

Use of the PPCS-R scale to analyse the impact of training and experience on self-perceived perioperative nursing competence: A multicentre cross-sectional study

Supplement: Questionnaire items

Domain: Foundational knowledge and skills

1. I am familiar with most of the instrumentation in different sub-specialties medical subjects.
2. I know where to find equipment and supplies in the OR.
3. My local knowledge of this department assists me to perform my OR role.
4. I understand and anticipate the surgical procedure.
5. I am familiar with all kinds of regular technological equipment in the OR.
6. When I am allocated to an area of the OR that is unfamiliar, I draw on my skills and experience.
7. I plan and coordinate the needs in the theatre I am allocated.

8. I know instinctively when surgery is not going well and am able to respond appropriately.

9. Knowing the location of equipment in the OR assists me to perform my OR role

Domain: Leadership

10. I take a leadership role to ensure the smooth running of the theatre.

11. I make difficult decisions when necessary.

12. I take an active role in preceptoring or mentoring lesser experienced nurses.

13. I manage clinical situations when there is conflict between staff.

14. I provide clinical guidance to other staff members.

15. I encourage team members to use innovative solutions to solve traditional problems.

16. I delegate aspects of care according to role, functions, capabilities and learning needs of other team members.

17. I encourage active involvement in clinical decision-making processes.

Domain: Collaboration

18. I use appropriate methods of communication according to the needs of the situation.

19. I feel comfortable in seeking assistance from my colleagues when I am unsure.

20. I tailor my communication based on the mix of personalities in the team.

21. I respect the level of expertise of other members of the team.

22. I treat members as individuals who have different needs, abilities and aspirations.

23. When communicating with other team members, I use language that is appropriate to the situation

Domain: Proficiency

24. I have mastered the terminology and vocabulary of OR nursing.

25. I troubleshoot and take appropriate action in the event of machine/equipment failures.

26. Based on experience, I am able to identify actual or potential emergency situations and respond appropriately.

27. I apply specialist knowledge in providing care for OR patients.

28. I have the right amount of knowledge to practice in this specialty.

29. I am able to anticipate the needs of the situation.

Domain: Empathy

30. I consider my colleagues as individuals with different needs, abilities and aspirations.

31. I use strategies to make the patient feel more comfortable.

32. I adjust my way of communication according to the character of my colleagues.

33. When communicating with other team members, I could use language that is appropriate in that context.

34. I establish rapport with patients that enhances their ability to express feelings and concerns.

Domain: Professional development

35. I understand relevant organisational policies and could put them into practice.

36. I have detailed knowledge of anatomy and physiology.

37. I understand and could work based on the standard of all relevant professional official guidance on practice.

38. I read current journals and literature that relate to clinical practice.

39. I keep up with the technical changes in procedures and equipment.

40. I use available resources to maintain current OR practice.

Supplement: Table of PPCS-R item-level scores by domain and participant characteristics

