Measuring the Educational Alliance with Supervisors from the Registrar Perspective

Main Messages

- The strength of the educational alliance between the GP registrar and GP supervisor can significantly impact on outcomes for registrars, supervisors, practices, Regional Training Organisations, the Colleges and our community.
- This research has validated a tool within the Australian GP context to measure the strength of the educational alliance from the registrar perspective (GP-SRMR).
- The GP-SRMR is complementary to the previously validated tool to measure from the supervisor perspective (GP-SRMS).
- This project found that both tools can be delivered more efficiently using computer adaptive testing.
- The GP-SRMR and the GP-SRMS are both available for access online:
    - GP-SRMR https://doi.org/10.6084/m9.figshare.7132100
    - GP-SRMS https://doi.org/10.6084/m9.figshare.7034750

Purpose

This research builds on the 2017 Education Research Grant project "Adapting and validating a tool to measure the supervisory relationship of GP supervisors" that adapted and validated a tool to measure the educational alliance between GP supervisors and their registrars from the supervisor's perspective—the GP-SRMS (GP-Supervisory Relationship Measure, Supervisor).

This current research had two goals:

1. Adapt and validate a partner instrument (Short Supervisory Relationship Questionnaire; S-SRQ) that measures the educational alliance between GP supervisors and registrars, from the registrar's perspective.
2. Use computer adaptive testing to tailor both the adapted instruments for use in the Australian General Practice Training (AGPT) program.

Background

The educational alliance is the basis for the clinical, educational and personal development of a registrar and is central to the concepts of supervision and learning (1). Measurement of this relationship has not featured widely in general practice but is more prominent in other disciplines, notably psychology (2). If the relationship between the registrar and the supervisor is less than optimal this will likely impact the educational alliance and thus the educational outcomes of the registrar (3).

The supervisory relationship has two perspectives: that of the registrar and the supervisor. Both of these perspectives are important to determine the strength of the alliance and possible areas for support. There are a number of instruments that measure the educational environment from the registrar perspective in postgraduate training in Australia and overseas (4,5,6,7). However, there have previously been no validated tools to measure the educational alliance or supervisory relationship within the Australian GP context. In addition, there is a need for the use of partner instruments to measure the educational alliance from both the registrar and supervisor perspectives.

The Short Supervisory Relationship Questionnaire (S-SRQ) and Supervisory Relationship Measure (SRM) are partner instruments that provide the registrar and supervisor perspective on the supervisory relationship (8,9). They were both found to be valid and reliable in the context of psychology in the UK.

Regional Training Organisations (RTOs) currently use a range of locally developed instruments to collect feedback from registrars on their educational experience and in particular, the nature and quality of supervision received. Our research aimed to produce partner instruments, validated for the Australian GP context for measuring the supervisory relationship in placements: the GP-SRMS (GP-Supervisory Relationship Measure, Supervisor) and the GP-SRMR (GP-Supervisory Relationship Measure, Registrar).

These resultant standardized, validated instruments can be used to measure the educational relationship between registrars and supervisors across all RTOs and thus the AGPT Program. We also used computer adaptive testing (13) to ensure that the instruments are as user-friendly and practical as possible whilst retaining rigour as a fit-for-purpose instrument.

Method

This project adapted and validated the S-SRQ for use with GP Registrars, as a partner instrument to the already developed GP-SRMS. The original S-SRQ, developed for use with clinical-psychology trainees, consists of Likert-scale items, which measure the level of agreement with 18 statements regarding the supervisory relationship with a particular supervisor.

An Expert Registrar Advisory Group was convened in November 2017, consisting of experienced GP registrars from GPEx and GPTT. This group was asked to determine the appropriateness and clarity of each of the 18 statements of the S-SRQ and to suggest amendments or additions, to measure the registrar-supervisor relationship from the GP-registrar perspective. A nominal group technique was used. As a result, the original 18 items were adapted, and 14 new items were added—resulting in a 32-item instrument. The associated demographic survey was extended from 12 questions to 17 questions.

The modified S-SRQ (now called the GP-SRMR, for GP-Supervisory Relationship Measure, Registrar) was piloted through SurveyMonkey in December 2017 with an Expert Registrar Pilot Group, consisting of registrars from GPEx and GPTT at different stages of training. Participants provided feedback on item clarity, appropriateness and time taken to complete the survey. As a result of this pilot, 5 items adapted from the original survey were removed from the GP-SRMR, as not being relevant for the registrar–supervisor relationship, and 2 items were amended, resulting in a 27-item instrument.

