Exploring Australian Pharmacists’ Perceptions and Attitudes Towards Dispensing HIV Medicines in the Community Setting

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Keywords
HIV infections, antiretroviral therapy, pharmacists, counselling, attitude, professional education

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Abstract

Background
Involving community pharmacists in the provision of care to people living with HIV has the potential to improve health outcomes.

Aim
To explore community pharmacists’ perceptions and attitudes regarding the supply of HIV medicines following the Australian Government’s decision to list antiretroviral drugs (ARTs) on the Pharmaceutical Benefits Scheme (PBS) in 2016.

Methods
A purposive sample of community pharmacists around Australia was invited to participate in an anonymous, online questionnaire that collected demographic information, and pharmacists’ perceptions and attitudes towards dispensing and counselling HIV antiretroviral medicines.

Results
Of the 91 participants, the majority had not dispensed an HIV medicine. Most participants reported feeling comfortable when counselling people living with HIV about their medicines. However, most reported a lack of confidence in knowledge of HIV and HIV medicines, and a lack of confidence in counselling these patients about their medicines and managing the complex issues they experience. There was a statistically significant difference in genders with females reporting less confidence compared with males. Unsurprisingly, confidence in knowledge of HIV and HIV medicines was associated with confidence in counselling people living with HIV.

Conclusions
Increased accessibility to HIV antiretroviral medicines through community pharmacies for Australians living with HIV has potentially improved patient health outcomes. However, community pharmacists need to be both confident and comfortable in talking to these patients. This study has identified that Australian community pharmacists would benefit from
continuing professional education on this topic. These findings could also be relevant for improving outcomes of patients taking other high-cost drugs.

**Keywords:**
HIV infections, antiretroviral therapy, pharmacists, counselling, attitude
Introduction

In 2017 there were an estimated 27,545 people living with HIV in Australia with 963 new HIV diagnoses, the lowest number of diagnoses since 2010. This was a 7% decline in new diagnoses since 2012. With the advent of modern antiretroviral treatment regimens (ARTs), people living with HIV may now live longer provided they adhere to their medicine regimens, are able to tolerate the treatment, and have non-resistant HIV strains, thus rendering HIV a chronic condition. The longer lifespan of infected individuals, the aging population, and consistent transmission rates have resulted in an increasing population of people living with HIV. ARTs can improve the quality and length of life in this patient group, reduce HIV-related morbidity, and curb the HIV transmission rate. However, they were prohibitively expensive for patients. Therefore, to improve access to these medicines for Australians living with HIV, the Australian government listed ARTs for post-exposure prophylaxis (PEP) on the Pharmaceutical Benefits Scheme (PBS) in 2016. The aim was to help curb the HIV transmission rate and reduce the costs of treating this patient group. A combined formulation of two ARTs (tenofovir and emtricitabine) for HIV pre-exposure prophylaxis (PrEP) was released on the PBS on 1 April 2018 for use by people at risk of HIV infection.

Approaches to the reduction of HIV transmission in Australia are underpinned by the Eighth National HIV Strategy 2018–2022. The aims of this strategy include virtual elimination of HIV transmission in Australia by 2022, a reduction in the morbidity and mortality caused by HIV infection, and 75% of Australians living with HIV reporting good quality of life. The strategy lists multiple means of achieving the strategic goals, such as increasing the uptake of ARTs (PEP and PrEP) to effectively expand the proportion of people living with undetectable viral load, eliciting behavioural change in at-risk populations, promoting safe injecting practices, and providing targeted education to healthcare providers and individuals in high risk groups.

Australian pharmacists practising in community settings are strategically positioned to play a vital role in helping achieve the objectives of the Eighth National HIV Strategy 2018–2022. Not only are pharmacists one of the most accessible health professionals in the Australian healthcare system, but no appointment is needed, there is a minimal waiting time to speak with the pharmacist, and the individual is able to “retain a high level of control over the extent of their engagement with the pharmacist”. In line with the aims of the Seventh National HIV strategy, Australian community pharmacies were allowed to dispense prescriptions for HIV
HIV infection is a complex chronic condition, associated with multiple comorbidities and opportunistic infections. Its treatment necessitates adherence to a lifetime of ART regimens posing a substantial risk for medicine-related toxicities and drug interactions. The complexity of managing HIV infection requires a multidisciplinary team-based care approach. Given pharmacists’ expertise in drug therapy and the fact they are the most accessible health professionals, they can play an integral role within such multidisciplinary teams. By interacting with patients and collaborating with other members of the health care team, pharmacists are perfectly positioned to address any arising treatment complications and barriers to ART adherence, as well as deliver targeted education to patients. Involving community pharmacists in the provision of care to people living with HIV has the potential to reduce morbidity associated with HIV, reduce the development of ART resistance, and reduce the transmission of HIV infection by improving compliance to medicine regimens.

