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Research Article

Knowledge, attitudes and beliefs regarding human immunodeficiency virus and in-home testing among a regional sample of student pharmacists

Alvina Tran[a], Autumn L. Stewart[b], Jordan R. Covvey[c,*]

[a] Duquesne University School of Pharmacy, 600 Forbes Ave, Pittsburgh, PA 15282, United States
[b] Division of Clinical Pharmacy, Duquesne University School of Pharmacy, 600 Forbes Ave, Pittsburgh, PA 15282, United States
[c] Division of Pharmaceutical, Administrative and Social Sciences, Duquesne University School of Pharmacy, 600 Forbes Ave, Pittsburgh, PA 15282, United States

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ABSTRACT

Introduction: Pharmacists identify the importance of education on human immunodeficiency virus (HIV); however, research suggests deficits in knowledge regarding recommendations and testing devices. With proper training, student pharmacists can play an important role in counseling patients on the importance of HIV testing and providing instruction on in-home testing. The objective of the study was to assess student pharmacists' knowledge, attitudes and beliefs of HIV and the use of an in-home, over-the-counter HIV testing device.

Methods: A cross-sectional electronic survey was conducted among an estimated sample of 2077 students from six regional schools of pharmacy. The questionnaire consisted of 40 closed-ended, fixed-choice items delivered using school/organizational listservs. Surveys were e-mailed during March and April 2016 with a reminder e-mail sent two weeks later. Key outcomes included real and perceived knowledge, attitudes and beliefs of HIV in general and of the OraQuick® In-Home HIV test.

Results: A total of 387 student pharmacists participated (response rate of 18.6%). Respondents expressed positive perception of knowledge regarding HIV in general (67.6% highly agree/agree to five-item scale) but considerably lower attitude/beliefs for the in-home HIV test (16.7% highly agree/agree overall to five-item scale). Perceptions of general HIV knowledge were higher for students in later professional years ($p < 0.001$), post-completion of infectious disease curriculum with inclusion of the in-home HIV test ($p < 0.001$), and if the respondent had personally received an HIV test ($p < 0.01$).

Conclusions: Opportunities exist to improve knowledge of HIV and the use of the OraQuick® In-Home HIV test among student pharmacists.

Introduction

It is estimated that over 1.2 million people in the United States over the age of 13 are living with human immunodeficiency virus (HIV) infection.[1] The Centers for Disease Control and Prevention (CDC) recommends that all individuals between 13 and 64 years of age undergo routine screening at least once in their lifetime, and persons engaged in high risk behaviors, such as unprotected sex, sex with multiple partners or injection drug use, are recommended to receive testing on an annual basis.[2] Increased provision of HIV

* Corresponding author.
E-mail addresses: trana@duq.edu (A. Tran), stewar14@duq.edu (A.L. Stewart), covveyj@duq.edu (J.R. Covvey).

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testing is part of the health promotion and disease prevention goals within the Healthy People 2020 campaign; baseline estimates from 2006 to 2010 show that only 66.9% of adults/adolescents have ever been tested for HIV, and nearly 20% of people living with HIV (PLHIV) aged 13 years and older are unaware of their status.[3]

Despite widespread availability in the United States, several barriers to HIV testing exist. These include lack of awareness/knowledge about HIV, annoyance or stress waiting for results, lack of perceived risk of HIV, fear of testing positive, relationship dynamics, broader societal influences, and stigma.[4–7] Routine screening for HIV is recommended by the CDC in an effort to reduce stigma as testing has greater patient acceptability when it is recommended for all patients, rather than dependent on a risk assessment.[2] As such, pharmacists have joined other healthcare professionals in efforts to expand HIV testing and counseling services in community pharmacies and retail clinics, demonstrating high feasibility and acceptability in these settings.[8,9]

Efforts to overcome barriers and improve screening rates have encouraged the development of alternative testing methods outside of healthcare settings. The first major development was the rapid immunoassay, allowing for results in 30 min or less. The test, while reducing the previous need to wait longer periods for test results, is only used in the clinical setting. In 2012, the Food and Drug Administration approved the OraQuick® In-Home HIV Test (Orasure Technologies; Bethlehem, Pennsylvania), the first and only rapid HIV test available for in-home testing without need to send a sample to a laboratory for analysis.[10] This provides a significant advantage over the other available home HIV test, the Home Access HIV-1 Test System (Home Access Health Corp; Hoffman Estates, Illinois), which requires that a finger prick blood sample be sent to a licensed laboratory. The OraQuick® In-Home HIV Test is available over-the-counter (OTC) in many community pharmacies, and given the publicly accessible nature of pharmacists, there is significant opportunity to play an important public health role in assisting patients who may want to utilize the test.

