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An evaluation of a harm reduction Summer School for undergraduate health professional students

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Abstract

Aims: The role of health professionals in the provision of harm reduction services is well established in some countries, but not all. We describe a two week course in harm reduction for undergraduate health professionals from a range of countries run in 2014, and provide an account of its evaluation. *Methods*: Before and after design, with Revised Interprofessional Education Perception Scale (RIEPS) and Harm Reduction Attitude Measurement Scale (HRAS) administered at the start and end of the course, and focus groups at the end of the course to explore perceptions of harm reduction. *Findings*: Student perceptions of interprofessional learning were generally positive at the start of the course. The only significant change at the end of the course was an improvement in "Perception of Actual Co-operation". Attitudes towards harm reduction were positive, but there was a significant positive shift in total attitude score at the end of the course. Qualitative analyses indicated that students experienced a shift towards less stigmatising attitudes, and attributed some of this to the experiential visits they attended. *Conclusions*: An interprofessional harm reduction course can have a positive impact on students' attitudes towards harm reduction.

Introduction

Worldwide, the use of legally available and illegal psychoactive substances is associated with a range of poor health outcomes and negative social consequences for families and communities. Many countries have adopted a harm reduction approach to address the health and social impacts of substance misuse, accepting drug use as a societal reality and seeking effective ways of reducing associated harms. Harm reduction neither excludes nor presumes a treatment goal of abstinence, and ''recognises that containment and reduction of drug-related harms is a more feasible option than efforts to eliminate drug use entirely'' (UK Harm Reduction Alliance, Definition of Harm Reduction). Harm reduction is included in 91 of the 158 countries which report injecting drug use (Harm Reduction International, 2015). The two main interventions in harm reduction, needle exchange and opioid substitution therapy (OST) are available in 90 and 80 countries, respectively (Harm Reduction International, 2015). The availability and acceptance of such interventions is affected not simply by government policy, but also by cultural norms. For example, countries where drug consumption is prohibited for religious reasons appear less likely to embrace harm reduction (IHRA). Within developed nations, Japan remains one of the only countries where neither needle exchange nor OST is available (personal communication). Further, it is clear that for some, a harm reduction approach is philosophically challenging. A moral model of addiction is linked to moral judgements and punishment around addiction, as well as to a disease model which would see abstinence as the only way to manage disease progression (Marlatt & Witkiewitz, 2010). Other critiques of harm reduction surround the use of OST, and may view methadone maintenance not as harm reduction (e.g. reducing injecting, reducing spread of blood borne viruses), but as a form of social control (Keane, 2009).

Thus, the role of health professionals in the provision of harm reduction services is well established in some countries, but not all. For example, in many countries, primary health professionals, such as nurses, general practitioners (GPs) and community pharmacists, are involved in the provision of OST (Fiellin & O'Connor, 2002; Laird, Hunter, Sardar, Fitzgerald, & Lowrie, 2016; Matheson, Thiruvothiyur, Robertson, & Bond, 2016; McNeely, Drucker, Hartel, & Tuchman, 2000; Nielsen et al., 2007; Sheridan, Strang, Barber, & Glanz, 1996; Strang et al., 2005, 2007; Wilson, Watson, & Ralston, 1994), and community pharmacists provide sterile injecting equipment via needle exchanges (Bingham, Harnedy, O'Driscoll, Keane, & Doyle, 2015; Clarke et al., 2001; Clarke, Sheridan, Griffiths, & Williamson, 1998; Matheson et al., 2016; Sheridan, Henderson, Greenhill, & Smith, 2005; Sheridan et al., 2000). There is a clear need for dental (Hamamoto & Rhodus, 2009; Scheutz, 1984; Zador, Wall, & Webster, 1996)

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and nutrition services (Best et al., 1998; Zador et al., 1996) for people who use drugs (PWUD). Despite providing services to PWUD, there is evidence of health professionals having negative attitudes towards PWUD (Matheson, Bond, & Mollison, 1999; Sheridan, Strang, Taylor, & Barber, 1997; van Boekel, Brouwers, van Weeghel, & Garretsen, 2013) and these attitudes are sometimes more negative than those towards other patient groups (Gilchrist et al., 2011). Associations have been found between service provision and attitudes (Matheson et al., 1999; Sheridan et al., 1997), and there is some evidence that where PWUD believe they are discriminated against by health professionals, they are more likely to leave treatment early or not engage (Brener, von Hippel, von Hippel, Resnick, & Treloar, 2010; Simmonds & Coomber, 2009).

Health professionals report a lack of, or incomplete knowledge and skills with respect to drug misuse (Aalto, Pekuri, & Seppä, 2001; Ford, Bammer, & Becker, 2008; Gilchrist et al., 2011; Kelleher & Cotter, 2009), and calls have been made to increase education and training (Crome & Shaikh, 2004; van Boekel et al., 2013). It could be argued that the best place to start to address these attitudinal issues is at the undergraduate stage of health professional education. Research on the inclusion of substance misuse and harm reduction in the curricula of health professional undergraduate programmes suggests it is often incomplete, and may not meet the needs of health professional graduates (Carroll et al., 2014; Crome & Shaikh, 2004; Dole & Tommasello, 2002; Fleming et al., 1994; Holloway & Webster, 2013; Notley et al., 2014; O'Brien & Cullen, 2011; Silins, Conigrave, Rakvin, Dobbins, & Curry, 2007; Wakeman, Baggett, Pham-Kanter, & Campbell, 2013). A key issue for these curricula is to enhance student understanding of the role played by health professionals in a harm reduction approach to managing substance misuse.

