

Knowing what we know now: risk identification from a learning needs analysis

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Abstract

Aim

To identify if information obtained in a multifaceted learning needs analysis (LNA) may indicate significant educational risk during the training program.

Method

LNA are completed by Victorian Metropolitan Alliance (VMA) general practice registrars (GPR) just prior to commencing a basic term. This case-control study retrospectively compares the LNA of GPR who have been identified at significant educational risk and the LNA of their cohort of GPR to identify any common factors that may discriminate between the groups. The group at significant education risk was defined as GPR who had required formal remediation and / or failed the RACGP exam. The groups were compared about perceived learning needs, MCQ paper scores and ratings of video vignettes of consultations.

Results

The results suggest that there should be an increased concern about a registrar who scores a low mark on the MCQ paper and provides more outlier ratings of the video vignettes, particularly if they self rate themselves as being as prepared for general practice as their cohort. The results at this stage are not statistically significant, due to the limited number of registrars eligible to be included.

Introduction

In 2005 the Victorian Metropolitan Alliance (VMA), a regional general practice (GP) training provider commenced using a purpose developed multifaceted learning needs analysis (LNA) prior to GP registrars (GPR) commencing their basic general practice term. This new tool has previously been described(1)- it essentially includes 3 elements. The first is a 4 A4 sided questionnaire including demographic information, clinical experience, self rating of readiness for general practice and learning styles and preferences. The second is a 120-question single-best answer multiple choice paper considering knowledge guided by general practice presentations. The content is guided by the RACGP fellowship examination blueprint (2), which is modelled on BEACH data about Australian general practice presentations. The questions have been written and reviewed by practicing GPs. The final element is to rate and comment on 6 vignettes on video (of about 60 minutes duration in total) over 9 areas, focusing on consultation and communication issues.

The LNA is done at home by registrars prior to commencing their basic GP term. They, their GP supervisor and medical educator receive a copy of the questionnaire, a breakdown of the MCQ score by topic and a summary of issues to consider based on a medical educator marking their video vignette ratings. The purpose is to provide objective information to prompt appropriate development of learning plans and teaching early in the program. At this point, it is formative in nature. To this point evaluations of the LNA have been qualitative and relating to comparisons between educator and registrar ratings of vignettes(3). The first groups of registrars to complete the LNA have now sat the RACGP fellowship examination, providing the opportunity for a distinct endpoint to consider performance in general practice.

The aim of the study was to identify if information obtained in a multifaceted learning needs analysis (LNA) may indicate significant educational risk during the training program. Significant educational risk was defined as failing the RACGP fellowship examination and / or requiring formal remediation during the training program.

The hypotheses developed in advance were that registrars who subsequently have difficulty (referred to as cases for the purpose of the paper) in the training program have common features, other than the known demographic features, that may be identified via a LNA, these are:

- From the questionnaire cases will be more likely to have: graduated more than 10 years ago; and have self-rated higher preparedness for GP
- From the MCQ paper cases will be more likely to have scored: lower overall; and lower on the non clinical section.
- From the video vignette ratings cases are more likely to have scored: more 'outlier' ratings in total; more 'outlier' ratings of global; more 'outlier' ratings in communication; more 'outlier' video ratings in rapport and empathy.

Method

The VMA made completion of the learning needs analysis (LNA) prior to commencing the Basic General Practice term a program requirement for registrars. The package received by each registrar included a plain language statement and the option to return a signed consent form allowing for use of de-identified results data for research purposes. This research was approved by the University of Melbourne and Monash University Human Research Ethics Committees. Registrars who had completed the LNA and returned a signed consent form were eligible for inclusion in the study.

Cases were defined as registrars who had failed the RACGP Fellowship examination or had significant problems in the training program. Significant problems in the training program was defined as the registrar being notified as being at risk, that being substantiated by the Educational Enhancement Officer (an experienced medical educator) and the development of a formal plan to assist requiring extra resources and approval of such (for example extra teaching sessions or ECTVs). An unsubstantiated report, an decision that monitoring was all that was required or directions about content in routine teaching activities did not constitute enough for the registrar to be considered a case for the purposes of this research.

