example, people were asked about how often they ate strawberries, not about other types of berries. This could underestimate the effect of berry consumption in the diet.

Experts already think a healthy lifestyle can help lower the risk of getting dementia. Recommendations include eating a healthy diet, keeping to a healthy weight, exercising regularly, not smoking, drinking in moderation, and keeping blood pressure healthy. The question is: what type of healthy diet is best?

This study suggests the MIND diet may be better at lowering the risk of Alzheimer's disease than two other healthy diets. However, the study did not compare the effect of the diets directly. We also don't know which foods in the diets might make the difference. The best advice may be to follow a healthy balanced diet, without worrying too much about exactly which foods might protect your brain.

Analysis by Bazian

Edited by NHS Choices

Links to the science

Morris MC, Tangney CC, Wang Y, et al. MIND diet associated with reduced incidence of Alzheimer's disease. *Alzheimer's & Dementia*. Published online February 11 2015.

(Source: <https://www.nhs.uk/news/neurology/healthy-diet-could-cut-risk-of-alzheimers-disease/>)

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Article 2: Social Care Research

Children from poorer backgrounds more affected by rise in childhood obesity

Wednesday March 21 2018

“Forget going hungry ... now poor children are fatter than rich kids,” reports the Mail Online, which says the “trend of well-off parents having portly children has been reversed”.

Researchers used data taken from 4 studies of British children from 1946, 1958, 1970 and 2001 to compare how children’s weight, height and body mass index (BMI) have changed over the decades. They analysed the figures by social class (based mainly on father’s occupation) to see how changes in weight and height had affected children from different backgrounds.

It’s well known that childhood obesity has increased in recent decades. But these figures show that the rise of childhood obesity hasn’t affected all children equally. While children born in 1946 from lower socioeconomic classes had a lower average weight, those born in 2001 had a higher average weight. Changes in height have narrowed: while children from lower classes were still more likely to be shorter than children from higher socioeconomic classes, there was less of a difference for children born in 2001 than in 1946.

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The figures suggest that policies to prevent the rise in childhood obesity have failed to address how social class affects the likelihood of becoming overweight. The researchers have called for new policies to reduce weight inequalities in childhood.

Currently, energy-rich, nutritionally poor meals tend to be cheaper and quicker to cook. But it is possible to eat healthily for less.

Where did the story come from?

The researchers who carried out the study were from University College London and Loughborough University. The study was funded by the UK Economic and Social Research Council, the Medical Research Council, the Academy of Medical Sciences, and the Wellcome Trust. It was published in the peer-reviewed journal *The Lancet* on an open access basis, so it's free to read online.

The tone of the Mail Online reporting of the study could be interpreted as "victim shaming". It misinterprets the researchers' conclusions, claiming that they "blamed changes in diets and physical activity levels" and "cheap junk food and sedentary lifestyles".

But what the authors actually concluded was that the "powerful influence of the obesogenic environment [growing up in an environment that encourages, or at least facilitates, unhealthy eating] has disproportionately affected socioeconomically disadvantaged children", and that policies to prevent childhood obesity have been "ineffectually focused".

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What kind of research was this?

The researchers analysed 4 longitudinal cohort studies. This type of study is a good way of assessing changes in trends over time, as well as the potential influence of factors such as social class on outcomes like obesity. But it can't prove cause and effect, so we can't say that lower socioeconomic class directly causes obesity.

What did the research involve?

Researchers used data taken from 4 cohort studies that tracked children from birth to adolescence. They used information on the children's height and weight, measured when they were 7, 11 and 15 years of age. They compared height, weight and BMI for children at these ages between the highest and lowest socioeconomic groups.

The studies included:

- **5,362 children born in 1946**
- **17,202 children born in 1958**
- **17,290 children born in 1970**
- **16,404 children born in 2001**

Socioeconomic status was determined by the father's occupation when the child was aged 10 to 11, from professional (highest class measured) to unskilled (lowest class measured). Where this information was missing, the mother's educational level was used instead.

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The researchers also looked for links between social class and weight at specific points through the BMI spectrum – for example, comparing the average weight of children from different classes at the median, lowest and highest BMI distributions.

They carried out various analyses to test the validity of the results, including repeating all analyses using mother's education instead of father's occupation.

What were the basic results?

As expected, overall trends showed that children born in 2001 were taller, heavier and had a higher BMI at the ages of 7, 11 and 15 compared with children born before.