As a result of the increased complexity of health service delivery, the nature of healthcare delivery is moving from a single health professional (uniprofessional) to a collaborative team approach (multiprofessional). Teamwork may help to deal with healthcare skills shortages and the need to capitalise on the skills of all health professionals. The World Health Organization notes the shortage of healthcare workers is a critical barrier to achieving health-related goals. As a result there has been a call for the inclusion of interprofessional learning into health professional programmes (World Health Organization, 2010). The Centre for the Advancement of Interprofessional Education (CAIPE) defines interprofessional education as occurring ''when members or students of two or more professions learn with, from and about each other to improve collaboration and the quality of care and services'' (http://caipe.org.uk/about-us/the-definition-and-principles-of-interprofessional-education/). This is in contrast to uniprofessional learning which ''takes place where students or members of one profession learn with others from their own profession'' (Centre for the Advancement of Interprofessional Education, 2016).

Interprofessional education has been shown to have some positive impact on patients health outcomes in a number of domains (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). Driven by professional and government recommendation and policies, many health professional programmes include interprofessional learning opportunities within the university-based components of their curricula (e.g. Morison, Boohan, Jenkins, & Moutray, 2003), and also as part of students' experiential learning opportunities in the community (Bilodeau et al., 2010; Morison et al., 2003; Ponzer et al., 2004).

In this article, we describe a short course in harm reduction for undergraduate health professionals that had an international focus and interprofessional learning as a core element, and we provide an account of its evaluation.

Methods

The Summer School

The Summer School in ''Substance Misuse Studies: A Harm Reduction Approach'' was run in July 2014 in response to a Universitas 21 (U21) Health Sciences initiative to develop interprofessional summer schools for undergraduate students, and was delivered from the University of Auckland, New Zealand. U21 is a global network of research-intensive universities, which supports innovative research-inspired teaching and learning and student mobility (http://www.universitas21.com/), and the Health Sciences group comprises a network of U21 Universities which teach healthcare-related courses (http://u21health.org/). The Summer School aimed to provide students with a multiprofessional, international learning experience in which they could explore substance misuse from a harm reduction perspective and was delivered over two weeks. The Summer School had seven key objectives (see Figure 1). Learning modalities included didactic lectures, workshops, short presentations, self-directed learning, students as teachers, and experiential visits. We engaged national and international experts in harm reduction, treatment, regulation and enforcement as lecturers, workshop facilitators and mentors in relevant areas.

At the start of the Summer School, students were allocated to one of four groups, based on the professional degree they were studying, and their home country, to ensure there was an interprofessional and international mix of students in each group. Students from the same University were allocated to different groups. The course was conducted in English. During week one, traditional didactic presentations and

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At the completion of the Summer School students would:

1. have an understanding of the major trends in substance misuse

2. have developed an awareness of the harms associated with substance misuse

3. be able to explain the concept of harm reduction and how it influences treatment and intervention approaches

4. be cognisant of the debates and controversies associated with a harm reduction philosophy

5. demonstrate an understanding of a range of intervention strategies (global strategies, national policies, community level policies and family interventions as well as those aimed at individuals) for addressing substance misuse

6. demonstrate a multiprofessional approach to the development of a harm reduction intervention

7. show an awareness of the importance of incorporation of family, community, and cultural perspectives in the design of harm reduction interventions

Figure 1. Summer school learning outcomes.

Table 1. Summer school timetable.

Day 1	Day 2	Day 3	Day 4	Day 5
Course Introduction Welcome Introduction, learning objectives – Introduction to the team and facilitators, housekeeping rules	Lecture – biology to sociology	Lecture – cannabis	Lecture – alcohol	Student presentations – students as teacher – opioids
Break	Break	Break	Break	Break
How the summer school is structured Cultural responsiveness	Discussion/workshop	Lecture/workshop – young people and substance misuse	Discussion/workshop alcohol	Discussion/workshop opiates
Lunch	Lunch	Lunch	Lunch	Lunch
What's your group	Lecture – Public health and alcohol and drugs – a harm reduction approach Discussion	Lecture – tobacco Discussion/workshop tobacco	Lecture – Foetal Alcohol Spectrum Disorder Lecture – New Psychoactive Substances	Lecture stimulants
Three minute student presentations	Self-directed learning	Self-directed learning	Self-directed learning	Self-directed learning

WEEKEND – group visit to Māori cultural event and stay

DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
Lecture – Harm reduction: a global perspective Workshop – global harm reduction	Experiential visits 1/4 Emergency department perspectives	Lecture: Police and Harm Reduction Presentation – community drug and alcohol service	Presentation – consumer perspectives Presentation – needle exchange	Final Student Presentations on Harm Reduction Interventions Course evaluations and focus groups
Lunch	Lunch	Lunch	Lunch	Lunch
Lecture: drug legislation and harm reduction Self-directed learning	Experiential visits 1/4 Self-directed learning	Experiential visits 1/4 Self-directed learning	Experiential visits 1/4 Self-directed learning	13.30 END

workshops were utilised to examine theoretical aspects of the course material. During week two students were taken on a series of experiential visits to drug treatment and related facilities in order to contextualise this theory. Throughout the Summer School time was also made available for groups to work on devising their harm reduction intervention. The timetable is shown in Table 1.