Controls were matched by country of medical degree (Australia or International Medical Graduate (IMG)) as being an IMG is a the only published relevant risk factor for failing the RACGP fellowship examination(4). The other risk factor demonstrated is sitting the examination from a practice eligible, rather than training program, route.(3) The controls were then selected based on Basic GP term being the same as the case, then the closest available start date. If more controls were available at a stage, then there was random selection of the controls based on a computer generated random number list.

An Access database was developed and the following information entered for cases and controls:

- Demographic information - Year of graduation, type of course, other qualifications, GP experience
- Self rating (1-5) on 15 perceived GP readiness skills
- MCQ marks - % per section (paediatrics, OG, non clinical issues, etc) and total
- Videos – by each of the 9 domains (eg. Communication skills, rapport and empathy, etc), the number of times outlier from consensus mark (ie. if consensus 3, then 2-4 ok, 1, 5, 6 outliers)

The data was analysed using descriptive statistics. Demographic data was analysed using cross tabulation with Fisher's exact test calculations for significance when a difference. The self rated preparedness, MCQ and video vignette ratings were analysed using the factor of pass. The independent variables were the scores/ratings in difference sections. The means of each of these groups was then calculated. A one-way ANOVA was used calculate the 95% confidence intervals of the means. This assumes a normal range of data in each group. SPSS version 16.0 was used to analyse the data.

Results

There were 9 GPR who fulfilled the criteria to be a case between 2005 and 2008. One of these GPR had completed only the questionnaire component of the LNA, as he had not been able to understand the LNA instructions to complete the other sections. This GPR was excluded from further analysis. This left 8 cases. Two controls were sourced for each case. The limiting factor in sourcing controls was the limited pool of IMG GPR who had consented for their data to be used. The limited number of cases and controls, led to the large confidence intervals. None of the results are statistically considered significant.

Demographic information

It was found that 25% of both the cases and controls had graduated more than 10 years ago. There was also no difference in the proportion of males and females who are cases. There was also no difference in the proportion in each group with prior experience as a GP – 1 case and 2 controls had prior GP experience.

Qualifications may be a point of difference. Table 1 shows the potential effect of primary medical qualification.

		Pass		
		No	Yes	Total
UGorPG	Postgraduate	0	3	3
	Undergraduate	8	13	21
	Total	8	16	24

Table 1: Primary medical qualification type

However this is not statistically significant: using Fisher's exact test, $p = 0.53$.

Holding another degree or fellowship may be protective, but not statistically so ($p=0.62$). See Table 2.

		Pass		
		No	Yes	Total
Other Qualifications	Fellowship	0	1	1
	Postgraduate	0	12	2
	Undergraduate	1	0	1
	None	7	13	20
	Total	8	16	24

Table 2: Other qualifications

Self rated preparedness for general practice

Over the 15 questions considering self rated preparedness for general practice, cases rated themselves as being more prepared for general practice, see Figure 1. Cases self rated on average 3.375 out of 5 (95% CI 2.845, 3.905) compared to control self rating 3.262 (95% CI 2.995, 3.530)

