

Title:

The Impact of an End-of-Life
Healthcare Ethics Educational
Intervention

Authors:

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Abstract

Background: The impact of healthcare ethics educational interventions on participants' ethical development is rarely reported on and assessed; even less attention is paid to educational interventions that focus on end-of-life ethical issues.

Aim: To evaluate the impact of the *Ethical Framework for End-of-Life Care Study Sessions Programme (EOLCSS)* on the moral development of healthcare staff who are delivering end-of-life care.

Methods: The *EOLCSS* was delivered to twenty multidisciplinary health care staff in Ireland in May 2013. Effect on moral reasoning was measured pre and post education using the Defining Issues Test 2 (DIT2). Inferential statistics were used to examine relationships between change in DIT2 scores and demographic variables.

Results: Participants experienced moral reasoning development following receipt of *EOLCSS*. Age and previous ethics education contributed to the observed changes in moral reasoning.

Conclusions: Receipt of the *EOLCSS* may contribute to moral reasoning development in practicing healthcare professionals.

Key words: ethics, health professionals, end of life, education, moral reasoning

INTRODUCTION

Good end-of-life care (EOLC) has been defined as high quality care that responds to the individualised needs of dying people and ensures that they die in a dignified manner, free of pain and distressing symptoms and in the presence of their loved ones. [1-3] In order to achieve good EOLC, the World Health Organisation (WHO) and many governmental and non-governmental organisations recognise that all healthcare staff require specific education.[2-5] In particular, because of the frequency and gravity of ethical challenges that arise in relation to end-of-life care provision, several authors suggest that ethics education and support should form a part of that educational provision.[6-8] The need for ethics education has also been highlighted in the Irish literature. In a recent qualitative study examining practitioners' perspectives on patient autonomy at end-of-life (EOL) in Irish hospitals, Quinlan and O'Neill[9] observed frequent active or aggressive treatment of patients at EOL, which was deemed 'inappropriate and arguably, unethical'(p.87). This finding was confirmed in a national audit on EOLC in Irish hospitals, which found that doctors and nurses 'were reluctant to make decisions to stop invasive treatments when patients were dying' (p.29). [10]

LITERATURE REVIEW

A search of the databases (PubMed / CINAHL / PsychINFO / Philosopher's Index and Embase) was conducted for empirical studies (2003-2013) which evaluated the effectiveness of classroom-based ethics-specific education programmes delivered to healthcare students and staff. Sixteen studies were subsequently included in the review. Of these, five studies

evaluated the effects of ethics education on knowledge or other outcomes in single disciplines of undergraduate or practicing healthcare staff in countries outside of Ireland. In these studies ethics education was delivered as either ethics-specific education or as an integrated component of undergraduate training. Four out of five of the studies demonstrated positive effects of ethics education on change in knowledge or other outcomes.[11-14] In all of these studies small group case discussion was incorporated into the ethics education delivered. These studies suggest that ethics education programmes incorporating small group case discussion may contribute to the effectiveness of ethics education on change in knowledge. However it is impossible to generalise this finding due to their small sample sizes[11, 14] and high sample mortality.[12,13]

Eight of the studies evaluated the effect of ethics education on moral reasoning in healthcare staff using either the Defining Issues Test (DIT)[15-20] or the Moral Judgement Interview (MJJ)-Form B.[21,22] The DIT and the MJJ-Form B are both paper-and-pencil tests, designed to evaluate moral reasoning based on responses to hypothetical ethical cases. The findings of the eight studies included our literature review were inconsistent. Five of the studies failed to demonstrate that education incorporating an ethics component facilitated moral reasoning development in healthcare students and staff.[23-27] For example, both Patenaude et al.[27] and Fleisher et al.[24] carried out studies using pre- and post- test designs to evaluate the effect of medical training incorporating ethics education on change in moral reasoning development among medical students in Quebec and Manitoba respectively. While the precise nature and quality of the ethics education interventions was

unclear in both studies, neither demonstrated any development in the moral reasoning of students as they progressed through their undergraduate education.

