South African Family Practice 2017; 59(3):57-60

S Afr Fam Pract
ISSN 2078-6190 EISSN 2078-6204

REGISTRARS

Mastering your Fellowship

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Abstract

The series, "Mastering your Fellowship", provides examples of the question format encountered in the written examination, Part A of the FCFP(SA) examination. The series aims to help Family Medicine registrars prepare for this examination. Model answers are available online.

Keywords: FCFP(SA) examination, Family Medicine registrars

Introduction

This section in the *South African Family Practice* journal is aimed at helping registrars prepare for the FCFP (SA) Part A examination (Fellowship of the College of Family Physicians) and will provide examples of the question formats encountered in the written examination: Multiple Choice Question (MCQ) and/or Extended Matching Question (EMQ), Modified Essay Question (MEQ) and Critical Reading paper (evidence-based medicine). Each of these question types is presented according to a theme. The MCQs will be based on the ten clinical domains of family medicine, the MEQs will be aligned with the five national unit standards and the critical reading section will include evidence-based medicine and primary care research methods. We suggest that you attempt answering the questions (by yourself or with peers/tutors), before finding the model answers online: http://www.safpj.co.za/.

Please visit the Colleges of Medicine website for guidelines on the Fellowship examination: http://www.collegemedsa.ac.za/view_exam.aspx?examid=102

We are keen to hear about how this series is assisting registrars and their supervisors in preparing for the FCFP (SA) examination. Please email us your feedback and suggestions.

1. SBA (single best answer question) Theme: ENT medicine

A 6-year-old boy presents to you with a two-month history of a chronic ear discharge. He is HIV negative and on examination you notice copious amounts of yellow discharge, but no tenderness behind the ears. After removing the discharge, a central perforation of the tympanic membrane is observed. What is the most important component of effective treatment?

a) Perform regular dry mopping of the ear.

b) Instil acetic acid in 2% alcohol into the ear.

c) Instil topical antibiotic ear drops into the ear.

d) Prescribe an oral antibiotic for five days.

e) Refer the patient for surgical intervention.

2. SAQ (short answer question): the family physician's role as a care provider and consultant

You are a family physician in a district hospital. In a recent mortality and morbidity meeting with your clinicians, you discovered that there is poor control of non-communicable diseases (e.g. diabetes mellitus, hypertension, chronic obstructive airway diseases, asthma, and epilepsy) among patients attending the outpatients' department. Some of these poorly controlled patients were admitted in various hospital wards due to poor control or complications arising from poor control.

2.1 Describe how you will evaluate the quality of care offered in the outpatient department? (6 marks)

2.2 What actions might you take to improve the quality of care and outcomes of these patients? (6 marks)

2.3 What measure will you put in place to ensure proper continuity of care of these patients? (2 marks)

2.4 As you mentor the clinical team at outpatients, you observe that on several occasions you obtain a different blood pressure result from the one recorded in the patient's file (from the preparation room). What would be your approach in solving this problem? (6 marks)

3. Critical appraisal of research

Please answer the questions related to the following article:

Motlhatlhedi K, Setlhare V, Ganiyu AB, Firth JA. Association between depression in carers and malnutrition in children aged 6 months to 5 years. African Journal of Primary Health Care & Family Medicine. 2017;9(1):1-6.

Available from: http://phcfm.org/index.php/phcfm/article/view/1270

3.1 Critically appraise the strength of the argument for the scientific value of the study – how did they justify doing the study? (2 marks)

3.2 Define the essential features of a case control study? (2 marks)

3.3 Critically appraise the extent to which this study fulfils all these essential features? (4 marks)

3.4 What are the advantages and disadvantages of a case control study design? (4 marks)

3.5 Discuss the matching process. Discuss any bias that may have been introduced in this process. (4 marks)

3.6 Define odds ratio (OR) (1 mark) and state how you would interpret the OR in this article? (3 marks)

3.7 Provide an interpretation of the OR = 4.33; CI = 1.90-9.90 AND p-value = 0.001 in respect of the relationship between malnutrition and depression in Table 3. (4 marks)

3.8 Use a structured approach (e.g. READER) to illustrate what issues arise from this paper when you consider deciding if this study is likely to change your practice. (6 marks)

