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Sex, Bugs, and Rock 'n' Roll: A Service-Learning Innovation to Enhance Medical Student Knowledge and Comfort With Sexual Health

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Abstract

Introduction: Sexual health is an intrinsic element of overall health; however, opportunities to enhance medical student comfort and knowledge about sexual health vary substantially and receive limited curricular time. Sex, Bugs, and Rock 'n' Roll is a novel service-learning initiative designed to enhance undergraduate medical student knowledge and comfort with sexual health. A total of 80 fifth-year undergraduate medical students researched, designed, and delivered a short sexual health promotion initiative for a population that experiences inequity. **Methods:** This initiative employed active learning tasks including performing a literature review, participating in team learning, facilitating small-group sessions, and providing peer feedback. Ongoing formative feedback from the program leaders, tutors, and members of the target audience contributed to student development. A summative assessment rubric was used by program leaders to evaluate student performance at the end of the module. Anonymized pre- and posttest knowledge questions and module evaluations were used to evaluate the module. **Results:** All 80 (100%) students completed randomized pre- and posttest knowledge questions and module evaluations. Student knowledge scores about sexuality and sexual health improved by 17% between pre- and posttest. All students reported increased comfort with and understanding of the clinical relevance of sexual health in the module evaluations. **Discussion:** Sex, Bugs, and Rock 'n' Roll is a promising initiative for improving medical student knowledge and comfort with sexual health. This module also offers a novel way for students to experience sexual health, public health, and social accountability in an active and engaging fashion.

Keywords

LGBT, Service-Learning, Sexuality, Public Health, Sexual Health

Educational Objectives

By the end of this module, students will be able to:

1. Reflect on their knowledge and perceptions of and comfort with sexual health.
2. Use a systematic literature-search strategy to research a sexual health topic.
3. Design and deliver an evidence-based sexual health promotion strategy that is congruent with the needs and social context of a target population.
4. Engage effectively with all stakeholders in this initiative.

Introduction

The existing literature has shown that sexuality and sexual health are particularly difficult topics for many doctors to discuss with their patients for a variety of reasons, including not understanding the value of doing so,¹ feeling uncomfortable,² and feeling inadequately trained.³ These limitations are problematic because sexual health is an intrinsic component of overall health.⁴ Although curricular content has been

Appendices

- A. Timetable and Objectives Map.docx
- B. Introduction, Aims, and Objectives.pptx
- C. Project Planning Sheet.pdf
- D. RACI Chart.xlsx
- E. Assignment Marking Schedule.docx
- F. Teamwork and Spread the Word.pptx
- G. Sample Systematic Literature Searches.pdf
- H. Sexual Health Promotion .pptx
- I. Sex, Society, and Medicine .pptx
- J. Leadership and Presentation Session.docx
- K. End-of-Module Evaluation Form.docx

All appendices are peer reviewed as integral parts of the Original Publication.

added to medical training in some universities, opportunities for students to learn about sexuality and sexual health vary substantially and continue to receive limited curricular time.⁴⁻⁷

Underserved populations, including sexual minorities, people living in poverty, and people in prison, are disproportionately affected by poor sexual health.^{4,8-11} In addition, these populations are also more likely to experience social stigma and barriers to accessing appropriate health care, which perpetuates the cycle of inequity.^{12,13} The disparity experienced by underserved populations may then be attributed to internal risk factors and pathologized or regarded as an unavoidable consequence of the natural hierarchy instead of as a product of structural and social forces.^{10,11,14-16} Thus, medical curricula focused on the social aspects of medicine and social accountability may facilitate insight and begin to break the cycle of inequity for underserved populations.^{17,18}

Two main types of curricula influence student learning. First, there is the explicit curriculum, which is the curriculum that is intentionally taught and often reflected through stated learning objectives.¹⁹ Second is the implicit curriculum, which is the set of premises that are unintentionally or subconsciously taught through interactions, role modeling, and the climate of the institution.²⁰ Research suggests that the design of the explicit curriculum plays a significant role in student engagement with material.^{19,21}

Opportunities for active learning in the explicit curriculum appear to be linked with improvements in conceptual understanding, academic achievement, and retention.²²⁻²⁴ Active learning is defined for the purposes of this article as an instructional method that requires students to engage with and be active participants in the learning process.^{22,25} Active learning strategies include, but are not limited to, collaborative, small-group, peer-to-peer feedback, and flipped classroom exercises. Research suggests that this type of learning can be more effective than traditional didactic, lecture-style sessions for engaging students and teaching about the social aspects of medicine.²⁶⁻²⁹ In addition, research suggests that solely providing knowledge without an opportunity for practical application can fail to acknowledge diversity within groups, emphasize differences, and reinforce stereotyping behavior.³⁰