Pre- and post- test studies on physiotherapy and occupational students (n=108) in Mexico[23] and ophthalmology residents (n=57) in New York[25] also failed to demonstrate that an ethics education programme leads to moral reasoning development. Finally, the Park et al's[26] descriptive study of first and final year (N=1137) nursing students, attending eight four-year undergraduate nursing programs in South Korea, using the shortened Korean DIT found that there was a non-significant difference in moral reasoning scores between the first and fourth year nursing students, indicating that the educational programs which incorporated ethics education did not facilitate moral reasoning development.

In contrast to the findings of the five studies discussed above, three studies reported that ethics education facilitated moral reasoning development in healthcare staff.[28-30] These studies were conducted with first (n=266) and final year (n=278) nursing students in Finland,[28] occupational and physiotherapy students (n=548), attending a university in Canada[30] and dental professionals (n=30) in the US.[29] It is unclear what contributed to the improved outcomes in these studies. All students in Auvinen et al.[28] received ethics education as part of their undergraduate nursing studies; however methods of education varied between the four educational institutions included in the study. Reported methods of ethics education included lecture / cases / discussion / group work and individual work. The duration of education in each site was not specified. In addition the study did not compare DIT scores within students before and after education, thus making it difficult to

determine whether the change in moral reasoning development was as a result of the ethics education intervention or other factors.

Geddes et al.[30] described their programme as consisting of a “pedagogical framework of problem based learning, incorporating small group and case based study”(p.99), however, the content and duration of the ethics education was not specified. There were also a number of limitations in this study which may have biased the results in favour of the positive findings. Firstly, as acknowledged by Geddes et al.[30] the students who participated post the educational intervention may have been students who were ethically concerned in any case. Secondly, there were multiple factors in the students’ educational programmes e.g. academic studies and clinical fieldwork, which could have enhanced moral development thus making it difficult to attribute the enhanced moral judgement abilities specifically to the ethics education received.

The programme implemented by Bebeau [29] (described in Bebeau[31]), was an ethics-specific programme delivered to small groups of qualified dental professionals to address specific deficits in ethical capabilities. In this study, each professional received ethics education which consisted of 25 to 30 contact hours usually in two-hour face to face seminars over several months.[29] Learning materials included course directed reading, writing, self-assessment and self-reflection. All participants 30/30 (100%) completed the DIT successfully pre and post course. Bebeau[29] reported that there was a statistically significant improvement in DIT scores pre and post ethics education ($p < .0001$), indicating that participants experienced moral development as a result of the education programme. A strength of this study was that it isolated the effects of ethics-specific education on moral judgement development, as the ethics education was implemented in the form of an ethics-

specific course in contrast to the studies of Auvinen et al.[28] and Geddes et al.,[30] where the ethics education was integrated in to professional education programmes. One of the main limitations of this study was that it lacked a control group.

Finally, three studies identified for inclusion in this literature review evaluated the effect of ethics education integrated into EOL or palliative care (PC) training in either single or multiple disciplines of practicing healthcare staff. These three studies examined the impact of circa a one hour session on ethics as part of one or two day training sessions in end-of-life care.[31-33] Baughcum et al.[31] included a 45-60 minute module on ethics as part of a one day training workshop on palliation and EOL care for paediatric haematology / oncology fellows (N=32) in the US. Rogers et al.[33] provided nurses (n=11) with an hour of education on ethical/legal issues in EOL care of infants as part of a neonatal EOL educational program in the United States. Finally Quinn et al.[32] provided one session (duration not specified) on ethical and legal challenges delivered to a mixed group of healthcare staff (N=537) as part of a two day multidisciplinary palliative care education program in Australia. While Rogers et al.[33] and Quinn et al.[32] found some indications that the ethics sessions contributed positively to the comfort levels and perceived knowledge of the participants vis a vis end-of-life ethical issues, the small sample sizes and uncertain impact of all of the different variables that may have influenced the results make it impossible to draw any firm conclusions about the impact of the ethics sessions.

To conclude, there appears to be a need for large well-designed studies, which evaluate the effects of ethics education programmes delivered to single and multiple disciplines of healthcare staff. While, the literature review demonstrated that, in the main, authors assess the effectiveness of ethics education in terms of knowledge acquisition and enhanced moral

reasoning - given the variable findings - only tentative conclusions can be drawn. The studies reviewed which demonstrated the effectiveness of ethics education programmes indicate that ethics educational interventions should focus on particular cohorts and/or particular gaps in learning[29] and/or focus on small group discussion and case based study.[12][14][30] This is consistent with the conclusions of the meta-analysis of 55 studies using the DIT on various subject groups carried out by Schlaefli, Rest, & Thoma[34] in 1985 which argued that the most effective type of ethics education programmes for facilitating moral reasoning development were those involving either dilemma discussion or personality development and with a duration of three to twelve weeks.