This study aimed to explore the attitudes and perceptions of Australian community pharmacists towards the supply of HIV antiretroviral medicines and the provision of advice and care for these patients. At the time the data were collected (2016), ARTs had only just been listed on the PBS the previous July. As this initiative was to improve patients’ accessibility to these medicines and therefore improve HIV patients’ uptake and health outcomes, the authors were interested in how confident or comfortable community pharmacists felt dispensing and counselling on these medicines as they did not perhaps have the experience compared with their hospital colleagues. This study did not set out to correlate pharmacists’ confidence with knowledge or competence. We examined confidence with ‘perceived’ or ‘self-reported’ knowledge of HIV and HIV medicines rather than including any questions testing participants’ knowledge of HIV medicines. A lack of experience dispensing these medicines was expected by the research team; however, regardless of how many times a pharmacist may or may not have dispensed an HIV medicine, we were interested in how confident they felt should a prescription be presented. Improving pharmacists’ confidence has the potential to improve the counselling experience and provision of care for people living with HIV, and this may help improve patient compliance.
with medicine regimes and reduce transmission rates of HIV. The authors believe the findings from this study are relevant for all future government public health policy initiatives involving high-cost medicines and/or in areas of a potentially sensitive nature as well as lifelong learning in pharmacy practice.

Methods

In 2016, a purposive sample of community pharmacists around Australia was invited to participate in an anonymous, online survey exploring perceptions and attitudes towards the provision of HIV, HBV (Hepatitis B Virus), and HCV (Hepatitis C Virus) medicines and care for people living with HIV, HBC, and/or HCV. This paper reports on the HIV arm of this research. At this time there were 29,229 practising registrants with the Pharmacy Board of Australia. Participants were recruited via Australian pharmacy networks and contacts of the researchers. Those participants who did not work in community pharmacy were excluded from the study leaving a final sample of 91 pharmacists.

This study used quantitative methods and participants were invited to complete an online, anonymous questionnaire (Supplementary Information). Ethical clearance was obtained (QUT Ethics Approval Number 1600000748) prior to data collection. The survey instrument was developed for this study and was piloted in a small group of pharmacists practising in both academia and community pharmacy. Questions were amended in response to their feedback.

Demographic data (participants’ age, gender, and years practising as a pharmacist) were obtained using response options providing ordinal, categorical data. Next, participants were asked to respond to a series of statements using a 5-item Likert scale (Strongly Disagree – Disagree – Neutral – Agree – Strongly Agree) response option which collected data on their perceptions and attitudes towards the dispensing and counselling of HIV antiretroviral medicines (ARTs) and the provision of advice and care for these patients. Quantitative data were analysed using IBM SPSS software Version 25. Associations between each of the outcomes and categorical variables were tested using Chi-square tests of independence.

Results

Demographic information is provided in Table 1. The single participant who reported their gender as ‘other’ was then removed from the dataset for the statistical analyses to reduce
the likelihood that the cell count assumption for the Chi-square tests of independence was not violated. With the Likert scale responses, the Strongly Disagree and Disagree categories were merged to a single category ‘Disagree’, and the ‘Agree’ and ‘Strongly Agree’ categories were merged to a single category ‘Agree’ to reduce the likelihood of cell count assumption violations for the Chi-square tests. Descriptive statistics for participants’ responses regarding their perceptions and attitudes towards the dispensing and counselling of HIV antiretroviral medicines (ARTs) and the provision of advice and care for these patients are depicted in Table 2. At the time of completing the survey approximately half the participants (55.6%, 50/90) had not dispensed an HIV medicine (Table 3).

Inferential statistical analyses were then conducted examining a number of cross-associations (Table 4). Cross-associations using Chi-square tests of independence could not be tested with the age of participants due to the cell count assumption not being met. There was no statistically significant association between gender and feeling comfortable counselling people living with HIV about their medicines. However, there was a statistically significant difference between genders for how confident participants felt counselling people living with HIV about their medicines $(\chi^2 = 9.079, p = 0.011)$ with males being more confident than females. Overall, a higher proportion of participants (43.3%, 39/90) did not feel confident counselling people living with HIV about their medicines compared with 34.4% (31/90) who responded they felt confident.