In addition, a review of the pilot results by the project working group identified the fact that a subscale in the GP-SRMS did not appear to have a partner subscale in the pilot GP-SRMR. This was viewed as a shortcoming, since an aim of this project is to develop the GP-SRMR as a partner instrument to the GP-SRMS, with similar items measuring the relationship from both the registrar and supervisor perspective. The GP-SRMS subscales are ‘safe base’, ‘supervisor investment’ and ‘registrar professionalism’. Although there were many statements in the pilot GP-SRMR that matched to the subscales ‘safe base’ and ‘supervisor investment’, there were questions missing from the pilot GP-SRMR to potentially form the ‘registrar professionalism’ subscale.

The project team made the decision to identify and adapt appropriate statements from the GP-SRMS for the GP-SRMR that related to ‘registrar professionalism’. This resulted in a further 17 items added to the instrument, resulting in a 44-item GP-SRMR. This instrument was sent back to the Expert Registrar Advisory Group for discussion and further amendment if warranted. The Expert Group approved the amended version without further change, and it was then repiloted, without issue. The 44 items are shown in Table 1. Also

shown is the source of each item; whether it was adapted from the S-SRQ or GP-SRMS, or newly developed by the Expert Registrar Advisory Group.

The survey was administered to all 448 GP community-based registrars in GPEx and GPTT in May 2018 using SurveyMonkey. 238 respondents completed the GP-SRMR instrument (response rate 53%). Of these, 228 also completed the demographic survey (response rate 51%).

Exploratory Factor Analysis with maximum likelihood extraction, direct oblimin rotation, followed by Procrustes orthogonal rotation to an ideal matrix, was used to categorise the 44 items of the GP-SRMR instrument into subscales, using GPEx and GPTT registrar responses to the survey. In addition, GP-SRMR survey data, and the GP-SRMS survey data collected in the previous project, were analysed using computer adaptive testing (CAT) (13). CAT uses a predetermined algorithm to decide which item to present to the participant based on their pattern of responses. When the pattern of responses reaches a desired level of stability, the test ends. This can result in between 40-75% reduction in the number of items presented for most participants, with high levels of reliability and near perfect congruence with the full-length tests. The method can be applied retrospectively to data and simulates and predicts participant responses.

Results

Exploratory Factor Analysis of the GP-SRMR survey resulted in four subscales, or factors: 'supervisor investment' (13 items), 'registrar professionalism' (11 items), 'safe base' (7 items), and 'emotional intelligence' (4 items). The first three of these reflect the three subscales of the GP-SRMS, while 'emotional intelligence' is a newly developed subscale. The items in each subscale are set out in Table 1. Nine items did not align with any of the four subscales. These are shown in the last panel of Table 1.

The subscale 'supervisor investment' is a measure of the quality of investment by the GP supervisor in the registrar–supervisor relationship, as perceived by the registrar. Around half the items in this subscale were developed by the project's Expert Registrar Advisory Group, with all but one of the remainder adapted from the SSRQ. 'Registrar professionalism' measures the level of professional behaviour in practice by the registrar, again, as perceived by the registrar. All items in this subscale were adapted from items in the GP-SRMS 'registrar professionalism' subscale. 'Safe base' is a reflection of how secure the registrar feels in the supervisory relationship, whether they can raise concerns, and whether the supervisor is supportive. Half the items in this subscale were newly developed by the Expert Group, and half were adapted from the SSRQ. The final subscale, 'emotional intelligence', measures perceptions by the registrar around the supervisor's ability to identify, acknowledge and understand registrar emotions. Two items in this subscale were developed by the Expert Group, one was adapted from the SSRQ, and one from the GP-SRMS.

Table 2 shows the demographic characteristics of the survey registrar respondents and their supervisors. Table 2 also shows, for each respondent characteristic, the average score of each subscale. Scores, in theory, can vary from 1 to 7, with a score of 1 indicating that all respondents "strongly disagreed" with all item statements in the subscale, and a score of 7 indicating that all respondents "strongly agreed" with all item statements in the subscale. Overall, scores are very high, indicating a strong degree of satisfaction by registrar respondents to this survey with the supervisory relationship. In aggregate, average subscale scores are highest for 'safe base' (6.5), 'registrar professionalism' (6.4) and 'supervisor investment' (6.1), and lowest for 'emotional intelligence' (5.6). Average scores for each subscale are relatively consistent across respondent characteristics.

