

Effects of enterostomal therapists training: Evaluated with Kirkpatrick's model

ABSTRACT

Objective To evaluate the effect of training for enterostomal therapists (ETs) based on Kirkpatrick's Four Levels of Training Evaluation model. To understand ET trainees' work status after completing the Enterostomal Therapy Nursing Education Program (ETNEP) course as well as the ET students' satisfaction of teachers and studying conditions when completing the Wenzhou ETNEP.

Methods One hundred and sixty-nine students who had completed the Wenzhou ETNEP were evaluated by Kirkpatrick's Four Levels of Training Evaluation model from four perspectives, namely the Reaction, Learning, Behaviour and Result levels.

Results The overall satisfaction of the Wenzhou ETNEP was high in the Reaction level. In the Reaction Level the average matrix score of training programs and teachers was: >1.4. In the Behavioural level, 103 ETs participated in stoma and wound clinics, with 99.2% of them actively promoting ET nursing knowledge and 18 ETs (13.2%) serving as teachers of ETNEP schools. One hundred and sixteen ETs (85.3%) conducted ET-related nursing courses for other nursing staff and 58.8% of ETs had conducted continued education courses. Of the ETs, 22.8% participated in the hospital's outpatient or outreach stoma and wound care services. In the Result level, 58.8% of ETs participated in nursing research of the specialty, 29.4% of ETs had obtained scientific research funds and 136 ETs had published papers.

Conclusion Students are satisfied with the ETNEP training they received. Their ability to work and function as ETs has improved on completion of their training. In addition, their professional standing has improved, with all ETNEP participants having achieved good results in the fields of specialised nursing, extended nursing, scientific research and teaching. However, in reviewing the survey results and aligning these with current standards of practice and employment of ETs in China, there is the need to modify parts of the ETNEP (such as raising the degree of ET students' entry criteria), standardise teaching materials and establish communication processes with mechanisms for exchanging ET teachers nationally and internationally, to ensure the quality of teaching and improve the quality of specialised ET nursing.

Keywords Enterostomal therapist, training, evaluation, Kirkpatrick's Model, ETNEP, reaction, learning, behaviour, result.

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Shenlv Ying

ET, RN, BScN

Department of Colorectal Surgery, Wenzhou Central Hospital
Zhejiang Province, China

Jiang, Hai-Hong

MD, PhD

Professor and Director, Neuro-Urology Center
The First Affiliated Hospital of Wenzhou Medical University
Wenzhou, Zhejiang Province, China

Ai-hua Chen(Alice)*

ET, RN, BScN

Director of Wenzhou Enterostomal Therapy Nursing Education
Programs, Second Affiliated Hospital of Wenzhou Medical University,
Wenzhou, Zhejiang Province, China
Email: 821046478@qq.com

*Corresponding author

INTRODUCTION

The Wenzhou Enterostomal Therapist Nursing Education Program (ETNEP) in the Zhejiang Province of China was recognised by the World Council of Enterostomal Therapists (WCET®) in 2008. The Wenzhou ETNEP is one of 12 Chinese schools that train enterostomal therapists (ETs). Annually since 2008, Wenzhou has recruited ET students from all over China and by the end of 2018 had recruited 199 students for 10 terms. Excluding those 30 students in training for their tenth term, all these students have completed all courses within the ETNEP program and have successfully passed all examinations and evaluations and subsequently received their ET certificates from the WCET®.

As a clinical nurse specialist in the field of ostomy, wound and incontinence care, the ET nurse's main responsibilities are: taking care of ostomates; preventing and treating stoma

complications; managing chronic wounds and incontinence; and providing psychosocial care and counselling services for nurses, patients and their families¹.

This study was undertaken to evaluate and better understand ET students' feedback from and satisfaction with the Wenzhou ETNEP. The evaluation included satisfaction with teachers, learning conditions as well as students' respective hospital's working conditions after obtaining their ET qualifications. A survey was conducted among 169 ETs who had graduated from the Wenzhou ETNEP using Kirkpatrick's model, which was proposed by Professor Kirkpatrick of Wisconsin University in 1959²⁻⁶. This model has been widely used in the education field for evaluating education programs, especially in evaluating the effect of training and education on medical staff⁹.