For our purposes, the review also suggests the need to conduct studies which would examine the effectiveness of classroom-based EOL ethics-specific education programmes delivered to healthcare staff who are involved in end-of-life care. Moreover, given the dearth of information about ethics education provision in Ireland, it is imperative that we conduct studies to establish how healthcare staff access ethics education in Ireland, the nature of such education and the effects of such education – all the more so ethics education at the end of life.

Aim & Objectives

The study aimed to evaluate the impact of the *Ethical Framework for End-of-Life Care Study Sessions (EOLCSS)* [35] in a mixed group of healthcare staff who deliver end-of-life care (EOLC) to patients and families in the Republic of Ireland.

Ethics Education Intervention

The *EOLCSS*, [35] the educational intervention implemented and evaluated in this study, is a classroom-based, multidisciplinary, ethics-specific education programme. The programme was developed by University College Cork, the Royal College of Physicians of Ireland and the Irish Hospice Foundation in response to the need for EOLC ethics education in Ireland. It is one of the outputs of a national project lead by the Irish Hospice Foundation (2007-2012) with the overall aim of improving the culture of death and dying in Irish hospitals. Although the *EOLCSS* programme has been delivered in a variety of settings in Ireland; its impact has not been formally evaluated to date.

The programme consists of eight work books containing eight ethics study sessions covering the following topics: Explaining ethics, breaking bad news, healthcare decision making and the role of rights, autonomy in law and practice, ethics of managing pain, ethics of life prolonging treatments, ethics of confidentiality and ethical governance in clinical care (available online [35]). Each session involves the presentation of an ethical case on one of the topics, followed by critical discussion of the case from ethical and legal perspectives, consideration of the professional obligations that it prompts and individual and group activities.

METHOD

Participants

Twenty volunteers drawn from a range of health and allied professions were recruited from the Health Service Executive and a facility which provides Specialist Palliative Care (SPC) and Older Person services in the Mid-West region of Ireland (See Table 1 for demographic details).

Procedure

The study was conducted in 2013 in the Mid-West region of Ireland. Volunteers were recruited via open email invitation and local advertising. Participation in the study was voluntary. Written consent was obtained from participants at the beginning of the study and all participants were advised that they could withdraw from the study at any time. Ethical approval and Risk Management approval were received from the Research Ethics Committee and Risk Management department, in the University Hospital Limerick. The lead researcher (CM) of this study delivered the *EOLCSS* to two groups of multi-disciplinary healthcare staff, with reported experience in delivering EOLC to patients and families in May 2013. Each group consisted of ten healthcare staff. Four ethics seminars were delivered once weekly, over a four week period. Delivery duration of four weeks was chosen because of time constraints and because research suggests that a duration of three to twelve weeks is necessary in order to demonstrate the effect of ethical education on moral reasoning development, using the DIT as a measurement tool.[34] Each seminar lasted two hours and involved the delivery of two of the *EOLCSS*.

Design

The study used a one group pre-test post-test evaluation design and a convenience sampling technique.

Research Instruments

Demographic Survey

Each participant completed a short demographic questionnaire at the beginning of the ethics education programme. The demographic survey collected information on gender, occupation, age, experience delivering EOLC, previous educational level and ethics education experience.

Defining Issues Test 2

All participants completed the Defining Issues Test version 2 (DIT2) at the beginning and end of the education programme. The DIT2 was used to assess the effect of the ethics education programme on one aspect of moral development: moral reasoning pre and post receipt of the ethics education intervention. Moral reasoning was chosen as the outcome measure in this study due to time limitations and because moral reasoning was identified as the most frequently assessed outcome in similar studies.