To determine the suitability of the scales for use in a computerized adaptive platform, the subscales within the GP-SRMR and GP-SRMS (with the exception of GP-SRMR 'Emotional intelligence' subscale which is already very short with only four items) were evaluated for goodness of fit to a graded response model. The results suggested that aside from a significant number of disordered thresholds, the subscales of the GP-SRMR and GP-SRMS could be used in a computerized adaptive platform. Disordered thresholds occur when item responses are not selected as expected, and indicate that the existing 7-point scale may be more appropriately used if rescaled to a 4- or 5-point scale.

Using the parameters from each of the subscales of the GP-SRMR and GP-SRMS, 1000 cases were simulated to determine the effectiveness of computerized adaptive testing. The results suggest that near perfect correlations between the full length scales and adaptive applications of the scales can be achieved. Specifically, the full length GP-SRMR contains 35 items in 4 subscales, but on average can be shortened to 22 items using computerized adaptive testing—a reduction of 38%. The GP-SRMS contains 45 items, but on average can be shortened to 18 items, reflecting a reduction of 60%.

Conclusion

The project team has successfully adapted the S-SRQ to the GP-SRMR (GP-Supervisory Relationship Measure, Registrar) and validated the results. The GP-SRMR is now a companion instrument to the GP-SRMS (GP-Supervisory Relationship Measure, Supervisor), developed as part of a previously funded RACGP project. Both are reliable and valid measures of the registrar–supervisor relationship. Both have subscales developed through exploratory factor analysis. The subscales 'supervisor investment', 'registrar professionalism' and 'safe base' are common to both measures, while an additional subscale, 'emotional investment' was developed from the GP-SRMR.

The newly developed GP-SRMR does provide insights into relationship deficits and professional development opportunities for GP supervisors within the AGPT context. As an example, the survey results indicate a high level of registrar satisfaction with the supervisory relationship overall, but slightly lower agreement with statements that constitute the subscale 'emotional intelligence', suggesting that there is scope for further professional development opportunities for GP supervisors around partnering with registrars to identify, acknowledge and manage registrars' stressors and anxieties.

Computerized adaptive testing (CAT) indicates that excellent measurement properties and reduced administration time is possible using the GP-SRMR and GP-SRMS. With near perfect correlations between the full length scales and the shortened adaptive testing scales, and excellent reliability able to be maintained, time-poor GP supervisors and registrars will be able to access the benefit of the validated instruments in a psychometrically robust and efficient manner using computerized adaptive technology.

Both the GP-SRMS and GP-SRMR instruments are available online, as either downloadable hardcopy forms or online fillable PDFs. In addition, the project team is working to make the CAT survey platform available online also. We anticipate that refereed papers detailing this project's research will be published in open-access journals in 2019.

As with the GP-SRMR, we anticipate that the GP-SRMS will be adopted for individual use to identify concerns and spark constructive discussion between a registrar and supervisor, and that the instrument will also continue to be used as a broader survey of the registrar community to gauge satisfaction with supervisory relationship, and areas for further professional development for supervisors.

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Project (number 10977) ethics approval from the Monash University Human Research Ethics Committee was granted in October 2017. An ethics amendment was submitted and approved in April 2018 for the adapted instrument.

Table 1. GP-Supervisory Relationship Measure, Registrar Survey (GP-SRMR) subscales and statement sources

