# Observational sub-study

### Influencing factors on performance rates

During the sub-study, 90 pharmacists were observed in software pharmacies, with 6 of these pharmacists performing no interventions and 19 recording no interventions. Therefore, 5 pharmacists did not perform or record any interventions, 14 performed interventions but did not record any, and 1 pharmacist recorded an intervention but did not perform any (indicating that the pharmacist recorded something that the observer did not feel was an intervention). Transformation did not improve the data (*Kolmogorov-Smirnov statistic* = 0.16, *df* = 65, *p*< 0.001); so non-parametric statistical tests were used.

#### Demographics

Of the 78 pharmacists who completed the surveys, 44 were female and 34 were male, with no significant difference in intervention performance rate between the two genders (*Mann-Whitney U* = 644.50, *Z* = -1.04, *p* = 0.29). Age range was related to performance rate with pharmacists over 50 years of age having the highest performed intervention rate followed by pharmacists in the 20-30 year age range (*Kruskal-Wallis χ2* = 16.76, *df* = 3, *p* = 0.001); however, there was no relationship seen between graduation year and the performed intervention rate (*Spearman’s rho* = 0.03, *N* = 78, *p* = 0.79).

#### Additional qualifications

Interestingly, there was no apparent relationship between pharmacists with additional qualifications and their intervention performance rate (*Kruskal-Wallis χ2* = 2.05, *df* = 2, *p* = 0.37), despite a trend being seen in the overall analysis of pharmacist’s documented intervention rates (see section 1.2.4). HMR accreditation was also not an influencing factor, with no difference seen between the 15 accredited and 63 non-accredited pharmacists (*Mann-Whitney U* = 392.00, *Z* = -1.02, *p* = 0.31).

#### CPD activity

CPD activity also did not appear to have a relationship with intervention performance rate in this group of pharmacists (*Kruskal-Wallis χ2* = 5.91, *df* = 3, *p* = 0.12).

#### Workload

There did not appear to be a relationship between the intervention performance rate and the average pharmacist workload within the pharmacy (*Spearman’s rho* = -0.15, *N* = 85, *p* = 0.16).

#### Professionalism score

The professionalism score that was run on PROMISe pharmacists had only previously been tested on undergraduate pharmacy students. Therefore, it was compared to the Hall’s Professionalism Survey that was completed by observed pharmacists (see Appendix 20). Of the 149 pharmacists, 143 completed the Hall’s Professionalism Survey for Pharmacists;[8](#_ENREF_8) however, only 77 of these pharmacists had completed the original professionalism survey. Analysis showed good correlation between the scores (*Spearman’s rho* = 0.355, *N* = 77, *p* = 0.002) indicating that the initial professionalism survey was a good predictor of the Hall’s professionalism score.

For the pharmacists within the software pharmacies, there did not appear to be a relationship between the intervention performance rate and either professionalism score (*Spearman’s rho* = 0.12, *N* = 77, *p* = 0.29 for the initial professionalism survey; *Spearman’s rho* = -0.07, *N* = 83, *p* = 0.51 for the Hall’s professionalism survey).

#### Empathy score

Seventy-six observed pharmacists completed the empathy survey. There did not appear to be a relationship between the intervention performance rate and the pharmacist’s empathy score (*Spearman’s rho* = -0.02, *N* = 76, *p* = 0.84).

#### Clinical knowledge survey score

Seventy-one observed pharmacists completed the clinical knowledge survey. There did not appear to be a relationship between the intervention performance rate and the pharmacist’s clinical knowledge score (*Spearman’s rho* = 0.11, *N* = 71, *p* = 0.37).

#### Training level

There did not appear to be a relationship between the intervention performance rate and the pharmacist’s level of training (*Kruskal-Wallis χ2* = 2.98, *df* = 3, *p* = 0.40).

#### Adaptability/willingness to change score

There did not appear to be a relationship between the intervention performance rate and the pharmacist’s adaptability/willingness to change score (*Spearman’s rho* = -0.03, *N* = 78, *p* = 0.78). See Chapter 5 for the calculation process.

#### Confidence score

There did not appear to be a relationship between the intervention performance rate and the pharmacist’s confidence score (*Spearman’s rho* = -0.03, *N* = 78, *p* = 0.83). See Chapter 5 for the calculation process.

### Influencing factors on recorded rates

Of the 90 pharmacists who were observed in software pharmacies, 19 did not record any interventions during their observation period, resulting in 66 pharmacists who had an observed intervention recording rate. Again, transformation did not improve the data (*Kolmogorov-Smirnov statistic* = 0.12, *df* = 65, *p*= 0.02); therefore, non-parametric statistical tests were used. The effect of the observation week on the observed pharmacies was discussed previously in Chapter 4.

#### Demographics

There was no significant difference in intervention recording rate between the two genders (*Mann-Whitney U* = 694.00, *Z* = -0.55, *p* = 0.59) or the age range of the pharmacist (*Kruskal-Wallis χ2* = 5.83, *df* = 3, *p* = 0.12). There was also no relationship seen between graduation year and intervention recording rate (*Spearman’s rho* = 0.01, *N* = 78, *p* = 0.91).

#### Additional qualifications

Again, there was also no apparent relationship between pharmacists with additional qualifications and their intervention recording rate (*Kruskal-Wallis χ2* = 4.37, *df* = 2, *p* = 0.10), despite a trend being seen in the overall pharmacist group (see Chapter 5 for details). HMR accreditation was also not an influencing factor, with no difference between the accredited and non-accredited pharmacists with regards to their recording rates (*Mann-Whitney U* = 374.50, *Z* = -1.25, *p* = 0.21).

#### CPD activity

CPD activity also did not appear to have a relationship with intervention recording rate in this group of pharmacists (*Kruskal-Wallis χ2* = 0.77, *df* = 3, *p* = 0.86).

#### Workload

There did not appear to be a relationship between the intervention recording rate and the average pharmacist workload within the pharmacy (*Spearman’s rho* = -0.01, *N* = 85, *p* = 0.94).

#### Professionalism score

There did not appear to be a relationship between the intervention recording rate and either professionalism score (*Spearman’s rho* = 0.01, *N* = 77, *p* = 0.39 for the initial professionalism survey; *Spearman’s rho* = 0.05, *N* = 83, *p* = 0.64 for the Hall’s professionalism survey).

#### Empathy score

There did not appear to be a relationship between the intervention recording rate and the pharmacist’s empathy score (*Spearman’s rho* = 0.01, *N* = 76, *p* = 0.91).

#### Clinical knowledge survey score

There did not appear to be a relationship between the intervention recording rate and the pharmacist’s clinical knowledge score (*Spearman’s rho* = 0.03, *N* = 71, *p* = 0.78).

#### Training level

There did not appear to be a relationship between the intervention recording rate and the pharmacist’s level of training (*Kruskal-Wallis χ2* = 5.83, *df* = 3, *p* = 0.12).

#### Adaptability/willingness to change score

There did not appear to be a relationship between the intervention recording rate and the pharmacist’s adaptability/willingness to change score (*Spearman’s rho* = -0.06, *N* = 78, *p* = 0.61). See Chapter 5 for the calculation process.

#### Confidence score

There did not appear to be a relationship between the intervention recording rate and the pharmacist’s confidence score (*Spearman’s rho* = -0.06, *N* = 78, *p* = 0.61). See Chapter 5 for the calculation process.