As part of the proposal to run the Summer School, we committed to evaluating the impact of the Summer School on two main outcomes:

(1) Student attitudes towards interprofessional education (IPE);
(2) Student attitudes towards harm reduction (HR).

We hypothesised that attitudes towards IPE and HR would improve after the course.

Study design

The study utilised two separate data collection methods: self-completion questionnaires for the quantitative component and focus groups for the qualitative component.

Participants

Participants were 26 students from 14 U21 Health universities who had applied to attend and been selected for the Summer

School. The universities were located in North America, Europe, the United Kingdom, South East Asia and Australasia. The selection process involved students first being selected by their home university, and culminated in the University of Auckland Summer School Team selecting students based on their area of study and home country to ensure an international and interprofessional mix (see Table 2).

Focus group participants were students who had participated in the Summer School and who provided written informed consent to take part in the research. Individual participant consent was assumed for the survey by submission of completed questionnaires.

Self-completion questionnaires

The following validated questionnaires were used to examine changes in attitudes towards IPE and HR. For the measurement of IPE, the Revised Interprofessional Education Perception Scale (RIEPS) was utilised with the permission of the author (McFadyen, Maclaren, & Webster, 2007). This validated, 12-item questionnaire explores three domains: ''Competency and Autonomy'' (five items, score range 5–35), ''Perceived Need for Co-operation'' (two items score range 2–15) and ''Perception of Actual Co-operation'' (five items, score range 5–35). In all cases a higher score indicates

Table 2. Participant discipline and location.

Subject	N
Discipline	
Medicine	7
Pharmacy	6
Nursing	4
Bachelor Health Sciences/Bachelor Sciences	3
Dentistry	2
Nutritional Sciences/Dietetics	2
Sports and Exercise Science	1
Public Health	1
Country	
Australasia	7
United Kingdom + Europe	7
South East Asia	6
North America	6

a more positive attitude. Respondents indicate their level of agreement or disagreement by responding ''Strongly Agree'', ''Agree'', ''Some-what Agree'', ''Some-what Disagree'', ''Disagree'' and ''Strongly Disagree''. The RIEPS can also provide global score (range 12–84), and can be used to measure change over time. A higher score indicates a more positive attitude towards IPE. For HR, the Harm Reduction Attitude Measurement Scale (HRAS) was utilised, again with the permission of the author (Goddard, 2003). This 25 item questionnaire provides a total attitude to HR score. Calculating the score involves reverse coding of negatively worded statements. Some minor wording changes were made to make the questionnaire more appropriate for the target audience, but which did not change the meaning of the questionnaire items. Respondents indicate their level of agreement or disagreement by responding ''Strongly Agree'', ''Agree'', ''Neither agree nor Disagree'', ''Disagree'' and ''Strongly Disagree''. The total attitude score ranges from 25 to 125, with higher scores indicating a more positive attitude towards harm reduction. Demographic data were not collected because of the small number of participants and thus the possibility of being identified.

The questionnaires were administered at the start of the course before any teaching had commenced, and again after the last teaching component. Questionnaires were disseminated in the classroom environment by a colleague who was not part of the summer school teaching or support teams, and not previously known to the students. Students were able to submit blank questionnaires if they did not wish to participate. In order to be able to pair ''before'' and ''after'' data, at the first data collection point students were asked to write a memorable but anonymous key word at the top of the questionnaire and to save this in their mobile phones, for use again at the second data collection point. Students were assured that the data would be non-attributable in any publication.

Focus groups

Four focus groups (comprising six or seven students) were run directly after the second quantitative data collection point. Students were invited to take part in a focus group which comprised other students from the group in which they had worked for the duration of the Summer School. Participation was entirely voluntary; all students agreed to participate with the exception of one student who had to leave the course prior to its completion. The focus groups were run by experienced researchers who were not known to the students. The focus groups were audio recorded. A semi-structured focus group question schedule include questions on three main areas: Summer School experience overall; the interprofessional learning experience and perceptions of harm reduction. This paper will report on the latter two. Qualitative data are presented with a Focus Group identifier (A–D).

Data management and analysis

All quantitative data were entered into SPSS (IBM) and checked for accuracy of data entry. Frequency data were obtained, and paired analysis of attitudes undertaken using non-parametric statistics. For the RIEPS, the totals for the three subscales and the total score were calculated. For the HRAS, a total attitude score was calculated after internal correlation was validated using Cronbach's alpha. Differences between before and after scores were analysed using paired non parametric tests (Wilcoxon Sign rank test).

The focus group data were transcribed verbatim and checked for accuracy against the audio. An independent researcher, experienced in the subject of substance misuse coded the data, utilising (as a starting point) a coding frame based on the semi-structured interview format. This coding was reviewed by one of the authors (JS). Each theme was then analysed by JS for subthemes using the general inductive method (Thomas, 2006).

Ethics approval

Ethics approval was received from the University of Auckland Human Participants Ethics Committee ref. 011366.

Results

Quantitative data

All 26 participants completed the HRAS at both time points. Twenty six completed the REIPS before the course and 25 after the course; thus, paired data were available from only 25 participants for the REIPS.