Statement	Subscale[a]	Source of statement
23. My supervisor's approach to medicine aligns with my own.	SI	Expert Group
24. My supervisor utilizes a range of current and appropriate resources.	SI	Expert Group
26. My supervisor engages with my learning and training needs.	SI	Expert Group
28. My supervisor is flexible in their approach to my education.	SI	Expert Group
29. My supervisor assists me in achieving my learning goals.	SI	Expert Group
30. My supervisor communicates clearly and effectively.	SI	Expert Group
34. I feel my supervisor is a good role model.	SI	Expert Group
12. My supervisor encourages me to reflect on my practice.	SI	S-SRQ
42. My supervisor pays close attention to the process of supervision.	SI	S-SRQ
43. My supervisor helps me identify my own learning/training needs.	SI	S-SRQ
7. My supervisor is enthusiastic about supervising me.	SI	S-SRQ
38. My supervisor has a collaborative approach in supervision.	SI	S-SRQ
10. There are adequate opportunities to access my supervisor.	SI	GP-SRMS
6. I am considerate towards others in the practice (e.g. all practice staff).	RP	GP-SRMS
11. My skills are appropriate for my stage of training.	RP	GP-SRMS
14. I show good organisational skills.	RP	GP-SRMS
15. I have a good professional approach.	RP	GP-SRMS
16. I take responsibility for my work.	RP	GP-SRMS
17. I integrate well with others in the team.	RP	GP-SRMS
18. I maintain a high standard in my interprofessional communications.	RP	GP-SRMS
20. I work hard in the practice.	RP	GP-SRMS
25. I feel confident in my clinical practise.	RP	GP-SRMS
27. The way that I practise is safe.	RP	GP-SRMS
37. I am able to manage multiple demands.	RP	GP-SRMS
4. My supervisor acknowledges my strengths.	Safe base	Expert Group
31. My supervisor demonstrates professional behaviour towards me.	Safe base	Expert Group
40. I feel I am able to ask for help when I am out of my depth.	Safe base	Expert Group
1. My supervisor is approachable.	Safe base	S-SRQ
2. My supervisor is respectful of my views and ideas.	Safe base	S-SRQ
8. I feel able to openly discuss my concerns with my supervisor.	Safe base	S-SRQ
41. My supervisor is non-judgemental in their role as a supervisor.	Safe base	S-SRQ
13. My supervisor acknowledges when I am stressed.	EI	Expert Group
22. My supervisor shows concern for my emotional wellbeing.	EI	Expert Group

a. SI=Supervisor investment; RP=Registrar Professionalism; EI=Emotional intelligence

Table 1. GP-Supervisory Relationship Measure, Registrar Survey (GP-SRMR) subscales and statement sources (continued)

Statement	Subscale[a]	Source of statement
39. My supervisor is attentive to my unspoken feelings and anxieties.	EI	S-SRQ
3. My supervisor takes time to get to know me.	EI	GP-SRMS
33. My supervisor takes an interest in my career development.	Excluded	Expert Group
44. My contractual relationship with the practice impacts negatively on the supervisory relationship.	Excluded	Expert Group
5. My supervisor gives feedback in a way that feels safe.	Excluded	S-SRQ
35. My supervisor is open-minded in supervision.	Excluded	S-SRQ
36. My supervisor gives me positive feedback on my performance.	Excluded	S-SRQ
9. I am able to manage an appropriate case load.	Excluded	GP-SRMS
19. My supervisor values having me in the practice.	Excluded	GP-SRMS
21. Evaluation of my performance has a negative impact on my relationship with my supervisor.	Excluded	GP-SRMS
32. I only do what is required of me.	Excluded	GP-SRMS

Table 2. Subscale means by demographic characteristics—GP-SRMR survey, 2018

Characteristic	#	%	Subscale means (1=Strongly disagree, 7=Strongly agree) Supervisor investment	Registrar professionalism	Safe base	Emotional intelligence
1. What is your age?						
25-29 years	56	24.6	6.0	6.3	6.5	5.6
30-34 years	79	34.6	6.2	6.4	6.6	5.8
35-39 years	44	19.3	6.0	6.5	6.5	5.7
40-44 years	28	12.3	6.1	6.5	6.5	5.6
45-49 years	11	4.8	6.1	6.4	6.5	5.4
50+ years	10	4.4	5.8	5.9	6.1	5.3
2. What gender do you identify as?						
Male	95	41.7	6.0	6.4	6.4	5.6
Female	128	56.1	6.2	6.4	6.6	5.7
Other/Prefer not to respond	5	2.2	4.9	5.1	5.4	4.8
3. Did you complete your primary medical qualification in Australia or elsewhere?						
Australia	163	71.5	6.0	6.3	6.5	5.7
Elsewhere	65	28.5	6.2	6.5	6.5	5.6
4. In which RTO are you undertaking your training?						
GPEx	183	80.3	6.1	6.4	6.5	5.6
GPTT	45	19.7	6.1	6.3	6.6	5.8
5. Toward which endpoint qualification are you training?						
FACRRM	9	3.9	6.4	6.6	6.7	5.7
FRACGP	209	91.7	6.1	6.4	6.5	5.6
Combination	10	4.4	5.8	6.1	6.2	5.5
6. What is your stage of training?						
GPT1/PRRT1	83	36.4	6.2	6.4	6.6	5.8
GPT2/PRRT2	19	8.3	6.4	6.4	6.8	5.9
GPT3/PRRT3	72	31.6	5.9	6.3	6.4	5.4
GPT4/PRRT4	39	17.1	5.9	6.5	6.4	5.5
Other	15	6.6	5.9	6.4	6.4	5.7