Domain	Item	Aggregated score (M, SD)	α	Academic background (M, SD)		p-value	Postgraduate course in OR nursing (M, SD)		p-value	Work role (M, SD)		p-value	Professional experience (M, SD)		p-value	Total score (M, SD)
				Diploma or bachelor degree (n=13)	Postgraduate course(s) (n=16)		Yes (n=3)	No (n=26)		Single (n=16)	Multiple (n=13)		≤ 5 years (n=16)	> 6 years (n=13)		
Foundational knowledge and skills	1	4.13 $\pm$ 0.63	0.89	3.23 $\pm$ 0.83	4.13 $\pm$ 0.88	0.18	3.67 $\pm$ 0.57	3.73 $\pm$ 1.00	0.69	3.87 $\pm$ 0.95	3.54 $\pm$ 0.96	0.48	3.31 $\pm$ 0.79	4.23 $\pm$ 0.92	0.05	3.72 $\pm$ 0.96
	2			4.08 $\pm$ 0.76	4.38 $\pm$ 0.61		4.00 $\pm$ 0.00	4.27 $\pm$ 0.72		4.31 $\pm$ 0.70	4.15 $\pm$ 0.68		4.00 $\pm$ 0.63	4.54 $\pm$ 0.66		4.24 $\pm$ 0.68
	3			4.54 $\pm$ 0.77	4.56 $\pm$ 0.62		4.00 $\pm$ 1.00	4.62 $\pm$ 0.63		4.63 $\pm$ 0.61	4.46 $\pm$ 0.77		4.38 $\pm$ 0.71	4.77 $\pm$ 0.59		4.55 $\pm$ 0.68
	4			3.38 $\pm$ 1.19	4.00 $\pm$ 0.89		4.00 $\pm$ 0.00	3.69 $\pm$ 1.12		3.81 $\pm$ 0.98	3.62 $\pm$ 1.19		3.31 $\pm$ 1.07	4.23 $\pm$ 0.83		3.72 $\pm$ 1.06
	5			4.00 $\pm$ 0.81	3.94 $\pm$ 0.99		4.33 $\pm$ 0.57	3.92 $\pm$ 0.93		3.94 $\pm$ 0.92	4.00 $\pm$ 0.91		3.63 $\pm$ 1.02	4.38 $\pm$ 0.50		3.97 $\pm$ 0.90
	6			3.85 $\pm$ 1.06	4.06 $\pm$ 0.92		4.00 $\pm$ 0.00	3.96 $\pm$ 1.03		4.00 $\pm$ 0.96	3.92 $\pm$ 1.03		3.44 $\pm$ 0.89	4.62 $\pm$ 0.65		3.97 $\pm$ 0.98
	7			4.00 $\pm$ 1.00	4.50 $\pm$ 0.63		4.00 $\pm$ 1.00	4.31 $\pm$ 0.83		4.31 $\pm$ 0.79	4.23 $\pm$ 0.92		4.06 $\pm$ 0.92	4.54 $\pm$ 0.66		4.28 $\pm$ 0.84
	8			3.85 $\pm$ 0.89	4.13 $\pm$ 1.08		4.33 $\pm$ 0.57	3.96 $\pm$ 1.03		4.13 $\pm$ 0.88	3.85 $\pm$ 1.14		3.50 $\pm$ 1.03	4.62 $\pm$ 0.50		4.00 $\pm$ 1.00
	9			3.85 $\pm$ 0.55	4.69 $\pm$ 0.60		4.67 $\pm$ 5.77	4.77 $\pm$ 0.58		4.88 $\pm$ 0.50	4.62 $\pm$ 0.65		4.69 $\pm$ 0.70	4.85 $\pm$ 0.37		4.76 $\pm$ 0.57
Leadership	10	3.05 $\pm$ 0.94	0.85	2.69 $\pm$ 0.85	3.69 $\pm$ 0.79	0.03	3.00 $\pm$ 1.00	3.27 $\pm$ 0.96	0.20	3.12 $\pm$ 1.02	3.38 $\pm$ 0.87	0.66	3.00 $\pm$ 0.89	3.54 $\pm$ 0.96	0.00	3.24 $\pm$ 0.95