The term moral reasoning refers to the cognitive process that individuals use to determine a right or wrong action. Rest et al.[15] define it as a 'psychological construct that characterises the process by which people determine that one course of action in a particular situation is morally right and another course of action is wrong'(p.5). Rest et al.[17] also suggest that three distinct schemas exist with regard to moral reasoning development: the Personal Interests (PI) Schema, the Maintaining Norms (MN) Schema and the Post Conventional (P) Schema. According to Rest et al.,[17, 20] the PI Schema is derived from stages 2 and 3 of Kohlberg's theory on moral reasoning development and appeals to the personal stake that an individual has in the consequences of an action. In this stage, moral decisions are made

based on the consequences to the individual or those with whom the individual has a personal relationship. The MN Schema is derived from Kohlberg's stage 4 and appeals to societal concepts of law and order.[17,20] In this stage, an individual makes moral decisions based on conformity with societal law or an established way of doing things. Finally, the P Schema appeals to shared ideals that are fully reciprocal and are open to scrutiny through debate, tests of logical consistency and community experiences.[20] In this stage, an individual makes moral decisions by appealing to ideals and logical coherence. According to Rest et al.[20] these schemas are developmentally ordered, with the PI schema representing the least developed schema and the P schema representing the most advanced schema. Rest et al.[19] suggest that individuals utilise these schemas to resolve ethical problems. However individuals do not utilise one distinct schema when facing ethical problems, rather they utilise combinations of moral schemas. Rest et al[19] also suggest that these combinations change over time as individuals experience moral development. Consequently, moral development is not characterised by step by step progression from the PI schema to the MN schema and progressing onto the P schema. Instead, Rest et al.[19] suggest that moral development is characterised by a reduction in the use of lower developmental schemas and an increase in the use of higher developmental schemas. Following on from this understanding of schemas, Rest and colleagues developed the DIT, a multiple choice test, which presents participants with a set of hypothetical moral dilemmas, followed by three suggested courses of action for each dilemma and twelve statements relevant to the decision the participant has chosen.[17-18] Each participant must select his / her preferred course of action to solve the dilemma and then rate and rank the importance of the twelve accompanying statements presented to the participant, in terms of the

importance of each statement, when applied to the decision the participant has chosen. The statements presented to participants are designed to represent different moral schemas, as discussed above.

The DIT is reported to be an exceptionally well validated and reliable measure of moral reasoning.[17][18][23][34][36] The most recently updated version of the DIT, the DIT2 was chosen as it was identified as having superior properties to the original DIT. As acknowledged by Rest et al.[18] and Walker,[36] it is shorter, more reliable and purges fewer participants than the original DIT. With regard to length, the DIT2 uses five moral dilemmas as opposed to the six dilemma format of the original DIT. In relation to reliability Cronbach's alpha is 0.76 for the original DIT and 0.81 for DIT2, reflecting superior validity of the DIT2.[18]

The paper-and-pencil version of the DIT2 was chosen in preference to the online version as the developers of the test recognise that the gold standard environment for administering the test is in a group-testing environment.[37]

Data Analysis

The Statistical Product and Service Solutions 14.0[38] programme was used to analyse the DIT2 and demographics data. Descriptive statistics were used to describe the demographic profile of participants. All pre and post tests were coded by the lead researcher (CM) of the study to anonymise participants' data and all data was entered into an excel spreadsheet. Anonymised DIT2 data was sent to The University of Alabama Office for the Study of Ethical Development for scoring as this was considered to be standard practice. The University of

Alabama Office for the Study of Ethical Development subsequently generated mean pre and post test PI, MN, P and N2 scores from anonymised DIT2 data.

As indicated above, analysis of completed DITs generates four scores: the PI, the MN, the P and the N2 score.[39] The PI score represents the proportion of items selected that appeal to the Personal Interests schema, the MN score represents the proportion of items selected that appeal to the Maintaining Norms schema and the P score represents the proportion of items selected that appeal to the Post conventional schema.[39] Accordingly, the PI, MN and P scores represent the degree to which the individual utilises each of these schemas when addressing moral problems. The N2 score represents the degree to which individuals reject lower stage items in preference for higher stage items.[39] All four scores are reported as numerical values of between 0 and 95.