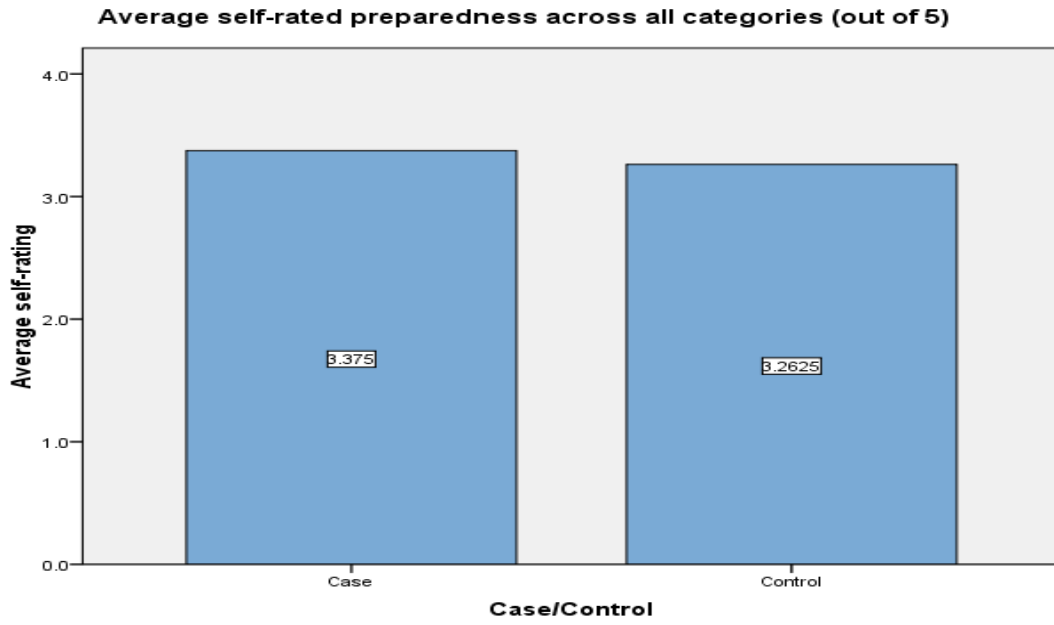


Figure 1: Registrars self rating of preparedness for general practice, mean over 15 sections, each rated out of 5.

MCQ paper

The registrars all completed a 120 question single best answer MCQ paper. The registrars who are cases had a lower overall mean score (70.5%) compared to the control (75.25%). This is shown in Figure 2, with the 95% confidence intervals indicated.

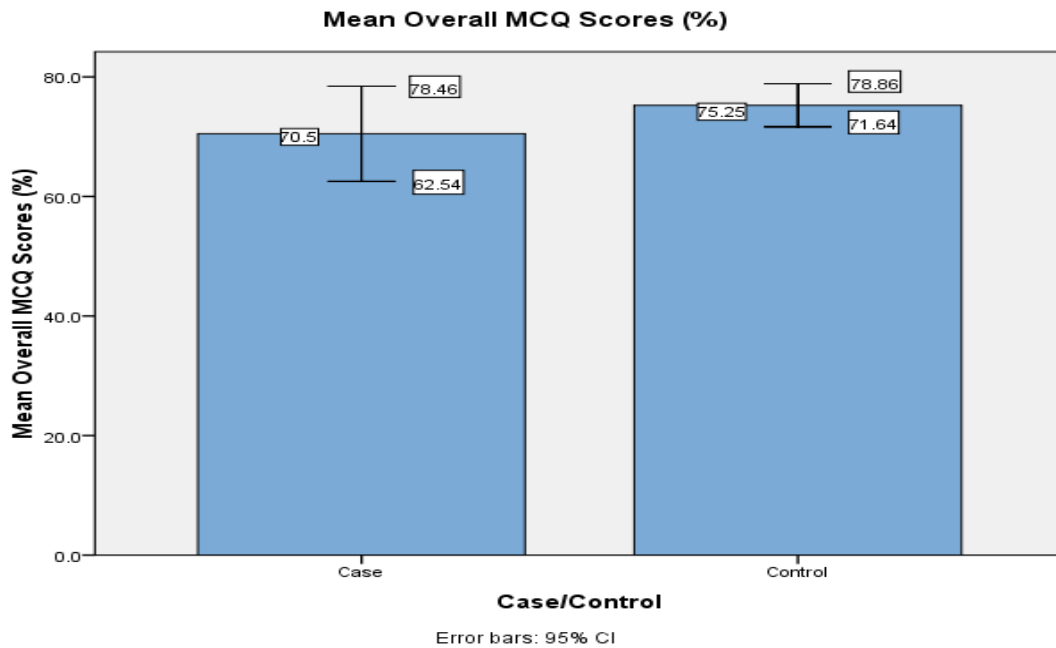


Figure 2: Mean overall MCQ score (%) with 95% confidence intervals indicated

There is a section of the paper that related to non clinical areas, the mean score for cases on this section was 53.75% (95% CI – 27, 88) and for controls 58.75% (95% CI - 49, 69). In reality as this section is marked out of 5, this is not practically useful.