Attitude towards interprofessional education

Table 3 shows the descriptive data for RIEPS. ''Strongly Agree'', ''Agree'' and ''Some-what Agree'' were recoded to ''Agree'', and ''Some-what Disagree'', ''Disagree'' and ''Strongly Disagree'' were recoded to ''Disagree''. The baseline data indicate that students already had a highly positive attitude towards interprofessional collaboration, in terms of trust, attitude towards other professional groups, and willingness to collaborate and share information. As such, there was little opportunity for a significant shift in attitude in a more positive direction, and in the paired comparison analysis of un-recoded data, only the ''Perception of Actual Co-operation'' showed a statistically significant improvement in attitude (Wilcoxon Signed Rank test: $p = 0.04$, $z = -2.04$; $N = 25$).

Table 3. Descriptive statistics for items on the RIEPS before ($n = 26$) and after the course ($n = 25$).

Variable	Agree n (%)		Disagree n (%)	
	Before	After	Before	After
1. Individuals in my profession are well-trained	26 (100)	25 (100)	0 (0.0)	0 (0.0)
2. Individuals in my profession are able to work closely with individuals in other professions	24 (92.3)	25 (100)	2 (7.7)	0 (0.0)
3. Individuals in my profession are very positive about their goals and objectives	25 (96.2)	25 (100)	1 (3.8)	0 (0.0)
4. Individuals in my profession need to cooperate with other professions	26 (100)	25 (100)	0 (0.0)	0 (0.0)
5. Individuals in my profession are very positive about their contributions and accomplishments	25 (96.2)	24 (96.0)	1 (3.8)	1 (4.0)
6. Individuals in my profession must depend upon the work of people in other professions	25 (96.2)	21 (84.0)	1 (3.8)	4 (15.4)
7. Individuals in my profession trust each other's professional judgment	25 (96.2)	24 (96.0)	1 (3.8)	1 (4.0)
8. Individuals in my profession are extremely competent	24 (92.3)	24 (96.0)	2 (7.7)	1 (4.0)
9. Individuals in my profession are willing to share information and resources with other professionals	26 (100)	24 (96.0)	0 (0.0)	1 (4.0)
10. Individuals in my profession have good relations with people in other professions	26 (100)	25 (100)	0 (0.0)	0 (0.0)
11. Individuals in my profession think highly of other related professions	24 (92.3)	23 (92.0)	2 (7.7)	2 (8.0)
12. Individuals in my profession work well with each other	26 (100)	24 (96.0)	0 (0.0)	1 (4.0)

Notes: For the presentation of data in this table ''Strongly Agree'', ''Agree'' and ''Some-what Agree'' recoded to ''Agree''.
''Some-what Disagree'', ''Disagree'' and ''Strongly Disagree'' recoded to ''Disagree''.
Competency and Autonomy scale [Items 1, 3, 5, 7, 8].
Perceived Need for Co-operation scale [Items 4 and 6].
Perception of Actual Co-operation scale [Items 2, 9, 10, 11, 12].

Attitude towards harm reduction

Table 4 provides descriptive statistics for the participants before and after the course on the HRAS. Data were recoded so that ''Strongly Agree'' and ''Agree'' became ''Agree'', ''Neither agree nor Disagree'' remained unchanged and ''Disagree'' and ''Strongly Disagree'' were recoded to ''Disagree''.

There was unanimous or almost unanimous agreement for some statements before the course started. These were: ''A choice of treatment outcome goals (for example, abstinence, reduced use of drugs or alcohol, safer use of drugs or alcohol) should be discussed with all people seeking help for drug or alcohol problems''; ''Drug users should be given honest information about how illicit drugs may be used more safely (for example, how overdose or related health hazards may be avoided)''; ''People with drug or alcohol problems who are not willing to accept abstinence as their treatment outcome goal should be offered treatment that aims to reduce the harm associated with their continued drug or alcohol use''; ''People with drug and alcohol problems may be more likely to seek professional help if they are offered at least some treatment options that do not focus on abstinence'' and ''Drug injectors who are not willing to accept abstinence as a treatment goal at the beginning of treatment should be given easy access to clean injecting equipment to reduce the spread of HIV and other blood-borne diseases''. In the main these referred to providing options for those unwilling to be abstinent, offering honest advice and discussing treatment goals. For almost all other items there was a shift towards a more positive attitude, the exceptions being items 19 and 23, where there was either a relatively high level of consensus before the course, or where the shift was towards ''neither agree nor disagree''.

Using un-recoded data, and reverse coding negatively worded statements, Cronbach's alpha for the ''before'' HRAS was 0.86, and for the ''after'' HRAS was 0.88, providing support for the calculation of a single attitude measurement, by summation of items after reverse coding of negatively worded statements. At baseline the total attitude score (potential range 25–125) was 94.8 and after the course was significantly more positive (or less negative) towards harm reduction at 105.2 (Wilcoxon Signed Rank Test: $p = <0.001$; $z = -4.2$; $N = 24$).

Focus groups

Twenty five students took part in the focus groups. Qualitative analysis resulted in themes which generally mirrored the structure of the interview schedule.