Service learning, a type of active learning, has been reported to improve academic outcomes, including retention, comprehension, and practical application.^{26,31,32} Service learning, although variously defined, is referred to for the purposes of this article as a method of experiential education in which students engage in activities that address human and community needs together with structured opportunities for reflection intentionally designed to promote student learning and development.³³ Service learning is an engaging and effective method of experiential learning that integrates academic learning objectives with addressing acknowledged community needs.^{34,35} A service-learning experience enables the students, community, and university to become active agents in health promotion, community development, and student training.^{18,35} Community benefits associated with service learning include reduction in sexual risk-taking behavior,³⁶ while student benefits include enhanced self-reflection regarding assumptions and stereotypes,¹⁸ improved understanding of the social aspects of medicine, and improved attitudes toward community engagement.³⁵

Reflection is a critical component of service learning. Reflection has been shown to encourage students to monitor their own learning, question assumptions, connect learning with practice, and appreciate the complexity of social issues.³⁷ One method of encouraging reflection during service learning is the What? So What? Now What? technique developed by Rolfe, Freshwater, and Jasper.³⁸ This tool enables groups to collectively reflect on their experience in a sequential way by identifying salient information, making sense of it, and identifying the actions that should follow.

Methods

Sex, Bugs, and Rock 'n' Roll is a 1-week, mandatory module for fifth-year (out of 6 years) undergraduate medical students and runs eight times per year with 10 students per group. The module began as a grassroots initiative in response to a lack of curricular time dedicated to sexual health and social

accountability. The initiative grew from a small working group of university staff to include stakeholders from the local district health board, medical student representatives, members of the community, and community organizations.

The design of this module was primarily informed by the principles of the Ottawa Charter for Health Promotion,³⁹ the tenets of service learning,³⁵ and the philosophy of pragmatism.^{40,41} Use of the Ottawa Charter for Health Promotion in the design and delivery of this initiative created a framework for strengthening community action, creating supportive environments, and developing personal skills for all stakeholders. This framework aligns with the service-learning perspective, which is grounded in learning with the community for reciprocal benefit. A pragmatist paradigm underpinned a desire to design a curriculum that was both engaging and practical for students and the community.

Congruent with the principles of the Ottawa Charter,³⁹ this module involves stakeholders in a balanced partnership to allow the goals of the module to align with the goals of the community. Thus, stakeholders have been involved in each phase of the design, delivery, and evaluation of this initiative. For example, community partners and groups identify their needs, collaborate with students during the module, and provide formative feedback during key stages of the module. Through this process, community members, organizations, and students work together to generate practical and contextually appropriate solutions.

Pedagogical theory underpinned the curriculum design for this module. Medical education advisors played a key role in the discussions around the development of educational opportunities and the assessment for this initiative. As such, active learning opportunities were incorporated into the majority of the module and included collaborative, small-group learning, peer-to-peer feedback, discussion time, reflection, and flipped classroom exercises. These active learning strategies were chosen to enhance student engagement with the material and ensure the learning opportunities were constructively aligned, applicable, and relevant. We found the book *Teaching for Quality Learning at University* to be a very helpful resource during this phase of the development of the module.⁴²

Preparation

A team of four key staff members regularly teach and administer this program. We meet once per week to plan the topics and audiences 6 months prior to the start of the module. The staff member who primarily teaches and administers the module commits approximately 20 hours during the week of the module and approximately 80 hours to ongoing planning throughout the remainder of the year. The remaining three staff members commit approximately 10 hours for each week that the module runs and 40 hours to ongoing planning. Each team member fulfills a specific function in the program and has expertise in one of the major areas of the module (public health, sexual health, team building, or performance). Six months of planning time allows for facilitators to arrange venues, establish relationships with communities, arrange transportation, and obtain IT support. This module does not have an operating budget, and it has successfully run for the last 2 years with the support of volunteers.

The first step of the planning process is to identify the topics and the community partners to involve in the module. The topics and community partners are selected based on identified community need and epidemiological trends. For example, the population of men who have sex with men (MSM) was disproportionately affected by a rise in infectious syphilis in Christchurch, New Zealand, in 2013. Key community organizations involved with MSM and/or syphilis were contacted to ascertain whether they were interested in becoming involved with our initiative. Based on community interest, syphilis became one of the topics, and MSM became the target audience for the health promotion initiative.