Of the 39 participants who stated they were not confident, 74.36% (29/39) were female. Of the 31 who stated they were confident, only 38.71% (12/31) were female. A larger number of females (55%) compared with males selected the neutral response. The one participant who identifies with a gender other than male or female expressed confidence in counselling people living with HIV about their medicines.

A higher proportion of participants (47.8%, 43/90) also reported not feeling confident to manage the complex issues and experiences faced by people living with HIV compared with 28.9% (26/90) who felt confident. Again, there was a statistically significant difference between genders with a higher proportion of females (74.42%, 32/43) reporting not feeling confident to manage the complex issues and experiences faced by people living with HIV $(\chi^2 = 9.656, p = 0.008)$. 
Females also reported feeling less confident about their knowledge of HIV medicines and their knowledge of HIV. A higher proportion of females (71.74%, 33/46) reported being less confident in their knowledge of HIV medicines compared with males ($\chi^2 = 7.67, p = 0.022$). Also, a higher proportion (78.57%, 22/28) of females reported a lack of confidence in their knowledge of HIV ($\chi^2 = 7.766, p = 0.021$). Although there was no statistically significant association between genders, a larger proportion of females (29.62%, 5/52) reported sometimes feeling hesitant compared with males (2.63%, 1/38) to dispense HIV medicines to people living with HIV.

Participants were also asked about how comfortable they felt counselling people living with HIV on their medicines and how comfortable they felt listening to people living with HIV talk about it. There was no statistically significant difference in genders for either cross-association. Of the 90 participants, 20 (22.22%) stated they were not comfortable counselling people living with HIV on their medicines and of these, 75% (15/20) were female. Of the 62 participants who felt uncomfortable listening to people living with HIV talk about it, more than half were females (56.45%, 35/62).

There was no statistically significant association between gender and whether participants felt they had sufficient time to counsel people living with HIV about their medicines. An association with age was unable to be tested due to the cell count assumption of the Chi-square test not being met. However, of the 29 (32.2%) participants who did not feel they had sufficient time to spend counselling people living with HIV, a higher proportion were female (65.5%, 19/29). With regards to how satisfied they felt with the amount of care they were able to provide people living with HIV, the majority of participants gave a neutral response (46.7%, 42/90). Of the 29 (32.2%) participants who reported they were not satisfied, 69% (20/29) were females. The majority of participants (65.17%, 58/89) spent more than five minutes counselling patients receiving their HIV medicines for the first time. Of the 89 participants for whom there were data, four (4.4%) spent less than one minute, 27 (30%) spent between one and five minutes, 39 (43.3%) spent between six and 10 minutes, and 19 (21.1%) spent more than 10 minutes counselling patients obtaining their HIV medicines for the first time.
No statistically significant conclusions can be drawn regarding an association between years of experience practising as a pharmacist and confidence in counselling people living with HIV about their medicines (cell count assumption of the $\chi^2$ test of independence was violated). The categories 1-10 years’ experience and 11-20 years’ experience had 29.63% and 28.57% of participants respectively reporting confidence, whereas the categories 21-30 years’ experience and 31-40 years’ experience had 58.33% and 50% respectively of participants reporting confidence in counselling people living with HIV about their medicines. There was also no statistically significant association between years practising as a pharmacist and confidence in managing the complex issues and experiences faced by people living with HIV.

A higher proportion of participants (76.9%, 20/26) who reported they were confident in their knowledge about HIV felt confident in managing the complex issues and experiences faced by people living with HIV compared with 3.85% (1/26) who were not confident ($\chi^2 = 37.936$, $p < 0.001$). Also, a higher proportion of participants (80%, 16/20) who are confident in their knowledge of HIV medicines felt confident in managing the complex issues and experiences faced by people living with HIV compared with 6.5% (3/46) of those who are not confident ($\chi^2 = 44.206$, $p < 0.001$). A higher proportion of participants who were confident in their knowledge of HIV medicines (58.06%, 18/31) reported confidence in counselling people living with HIV about their medicines ($\chi^2 = 52.677$, $p < 0.001$).