[30]

Model answers to questions

Question 1

Short answer: a

Long answer:

The most critical aspect of treating a patient with chronic suppurative otitis media (CSOM) is aural toilet. The external auditory canal and middle ear are often covered with a mucus exudate and desquamated cells. Using topical preparations without dry mopping is thus ineffective. For best results, dry mopping should be performed 3–4 times a day and the ear should be kept dry and aerated always. It is important that the primary care physician spend an adequate amount of time demonstrating and confirming that the care giver can perform dry mopping. Other alternatives to aural toilet include aural irrigation with acetic acid diluted in sterile water with a bulb type aspirator. The irrigated solution should drain out over a few minutes. After aural toilet one may instil the acetic acid 2% in alcohol. The combination of dry mopping and acetic acid are important measures to control granulation tissue. A short course of oral antibiotics is usually prescribed, but the value of oral antibiotics is doubtful due to poor drug penetration into the affected tissues. Oral antibiotics are usually reserved for patients who fail to respond to treatment. One should exclude HIV infection and tuberculosis in patients who present with CSOM. Referral to an ENT specialist is indicated when the perforation is not progressively improving at 3 months or is not closed at 6 months.

Further reading:

- South African Department of Health. Hospital Level Adult Standard Treatment Guidelines and Essential Medicines List. Pretoria, National Department of Health. 2015.
- Medscape. Medscape Mobile (v4.1.1) [Mobile application software]. 2017. Available from: http://www.medscape.com/public/mobileapp/features

Question 2

Model answer:

You are a family physician in a district hospital. In a recent mortality and morbidity meeting with your clinicians, you discovered that there is poor control of non-communicable diseases (e.g. diabetes mellitus, hypertension, chronic obstructive airway diseases, asthma, and epilepsy) among patients attending the outpatients' department. Some of these poorly controlled patients were admitted in various hospital wards due to poor control or complications arising from poor control.

2.1 Describe how you will evaluate the quality of care offered in the outpatient department? (6 marks)

- Form a team of the key role players involved in chronic care of these patients.
- Define the criteria that you will use to evaluate the quality of care – often categorised into structure, process and outcomes – with reference to the appropriate evidence-based clinical guidelines.
- Structure could include the resources such as equipment, education materials and staff.
- Process could include issues such as history taking, physical examination, investigations, medication, patient education, response to poor control and follow-up.
- Outcomes could include measures of control and complications.
- Set target standards by adding a performance level for each criteria.
- Data can be collected from a sample of patient records for each condition.
- Data on medication adherence should be measured.
- Analyse the data and compare with the target standards to identify gaps in the quality of care through discussion with the team.

2.2 What actions might you take to improve the quality of care and outcomes of these patients ? (6 marks)

- Discuss possible solutions and prioritise possible changes to clinical practice with the team; share the findings with all practitioners.
- Consider further training or workshops to implement the key areas from the clinical guidelines and ensure all staff have access to the guidelines.
- Ensure all relevant practitioners (nurses and doctors) are included in any training.
- Consider the use of decision support tools, checklists or prompts.
- Improve the provision of patient education through group education, brief behaviour change counselling, and supportive educational materials.
- Ensure that any equipment or supply chain issues are resolved.
- Formulate protocols on patient referral to higher levels of care.

2.3 What measure will you put in place to ensure proper continuity of care of these patients? (2)

- Informational continuity may be improved by more structured medical records, electronic medical records, or patient retained medical records.

- Longitudinal continuity may be improved by ensuring appropriate follow-up and appointment systems.
- Relational continuity may be improved by ensuring that the patient sees the same team of health care practitioners or same practitioner each time.