Perceptions of harm reduction

There was a range of prior knowledge and understanding about drugs and harm reduction amongst Summer School participants. A minority had a clear understanding, others had either no knowledge, being firmly rooted in an abstinence paradigm, or had heard of harm reduction but lacked a clear understanding of the concept:

''. . .. never heard the harm reduction concept before and I thought that abstinence was just the only answer and the only treatment for drug addiction''. (Group C participant)

''I didn't even, I hadn't realised from like back in [country] they don't, I never heard the term harm reduction before''. (Group C participant)

''The word harm reduction is bandied around a lot but it's never really explored in great detail''. (Group A participant)

For a number of participants, the idea that abstinence was not the only option was new to them, and they indicated that they had gained confidence in thinking and speaking about alternative paradigms.

''Before I, in college we would have learnt about Alcoholics Anonymous and you know drug abusers and things and it's all about we need to get them clean, we

Table 4. Descriptive statistics for items on the HRAS before and after the course.

Variable	Agree n (%)		Neither agree nor disagree n (%)		Disagree n (%)	
	Before	After	Before	After	Before	After
1. People with alcohol or drug problems who will not accept abstinence as their treatment goal are in denial.[a]	6 (23.1)	4 (15.4)	6 (23.1)	4 (15.4)	14 (53.8)	18 (69.2)
2. It is not acceptable to teach injecting drug users how to use bleach to sterilise their injecting equipment.[a]	2 (7.7)	1 (3.8)	7 (26.9)	2 (7.7)	17 (65.4)	23 (88.5)
3. A choice of treatment outcome goals (for example, abstinence, reduced use of drugs or alcohol, safer use of drugs or alcohol) should be discussed with all people seeking help for drug or alcohol problems.	26 (100.0)	26 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
4. People who live in government-funded housing must be drug and alcohol free.[a]	2 (7.7)	3 (11.5)	12 (46.2)	6 (23.1)	12 (46.2)	17 (65.4)
5. Doctors should be permitted to prescribe heroin and similar drugs to treat drug addiction as long as doing so reduces problems such as crime and health risks.	6 (23.1)	17 (65.4)	9 (34.6)	6 (23.1)	11 (42.3)	3 (11.5)
6. Even if their drug use is stable, women who use illicit drugs cannot be good mothers to infants and young children.[a]	8 (30.8)	5 (19.2)	10 (38.5)	6 (23.1)	8 (30.8)	15 (57.7)
7. Drug users should be given honest information about how illicit drugs may be used more safely (for example, how overdose or related health hazards may be avoided).	26 (100.0)	26 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
8. People with drug or alcohol problems who are not willing to accept abstinence as their treatment outcome goal should be offered treatment that aims to reduce the harm associated with their continued drug or alcohol use.	24 (92.3)	26 (100.0)	2 (7.7)	0 (0.0)	0.(0.0)	0 (0.0)
9. In most cases, nothing can be done to motivate clients in denial except to wait for them to "hit bottom".[a]	1 (3.8)	1 (3.8)	6 (23.1)	4 (15.4)	19.(73.1)	21 (80.8)
10. It is acceptable to prescribe substitute drugs such as methadone in order to reduce crime and other social problems associated with illicit drug use.	21 (80.8)	25 (96.2)	3 (11.5)	1 (3.8)	2 (7.7)	0 (0.0)
11. Prisons should not provide sterilising tablets or bleach in order for inmates to clean their drug injecting equipment.[a]	1 (3.8)	4 (15.4)	10 (38.5)	5 (19.2)	15 (57.7)	17 (65.4)
12. As long as clients are making progress towards their treatment goals, methadone maintenance programmes should not kick clients out of treatment for using street drugs.	12 (46.2)	19 (73.1)	12 (46.2)	7 (26.9)	2 (7.7)	0 (0.0)
13. Measures designed to reduce the harm associated with drug or alcohol use are acceptable only if they eventually lead clients to pursue abstinence.[a,b]	8 (30.8)	3 (11.5)	5 (19.2)	2 (7.7)	13 (50.0)	20 (76.9)
14. People with drug and alcohol problems may be more likely to seek professional help if they are offered at least some treatment options that do not focus on abstinence.	25 (96.2)	26 (100.0)	1 (3.8)	0 (0.0)	0 (0.0)	0 (0.0)
15. The prescription of substitute drugs such as methadone should be forbidden.[a,b]	2 (7.7)	0 (0.0)	5 (19.2)	0 (0.0)	19 (73.1)	25 (96.2)
16. People whose drug use is stable should be trained to teach other drug users how to use drugs more safely (for example, how to inject more safely).	17 (65.4)	23 (88.5)	7 (26.9)	1 (3.8)	2 (7.7)	2 (7.7)
17. Making clean injecting equipment available to injecting drug users is likely to reduce the rate of HIV infection.	26 (100.0)	26 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
18. Abstinence is the only acceptable treatment option for people who are physically dependent on alcohol.[a]	4 (15.4)	1 (3.8)	5 (19.2)	7 (26.9)	17 (65.4)	18 (69.2)
19. It is possible to use drugs without necessarily misusing or abusing drugs.	23 (88.5)	21 (80.8)	3 (11.5)	3 (11.5)	0 (0.0)	2 (7.7)
20. Pamphlets for educating drug users about safer drug use and safer sex should be detailed and explicit, even if these pamphlets would be offensive to some people.	22 (84.6)	20 (76.9)	3 (11.5)	3 (11.5)	1 (3.8)	3 (11.5)
21. Opiate users should only be prescribed methadone for a limited period of time.[a]	12 (46.2)	5 (19.2)	6 (23.1)	4 (15.4)	8 (30.8)	17 (65.4)
22. Drug injectors who are not willing to accept abstinence as a treatment goal at the beginning of treatment should be given easy access to clean injecting equipment to reduce the spread of HIV and other blood-borne diseases.[a]	24 (92.3)	24 (92.3)	1 (3.8)	1 (3.8)	1 (3.8)	1 (3.8)
23. Women who use illicit drugs during pregnancy should automatically lose custody of their babies.[a]	3 (11.5)	3 (11.5)	7 (26.9)	6 (23.1)	16 (61.5)	17 (65.4)
24. People with alcohol or drug problems should be praised for making changes such as cutting down on their alcohol consumption or switching from injectable drugs to oral drugs.	20 (76.9)	25 (96.2)	6 (23.1)	1 (3.8)	0 (0.0)	0 (0.0)
25. Abstinence is the only acceptable treatment goal for people who use illicit drugs.[a]	2 (7.7)	1 (3.8)	9 (34.6)	3 (11.5)	15 (57.7)	22 (84.6)