	11			2.77 $\pm$ 0.92	3.50 $\pm$ 1.15		3.67 $\pm$ 1.52	3.12 $\pm$ 1.07		3.25 $\pm$ 1.18	3.08 $\pm$ 1.03		2.56 $\pm$ 0.72	4.23 $\pm$ 0.83		3.17 $\pm$ 1.10
	12			2.92 $\pm$ 1.25	3.44 $\pm$ 1.41		3.67 $\pm$ 0.57	3.15 $\pm$ 1.40		3.25 $\pm$ 1.34	3.15 $\pm$ 1.40		2.44 $\pm$ 0.96	4.38 $\pm$ 0.50		3.21 $\pm$ 1.34
	13			2.31 $\pm$ 0.75	3.07 $\pm$ 0.82		3.67 $\pm$ 0.57	2.58 $\pm$ 830		2.94 $\pm$ 0.92	2.36 $\pm$ 0.67		2.31 $\pm$ 0.79	4.62 $\pm$ 0.50		2.70 $\pm$ 0.86
	14			2.69 $\pm$ 0.85	3.56 $\pm$ 1.31		3.67 $\pm$ 1.52	3.12 $\pm$ 1.17		3.19 $\pm$ 1.10	3.15 $\pm$ 1.34		2.56 $\pm$ 0.96	4.85 $\pm$ 0.37		3.17 $\pm$ 1.19
	15			2.69 $\pm$ 1.10	3.38 $\pm$ 1.40		4.33 $\pm$ 0.57	2.92 $\pm$ 1.94		3.31 $\pm$ 1.19	2.77 $\pm$ 1.42		2.50 $\pm$ 1.21	3.54 $\pm$ 0.87		3.07 $\pm$ 1.30
	16			2.46 $\pm$ 0.96	2.94 $\pm$ 1.28		3.33 $\pm$ 0.57	2.65 $\pm$ 1.19		2.81 $\pm$ 1.04	2.62 $\pm$ 1.32		2.19 $\pm$ 0.91	3.92 $\pm$ 1.03		2.72 $\pm$ 1.16
	17			2.62 $\pm$ 1.04	3.37 $\pm$ 1.08		4.00 $\pm$ 0.00	2.92 $\pm$ 1.12		3.06 $\pm$ 0.99	3.00 $\pm$ 1.29		2.56 $\pm$ 1.09	4.15 $\pm$ 1.14		3.03 $\pm$ 1.11
Collaboration	18	3.91 $\pm$ 0.65	0.80	2.92 $\pm$ 0.76	3.69 $\pm$ 0.79	0.10	4.00 $\pm$ 1.00	3.27 $\pm$ 0.82	0.71	3.44 $\pm$ 0.72	3.23 $\pm$ 1.01	0.89	3.06 $\pm$ 0.85	3.54 $\pm$ 0.87	0.15	3.34 $\pm$ 0.85
	19			4.31 $\pm$ 0.94	4.31 $\pm$ 1.07		4.67 $\pm$ 0.57	4.27 $\pm$ 1.04		4.06 $\pm$ 1.18	4.62 $\pm$ 0.65		4.25 $\pm$ 1.06	3.92 $\pm$ 1.03		4.31 $\pm$ 1.00
	20			3.62 $\pm$ 1.04	3.94 $\pm$ 1.12		3.00 $\pm$ 1.73	3.88 $\pm$ 0.99		3.88 $\pm$ 1.02	3.69 $\pm$ 1.18		3.63 $\pm$ 0.88	3.77 $\pm$ 1.09		3.79 $\pm$ 1.08
	21			4.15 $\pm$ 0.89	4.25 $\pm$ 0.77		4.33 $\pm$ 0.57	4.19 $\pm$ 0.84		4.06 $\pm$ 0.85	4.38 $\pm$ 0.76		4.00 $\pm$ 0.89	3.38 $\pm$ 1.12		4.21 $\pm$ 0.81
	22			3.23 $\pm$ 1.30	4.19 $\pm$ 0.19		4.00 $\pm$ 1.00	3.73 $\pm$ 1.15		3.63 $\pm$ 1.08	3.92 $\pm$ 1.18		3.56 $\pm$ 1.26	3.62 $\pm$ 0.87		3.76 $\pm$ 1.12
	23			3.92 $\pm$ 0.95	4.25 $\pm$ 0.77		4.00 $\pm$ 1.00	4.12 $\pm$ 0.86		4.38 $\pm$ 0.71	3.77 $\pm$ 0.92		3.81 $\pm$ 0.83	3.69 $\pm$ 0.75		4.10 $\pm$ 0.86