Paired t-tests were used to test for differences between mean pre and post PI, MN, P and N2 scores, to establish whether moral reasoning scores had changed between pre and post-tests. Relationships between difference in PI scores (PI difference) pre and post-test, difference in N2 scores (N2 difference) pre and post-test and demographics variables were examined using inferential statistics. Pearson's product moment correlation was conducted to establish if there was a relationship between years practicing and PI difference or N2 difference and if there was a relationship between age and PI difference or N2 difference (It was not possible to examine relationships with the demographic variables of occupation, gender, care area of work or highest level of education completed as there were not sufficient numbers of subjects within subgroups for each of these variables.). Spearman's rank order correlation was conducted to establish if there was a relationship between number of education sessions attended and PI difference or N2 difference. In order to

establish whether previous ethics education received by participants may have contributed to changes in PI and N2 scores, the mean PI difference and mean N2 difference was calculated for participants who reported having received ethics education previously and for participants who had not received ethics education previously. Independent samples t-tests were used to test for differences in mean PI difference and mean N2 difference scores in both groups.

Results

Twenty healthcare staff participated in the *EOLCSS*. Eighty-five per cent of participants attended all four ethics education sessions, 10% attended three ethics education sessions and 5% attended two ethics education sessions. All twenty participants completed the demographic questionnaire prior to receiving the ethics education intervention. The demographic characteristics of participants are displayed in Table 1.

Change in Moral Reasoning

All 20 participants (100%) completed valid pre-test and post-test DIT2s. Mean pre and post-test PI, MN, P, N2 scores and the results of the paired t-tests performed on the pre and post-test scores are displayed in Table 2. PI scores decreased by -5.76 points ($p=.071$) between the pre and post tests and this difference approached statistical significance. MN

scores increased by +5.04 points between pre and post tests ($p=.154$) and P scores increased by +1.82 points between pre and post tests ($p=.536$) however these differences were not statistically significant. Finally N2 scores increased by +3.75 points ($p=.085$) between pre and post tests and this difference approached statistical significance.

Change in Moral Reasoning & Relationship with Years Practicing, Age, Number of Education Sessions Attended and Prior Ethics Education

The results of the statistical tests of the relationship between change in moral reasoning and demographic variables in this study are displayed in Table 3 below. A significant relationship was observed between age and change in moral reasoning and prior ethics education and change in moral reasoning.

Discussion

To the authors' knowledge this is the first study published in the last ten years that evaluated change in moral reasoning following receipt of a multidisciplinary classroom-based EOL ethics-specific education programme. In this study lower stage moral reasoning scores (PI scores) decreased between pre and post-tests and higher stage moral reasoning scores (MN and P scores) increased. Rest et al.[19] suggest that moral reasoning development is characterised by decreasing use of lower stage moral reasoning scores and increasing use of higher stage moral reasoning scores. Thus, the results indicate that participants in this study experienced moral reasoning development following receipt of the *EOLCSS*. Moreover, Bebeau and Thoma[39] have acknowledged that an increase in N2

scores is indicative of the degree to which higher stage moral reasoning scores are prioritised over lower stage moral reasoning scores, thus reflecting moral reasoning development. Therefore the increase between pre-test and post-test in N2 scores in this study confirm that participants experienced moral reasoning development following receipt of the *EOLCSS*.

In this study there was a statistically significant relationship between age and change in PI score ($p < 0.05$), suggesting that age contributed to the change in moral reasoning observed in this study. This is an expected finding, as Rest and Narvaez[40] acknowledge that as people advance in age, their moral reasoning changes. There was also a statistically significant relationship between change in N2 score between pre and post tests and ethics education previously attended ($p < 0.05$), suggesting that ethics education previously attended may also have influenced the change in moral reasoning observed in this study. As this is the first study published in the last ten years that evaluated change in moral reasoning following receipt of a multidisciplinary classroom-based EOL ethics-specific education programme, the results cannot be compared directly to similar studies. Consequently the authors compared the results of this study with the results of studies with a pre-test post-test design which evaluated the effect of broad ethics education delivered to undergraduate and practicing healthcare staff on change in moral reasoning to contextualise the current study findings.

Similar to the current study, Dieruf[23] and Geddes et al.[30] evaluated the effect of ethics education on changes in moral reasoning. The current study observed a +1.82 point increase in mean DIT2 P score in practicing multidisciplinary healthcare staff who received a four week EOL ethics specific education programme, indicating that participants experienced

moral reasoning development following receipt of ethics education. This result conflicts with the findings of Dieruf,[23] who observed a decrease of 0.25 points in mean DIT P scores in Physiotherapy (PT) and Occupational Therapy (OT) students who had received small units of ethics education integrated into their respective professional training programmes at a University in New Mexico. However, Dieruf[23] suggests that the lack of moral development observed in her cohort may have been due to deficiencies in ethics education received, as 'neither programme included the recommended 3-12 weeks of ethical instruction'(p.28). In contrast, the current study delivered an ethics education programme over a four week period. It is possible that the difference in results may be attributable to differences in duration of the ethics education programmes.