The Kirkpatrick model or Kirkpatrick's Four Levels of Training Evaluation is divided into four different evaluation levels, which are Level 1: Reaction; Level 2: Learning; Level 3: Behaviour; and, Level 4: Results⁷. The characteristics of each level, options for methods of program evaluation and the relevance or practical undertaking of each level are summarized in Table 1. The premise, therefore, of using Kirkpatrick's model in this study was to evaluate the effectiveness of the Wenzhou ETNEP and to understand student ET nurses' responses to the training provided in order to provide a reference base to improve future training of specialised ET nurses.

STUDY METHODOLOGY

Study population: Inclusion and exclusion criteria

Included in this study were 169 ET nursing students from nine classes of Wenzhou ET schools. Excluded were 30 students of the tenth class who had not obtained their ET nursing qualification and certificates.

Study methods and design

The 169 ET nursing students were surveyed using a questionnaire that contained 85 questions containing the Kirkpatrick's Four Levels of Training Evaluation model. The content of the questionnaire included questions on ET students' general situation, role functions and work achievements, as well as working organisation situation. The ETs' work and role functions were formulated according to the current ETs' role model ascribed to in the USA⁸, including professional title, direct nursing service and professional guidance, role of teacher, role of researcher, and self-development role.

The development, implementation and analysis of the survey results was done on an internal website. These processes were divided into several steps: online design, setting properties, release of the questionnaire, informing ET students of the questionnaire and setting a deadline date of one week in which ET nurses could access, complete and return the questionnaire. Provision was made to download the survey data, analyse the results and create reports. The internal website program was automated to enable data analysis of the survey results using simple descriptive statistics.

ETHICAL APPROVAL

Ethical approval was not required to conduct this study. Completion of the questionnaire implied consent by participants.

RESULTS

Participant demographics

There were 136 ETs who participated in the survey: a response rate of 80.4%. Survey respondents included 7 males and 129 females. Five respondents had a master's degree, 124 had a bachelor's degree and 7 had a junior college degree. With regard to their professional titles, 9 respondents were chief director of nurses, 32 deputy director chief nurses, 73 chief nurses, 21 senior nurses and one junior nurse. There were 100 ETs working in tertiary-grade hospitals (73.5%), 22 ETs working in tertiary B hospitals (16.0%), 11 ETs working in second grade hospitals (8.0%), and 3 ETs working in community hospitals (2.2%).

Reaction level

The average matrix score of training programs and teachers was: >1.4 (Table 1).

Learning layer

All students obtained their ET qualification certificates from WCET[®] after training, with 76.4% of students having participated in domestic academic exchanges and 13.2% participating in international academic exchanges (Table 2).

Behaviour level

Among the ET respondents, 113 (83.0%), believed that the hospital attached great importance to the specialised work of ETs and 126 (92.7%) believed that the staff of other departments were very cooperative with the specialised work of ET (Table 2).

Results level

After their ETNEP training, 80 students participated in scientific research projects and more than 100 students published papers (Tables 2 and 3).

RESULTS SUMMARY

ET training

The WCET[®] education committee created the ETNEP, providing tri-specialty education programs for wound, ostomy and continence nursing care and any of the specialty practice areas individually. The education program is made up of wound care, ostomy care, continence care and professional development, with each category at 30%, 40%, 18–20% and 12–10%, respectively. It is comprised of at least 180 hours of theoretical studies and 180 hours of clinical studies. The theoretical studies are mainly to explain relevant theoretical knowledge, which adopt various forms of teaching, such as discussion, questioning and role simulation. Clinical teaching is taught mainly by certified ETs through case discussions and case nursing. To ensure the students received hands-on

Table 1: Reaction level — satisfaction with teachers and school conditions (n=136) case (%)