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				Diploma or bachelor degree (n=13)	Postgraduate course(s) (n=16)		Yes (n=3)	No (n=26)		Single (n=16)	Multiple (n=13)		≤ 5 years (n=16)	> 6 years (n=13)		
Proficiency	24	3.86 $\pm$ 0.72	0.85	3.69 $\pm$ 0.75	4.19 $\pm$ 0.98	0.65	3.33 $\pm$ 0.57	4.04 $\pm$ 0.91	0.56	4.13 $\pm$ 0.80	3.77 $\pm$ 1.01	0.13	3.63 $\pm$ 0.80	4.38 $\pm$ 0.96	0.05	3.97 $\pm$ 0.90
	25			3.31 $\pm$ 1.25	3.75 $\pm$ 1.00		4.67 $\pm$ 0.57	3.42 $\pm$ 1.10		3.63 $\pm$ 1.14	3.46 $\pm$ 1.12		3.00 $\pm$ 0.96	4.00 $\pm$ 1.29		3.55 $\pm$ 1.12
	26			3.46 $\pm$ 1.19	4.00 $\pm$ 0.73		4.33 $\pm$ 0.57	3.69 $\pm$ 1.01		4.00 $\pm$ 0.89	3.46 $\pm$ 1.05		3.31 $\pm$ 0.94	4.46 $\pm$ 0.66		3.76 $\pm$ 0.98
	27			3.62 $\pm$ 0.87	4.25 $\pm$ 0.85		4.00 $\pm$ 1.00	3.96 $\pm$ 0.92		4.13 $\pm$ 0.88	3.77 $\pm$ 0.92		3.56 $\pm$ 0.81	4.00 $\pm$ 0.91		3.97 $\pm$ 0.90
	28			3.92 $\pm$ 0.95	4.25 $\pm$ 0.57		4.00 $\pm$ 1.00	4.12 $\pm$ 0.76		4.31 $\pm$ 0.79	3.85 $\pm$ 0.68		3.81 $\pm$ 0.75	4.46 $\pm$ 0.77		4.10 $\pm$ 0.77
Empathy	29	3.84 $\pm$ 1.04	0.89	3.54 $\pm$ 0.77	4.13 $\pm$ 0.71	0.39	4.33 $\pm$ 0.57	3.81 $\pm$ 0.80	0.85	4.06 $\pm$ 0.68	3.62 $\pm$ 0.87	0.98	3.56 $\pm$ 0.72	4.46 $\pm$ 0.66	0.34	3.86 $\pm$ 0.78
	30			3.54 $\pm$ 1.39	4.19 $\pm$ 0.98		3.67 $\pm$ 1.52	4.12 $\pm$ 0.90		3.75 $\pm$ 1.34	4.08 $\pm$ 1.03		3.63 $\pm$ 1.31	4.23 $\pm$ 0.72		3.90 $\pm$ 1.20
	31			3.92 $\pm$ 1.03	4.19 $\pm$ 0.75		3.67 $\pm$ 0.57	3.81 $\pm$ 1.20		4.13 $\pm$ 0.71	4.00 $\pm$ 1.08		3.88 $\pm$ 1.02	4.23 $\pm$ 1.01		4.07 $\pm$ 0.88
	32			3.54 $\pm$ 1.33	4.06 $\pm$ 0.99		4.00 $\pm$ 1.00	3.88 $\pm$ 1.17		3.88 $\pm$ 1.14	3.77 $\pm$ 1.23		3.56 $\pm$ 1.26	4.31 $\pm$ 0.63		3.83 $\pm$ 1.16
	33			3.77 $\pm$ 1.30	4.00 $\pm$ 1.03		4.00 $\pm$ 1.00	3.54 $\pm$ 1.36		3.88 $\pm$ 1.20	3.92 $\pm$ 1.11		3.63 $\pm$ 1.25	4.15 $\pm$ 0.98		3.90 $\pm$ 1.14
Professional development	34	3.57 $\pm$ 0.82	0.86	3.38 $\pm$ 1.44	3.69 $\pm$ 1.19	0.22	3.67 $\pm$ 0.57	3.54 $\pm$ 1.36	0.19	3.62 $\pm$ 1.25	3.46 $\pm$ 1.39	0.64	3.19 $\pm$ 1.37	4.23 $\pm$ 0.92	0.00	3.55 $\pm$ 1.29
	35			3.62 $\pm$ 1.19	4.19 $\pm$ 0.75		3.67 $\pm$ 0.57	3.96 $\pm$ 1.03		4.06 $\pm$ 0.77	3.77 $\pm$ 1.23		3.38 $\pm$ 0.95	4.00 $\pm$ 1.08		3.93 $\pm$ 0.99
	36			3.08 $\pm$ 0.86	3.88 $\pm$ 1.02		4.00 $\pm$ 1.00	3.46 $\pm$ 1.02		3.69 $\pm$ 0.87	3.31 $\pm$ 1.18		2.94 $\pm$ 0.92	4.23 $\pm$ 0.59		3.52 $\pm$ 1.02
	37			3.31 $\pm$ 0.75	3.94 $\pm$ 0.99		4.00 $\pm$ 1.00	3.62 $\pm$ 0.94		3.69 $\pm$ 0.87	3.62 $\pm$ 1.04		3.19 $\pm$ 0.91	4.00 $\pm$ 1.08		3.66 $\pm$ 0.93
	38			2.38 $\pm$ 0.76	3.25 $\pm$ 1.18		4.33 $\pm$ 0.57	2.69 $\pm$ 1.01		2.88 $\pm$ 1.02	2.85 $\pm$ 1.21		2.38 $\pm$ 0.88	3.46 $\pm$ 1.05		2.86 $\pm$ 1.09
Total score	39	148.94		3.46 $\pm$ 1.26	3.94 $\pm$ 0.85		4.33 $\pm$ 0.57	3.65 $\pm$ 1.09		3.88 $\pm$ 1.02	3.54 $\pm$ 1.12		3.25 $\pm$ 1.12	4.31 $\pm$ 0.63		3.72 $\pm$ 1.06
	40			3.54 $\pm$ 1.05	3.94 $\pm$ 1.06		4.67 $\pm$ 0.57	3.65 $\pm$ 1.05		3.75 $\pm$ 1.06	3.77 $\pm$ 1.09		3.25 $\pm$ 1.06	4.38 $\pm$ 0.65		3.76 $\pm$ 1.05
Total score				137.16	153.85		159.01	147.38		151.73	142.07		133.90	164.22		148.94

M = mean, SD = standard deviation, α = Cronbach's alpha coefficient, p-values = Mann-Whitney U test results
Note: Higher scores indicate greater self-perceived competence.