To date, topics have included HIV, HPV, gonorrhea, hepatitis C, herpes, safer sex, pregnancy and contraception, and chlamydia. Additional community partners have included young parents, students attending alternative education, at-risk youth, and inmates at the local men's, women's and youth prisons. The pairing of the topics with the community partners has provided the students with an opportunity to appreciate the intersectionality of inequities, identities, and experiences. For example, many community partners have been members of minority groups who simultaneously operate within marginalized ethnic, socioeconomic, and sexual statuses.⁴³

Existing relationships and networking have helped us to recruit many of our community partners. Networking opportunities including conference presentations and grand rounds, as well as social media and media coverage, have been helpful avenues for engaging with new community partners. We have also found that early planning allows for the initiative to be integrated into the calendar of preexisting events such as film festivals and Pride Week.

Once we identify a topic and the community partners, we invite relevant stakeholders to planning sessions before the beginning of the academic year. The topic and community partners are organized in advance due to the time constraints imposed by a 1-week module. During these planning sessions, we distribute timetables (Appendix A) and discuss any last-minute details so that both teachers and community partners are on the same page, which prevents the need for prebriefing before each module.

To keep the content relevant, we regularly invite colleagues, community organizations, and local experts to facilitate one-off sessions within the module. For example, a research librarian conducts a systematic literature-search session, and a local dance instructor leads an active performance tutorial during each module. We also involve at least one local expert per module to offer additional insight into either the topic or the community group. For example, when students present at the prison, we ask prison staff to facilitate a session where they discuss prison health services, the unique health needs of people in prison, and some strategies to engage with people in prison. For these one-off sessions, we conduct a separate teaching meeting at the beginning of the year during which we distribute module materials including intended learning outcomes, timetables, and resources (Appendix A).

Implementation

The Sex, Bugs, and Rock 'n' Roll module begins with a 30-minute introductory session during which students complete a pretest on sexual health, learn their sexual health topic and community partner, and receive an introductory presentation (Appendix B) on the structure, planning tools, and assessment criteria for the module. The project planning form (Appendix C) is used to guide students' thought processes on the use of the evidence around their topic and on the alignment between the initiative and their community partner. Students are advised to identify the tasks required to successfully complete the project. The group then determines who is responsible (R), accountable (A), consulted (C), and informed (I) for each task and records this information on the RACI chart (Appendix D). The RACI chart is commonly used for project planning to clarify roles and responsibilities, ensure that no tasks are missed, and eliminate redundancies.^{44,45} We ask students to submit the completed project planning form and RACI chart at the end of the third day of the module.

After the introductory session, students learn about engaging ways to spread their message and how to work as a team during a 75-minute presentation (Appendix F). During this time, we help students identify departments within the university that can assist with technology, graphics, and performance pieces where necessary. However, we encourage students to use their existing skill sets to develop their presentations. Many students have musical talents, interest in creative and performing arts, and technological expertise; thus, very little additional support has been required.

Next, a research librarian shows students how to perform a systematic literature search to research their sexual health topic using three sample searches (Appendix G). Students are then divided into groups and given the remainder of the 45 minutes to research a component (epidemiology, screening, prevention, social factors, or health promotion) of their topic. By the end of the day, students are required to synthesize the findings from each of the areas as the foundation of their initiative and present their salient results as a group.

The presentation at the end of the first day is attended by the key instructors of the module as well as available representative community partners, members of relevant community organizations, health promoters, and local experts. Once the students have finished their presentation, they are asked to verbally reflect on their experience with the literature search and presentation. After the students have finished their self-reflection, the members of the audience are asked for their feedback. Following

audience feedback, the module facilitators provide feedback and thank everyone for their participation in the session.

Although there is no required method for self-reflection or provision of feedback for the session, we encourage students and audience members to loosely follow the What? So What? Now What? critical reflection tool.³⁸ This provides a starting point and structure to this exercise. The student reflection often includes discussion around the information that students found particularly relevant or surprising, what they learned from this exercise, what they found difficult, or what they found out that challenged an assumption they had. The feedback from the audience members often involves clarification of the information that students have presented, additional angles for students to explore, or new perspectives to consider. This is also the time that community partners may offer further insight to aid in the interpretation of the literature, the social circumstances of the community, or the highlighting of areas that have been underresearched.

During the morning of the second day, students participate in a 1-hour session about sexual health promotion (Appendix H) followed by a 75-minute session on sex, society, and medicine (Appendix I). These sessions review content related to sexual health and sexual diversity using facilitated self-reflection and discussion about implicit attitudes, comfort with sexual health, and perceptions about sexual diversity. It is important to emphasize that the sessions be a safe space for asking questions and having open, respectful discussion. The afternoon is scheduled as a 4-hour planning session for students to begin to design the strategy for their initiative.

