

## Validating the Readiness for Interprofessional Learning Scale (RIPLS) in the postgraduate context: are health care professionals ready for IPL?

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**AIMS** This paper describes the process of validating the Readiness for Interprofessional Learning Scale (RIPLS) for use with postgraduate health care professionals.

**CONTEXT** The RIPLS questionnaire has proved useful in the undergraduate context, enabling tutors to assess the readiness of students to engage in interprofessional learning (IPL). With the drive in the National Health Service (NHS) to deliver health care in interprofessional teams, it seems logical to ask whether postgraduate education should, or could, be delivered successfully in interprofessional contexts. As a preliminary to undertaking an extended IPL project, the researchers tested the validity of the RIPLS tool in the postgraduate health care context.

**METHOD** A modified version of the RIPLS questionnaire was administered to all general practitioners, nurses, pharmacists and allied health professionals in the Dundee Local Health Care Cooperative (LHCC) ( $n = 799$ ). A total of 546 staff responded (68%).

**RESULTS** Three factors, comprising 23 statements, emerged from the statistical analysis of the survey data, namely, teamwork and collaboration, sense of professional identity and patient-centredness. The internal consistency measure was 0.76. Analysis of variance suggested some key differences between the different professions in respect of the factors.

**CONCLUSIONS** The RIPLS questionnaire was validated for use in the postgraduate context, thus providing researchers with a tool for assessing health professionals' attitudes towards interprofessional learning at practice level, community health partnership level or at a national level of education and training. Significant differences between professional groups should be taken into account in designing any interprofessional learning programme.

**KEYWORDS** education, medical, graduate/\*methods; interprofessional relations; questionnaires/\*standards; health personnel/\*education; teaching/\*methods; Great Britain.

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### INTRODUCTION

With the advent of an interprofessional approach to delivering patient care in today's National Health Service (NHS), the question arises as to whether health care professionals should be offered more opportunities to learn together within protected learning time (PLT).<sup>1</sup> There is support for interprofessional learning (IPL) in policy-making circles, e.g. the World Health Organisation (WHO),<sup>2</sup> the UK government<sup>3</sup> and specialist medical bodies.<sup>4,5</sup> Moreover, a growing body of academic literature explores the role of interprofessional learning in preparing health care students and professionals to work in teams across specialisations and traditional boundaries, with the patient's needs at the core.<sup>6–12</sup>

Despite the general enthusiasm voiced for IPL at various levels, many key issues remain to be addressed.<sup>12–14</sup> These include the need to be clear about the appropriate goals and outcomes for

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## Overview

### What is already known on this subject

The Readiness for Interprofessional Learning Scale (RIPLS) is already established as a useful tool for assessing the readiness of undergraduate health care students to undertake interprofessional learning.

### What this study adds

The RIPLS tool is also now validated for use with postgraduate health care professionals in interprofessional learning contexts.

### Suggestions for further research

Key differences in attitudes which may emerge between professional groups should be taken into account in planning any IPL programme and explored more fully in the course of such a programme.

IPL<sup>12–15</sup> and the need to address structural and attitudinal barriers which are often present within the health care system.<sup>6,12–14</sup> It is argued further that IPL suffers from the lack of an agreed, underpinning theoretical framework<sup>7,9,16,17</sup> and a paucity of sufficiently rigorous research studies upon which to build good practice.<sup>15,18</sup> A Cochrane Review of IPL research stated that there was no convincing evidence of the effectiveness of IPL against changes to practice or improved patient outcomes.<sup>19</sup> However, lack of evidence of effectiveness is not, thereby, evidence of ineffectiveness.<sup>20</sup> Rather, further research using more flexible methodological approaches to evaluating IPL may be necessary to establish what kind of IPL works, under what circumstances, to produce what kinds of outcomes.<sup>15</sup>