For the presentation of data in this table "Strongly agree" and "Agree" have been recoded to "Agree". "Strongly disagree" and "Disagree" have been recoded to "Disagree". "Neither agree nor disagree" unchanged.

[a]Items reverse coded for total score calculation and Cronbach's alpha calculation.

[b]Missing value = 1 for "after" data.

need to get them sober. That's always what's kind of pounded through the whole time but now it's kind of like – no there's ways of harm reduction, they can still get on with their life, any improvement is good. And I think that's a really positive thing that I got from this that I hadn't really thought properly through before''. (Group A participant)

Participants had thought carefully about their introduction to harm reduction through undertaking the summer school, and in the end, some still believed abstinence was the best option, with a harm reduction approach being able to help a person move towards an ultimate goal of abstinence. This is perhaps not surprising, as many students were from countries where an abstinence orientation dominated treatment:

''I still think abstinence is ultimately the best form, but I appreciate now that some people and their circumstances might not be able to do that so any improvement is good and I think I've learnt as well that if someone makes an improvement and they're praised for it as well, you know, they start to realise that oh yeah I can do this and it helps them on their path possibly to abstinence''. (Group A participant)

In providing a range of speakers and experiential opportunities, students were able to think about their own perspectives and judgements about PWUD. For one student, this had resulted in a shift of attitude, whereby they acknowledged that their views had been relatively narrow. This change had happened incrementally as they had listened and reflected and formed their own opinions:

''And I kind of had this judgement associated with people that were addicted to drugs um especially because where I'm from that's like what the poor people do and like the people without education do and all those kinds of things. So when I came here I like was trying to be open minded about these harm reduction things and was like oh needle exchange but they're still like injecting heroin. . . . . . . Well I guess what was really impressionable to me or maybe I just thought about this or said to someone but um when somebody has an eating disorder you don't just say to them like – eat food. I mean like because that's not like helpful and so if somebody has an addiction you don't say – just stop. Because like that's the same thing, a lot of it's like mental and like when we're at the site visit the guy we were talking to was like I use drugs to suppress a lot of things that I didn't want to deal with so it's kind of a psychological thing. . . . . . . So I like became more convinced that it was effective treatment, also that like the world isn't going to explode like with people doing drugs''. (Group D participant)

The above extract is important as it highlights how this student negotiated their prior beliefs, and as a result of being questioned and questioning themselves, came to a conclusion which was diametrically opposed to their previous views.

As part of the Summer School, we had been clear to differentiate between the harms associated with the substance itself (e.g. lung cancer from smoking tobacco) and harms associated with the ''environment'' of substance misuse, for example local drugs laws, availability of needle exchange services, and of drug consumption rooms. This included the impact of the substance's legal status on the way it was consumed:

''What I found out was . . .much of the harm associated with drug use was due to the fact that taking drugs was illegal and so they had to do it in really hidden dangerous settings. Yeah that was one of my take-aways''. (Group A participant)

For many of the students during the summer school, this was their first exposure to ''*radical*'' views of substance misuse such as the legalisation of drugs. They reported to us that this had occurred in a safe environment where they could explore their own views and not feel judged:

''During the last two weeks there was no fear or no judgement associated with being too radical at all. Like we spoke to a lot of people who had, you know, for some people it would have been very radical ideas but, you know, [name], you know, talking about legalising all our illicit drugs was not, not too farfetched''. (Group D participant)

Being exposed to a range of perspectives, as well as undertaking experiential visits to substance misuse treatment facilities, allowed students to gain a sense of the complexity of harm reduction interventions and the environmental and political issues surrounding their delivery. As the participant below noted, a needle exchange was unlikely to work in an environment where police would pursue and prosecute individuals for carrying injecting equipment.

''. . .because it makes you realise that it's not a simple case of having a programme like a needle exchange if the police still harass, you know, if the police are camped outside in one country and not in the other . . . it [the needle exchange] seemed to work really well, but part of that was because there was needle exchange, but the bigger part of that was because of the arrangements with authorities as to what police would do''. (Group B participant)

Thus, the international nature of the summer school was an important component as it allowed students to explore the consequences of harm reduction interventions in jurisdictions which were politically, culturally and philosophically different from their own.