The third day of the module begins with a warm-up that is facilitated by a group of students. This exercise provides an opportunity for students to practice presenting to an audience and leading an activity. It is recommended that students do an icebreaker-type activity during their end-of-module presentation to the community partner, and therefore, this practice activity is relevant and pragmatic. The day progresses to a presentation session, where students learn about body language, developing confidence on stage, and engaging with an audience. This session was developed because past students expressed that they felt anxious about engaging with and presenting to groups that they identified as tough crowds. This session typically covers teamwork, body language and nonverbal cues, and a performance piece, as detailed in Appendix J. We have chosen to teach students the dance from Michael Jackson's *Thriller*; however, this decision was made based on our existing staff resources. Any activity that involves body language, development of a stage presence, and teamwork would be appropriate.

At the end of the third day, students present their health promotion initiative idea and hand in a completed project planning form and RACI chart as a group. As a part of this presentation, they draw upon the relevant data that they identified during their literature search and upon the principles of health promotion. Students also discuss their plans for engaging with the community partner and how they plan to mitigate any unintended consequences. Stakeholders attend this presentation and give formative feedback about the design and suitability of the initiative. Students then have some time to make required changes and do some further planning.

The morning of the fourth day is a warm-up facilitated by the students, followed by time for planning, and a dress rehearsal. The dress rehearsal provides students with an opportunity to perform their initiative for an audience, which consists of health promoters, academic staff, district health board staff, and members of the organization that students will be presenting to. Audience members provide feedback and suggestions at the end of the dress rehearsal, and students have the rest of the day to integrate the feedback from the audience into their presentation.

Students have the morning of the fifth day to prepare their initiative and present it to the community partner. After the presentation, we welcome the community partner to ask questions and provide feedback to the students. Once the presentation has finished, staff members individually complete the summative assessment form (Appendix E). We also seek input from community partners, organizations, health promoters, and experts who have attended the presentation. Once we have received feedback from all stakeholders, the teaching staff meets to compare and discuss individual assessments and the

overall feedback. Disagreements about marking, although rare, have been solved by majority vote. Each student group is provided with a moderated summative assessment form, complete with overall scores in each area and comments from staff and community groups. While staff members are discussing summative assessment performance, students are asked to complete the module posttest and a module evaluation form (Appendix K).

Assessment

Formative and summative assessment is used to guide student learning during this module. Formative assessment is provided via self-reflection and feedback from community members and university staff members at key points throughout the week. The summative assessment rubric was designed in collaboration with the Medical Education Unit at the university. The assessment focuses on the four key areas of the module: research, teamwork, alignment between the proposed health promotion strategy and the needs of the community partner, and the presentation of the health promotion initiative. All areas of the summative assessment are equally weighted.

Additionally, to determine the effectiveness of the module, we assess student knowledge and comfort with sexual health at the beginning and at the end of the module. Knowledge is assessed using randomized pre- and posttest questions in multiple-choice, true-or-false, and fill-in-the-blank formats. Questions are constructed, randomized, and distributed to students using Qualtrics software. Each student receives six different randomized questions on the pre- and posttest. Example true-or-false questions include:

- Research supports the notion that sex education in schools increases the amount of sexual activity amongst adolescents.
- The HPV vaccine is an anticancer vaccine.

Examples of fill-in-the-blank questions include:

- Name one health condition that has a higher incidence in men who have sex with men.
- Name one complication of untreated syphilis.

Self-reported comfort with sexual health is ascertained using questions rated on a 1-5 Likert scale. It was anticipated that social response bias might influence student responses. Consequently, students are instructed to create a participant code comprised of the name of their first pet, followed by the street that they grew up on. If students have never had a pet, they are advised to create a code that they will be able to remember. The participant code is used for the pre- and posttest to maintain participant anonymity while allowing for comparison of individual pre- and postmodule responses.

Results

Thus far, student presentations have been multimodal, interactive, and congruent with the expressed needs of the community. Although the format of each presentation has been unique, each presentation has included an icebreaker, community partner involvement, and time for discussion. Presentations have included flash mobs, videos, songs, animations, dances, education sessions, interviews, and games.

All fifth-year medical students who participated in Sex, Bugs, and Rock 'n' Roll completed the pre- and posttests ($N = 80$). The high response rate is likely because both tests were incorporated into class time. The mean pretest sexual health knowledge score was 76%. This score indicated that overall, students had a relatively good understanding of the components of sexual health that were assessed at the beginning of the module. The mean posttest result was 93%, which showed an increase of 17% compared to the pretest score. Students' self-reported comfort with sexual health also improved as a result of this module. All of the students who participated in this module ($N = 80$) reported that their comfort with discussing sexual health had improved significantly. In addition, all 80 students said that their understanding of sexuality and sexual health concepts had increased.