### Readiness for Interprofessional Learning Scale (RIPLS)

The attitudes of learners can be an important consideration in developing interprofessional learning strategies.<sup>10,12,21,22</sup> One key development in this respect has been the devising and validating of the Readiness for Interprofessional Learning Scale (RIPLS).<sup>23,24</sup> Developed in the context of undergraduate health care education, this questionnaire aims to

assess the readiness of students to engage interactively with other students in shared learning. The 19-item scale comprised 3 subscales, labelled by the original researchers as teamwork and collaboration, professional identity and roles and responsibilities. RIPLS has been tested subsequently by other researchers and seems to be a valid and useful tool for measuring student attitudes towards multiprofessional education in the undergraduate context.<sup>10,22,25,26</sup> The RIPLS tool underwent further development by one of the original researchers and his team during 2004–05 with a view to strengthening the third factor, roles and responsibilities, and exploring possible new factors such as patient-centredness. This revised, extended version of RIPLS comprised 29 statements, 10 of which still required to be validated for use at the time this study was devised.

The authors of this study reasoned that, if the extended RIPLS instrument could be validated in a postgraduate setting, then it could provide a benchmark of the readiness of health professionals to engage in interprofessional learning. Furthermore, it might allow for the identification of any differences between professional groups which could then be taken into account when planning an interprofessional learning programme. The authors therefore set out to assess the face, content and construct validity of the extended RIPLS tool in the postgraduate context; to measure the reliability between responses to the items within each factor; and to compare the different professional groupings in terms of responses to any factors identified.

## METHOD

### The pilot questionnaire

An educational steering group of postgraduate tutors – 1 each from general practice, nursing, pharmacy and the allied health professions (AHPs) – discussed the extended RIPLS questionnaire and were satisfied that the additional questions demonstrated face and content validity. Thereafter, this group modified the extended, 29-statement tool to ensure its suitability for use with postgraduate staff. For example, the term ‘student’ was replaced by the term ‘health care professional’ and verb tenses were altered where appropriate. The survey used a Likert scale of response with 5 = strongly agree and 1 = strongly disagree. Four demographic questions were added, concerning participants’ occupation, year of graduation, length of service and previous

experience of multiprofessional learning. Finally, a definition of 'multiprofessional learning' was provided, namely: 'multiprofessional learning is defined as mixed health professionals attending the same learning events with common content' (see Note 1 for clarification of definitions).

The amended questionnaire was scrutinised further by postgraduate tutors and tested on a convenience sample of 6 GP medical education advisers for clarity, layout and ease of use. In October 2004, the questionnaire was mailed to all the GPs, nurses, pharmacists and AHPs ( $n = 821$ ) employed in the local primary care organisation (PCO), along with a covering letter from their respective postgraduate tutors. A reminder mailing was sent 3 weeks later. Non-responders were contacted later with a short questionnaire, seeking their reasons for non-response and their attitude to multiprofessional learning in principle.

### Statistical methods

Principal components analysis of the responses was conducted and a scree plot was used to determine the minimum number of factors that explained a large proportion of the correlations between the responses. Principal factor analysis with varimax rotation was then performed to determine the make-up of these factors. The number of factors was set to the value obtained from the principal components analysis. From the resulting rotated factor matrix, if a statement had a factor loading of 0.4 or greater, then

it contributed to the factor. For each resulting principal factor a description was assigned, using the statements which contributed to them, so that the factors to improve multiprofessional learning could be identified. Measures of internal consistency (Cronbach's alpha) of the responses to the statements making up each factor were obtained.

For each principal factor found from the factor analysis, an analysis of variance (ANOVA) was performed to test for differences among the factor score means for each profession. Professions were grouped into 4 types: GPs, nurses, pharmacists and AHPs. Contrasts between pairs of professions were tested using the *t*-test and were adjusted for multiple comparisons using the Bonferroni method. All analysis was conducted using the Statistical Package for the Social Sciences (SPSS version 10.1).