A previous survey by Pineda et al.[11] on pharmacists' knowledge of HIV, antiretroviral therapy and available home tests found that only 20% of respondents could correctly identify CDC screening recommendations. In addition, only 14% of the respondents demonstrated awareness of the availability of home test kit detection, and 16% could correctly interpret results of the home test.[11] Of the community pharmacists participating in the survey, a majority (89%) agreed that it is part of a pharmacist's responsibility to provide information about HIV.[11] These findings are consistent with those of a previous review that indicated a favorable view of pharmacists towards an expanded role of pharmacists in HIV prevention and screening and an identified need for further training related to HIV.[12,13] With acceptability towards home-based HIV testing, pharmacists could play an important role with patients in this area and help to improve screening rates. However, this is predicated upon appropriate knowledge of HIV and competency in the use of available testing devices.

Recently, Diaz-Cruz et al.[14] published an assessment of student perceptions of preparedness and comfort regarding OTC HIV testing and transmission risk in one pharmacy school in Tennessee. While there was widespread agreement (95%) regarding the importance of the pharmacist's role in the prevention of HIV, 41% of students were not familiar with OTC HIV testing and only 33% felt comfortable counseling on the topic.[14] Pineda et al.[11] had attributed some knowledge gaps on in-home HIV testing to the novelty of the product, as it had been on the market for less than four months at the time the study was conducted.[11] However, with similar lack of preparedness seen among pharmacy students after several years of product availability, Diaz-Cruz et al.[14] advocate for pharmacy curricula that are more specifically inclusive of OTC HIV testing.[14] In order to expand upon the initial work in this area, a wider study of student pharmacists was undertaken to more fully understand both real and perceived knowledge gaps in this area. Accordingly, the purpose of this study was to assess knowledge, attitudes and beliefs among student pharmacists towards HIV and in-home HIV testing, specifically the use of the OraQuick® In-Home HIV Test.

Methods

Instrument

Following a thorough literature review, an instrument was developed by study investigators. It consisted of approximately 40 closed-ended, fixed-choice and Likert-type items. Lack of previous research on student pharmacists necessitated development of a new questionnaire, but included input from the previous published study assessing knowledge among community pharmacists of HIV and HIV home testing.[11] Main areas of the questionnaire included: (1) respondent characteristics, (2) experience and coursework exposure to HIV, (3) self-reported perceptions of knowledge regarding HIV and beliefs/attitudes about the in-home HIV Test, and (4) formal knowledge assessment of HIV recommendations and home testing using patient scenarios. The survey was piloted among a small group of pharmacy students (n = 5) to test for face validity, with the instrument revised after collecting feedback. The survey was approved by the Duquesne University institutional review board.

Design and sample

The present study was a cross-sectional e-mail questionnaire purposely sampled across six regional colleges/schools of pharmacy in Pennsylvania and Maryland. The surveyed programs were in primarily urban metropolitan areas. Survey distribution was established at each respective school using faculty contacts through American Pharmacists Association – Academy of Student Pharmacists (APhA-ASP) advisors as the original idea was generated via the investigators and their involvement in the International Pharmacy Student Federation (IPSF). Advisors at each school received permission to distribute the survey to currently enrolled student pharmacists (professional year [PY] 1–4) via e-mail through either school-wide (n = 3 schools) or APhA-ASP organizational membership (n = 3 schools) listservs. Therefore, depending on the school, the sample consisted of either the entire professional student body or a subset of the student body engaged in a professional organization. Each faculty contact provided an estimation of