Video vignette ratings

In each of the 6 cases the registrars provided ratings over 9 domains for the consultation vignette observed, the results are shown in Figure . The cases had a mean of 26.14% of the responses as outliers compared to the controls providing 23.42% of responses as outliers. However there is a large amount of overlap as shown in figure 3.

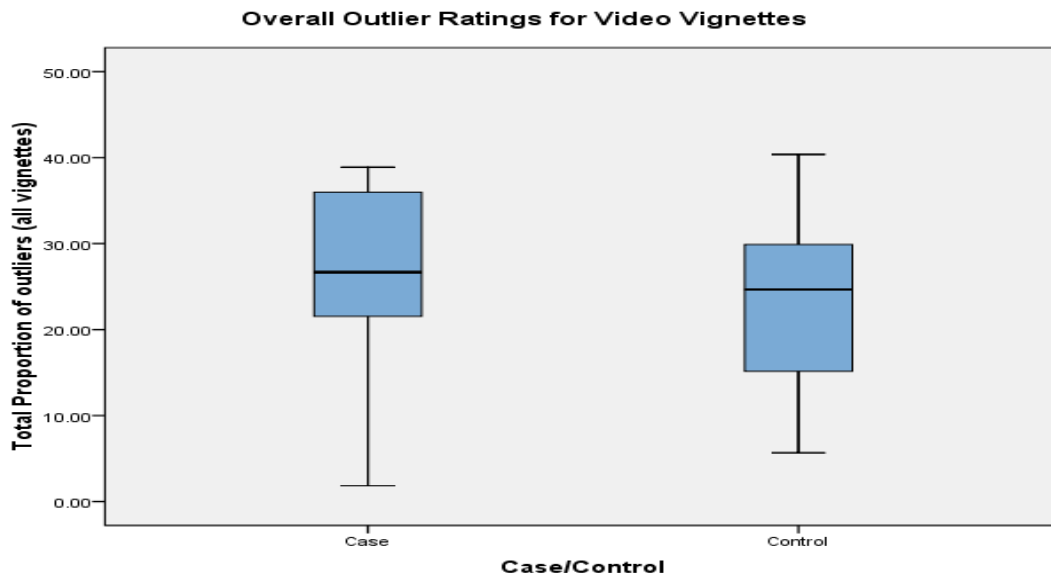


Figure 3: Box plot showing outlier ratings overall in the video vignette ratings, indicated highest, lowest, 25th, 50th and 75th centile ratings

For each of the 6 cases the registrars provided a global rating of the consultation, the results are shown in Figure 4. Whilst these look quite different, they are not statistically significant with the 95% confidence interval for a case being 14.5 to 52.1% compared to for a control of 13.3 to 35.0%. In practice this would translate to a control providing outlier ratings of 1 to 3 of the 6 ratings, compared to a case providing 1 to 4 outlier ratings over the 6 vignettes.