In contrast to Dieruf's study,[23] Geddes et al.[30] concluded that ethics education, integrated into undergraduate OT and PT training, facilitated moral reasoning development. The results of the current study support and extend this finding. Geddes et al.[30] observed a statistically significant increase of +4.4 points ($p < 0.001$) in mean DIT N2 scores in PT and OT students, who received ethics education as an integrated component of their undergraduate professional training in a university in Canada. However, Geddes et al.[30] suggest that the change in moral development observed in their study may have been due to multiple factors in the educational programmes e.g. academic studies, clinical fieldwork, mentorship, thus making it difficult to attribute the changes in moral judgement development specifically to the ethics education received. By contrast, this study has shown that changes in moral reasoning can be specifically attributed to the specific ethics education programme received by study participants.

Similar to the current study, Packer[25] and Bebeau[29] evaluated the effect of ethics specific programmes on change in moral reasoning in practicing healthcare staff using the DIT. Packer[25] evaluated the effect of ethics education in practicing medical ophthalmology residents in New York and Bebeau[29] evaluated the effect in practicing dental professionals in Minnesota.

The current study observed an increase of +1.82 points ($p=.536$) in mean DIT2 P scores ($p=.536$) and an increase of +3.75 points ($p=.085$) in mean N2 scores, in multidisciplinary healthcare staff following receipt of a four week ethics education programme, demonstrating enhanced moral reasoning in multidisciplinary healthcare staff following receipt of the intervention. In contrast, Packer[25] observed a mean decrease of -4.76 points in mean DIT P score ($p=.058$) and -1.64 points in mean N2 score ($p=.572$) in medical ophthalmology residents following receipt of a one year ethics education programme, demonstrating regression in moral reasoning following their intervention. A significant factor that may have contributed to this difference in findings was the difference in the ethics-specific education programmes implemented. In the current study, the ethics education programme implemented and evaluated was based on dilemma discussion, while Packer's[25] ethics education programme comprised of ethics lectures. Schlaefli et al.[34] has suggested that the most optimal ethics programmes for enhancing moral reasoning development are those that include either personality development or dilemma discussion.

The findings of the current study support and extend the findings of Bebeau,[29] who also found that ethics-specific education facilitated moral reasoning development in healthcare staff. Bebeau[29] observed a statistically significant increase of +14.9 ($p<.0001$) points in DIT mean P scores of dental professionals, who had received ethics-specific

education in Minnesota. The current study observed an increase of +1.82 points in mean P scores ($p=.536$), but this finding failed to reach statistical significance. There are, however, a number of differences between the two studies which may account for the difference in findings. Bebeau[29] utilised a larger sample size ($N=30$) than the current study ($N=20$) and the ethics education programme delivered was of significantly longer duration - 25-30 contact hours delivered over several months vs. eight hours delivered over four weeks. In addition, the ethics education programme in Bebeau[29] was delivered to small groups of one to five dental professionals, the content of each course being specifically designed to address deficits in the moral abilities of each individual as identified from an initial interview, diagnostic assessment and learning plan for each participant. These differences may account for the greater difference observed in pre and post scores compared with the current study.

Limitations and Future Recommendations

The change in moral reasoning observed in this study did not reach statistical significance however this result may have been due to its small sample size. Accordingly, the study should be repeated in a statistically-powered sample before drawing any firm conclusions about the effects of the education programme. This study was also limited by its use of a convenience sample of healthcare volunteers recruited from one setting in one region of Ireland. This restricts the ability to generalise the study findings to other areas in Ireland or indeed to populations abroad. The study should be repeated across multiple geographical sites before generalising the study's results.

Due to time limitations, this study evaluated the effects of the *EOLCSS* on only one component of moral development: moral reasoning. Arguably there are at least three others e.g. moral sensitivity, moral motivation, moral character.[40-41] Future studies which evaluate the effects of the *EOLCSS*, or other ethics education programmes, should consider evaluating the effects on all four components of moral development and, furthermore, on the actual moral behaviour of healthcare staff.