## RESULTS

### Questionnaire response

A total of 821 questionnaires were sent, with 22 returned as 'undeliverable', leaving a total of 799 possible responders; 546 questionnaires were returned from this total, representing a 68.3% return rate. This latter figure represents 55% of all GPs mailed ( $n = 66$ ), 65% of nurses ( $n = 210$ ), 81% of pharmacists ( $n = 45$ ) and 71% of AHPs ( $n = 223$ ) – see Table 1. Two respondents did not indicate a profession. From the mailing to the 275

Table 1 Characteristics of respondents by profession and years of experience, and by profession and previous experience of multiprofessional learning

	Profession		Profession		Profession		Profession	
	GPs	Nurses	Nurses	Pharmacists	Pharmacists	AHPs	AHPs	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Years of service</b>								
0–4	6	9.1	49	23.6	10	22.2	48	21.5
5–9	11	16.7	27	13.0	4	8.9	38	17.0
10–14	17	25.8	29	13.9	7	15.6	31	13.9
15–19	11	16.7	32	15.4	8	17.8	34	15.2
20–24	11	16.7	36	17.3	7	15.6	33	14.8
25–29	7	10.6	27	13.0	6	13.3	26	11.7
30 +	3	4.5	8	3.8	3	6.7	13	5.8
Total	66		210*		45		223	
<b>Previous experience of MPL</b>								
Practice-based events	62	93.9	160	76.2	19	42.2	125	56.1
Learning events led by your professional body	30	45.5	119	56.7	23	51.1	109	48.9
Undergraduate learning opportunities	16	24.2	59	28.1	10	22.2	65	29.1
LHCC-led events	51	77.3	157	74.8	24	53.3	50	22.4
No previous experience	1	1.5	16	7.6	12	26.7	28	12.6
Learning events led by other professional organisations	41	62.1	130	61.9	22	48.9	123	55.2

\*2 nurses did not respond to this question.

non-responders, 38 forms were returned marked 'left' or 'unknown at this address', leaving a total of 237 possible responders; 120 forms (50.6%) were returned from this group.

### Results of non-responders' survey

The majority of non-responders, 77% ( $n = 92$ ), indicated that they were in favour of interprofessional learning with 41% ( $n = 49$ ) willing to participate in a research study involving interprofessional learning. The main reason indicated for non-response was that people were simply too busy to complete the questionnaire 42% ( $n = 50$ ).

### Statistical analysis of survey data

From the principal components analysis, 7 components were shown to meet Kaiser's eigenvalue

criterion of  $> 1$ . They explained 60.1% of the variance. However, 4 of these components only just contributed, with eigenvalues only slightly over 1. This was evident from the scree plot, whose 'elbow' showed 3 components contributing most, explaining 44.3% of the variance in the data. Therefore, principal factor analysis using varimax rotation was conducted to extract 3 factors which were named subsequently as teamwork and collaboration (factor 1), patient-centredness (factor 2) and sense of professional identity (factor 3). These 3 factors contained 23 statements between them and had an internal consistency measure of 0.76. The internal consistency measures for each factor are displayed in Table 2 along with the factor loadings for each statement. Factors 1 and 2 have high and close consistency measures. The removal of each item from the reliability analysis caused the alpha to decrease slightly each time.

Table 2 Factor loadings for the statements contributing to the 3 principal factors