But the results also showed a reversal of the earlier trends related to weight and class. Children born between 1946 and 1970 from lower socioeconomic classes were likely to have a lower body weight compared with children of higher classes born in the same period. Children born in 2001 from lower socioeconomic classes were likely to have a higher body weight compared with higher-class children born at the same time.

For children aged 10 or 11:

- those born in 1946 had an average weight of 36.2 kg if their fathers were professional, compared with 33.9 kg if their fathers were unskilled

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- those born in 1958 had an average weight of 35.6 kg if their fathers were professional, compared with 34 kg if their fathers were unskilled
- those born in 1970 had an average weight of 36.1 kg if their fathers were professional, compared with 35.1 kg if their fathers were unskilled
- those born in 2001 had an average weight of 39.8 kg if their fathers were professional, compared with 41.8 kg if their fathers were unskilled

There was little or no difference in BMI between the social groups until the 2001 cohort, where average BMI was 1 point higher for the children of unskilled fathers than professional fathers.

The 11-year-old children of unskilled fathers born in 2001 were still on average 1cm shorter than the children of professional fathers, although the gap has narrowed from 5cm for children born in 1946.

The research shows that children from lower socioeconomic groups are now over-represented among children with the highest weight. Looking at children aged 11 born in 2001, among the 10% with the highest BMI, those from the lowest social class had a BMI 2.54 kg per metre squared higher than those from the highest social class. This difference widened at age 15. BMI differences by class widened as the children grew older.

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How did the researchers interpret the results?

The researchers said their research showed that “socioeconomic inequalities in weight reversed” during the period studied. They said British diets had changed “considerably” from 1946, when rationing was still in force, to 2001.

Rationing-based diets were “characterised by high consumption of vegetables, lower consumption of sugar and soft drinks, and higher consumption of fat as a proportion of energy intake”, they said. They added: “Some evidence suggests that the price of healthy food items has increased in recent decades.”

They point the finger of blame at policies, saying: “The total effect of previous policies has been insufficient in preventing the emergence and widening of BMI inequalities in childhood and adolescence.” They warned: “Without effective intervention, these inequalities are anticipated to widen further”, with “considerable public health and economic implications”.

Conclusion

The study makes for sad reading, suggesting the rise in childhood obesity – with its risk of long-term poor health – affects children from more deprived sections of society disproportionately.

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The study doesn't tell us why deprived children are more likely to be overweight or obese than their less deprived peers. But the reversal from underweight to overweight suggests that changes in society, rather than poverty itself, is behind the shift. For example, people with less money and time to prepare food are more likely to choose cheap, easily prepared food.

The rise in the availability of cheap junk food high in sugar, often advertised to children and families, may affect disadvantaged children more. Other factors that could affect children's weight include their access to safe spaces for outdoor play and exercise.

As the authors say, previous policies to encourage people to eat more healthily and take more exercise haven't been successful in halting the rise in obesity among children.

This study suggests that any successful policy to reduce obesity will need to take account of the effect of deprivation on children's weight and make it easier for people of all classes to adopt a healthy lifestyle.

The study has some limitations. First, no national longitudinal study of children's weight and height was carried out from 1970 to 2001, so we don't know what happened during those 30 years. As with any long-term study, there was a fair amount of missing data in the longitudinal studies that had to be estimated. And the individual studies weren't big enough to look at trends in thinness or ethnicity.

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Analysis by Bazian
Edited by NHS Choices

Links to the science

Bann D, Johnson W, Li L, et al. Socioeconomic inequalities in childhood and adolescent body-mass index, weight, and height from 1953 to 2015: an analysis of four longitudinal, observational, British birth cohort studies. The Lancet: Public Health. Published online March 20 2018.

(Source: <https://www.nhs.uk/news/obesity/children-poorer-backgrounds-more-affected-rise-childhood-obesity/>)

Acknowledgements:

NHS Choices. Healthy diet could cut risk of Alzheimer's disease. 31 March 2015.

Source: <https://www.nhs.uk/news/neurology/healthy-diet-could-cut-risk-of-alzheimers-disease/>

NHS Choices. Children from poorer backgrounds more affected by rise in childhood obesity. 21 March 2018.

Source: <https://www.nhs.uk/news/obesity/children-poorer-backgrounds-more-affected-rise-childhood-obesity/>