Table 2. Subscale means by demographic characteristics—GP-SRMR survey, 2018 (continued)

			Subscale means (1=Strongly disagree, 7=Strongly agree)			
Characteristic	#	%	Supervisor investment	Registrar professionalism	Safe base	Emotional intelligence
7. In which training pathway are you currently enrolled?						
General	112	49.1	5.9	6.3	6.5	5.5
Rural	116	50.9	6.2	6.5	6.6	5.7
8. How long have you been actively working as a GP Registrar?						
Under 1 year	82	36.0	6.2	6.4	6.6	5.8
1 year	72	31.6	6.0	6.4	6.5	5.6
2 years	43	18.9	6.0	6.4	6.4	5.5
3+ years	31	13.6	5.9	6.4	6.3	5.6
9. Are you currently working full-time or part-time?						
Full-time	160	70.2	6.1	6.4	6.5	5.6
Part-time	61	26.8	6.0	6.4	6.5	5.6
Other	7	3.1	6.1	6.4	6.9	6.0
10. In your role as a GP Registrar, do you currently work in:						
Single GP clinic	123	53.9				
Multiple GP clinics	58	25.4				
Other/Combination	47	20.6				
11. How many different GPs do you work with in your current placement?						
1 GP	12	5.3	6.2	6.6	6.6	5.8
2-5 GPs, group practice	69	30.3	6.1	6.4	6.6	5.8
6-10 GPs, group practice	101	44.3	6.0	6.4	6.5	5.5
11+ GPs, groups practice	46	20.2	6.0	6.3	6.5	5.7
12. What is the management structure of the place where you spend most of your time training?						
Single owner	48	21.1	6.2	6.5	6.6	5.8
Partnership	134	58.8	6.1	6.4	6.5	5.6
Corporate	31	13.6	6.0	6.3	6.5	5.5
Other	15	6.6	6.3	6.4	6.7	6.1
13. What is the classification of the practice where you are currently undertaking your training?						
Urban	73	32.0	6.1	6.3	6.6	5.7
Outer metropolitan	48	21.1	6.0	6.3	6.4	5.6
Rural	102	44.7	6.1	6.4	6.5	5.6
Remote	5	2.2	6.2	6.5	6.7	5.7

Table 2. Subscale means by demographic characteristics—GP-SRMR survey, 2018 (continued)

Characteristic	#	%	Subscale means (1=Strongly disagree, 7=Strongly agree) Supervisor investment	Registrar professionalism	Safe base	Emotional intelligence
14. How many GP Supervisors have you had a training relationship with?						
1	71	31.1				
2	65	28.5				
3	41	18.0				
4	23	10.1				
5+	28	12.3				
15. What is the gender of the GP Supervisor about whom you are completing this survey?						
Male	145	63.6	6.0	6.4	6.5	5.6
Female	74	32.5	6.2	6.4	6.6	5.8
Other/Prefer not to respond	9	3.9	6.0	6.3	6.3	5.5
16. Has your GP Supervisor supervised other GP Registrars in the past?						
Yes	201	88.2	6.1	6.4	6.5	5.7
No	19	8.3	5.7	6.3	6.4	5.3
Unsure	8	3.5	5.8	6.4	6.3	5.6
17. How many years has your GP Supervisor been a general practitioner?						
2-5 years	11	4.8	6.1	6.3	6.6	5.4
6-10 years	24	10.5	5.9	6.3	6.4	5.6
11-20 years	49	21.5	6.1	6.5	6.6	5.8
>20 years	97	42.5	6.1	6.4	6.5	5.7
Don't know	47	20.6	6.0	6.3	6.4	5.5
Total	**228**	**100.0**	**6.1**	**6.4**	**6.5**	**5.6**