Item no.	Statement	Factor 1: Teamwork and collaboration ( $\alpha = 0.88$ )	Factor 2: Patient- centredness ( $\alpha = 0.86$ )	Factor 3: Sense of professional identity ( $\alpha = 0.69$ )
9	Shared learning will help me to think positively about other health care professionals	0.72		
12	Shared learning helps to clarify the nature of patient problems	0.66		
10	Shared learning with other health care professionals will help me to communicate better with patients and other professionals	0.64		
13	Shared learning before qualification would help health care professionals become better team workers	0.63		
6	Shared learning with other health care professionals will increase my ability to understand clinical problems	0.63		
4	Shared learning will help me understand my own limitations	0.63		
1	Learning with other health care professionals will help me be a more effective member of a health care team	0.62		
7	Learning with health care students from other disciplines before qualification would improve relationships after qualification	0.59		
8	Communication skills should be learned with other health care professionals	0.57		
11	I would welcome the opportunity to work on small-group projects with other health care professionals	0.46		
3	Team-working skills are essential for all health care professionals to learn	0.43		
2	For small group learning to work, health care professionals need to trust and respect each other	0.42		
5	Patients ultimately benefit if health care professionals work together to solve patient problems	0.41		
26	Establishing trust with my patients is important to me		0.80	
29	In my profession one needs skills in interacting and co-operating with patients		0.70	
28	Thinking about the patient as a person is important in getting treatment right		0.70	
25	I like to understand the patient's side of the problem		0.70	
27	I try to communicate compassion to my patients		0.67	
17	The function of nurses and therapists is mainly to provide support for doctors			0.58
16	Clinical problem-solving skills should only be learned with professionals from my own discipline			0.58
20	I have to acquire much more knowledge and skills than other health care professionals			0.47
19	I would feel uncomfortable if another health care professional knew more about a topic than I did			0.43
18	There is little overlap between my role and that of other health care professionals			0.42

$\alpha$ : Cronbach's alpha measures internal consistency of the responses to the statements making up each factor.

## Description of the principal factors

### Factor 1 – teamwork and collaboration

The strongest statement in this group of 13 statements is ‘Shared learning will help me to think positively about other health care professionals’, with a factor loading of 0.72. This is followed closely by 6 statements with loadings from 0.62 to 0.66, including: ‘Shared learning helps to clarify the nature of patient problems’ (0.66), ‘Shared learning with other health care professionals will help me to communicate better with patients and other professionals’ (0.64) and ‘Shared learning before qualification would help health care professionals become better team workers’ (0.63). The remaining statements can be seen in Table 2.

### Factor 2 – patient-centredness

A total of 5 statements contributed to this group, the dominant one being ‘Establishing trust with my patients is important to me’ (0.80). The remaining 4 items had very similar factor loadings, the second one being ‘In my profession one needs skills in interacting and co-operating with patients’ (0.70). The third statement is ‘Thinking about the patient as a person is important in getting treatment right’ (0.70), followed by ‘I like to understand the patient’s side of the problem’ (0.70). The final statement is ‘I try to communicate compassion to my patients’ (0.67).

### Factor 3 – sense of professional identity

A total of 5 statements contributed to this group, the most important being ‘The function of nurses and therapists is mainly to provide support for doctors’ (0.58). This was followed very closely by ‘Clinical problem-solving skills should only be learned with professionals from my own discipline’ (0.58). The

third statement is ‘I have to acquire much more knowledge and skills than other health care professionals’ (0.47), followed by ‘I would feel uncomfortable if another health care professional knew more about a topic than I did’ (0.43). The last statement making up this factor is ‘There is little overlap between my role and that of other health care professionals’ (0.42).

## Analysis of variance among professions

There was a highly significant difference among the 4 professions’ mean factor scores for factor 1 (teamwork and collaboration) ( $P < 0.001$ ). In the analysis of pairwise contrasts, the mean score for GPs was significantly lower than those of nurses ( $P < 0.001$ ) and AHPs ( $P = 0.001$ ). All contrasts are displayed in Table 3.

For factor 2 (patient-centredness) there was also a highly significant difference among the 4 professions’ mean factor scores ( $P < 0.001$ ). The pharmacists had significantly lower mean factor scores than nurses ( $P < 0.001$ ), GPs ( $P = 0.001$ ) and AHPs ( $P = 0.001$ ), thus indicating a lesser emphasis on this factor.