There was also a statistically significant association between participants’ confidence in managing the complex issues and experiences faced by people living with HIV, and satisfaction with the amount of care they provided to people living with HIV ($\chi^2 = 38.617$, $p < 0.001$). A higher proportion of participants (53.8%, 14/26) who are confident in managing patients’ issues reported satisfaction with the amount of care they provide compared with only 4.7% (2/43) of participants who lack confidence.

**Discussion**

In this survey of Australian community pharmacists, approximately half had never dispensed an HIV medicine. Of those participants who had dispensed HIV medicines, the majority had dispensed between one and five items, and spent more than five minutes
counselling people receiving their HIV medicines for the first time. Most participants felt comfortable counselling people living with HIV about their HIV medicines and did not report any hesitancy to dispense HIV medicines to people living with HIV. However, a large proportion reported feeling uncomfortable listening to people living with HIV talk about HIV. Conversely, people living with HIV have reported awkward interactions, irrelevant questions, rudeness, refusal of care, delayed treatment, and lack of support from health professionals. Unsurprisingly, a lack of in-depth knowledge of HIV is associated with higher levels of stigma and discrimination in people living with HIV. The majority of participants in this study reported a lack of confidence in their knowledge of HIV and of HIV medicines. Therefore, targeted education on HIV and HIV medicines is needed for community pharmacists. Targeted training has been demonstrated to improve health care providers’ attitudes and behaviours, and patient health outcomes. HIV education would potentially increase community pharmacists’ confidence in their knowledge of HIV and HIV medicines as well as their confidence and comfort levels when counselling people living with HIV on their medicines and providing appropriate lifestyle advice. Targeted HIV education has the potential to reduce awkward or uncomfortable interactions with people living with HIV and improve the quality of the pharmacist-patient relationship. This may translate to improved medicine adherence since improved patient-doctor relationships has been associated with higher reported adherence levels to medicines in people living with HIV. A Cochrane systematic review identified a pharmacist-led intervention of educational and supportive counselling to people living with HIV as the only intervention shown to improve ART adherence.

In this study, a higher proportion of female pharmacists reported a lack of confidence in counselling people living with HIV about their medicines and managing the complex issues and experiences of people living with HIV. Female participants also reported feeling less confident about their knowledge of HIV medicines and their knowledge of HIV compared with male participants. This difference in professional role confidence between genders has also been observed in other professions, particularly in male-dominated professions such as engineering. Again, targeted HIV education could improve confidence in female pharmacists.

A higher proportion of participants in this study who felt confident in their knowledge of HIV and HIV medicines felt confident in counselling people on their HIV medicines and confident in managing the complex issues and experiences of people living with HIV compared with participants who did not feel confident in their knowledge. This further supports our
suggestion that targeted HIV education for pharmacists will improve their confidence in interactions with people living with HIV with the potential for improved health outcomes for these patients.

Limitations

The low number of participants means that the results cannot be generalised across the whole population. The survey was launched in August 2016 and at this time a Commonwealth government-funded consultation regarding pharmacy remuneration and regulation in Australia (the King review) was underway and the pharmacy industry was engaged in making submissions to the review panel. This may have accounted for the low participant numbers. The survey was closed three months later due to a lack of uptake by pharmacists. Also, online surveys disseminated via email links to pharmacists typically generate low response rates. A larger sample size may allow Chi-square tests of independence to be used to test associations where cell counts were too low with this sample. Also, a large proportion of participants had never dispensed an HIV medicine at the time of the survey. There is also a risk of non-response bias; non-responders to the survey may not be members of any of the pharmacy professional networks approached to disseminate the survey, or they may not have had any experience dispensing HIV medicines and chose not to participate as a result. Notwithstanding, the results do provide insight into how the profession can support pharmacists in the provision of HIV medicines and care to people living with HIV. The authors also acknowledge a further limitation to this study in not testing participants’ clinical knowledge of HIV and HIV medicines. As stated earlier, we examined confidence with ‘perceived’ or ‘self-reported’ knowledge of HIV and HIV medicines as we were not seeking to investigate pharmacists’ actual clinical knowledge in this area. Community pharmacists’ clinical knowledge of HIV and HIV medicines would be an important variable to include in future research studies in this area to explore the link between community pharmacists’ clinical knowledge and confidence/feeling comfortable talking to patients about their lived experience with HIV.