2.4 As you mentor the clinical team at outpatients, you observe that on several occasions you obtain a different blood pressure result from the one recorded in the patient's file (from the preparation room). What would be your approach in solving this problem? (6)

The clinicians need to be trained on the following possible factors:

Clinician's faulty BP measurement technique: appropriate cuff size for patient's arm; bared arm; bladder within cuff to encircle 80% of arm; SBP estimation by palpation to avoid missing the auscultatory gap. (2)

Patient factors: Patients must not have eaten, smoked or ingested caffeine-containing beverages in previous 30 minutes; sit 3–5 minutes before the measurement. At initial consultation measure the BP in both arms. If a discrepancy is noted, use the arm with the higher reading for future estimates. The BP tends to decrease with multiple readings taken over time. Patients should not be managed on the basis of one high reading. (2)

The instrument: properly functioning mercury, anaeroid or digital sphygmomanometers; ensure proper calibration and regular servicing. (2)

Further reading:

- The contribution of family physicians to district health services: a national position paper for South Africa. S Afr Fam Pract. 2015;57(3):54-61.
- Seedat YE, Rayner BL, Veriava Y. South African hypertension practice guideline 2014. Cardiovasc J Afr. 2014;25(6):288-94.
- Mash R, Blitz J, Malan Z, Von Pressentin K. Leadership and governance: learning outcomes and competencies required of the family physician in the district health system. S Afr Fam Pract. 2016;1(1):1-4.

Question 3

Model answer:

3.1 Critically appraise the strength of the argument for the scientific value of the study. (2)

Answer: Childhood malnutrition is an important risk factor for child mortality and underlies close to 50% of child deaths worldwide. Reducing the prevalence of malnutrition may contribute to the success of childhood survival strategies. It is important to identify and address factors which may contribute to poor child nutrition. Maternal depression has been linked to poor child outcomes in developing countries, but is not a homogeneous finding. There are limited studies in South Africa looking at depression in the caregivers of children presenting with malnutrition (only 2 South African studies, one of which might have had a biased selection criteria, the other study showed no association after 18 months of age).

3.2 Define the essential features of a case control study. (2)

Answer: In a case control study, investigators must identify the case-control study populations by location (presenting to CWCs at study site with their caregivers), time period (March – July 2015), and inclusion criteria for cases (individuals with malnutrition defined as below a -2 z-score) and controls (individuals without malnutrition defined as those with a z-score above -2). It is important that the cases and controls both come from the same study population and are appropriately matched. The main purpose of a case control study is to compare those with the condition (malnutrition) and those who did not have the condition (control) and to look for associations between dependent and independent variables (malnutrition and depression in the caregiver). This type of design typically looks back in time to recall the presence of the exposure. A case control study can be used to calculate odds ratios.

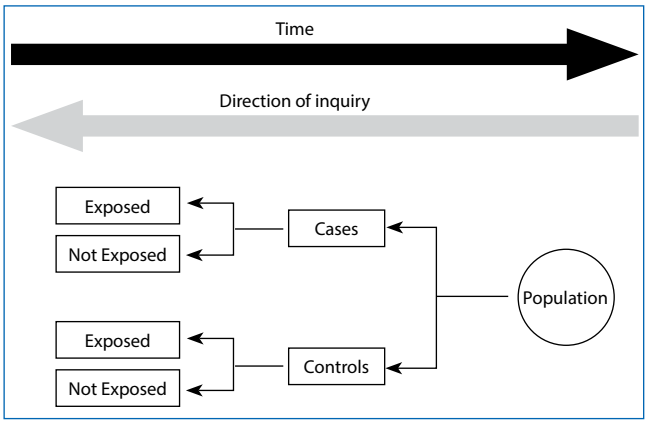

Figure 1: A Case-Control Study

3.3 Critically appraise the extent to which this study fulfils all these essential features. (4)

In order for a study to truly address the research question, the target population – the population from which the study population is drawn and to which study results are believed to apply – should be carefully defined. It is important that the study cases are shown to be representative of cases in the appropriate target population, if the findings are to be applied to the target population. This study had a convenience sampling strategy. The study did, however, look at the presence of the exposure with both the cases and the controls.

3.4 What are the advantages and disadvantages of a case control study design? (4)

Advantages of a case control study:

- Relatively quick
- Relatively simple
- Useful if rare outcome
- Can evaluate multiple exposures.

Disadvantages of a case control study:

- Difficult to select appropriate controls
- Retrospectively collected exposure data
- Cannot calculate incidence
- Unable to comment on causality.