Again, with factor 3 (sense of professional identity) there was a highly significant difference among the 4 professions’ mean factor scores ( $P < 0.001$ ). GPs had a significantly higher mean score than nurses and AHPs ( $P < 0.001$ ) indicating a greater emphasis on this factor. GPs also had higher mean scores than pharmacists but not significantly so ( $P = 0.07$ ). All other comparisons were not significant.

## DISCUSSION

These results indicate that RIPLS is a valid tool for measuring the readiness of postgraduate health care

Table 3 Contrasts of mean factor scores for every possible pair of professions for each factor using the 2-tailed *t*-test

Contrasts	Factor 1: Teamwork and collaboration		Factor 2: Patient-centredness		Factor 3: Sense of professional identity	
	Mean difference	<i>P</i>	Mean difference	<i>P</i>	Mean difference	<i>P</i>
Nurse versus GP	0.55	< 0.001	0.07	1.00	- 0.64	< 0.001
Nurse versus pharmacist	0.22	0.94	0.75	< 0.001	- 0.23	0.67
Nurse versus AHP	0.05	1.00	0.15	0.57	- 0.12	0.89
GP versus pharmacist	- 0.34	0.36	0.68	0.001	0.42	0.07
GP versus AHP	- 0.51	0.001	0.08	1.00	0.53	< 0.001
Pharmacist versus AHP	- 0.17	1.00	- 0.60	0.001	0.11	1.00

*P*values have been adjusted for multiple comparisons using the Bonferroni method.

professionals to engage in interprofessional learning. The results also demonstrate that the health care professionals surveyed have a positive attitude to IPL, albeit with some key differences between the professions. This positive attitude of the responders is reinforced by the positive results of the non-responders' survey where 77% ( $n = 92$ ) of respondents indicated that they, too, were generally in favour of interprofessional learning.

The population of 821 health care professionals constituted a census of the health care staff within the 4 professional groupings and the sample group of 546 respondents was more than large enough to allow a high degree of confidence in the robustness of the results.<sup>27</sup> The return rate of 68.3% ( $n = 546$ ) from 2 mailings was encouraging, given the voluntary nature of the survey. This compares favourably with the original RIPLS validation,<sup>24</sup> where the researchers obtained a return of 89% ( $n = 914$ ) from an undergraduate cohort of health care students from 5 disciplines.

The face and content validity were ensured by the initial scrutiny and testing of the instrument by an interprofessional group of health care experts and the construct validity was demonstrated by the factor analysis. While 2 of the 3 subscales which emerged mirrored those identified and validated previously,<sup>23,24</sup> namely, teamwork and collaboration (questions 1–13) and personal sense of professional identity (questions 16–20), a third subscale, patient-centredness (questions 25–29) emerged from the health care professionals. This resulted from some of the additional questions which were not validated previously at the time of conducting the survey. A total of 7 of the 10 unvalidated, additional statements in the extended RIPLS loaded on the 3 factor scores, suggesting that these statements had clear construct validity in themselves; 5 loaded on the patient-centredness subscale and 2 loaded on the professional identity subscale. The third factor from the original RIPLS tool, namely, roles and responsibilities, did not emerge in this study's factor analysis.

The significant differences which emerged between the different professions in terms of the mean factor scores were interesting. On the teamwork and collaboration index, the scores indicate that GPs place less value on this factor than do nurses, pharmacists and AHPs ( $P < 0.0001$ ). This finding bears some comparison with other RIPLS research findings, such as the Auckland University study,<sup>25</sup> which found that 1st-year undergraduate medical students were less likely than nurses to consider that shared learning

would help them to become more effective members of a health care team and less convinced than nursing or pharmacy students that shared learning would help them to think positively about other health care professionals. The Auckland results also indicated that medical students were less likely than either nurses or pharmacists to consider that shared learning would increase their ability to understand clinical problems.