Conclusions

Provision of care through community pharmacies will improve patients’ access to HIV medicines e.g. post-exposure prophylaxis (PEP) following initial hospital or clinic visits. However, improved access to medicines may not improve patients’ adherence and health outcomes if pharmacists do not have the knowledge nor confidence to counsel these patients or do not feel comfortable talking to these patients about their condition or treatment. This
study demonstrates that knowledge of HIV medicines and HIV in practising pharmacists is associated with greater confidence counselling people living with HIV about their medicines and listening to patients talk about their issues and experiences living with HIV. The greater the confidence, the greater the satisfaction of pharmacists with the level of care provided. Providing practising pharmacists with targeted education sessions on HIV may increase their confidence, which is of particular importance to female pharmacists who reported lower levels of confidence compared with male pharmacists. Improving pharmacists’ confidence has the potential to improve the counselling experience and provision of care for people living with HIV, and this may help improve patient compliance with medicine regimes and reduce transmission rates of HIV. These findings are relevant for all future government public health policy initiatives involving high cost medicines. Intended public health policy outcomes will be best achieved from the outset if community pharmacists are supported with education and training through Continuing Professional Development (CPD) initiatives thus importantly providing the Australian government with better ‘bang for buck’.

Conflicts of Interest
The authors declare no conflict of interest.

Words = 3,278

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### Table 1: Age and Gender Distribution of Participants

| Age         | Gender | Total |
|-------------|--------|-------|
|             | Male   | Female | Other |
| 20 – 29 years | 8      | 22     | 0     | 30    |
| 30 – 39 years | 19     | 19     | 0     | 38    |
| 40 – 49 years | 3      | 6      | 1     | 10    |
| 50 – 59 years | 6      | 5      | 0     | 11    |
| > or = 60 years | 2      | 0      | 0     | 2     |
| **Total**   | 38     | 52     | 1     | 91    |
Table 2: Participants’ Responses to Questions with 5-item Likert Scale Response Items
(‘Disagree’ and ‘Strongly Disagree’ responses combined to ‘Disagree’ and ‘Agree’ and ‘Strongly Agree’ responses combined to ‘Agree’)

| Question                                                                 | Disagree | Neutral | Agree  | Total  |
|-------------------------------------------------------------------------|----------|---------|--------|--------|
| I feel comfortable when counselling patients living with HIV about their medicines | 20 (22.2%) | 21 (23.3%) | 49 (54.4%) | 90 (100%) |
| I feel confident when counselling patients living with HIV about their medicines | 39 (43.3%) | 20 (22.2%) | 31 (34.4%) | 90 (100%) |
| I am uncomfortable listening to patients living with HIV talk about HIV | 15 (16.7%) | 13 (14.4%) | 62 (68.9%) | 90 (100%) |
| I believe I am able to confidently manage the complex issues & experiences faced by patients living with HIV | 43 (47.8%) | 21 (23.3%) | 26 (28.9%) | 90 (100%) |
| I feel I am unable to spend sufficient time counselling patients living with HIV | 31 (34.4%) | 30 (33.3%) | 29 (32.2%) | 90 (100%) |
| I am satisfied with the amount of care I provide to patients living with HIV | 29 (32.2%) | 42 (46.7%) | 19 (21.1%) | 90 (100%) |
| I sometimes feel hesitant to dispense HIV medicines to patients living with HIV | 65 (72.2%) | 19 (21.1%) | 6 (6.7%) | 90 (100%) |
| I am confident in my knowledge about HIV medicines                       | 46 (51.1%) | 24 (26.7%) | 20 (22.2%) | 90 (100%) |
| I am confident in my knowledge about HIV                                 | 28 (31.1%) | 28 (31.1%) | 34 (37.8%) | 90 (100%) |
Table 3: Number of HIV Prescription Items Dispensed by Participants

| Number of Prescriptions | Number of Participants (n=90) |
|--------------------------|-------------------------------|
| None                     | 55 (61.1%)                    |
| 1-5                      | 17 (18.9%)                    |
| 6-10                     | 5 (5.6%)                      |
| 11-20                    | 6 (6.6%)                      |
| 21-30                    | 5 (5.6%)                      |
| 31-40                    | 0                             |
| 41-50                    | 0                             |
| 51-100                   | 0                             |
| > 100                    | 2 (2.2%)                      |
| Total                    | 90 (100%)                     |
Table 4: Associations Tested and Statistical Results (Statistical significance indicated as $p < 0.05$)