Finally, the *EOLCSS* consisted of multiple educational components such as the workbooks, group discussions and group activities. Therefore, it is impossible to determine whether all components acted synergistically to promote moral development in study participants or whether individual components achieved this effect. Future studies evaluating the effect of the *EOLCSS* or similar educational interventions should consider, in the design phase, whether it is possible to isolate the effects of the individual components of the educational interventions.

Conclusion

This study demonstrated that the *EOLCSS* can be successfully delivered to multidisciplinary groups of healthcare staff and that the effects on moral reasoning development can be evaluated using the DIT2. It is the first known study of its kind.

The results suggest that the *EOLCSS* may have contributed to moral reasoning development in multidisciplinary healthcare staff involved in delivering EOLC to patients and families. However, in order to confirm and extend this finding, the programme should be evaluated in a larger sample of practicing healthcare staff in multiple sites across Ireland and elsewhere.

Given the dearth of research in the area of ethics education and, specifically, in the area of end-of-life healthcare ethics education, further studies that examine the impact of ethics interventions on the ethical understanding and practice of health professionals would be timely and appropriate.

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Declaration of Conflicting Interests

The authors declare that there is no conflict of interest.

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Table 1: Demographic Characteristics of Participants

Demographic Variables	Number of Participants	Percentage
Age		
Mean 38.63 years (SD 6.857)	20	100%
Gender		
Female	19	95%
Male	1	5%
Occupation		
Dietitian	3	15%
Physiotherapist	3	15%
Speech & Language Therapist	2	10%
Nurse	5	25%
Occupational Therapist	3	15%
Nurse Tutor	2	10%
Art Therapist	1	5%
Chaplain	1	5%
Years Practicing in Occupation		
Mean 14.8 years (SD=6.963)	20	100%
Work Area		
Hospital	4	20%
Primary Care	4	20%
Specialist Palliative Care	10	50%
Education	2	10%
Highest Level of Education Completed		
Degree	8	40%
Post Graduate Diploma	6	30%
Masters	6	30%
Received prior Ethics Education		
None	10	50%
One or more ethics lectures	6	30%
Module on ethics	1	5%
Workshop or conference	2	10%
Missing data	1	5%

Table 2: Mean Pre-test Post-test Moral Reasoning Scores & Paired Samples Statistics

	Type of Score	Mean Score	Difference between pre and post test scores	N	Std. Dev	Sig. (2-tailed)
Pair 1	Pre PI	31.50	-5.76 points	20	15.188	.071
	Post PI	25.74		20	9.454	
Pair 2	Pre MN	31.00	+5.04 points	20	10.146	.154
	Post MN	36.04		20	13.689	
Pair 3	Pre P	33.60	+1.82	20	13.805	.536
	Post P	35.42		20	15.171	
Pair 4	Pre N2	29.25	+3.75	20	14.295	.085
	Post N2	33.00		20	15.324	

Table 3: Relationship between Demographic Variables & Change in Moral Reasoning Scores

Relationship Tested	Test	Result
a) Years practicing & b) PI difference (Post PI-PrePI)	Pearson's product moment correlation	($r = -.007$, $p > 0.05$)
a) Years practicing & b) N2 difference (Post N2-PreN2)	Pearson's product moment correlation	($r = .099$, $p > 0.05$).
a) Age & b) PI difference (Post PI-PrePI)	Pearson's product moment correlation	($r = -.504$, $p < 0.05$)
a) Age & b) N2 difference (Post N2-PreN2)	Pearson's product moment correlation	($r = .167$, $p > 0.05$)
a) Number of ethics sessions attended & b) PI difference (Post PI-PrePI)	Spearman's rank order correlation	($r_s = -.133$, $p > 0.05$)
a) Number of ethics sessions attended & b) N2 difference (Post N2-PreN2)	Spearman's rank order correlation	($r_s = -.086$, $p > 0.05$).
a) PI difference group with no ethics education & b) PI difference group with prior ethics education	Independent samples t-tests	$t(17) = .115$, $p > 0.05$).
a) Mean N2 score group with no ethics education & b) Mean N2 score group with prior ethics education	Mann-Whitney U tests	($U = 20$, $p < 0.05$).