With regard to the sense of professional identity factor, GPs' scores indicated that they had a stronger sense of professional identity than nurses, pharmacists or AHPs ( $P < 0.0001$ ). This bears comparison with a small exploratory study of 4th-year undergraduate medical ( $n = 20$ ) and nursing students ( $n = 10$ ) in Belfast,<sup>26</sup> which also suggested a keenly developed sense of professional identity and independence of judgement among GPs. Using the RIPLS scale, the Belfast study found that, while over 70% of medical and 89% of nursing students agreed that patients would benefit if health care students worked together to solve patient problems, only 40% of the medical students believed that shared learning would increase their ability to understand clinical problems and only 35% believed that it would help to clarify the nature of patient problems compared with 89% of nurses in each case.

One possible explanation for such differences is that health professionals, like other professional groupings, bring preconceived 'maps' of their own roles to any educational process, based on the learned culture, beliefs and cognitive approaches of their specific disciplines.<sup>12</sup> While most undergraduate curricula now encompass aspects of interprofessional learning, many of the survey respondents probably experienced more traditional approaches to teaching and learning, with all their consequent strengths and limitations. Such traditional approaches seem to have encouraged the development of a strongly individualistic work ethic and culture for GPs, which may make it more difficult for some to adapt to a culture of interprofessional learning, requiring the development of skills in team-building, communication and collaboration in the interests of serving the patient's needs.

The other key difference to emerge from the analysis of variance was in terms of the second factor, patient-centredness, where pharmacists (both practice and community pharmacists) had lower mean factor scores than nurses, GPs or AHPs ( $P < 0.000$ ). This is an interesting finding which may require further qualitative research to clarify the results.

In terms of strengths, the high number of respondents in this study was an obvious advantage along with the successful attempt to gauge the responses of those who failed to respond to the initial survey. Moreover, the relatively high alphas, which demonstrate the internal reliability of the 3 constructs or factors, have given the investigators confidence to develop their research further into aspects of teamwork and collaboration, patient-centredness and sense of professional identity.

A possible weakness of the study is that the staff surveyed had had some previous exposure to inter-professional learning through their primary care organisation, albeit of a relatively unstructured nature. Moreover, the authors have found no comparable study in the postgraduate context with which to align the results obtained in this study. Clearly, there is scope to apply this questionnaire in other postgraduate contexts to strengthen the validity and reliability of the results.

In terms of further research, the authors are interested in whether RIPLS is amenable to collapse into three global questions, one for each subscale. In the clinical skills field, studies suggest that raters have either a 1- or 2-dimensional conception of clinical skills. In measuring clinical skills by rating scales it appears that, while the addition of items to these scales has little impact on reliability, increasing the number of observations does increase reliability. The authors would therefore be interested to explore whether interprofessional learning can be conceptualised along the 3 factors identified in this study. If so, then the reliability of this tool might be increased by the reduction of items and by multiple sampling over a series of interprofessional learning events which the researchers wish to implement.

#### Note 1

The researchers initially used the two terms multi-professional learning (MPL) and interprofessional learning (IPL) interchangeably, but gradually came to accept that the term interprofessional best described the learning process which they wished to research in their study. Multiprofessional learning (MPL) is now usually defined as different professions simply learning a common content together, whereas interprofessional learning (IPL) is defined by CAIPE as 2 or more professions learning from and about each other to improve collaboration and the quality of care.

A copy of the RIPLS questionnaire is available from the authors upon request.

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*Contributors:* Ross Reid, project leader, had overall control of the manuscript, contributed to the Introduction and Discussion sections and was responsible for revisions and final approval. David Bruce, Postgraduate Director, was involved in devising the underlying concept of the research and in discussions throughout the project and review of submissions. David McLernon, Research Fellow in Medical Statistics, analysed the statistics and wrote the Statistical Methods and Results sections. Katie Allstaff, project officer, prepared and administered the questionnaire, wrote the Introduction and Methodology sections and contributed to the Discussion section.

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