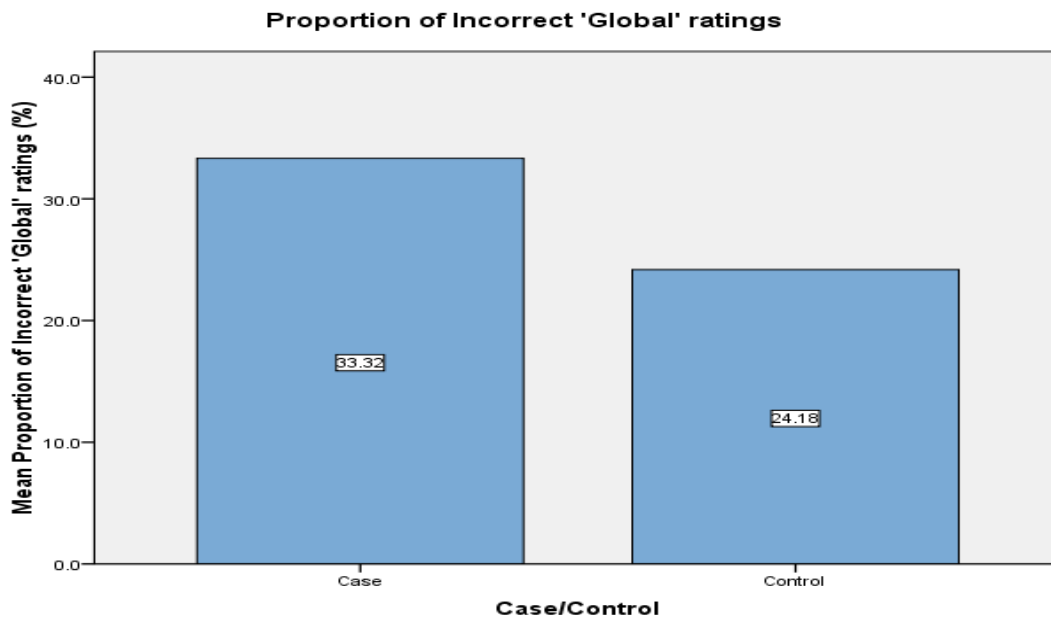


Figure 4: Proportion of outlier ratings in the global scale of the video vignette ratings

It was also hypothesised that cases are more likely to have scored 'outlier' video ratings in communication. The mean number of outlier ratings for cases on this section was 19.5% and for control 21.0%. There were 6 cases rated in this domain.

Another hypothesis was that cases are more likely to have scored more 'outlier' video ratings in rapport and empathy. The mean number of outlier ratings for cases on this section was 21.7% and for control 21.8%. There were 6 cases rated in this domain.

Discussion

Key results

The key results from this is that there is a suggestion that registrars with this learning needs analysis tool we should have a higher index of concern for registrars who score lower in the MCQ paper and provide more outlier ratings of the video vignettes, particularly if they self rate themselves as being as prepared for general practice as their cohort. However this can only be a suggestion and the results are not statistically significant at this stage.

It appears that our hypothesis about the longer time since graduating from medical school being a risk factor for problems is not likely to be a useful predictor. This hypothesis was initially generated as we observed that many of the registrars at educational risk had graduated more than 10 years ago. When this observation was analysed in more detail it was not supported – probably due to controlling in the analysis for IMG status. IMG status was controlled as it is a published confounding factor for our outcome measure. Many IMG have graduated more than 10 years ago, since IMG status has been controlled, independently having graduated more than 10 years ago is not a risk factor.

An increased number of outlier ratings in the vignettes of the communication and rapport and empathy domains in the video consultation vignettes also appear to be not predictive. When marking the LNA the comments provided by the GPR are also read and considered, based on these it may be that there are a group of registrars who identify deficiencies in these domains in the cases, as indicated by their comments and rate more harshly these lapses than the consensus of more experienced GPs. This may explain the lack of difference observed in the number of ratings.

Limitations

A significant limitation of this research is the small numbers of registrars involved. The number of cases who had consented is limited. The number of potential matches as controls was also limited, largely by the limited intake of IMG GPR by VMA in the period under consideration.

We considered a less rigid definition of a case, such as any notification of concern, however this was decided against for two reasons. The first being that a proportion of these are not felt to require action, as different notifiers have a different threshold for notifying, as opposed to the threshold for extra resources which is managed by one

experienced medical educator or failing the RACGP examination which is standardised. The second reason is that practically the controls would still be limited by the number of IMG VMA registrars providing consent.

Other limitations relate to the LNA tool which has not been tested for external validity and reliability. The MCQ bank has face and content validity. It has not been tested for predictive validity or reliability. The video vignettes are norm referenced to a consensus mark based on the mean ratings of a pool of at least 8 medical educators per DVD. The educators are a relatively stable and experienced group, so should provide a stable appropriately reliable reference. The definition of an outlier rating is more than 1 rating (on a 6 point scale) from the reference, allowing for some variation on opinion/rating but aiming to identify the deviant rating. Whilst a reasoned approach, the tool has not been proved to be statistically reliable which creates another study limitation.

Implications

This shows that at this stage hard and fast rules about a 'score' or constellation of 'scores' that means that a registrar is more likely to have problems in the training program can not be identified. However it may be reasonable to have an increased concern about a registrar who scores low on the MCQ paper and provide more outlier ratings of the video vignettes, particularly if they self rate themselves as being as prepared for general practice as their cohort.

Acknowledgements:

The LNA development was funded by VMA and GPET.

References:

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