Free-text comments on module evaluations also suggested that student comfort and knowledge had improved. Students wrote:

- “I was not comfortable with the idea of talking about sexual health with patients before this module. I am totally comfortable and confident now.”
- “I didn’t see the point of asking patients about their sexual identity. Now I see that it is crucial to the provision of patient-centered care.”

Discussion

Sex, Bugs, and Rock ‘n’ Roll appears to be a promising initiative for enhancing medical student knowledge and comfort with sexual health. This module also offers a novel way for students to experience sexual health, public health, and social accountability in an active and engaging fashion. In addition, this experience has also facilitated some very positive, thought-provoking, and powerful interactions between students and community partners. Many presentations have ended with the students and the audience giving hugs, shaking hands, and singing together.

Despite the promise of this module, there are some challenges and some areas for further development. For example, this module was very time and resource intensive during the first year that it was offered. In addition, health boards, local professionals, and communities gave a significant amount of time to the development and delivery of the module. Although the module continues to require planning and coordination, the amount of time and energy required has substantially decreased during subsequent years. Also, four enthusiastic and skilled people teach this module and receive significant community and university support. The module would be difficult to run without a team of competent and dedicated people and a positive institutional climate. Faculty development regarding sexual health, sexual diversity, and curriculum design may be required for other centers that do not have available staff members with existing competencies in these areas. Existing resources such as learning advisors or experienced educators with prior curriculum design experience can be helpful for the design of the module.

Some students struggled to reconcile their personal beliefs with the ethical and professional requirements of their future occupation during this module. In-depth discussion about a variety of topics made some students uncomfortable, and some topics were in conflict with students’ personal beliefs. In particular, discussions about contraception, sex before marriage, and sexual diversity were difficult for some students. The module also requires effective engagement with population groups that some students may hold negative perceptions about. Although some of the literature reports that student interactions with marginalized groups assist with learning, it should be noted that contact may not always be positive and interactions may not necessarily facilitate insight.^{46,47} Likewise, knowledge acquisition about populations can, if not appropriately conducted, lead to affirmation of existing negative stereotypes and result in uncomfortable encounters.⁴⁸ Thus, facilitators should anticipate these challenges and be prepared to manage questions, conflicting opinions during discussions, and occasional extreme attitudes from students. Also, facilitators may need to refer students to support services, where available, and be prepared to answer queries about professional conduct and requirements.

Sex, Bugs, and Rock ‘n’ Roll was developed to fit with New Zealand culture and our university curricular time restraints and therefore may require adaptation at other institutions. For example, culture and legislation around sexuality, contraception, same-sex relationships, and sexual violence may vary from country to country, which could influence the applicability of some of the content. Also, this module was initially offered in 1 week during the 2013-2014 academic year due to curricular restrictions. Since that time, the components of the Sex, Bugs, and Rock ‘n’ Roll module have been integrated into a 3-week public health course. This allows students to have more time to engage with the material, develop their relationship with the community partner, and refine their initiative. The integrated module has worked well from a teaching and administrative perspective; however, the student performance has yet to be analyzed.

The summative assessment for this module requires staff members to make subjective judgments about student performance. We struggled to create a meaningful, objective assessment measure for this type of module. We have four staff members who complete the assessment rubric and then compare marks. We have attempted to triangulate and consequently mitigate the subjectivity of the assessment by involving students in self-reflection and by seeking expert and community feedback. We also show students the

assessment tool on the first day and clearly communicate the expectations in each category of the rubric. Other institutions may wish to adapt this assessment to fit their needs.

This module primarily focuses on the explicit curriculum (the objectives that are intentionally taught). However, research suggests that students are more likely to internalize the unintended messages transmitted by faculty or stakeholders through the quality of interactions, language used, facilitation, preparation, and debriefing than they are the intended messages from the explicit curriculum.^{46,49} Thus, the implicit curriculum plays a key role in the delivery of a successful module. Some potential avenues for creating an ideal implicit curriculum include buy-in from stakeholders and faculty, promotion of cultural diversity among medical students and at all levels of the medical school, and development of a cadre of dedicated faculty(26).

Future directions for the Sex, Bugs, and Rock 'n' Roll module include research into the community outcomes associated with this initiative. The planning and presentation of this module are quite short, but it is anticipated that some changes may result. In addition, the development of a partnership with the nursing department to integrate some interprofessional practice opportunities for the medical and nursing students is forthcoming. Also, facilitators will be conducting further research to explore changes to medical student perceptions and skills regarding sexual health and sexual diversity.

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Ethical Approval

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