3.5 Discuss the matching process. Discuss any bias that may have been introduced in this process. (4)

Process of matching:

1. All children with anthropometric measurements (weight-for-age, weight-for-height or height-for-age) below -2 z-scores on the World Health Organization growth charts were considered to **be malnourished**, and were identified as **cases**.

2. After enrolling cases, each case was **matched** to a child without moderate or severe malnutrition by **gender and age as well as PCG age**.

It is not clear exactly how this process took place. Were the cases matched with the next child who did not have malnutrition or was it a more convenient process? The limitations suggest that it was a convenient process. Were there more possible 'controls' than cases?

The groups seem to be pretty well matched when you look at Table 1 in terms of age, gender, and age of primary caregiver. There are some differences in the level of education between the caregivers of those malnourished and those who were not.

It is also not clear whether other confounders were taken into consideration, e.g. HIV status or socioeconomic status of the caregivers (which might lead to depression independent of the nutritional status of the child), and/or other possible confounders such as additional financial support from the father.

It is also problematic to consider the mother on the same basis as another primary caregiver and to match them as though they are the same.

3.6 Define odds ratio (OR). (1)

How would you interpret the OR in a case control study? (3)

Answer: Definition

OR is the odds of exposure in the diseased group divided by the odds in the non-diseased group (an alternative answer is that OR is the odds of risk factor in the diseased group divided by the odds of the risk factor in the non-diseased group).

Answer: Interpretation

If the diseased group has lower odds, the OR will be less than 1 (having the exposure is associated with reduced odds of having the disease) and if the diseased group has higher odds, the OR will be greater than 1 (having the exposure is associated with increased odds of also having the disease). If there is no difference between the two groups, the OR will be exactly 1 (no association between the exposure and disease).

3.7 Provide an interpretation of the OR = 4.33; CI = 1.90-9.90 AND p-value = 0.001 in respect of the relationship between malnutrition and depression in Table 3. (4)

Answer:

The OR is 4.33 and implies that those caregivers with depression have 4 times greater odds of having a child with malnutrition.

The 95% confidence intervals indicates that that it is 95% likely that the true odds for the population lie between 1.90 (lower limit) and 9.90 (upper limit). As the CI does not contain 1.00 as a possibility, the relationship is a significant one.

The p-value = 0.001 is less than 0.05, which indicates a statistically significant difference between those patients with malnutrition and those without malnutrition whose caregivers are depressed. This implies that there is less than a 5% chance that the association measured is incorrect.

A significant association does not imply causality and theoretically the association could be in the opposite direction. The study design cannot exclude the possibility that the association may be due to other unmeasured or unaccounted-for confounders. One cannot claim, therefore, that the study shows depression causes malnutrition, although one can argue for the plausibility of the relationship.

3.8 What issues would you consider in deciding if this study is likely to change your practice.

Answer: Candidates to use READER format to reflect on this answer (6)

Relevance – is it about family medicine?

Education – does it challenge existing knowledge or thinking?

Applicability – are the results applicable to my practice?

Discrimination – is the study scientifically valid enough?

Evaluation – given the above how would I score or evaluate the usefulness of this study to my practice?

Reaction – what will I do with the study findings?

Further reading:

- Mash B, Ogunbanjo GA. African Primary Care Research: Quantitative analysis and presentation of results. African Journal of Primary Health Care & Family Medicine. 2014;6(1).
- Pather M. Continuing professional development. In: Mash B, editor. Handbook of Family Medicine 3rd ed. Cape Town: Oxford University Press; 2011. p. 406-29.
- Denscombe M. The good research guide: for small-scale social research projects. McGraw-Hill Education (UK); 1 Aug 2014.
- Szumilas M. Explaining odds ratios. J Can Acad Child Adolesc Psychiatry. 3 Aug 2010 [Accessed 2017 February 20];19:227. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2938757/
- Howick J. Introduction to study design. [Accessed 19 February 2017]. Available from: http://www.cebm.net/wp-content/uploads/2014/06/CEBM-study-design-april-2013.pdf. See also: http://www.cebm.net/study-designs/.

Acknowledgements:

- Prof Bob Mash for his help with reviewing the manuscript.
- Dr Stephen Knight for providing input into the critical reading question