The interprofessional learning experience

Participants had a variety of prior experience of interprofessional learning activities, with the majority undertaking most of their learning in a uniprofessional environment.

Participants acknowledged the relevance of IPE to their future work noting that they would need to be able to communicate with other health professionals and therefore needed to have a broad view of practice:

''….like a pharmacy student we don't get taught very much about this and we don't get to work with other professions that much, but I guess in reality we will be talking to nurses and doctors and it's quite important that we understand what other strategies are out there''. (Group A participant)

''Relief'' was expressed by some participants when they realised that working in teams meant that they did not need to be experts in all areas – and that through building trust they could learn from others who could also help fill any potential gaps in knowledge

''That's what I loved inter-professional education activities, but I always come away thinking, thank god I don't have to know it all – there is someone there that can do this. Having trust in people around you is really essential''. (Group A participant)

''I think definitely because like I think it's helped me fill in gaps in my own knowledge so I think we kind of bounce off each other and become stronger and get more knowledge on like from each other because we've got these we might be similar, you know, we're all in a health profession, but other people have got knowledge about the things that, you know, might be able to fill in the gaps yourself''. (Group C participant)

It was not possible to unpick whether these comments related solely to the Summer School environment or to a wider working practice.

Students also noted that the Summer School experience had given them opportunity to learn about other health professions, and that IPE in a sense mimicked real life working:

''I mean, you learn like different professional backgrounds have different ways of thinking about it and it's nice to get those sort of aspects, especially when we're all studying in our own courses at home. We're all surrounded by everyone from our same profession, we all kind of know how each other thinks and it's really, like the whole point of these interventions and for the idea for health care is that it's meant to be inter-professional so it's nice to practice that while we're developing something''. (Group D participant)

One participant noted the value of the connections created between different groups, and how it facilitated a more collaborative approach:

''…the importance of connections, all aspects, so the individual reconnecting with themselves and what's important for them. Connecting services, connecting professionals, talking to each other and researching together, breaking down the sort of silo-ing of them and us''. (Group A participant)

Participants had also highlighted the importance of the Summer School teaching team modelling interprofessional teamwork, and leading by example:

''… like all of our facilitators were totally different … Like they, we saw them working together and like talking about the ways that their things impact. And they weren't like, ''Oh like I'm a nurse, one of the, don't want to see what [name] said because I'm a doctor'' and those kind of things so [name] *modelled what we should try and do''.* (Group D participant)

International focus

The composition of the four Summer School groups had been selected carefully to reflect professional groupings and also different countries, to allow students to learn about the ''cultures'' of the professional groups as well as the cultural differences in substance misuse, and responses to it between countries.

Students had been asked to prepare for the event by exploring substance misuse, the laws surrounding this and treatment within their own countries. The value of this became evident to them after they had each presented back to the whole group at the start of the Summer School, not just in that they learned about their own countries, but could explore differences across the various nations represented:

*''Like the only thing I know about harm reduction maybe is the methadone replacement therapy in [country]. But I actually don't know like how many people use them or what's the prevalence of drug use in [country], but like when I prepare the three minute presentation like I actually got a chance to learn more about our own country, like my own city before I come here. And also, like after all the lectures, I get to know more about the possible treatment that maybe [country] can learn from other countries. Yeah so it was really good''. (*Group B participant)

In setting up the Summer School, we had endeavoured to reflect the international nature of the event by inviting expert speakers from a number of countries, and reflected a philosophy of harm reduction. Ultimately all speakers came from developed countries. We also endeavoured to model the IPE ethos by inviting speakers from a range of backgrounds and perspectives including needle exchange, police, harm reduction services, recovery and therapeutic communities, and clients. Participants noted the value of this, as evident in the following extract:

''What worked really well was having a range of people speak … it was interesting to have a police officer [sic] to speak about like how the judicial side is connected with the health side and then yesterday we had a drug user talk about her experience, which was a very interesting as well … And also like not just stuff from Auckland, we had people from Australia and [name] from UK so it was good hearing from people all over the

country and from the US as well so that's really, really good way of learning''. (Group B participant)

Participants also commented on the potential impact of the experience on return to their own countries, including its influence on practice back home:

''... so it was really good chance to talk to them and say oh what's like in your country? ... you'd just say wow this would never happen, you know, in [place name A], they do, they don't do that or in [place name B] we don't do that and [place name C], you know, it's completely different. And which just means that when we go back home we think about what we've been taught in maybe a different way because you think, sometimes, this is the way everyone does it but then you realise that actually it's not the same in every country so it just gives you that extra way of looking at things''. (Group B participant)

Experiential visits and service-user presentations

Each student in the Summer School was able to participate in a visit to a treatment provider. These included services which were harm reduction focussed, which were set up for particular cultural groups, and/or were therapeutic communities. The reality of substance misuse and its consequences was brought home to many participants after visiting the treatment providers. It was at this point that many students began to explore the ''client'' as a person with a family and a life. Typical comments included:

''A lot of these people were like, had just come from prison and if you're not around that you have a certain stereotype of it so just made you realise like the person that's behind that they do have a family, there are, they are an actual person and their feelings are human''. (Group C participant)

For others, the visits were an opportunity to link the theory they had learned in the first week of the Summer School with what they were observing in real life practice:

''... we went to the sites and we could really see, you know, we'd learnt the theory but now it's like what actually happens and that was really good because it just reinforces that it's not scary places and like drug people, you know, people who use drugs aren't scary people and that's a big barrier to break down so that was really good''. (Group B participant)

For one participant, the visit to the addiction treatment facility was one which made a big impact, possibly though the demystifying experience of peaking to a person with substance misuse issues:

''It was, I had never been in a situation, it was a treatment patient facility, addiction facility and they took us around and we got to talk to the patients and I think that was

probably my most memorable experience''. (Group C participant)

For many participants, the Summer School provided them with a number of what we have termed ''eye openers'' and included comments about how drugs and drug use is generally seen as ''bad'', that the media influences people's perceptions of drugs and PWUD, and that some of the most harmful substances are legally available. The fact that students had come to see PWUD as individuals was an important outcome for us:

''Well I think just looking at different people's opinion and maybe some like everyone is prejudice, like you know, they don't want to admit it and I think we ... it was just yesterday, we had a presentation by an ex-drug abuser and her recovering addict so that's her terminology. And I think it's just amazing to see someone that's been through it and to realise that actually like, you know, people that abuse substances can come in all shapes, forms and sizes''. (Group A participant)

Discussion

Our hypotheses that students' attitudes towards IPE would become more positive were partially supported, and towards HR were fully supported by the data. Attitudes towards HR changed significantly, in particular around attitudes towards abstinence as the only option, and also the prescribing of opioid substitution therapies. With IPE, the students within the group were already positive about IPE leaving little room for change. However, a small, but significant change was noted for perceptions of ''actual cooperation'', providing evidence of meeting the learning objective of interprofessional working.

Qualitative data provided insights into aspects of the Summer School that were particularly powerful for students. For example, students noted the impact of the experiential visits on their perceptions of substance misuse. Importantly, students reported shifts in stigmatised perceptions of those with problems, and these shifts were attributed to being able to talk to, or have presentations from a range of people involved treatment, criminal justice and clients themselves. Research into the attitudes of health professionals has shown that stigma exists (Abed & Neira-Munoz, 1990; Abouyanni et al., 2000; Matheson et al., 1999; Sheridan et al., 1997), and associations between negative attitudes towards PWUD and willingness to provide services has also been noted (Matheson et al., 1999; Sheridan et al., 1997).

The use of a mixture of didactic, workshop and experiential learning opportunities allowed us to cater for a range of learning styles, and is in line with transformative learning theory (Mezirow, 1996) which postulates that adults have already developed their own frame of reference, and ''to facilitate transformative learning, educators must help learners become aware and critical of their own and others' assumption'' (Mezirow, 1997). In particular, the use of a range of expert presenters from a range of specialisms and

perspectives, plus the opportunities offered by experiential visits to drug treatment centres clearly had an impact on student perspectives.

The interprofessional nature of the learning experience resulted in a small shift in attitudes towards actual co-operation. A Cochrane review of the effectiveness of IPE opportunities compared to uniprofessional learning activities indicated some evidence that health professionals worked more collaboratively with some positive impact on patient care, although the overall conclusion was inconclusive (Reeves et al., 2013). Nonetheless, the evidence from our qualitative data provides support for the impact that learning together had on their attitudes. To what extent this has positive benefits in practice with respect to patient outcomes remains unknown.

The opportunity for students to learn from the different cultural perspectives of their peers was a strong theme to emerge from the data. Despite coming from a variety of backgrounds in which harm reduction approaches varied from being part of government policy to being either not sanctioned or marginalised – the students had baseline attitudes towards harm reduction which were already in the third quartile. This is not surprising, as students would be unlikely to enrol in the course if they had no interest in harm reduction, or who were not open to the possibility of engagement in more liberal views of drug treatment. The selection process which first occurred at the home university and then at a second round within our team, meant that there was a significant possibility of selection bias. Had students been randomly allocated to undertake this course, we may have seen different group dynamics, and ultimately less favourable learning outcomes. However, repeating this exercise with students who had not been hand-picked for their interest and enthusiasm might provide opportunities for a greater shift in attitudes from a lower baseline. Finally, we are not able to comment on whether our course is suitable for all students regardless of their personal views on substance misuse.

There are some limitations to this research. First, we acknowledge that we have analysed and presented data on the course which we developed ourselves and, as such there is potential for us to be biased in our interpretation of, in particular, the qualitative data. In order to reduce possible bias, the data were coded by an independent researcher who then also provided feedback on the interpretation of the qualitative section. Second, some students did not have English as a first language, and their command of English was varied. By splitting them from their colleagues, they had to communicate in English, which was both an advantage for them in terms of improving their English, but also a potential disadvantage in an intense learning environment. In addition, having English as a second language may have impacted on their ability to comprehend some of the concepts presented as well as their ability to express their views during the qualitative component of this research. We also note the possibility of social desirability bias, even though students were assured of anonymity. Finally, the Summer School required an intensive, sustained period of work on one subject. To what extent these results might be replicated should the syllabus be threaded through a whole semester (and likely in a single university's curriculum) needs to be explored. Nonetheless, the research shows that our learning

environments fostered positive outcomes for students. However, whilst we have shown changes in attitudes in the classroom, our study design cannot predict the extent to which these changes will be reflected in future clinical practice.

Conclusions

An interprofessional harm reduction course of this type can have a positive impact on students' attitudes towards harm reduction.

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