| Association                                                                 | Statistical Significance |
|----------------------------------------------------------------------------|--------------------------|
| Is there an association between gender and feeling comfortable counselling patients living with HIV about their medicines? | Not statistically significant |
| Is there an association between age and feeling comfortable counselling patients living with HIV about their medicines? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between gender and level of confidence counselling patients living with HIV about their medicines? | Statistically significant; a higher proportion of females are less confident ($\chi^2 = 9.079$, $p = 0.011$) |
| Is there an association between age and level of confidence counselling patients living with HIV about their medicines? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between gender and feeling confident to manage the complex issues and experiences faced by patients living with HIV? | Statistically significant; a higher proportion of females are less confident ($\chi^2 = 9.656$, $p = 0.008$). |
| Is there an association between age and feeling confident to manage the complex issues and experiences faced by patients living with HIV? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between gender and feeling unable to spend sufficient time counselling patients living with HIV? | Not statistically significant |
| Is there an association between age and feeling unable to spend sufficient time counselling patients living with HIV? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between gender and satisfaction with the amount of care participant provides to patients living with HIV? | Not statistically significant |
| Is there an association between age and satisfaction with the amount of care participant provides to patients living with HIV? | Not statistically significant |
| Is there an association between gender and sometimes feeling hesitant to dispense HIV medicines to patients living with HIV? | Not statistically significant |
| Is there an association between age and sometimes feeling hesitant to dispense HIV medicines to patients living with HIV? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between gender and confidence in knowledge of HIV medicines? | Statistically significant; a higher proportion of females are less confident ($\chi^2 = 7.67$, $p = 0.022$). |
| Is there an association between age and confidence in knowledge of HIV medicines? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between gender and confidence in knowledge of HIV? | Statistically significant; a higher proportion of females are less confident ($\chi^2 = 7.766, p = 0.021$) |
|---|---|
| Is there an association between age and confidence in knowledge of HIV? | Not statistically significant |
| Is there an association between gender and time spent counselling patients collecting HIV medicines for the first time? | Not statistically significant |
| Is there an association between age and time spent counselling patients collecting HIV medicines for the first time? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between gender and time spent counselling patients collecting HIV medicines on a repeat prescription? | Not statistically significant |
| Is there an association between age and time spent counselling patients collecting HIV medicines on a repeat prescription? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between feeling comfortable counselling patients living with HIV about their medicines and length of time practising as a pharmacist? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between feeling comfortable counselling patients living with HIV about their medicines and number of individual items of HIV medicines dispensed? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between feeling confident counselling patients living with HIV about their medicines and length of time practising as a pharmacist? | Cell count assumption for Chi-square test of independence not met |
| Is there an association between feeling confident counselling patients living with HIV about their medicines and number of HIV prescription items dispensed? | Not statistically significant |
| Is there an association between confidence in managing the complex issues and experiences faced by patients living with HIV and length of time practising as a pharmacist? | Not statistically significant |
| Is there an association between confidence in managing the complex issues and experiences faced by patients living with HIV and confidence in knowledge about HIV? | Statistically significant; a higher proportion of participants who are confident in their HIV knowledge are confident managing complex issues of HIV patients ($\chi^2 = 37.936, p < 0.001$) |
| Is there an association between confidence in managing the complex issues and experiences faced by patients living with HIV and confidence in knowledge about HIV medicines? | Statistically significant; a higher proportion of participants who are confident in their knowledge of HIV medicines are confident managing complex issues of HIV patients |
| Question                                                                 | Result                                                                 |
|------------------------------------------------------------------------|------------------------------------------------------------------------|
| Is there an association between confidence in managing the complex      | Statistically significant; a higher proportion of participants who are   |
| issues and experiences faced by patients living with HIV and           | confident in managing complex issues of HIV patients are satisfied      |
| satisfaction with the amount of care able to be provided to patients    | with amount of care they can provide                                   |
| living with HIV?                                                       | ($\chi^2_{4} = 38.617, p < 0.001$)                                     |
| Is there an association between confidence in knowledge about HIV      | Cell count assumption for Chi-square test of independence not met       |
| medicines and feeling hesitant to dispense HIV medicines?              |                                                                        |
| Is there an association between confidence in knowledge of HIV         | Statistically significant; a higher proportion of participants who are  |
| medicines and confidence in counselling patients living with HIV about  | confident in their knowledge of HIV medicines are confident counselling |
| their medicines?                                                      | HIV patients about their medicines                                       |
|                                                                        | ($\chi^2_{4} = 52.677, p < 0.001$)                                     |