Items	Categories	Very satisfied (%)	Satisfied (%)	Mildly satisfied (%)	Less satisfied (%)	Dissatisfied (%)
Overall quality of curriculum	Course content design	82 (60.2)	49 (36.0)	4 (2.9)	1 (0.7)	0 (0%)
	Degree of clarity of curriculum objectives	87 (64.0)	46 (33.8)	3 (2.2)	0 (0%)	0 (0%)
	The importance of course content to work	83 (61.0)	48 (35.3)	5 (3.7)	0 (0%)	0 (0%)
	Teaching methods can help you learn	80 (58.8)	51 (37.5)	5 (3.7)	0 (0%)	0 (0%)
	Participation degree of students in class	78 (57.4)	53 (39.0)	5 (3.7)	0 (0%)	0 (0%)
	To what extent has this course achieved your goals?	71 (52.2)	59 (43.4)	6 (4.4)	0 (0%)	0 (0%)
	The achievement of course objectives	74 (54.4)	56 (41.2)	6 (4.4)	0 (0%)	0 (0%)
Teaching quality and characteristics	The preparation and mastery of courses	86 (63.2)	47 (34.6)	3 (2.2)	0 (0%)	0 (0%)
	Adjustment of classroom atmosphere	85 (62.5)	47 (34.6)	4 (2.9)	0 (0%)	0 (0%)
	Teaching methods are good at inspiring students' enthusiasm and independent thinking	83 (61.0)	50 (36.7)	3 (2.2)	0 (0%)	0 (0%)
	Control of teaching time	83 (61.0)	48 (35.3)	5 (3.7)	0 (0%)	0 (0%)
	Clarity of lecture content	87 (64.0)	45 (33.1)	4 (2.9)	0 (0%)	0 (0%)
Learning environment and resources	Learning materials in promoting learning appropriateness	81 (59.6)	51 (37.5)	4 (2.9)	0 (0%)	0 (0%)
	Learning environment in beneficial learning	85 (62.5)	48 (35.3)	3 (2.2)	0 (0%)	0 (0%)
Practice base situation	Preceptors were not working during teaching period	75 (55.2)	59 (43.4)	2 (1.5)	0 (0%)	0 (0%)
	There are plenty of stoma wound incontinence cases every day	69 (50.7)	53 (39.0)	14 (10.3)	0 (0%)	0 (0%)
	Have product display cabinets with various products	82 (60.3)	47 (34.6)	6 (4.4)	0 (0%)	1 (0.7)
	Complete patient's education materials	79 (58.1)	52 (38.2)	4 (2.9)	0 (0%)	1 (0.7)
	Specialised nursing work in separate hospital	81 (59.6)	51 (37.5)	3 (2.2)	0 (0%)	1 (0.7)

Table 2: Learning level — working situation of ET specialist before and after ETNEP training

Item	Before learning (%)	After learning (%)
Nursing specialist outpatient clinic	0 (0%)	103 (75.7)
Weekly ET specialised nursing hours		
≥40h	2 (1.4)	30 (22.0)
≥10h	30 (22.0)	58 (42.6)
<10h	60 (44.1)	48 (35.2)
Responsible for ET-related education courses		
Teacher of ET school	0(0%)	18 (13.2)
ET course	19 (14.0)	116 (85.3)
National re-education class	1(0.7)	7 (5.2)
Provincial and municipal re-education classes	41 (30.2)	73 (53.7)
Responsible for ET-related scientific research	5 (3.7)	80 (58.8)
Publish ET-related papers		
Category I journal (the highest class Chinese academic journal)	22 (16.2)	65 (47.8)
Category II journal (the second class Chinese academic journal)	81 (59.6)	159 (116.9)

opportunities, one ET can only teach two students during a training course⁹.

In order to promote specialised nursing development in general in China and to enhance the professional level of Chinese ET nurses to conform to the international standards, the Wenzhou ETNEP recruits ET nursing students from all over China. The purpose of the ETNEP is to promote the treatment and rehabilitation of patients with a stoma, wound or incontinence issue and improve their quality of life. The training content of the ETNEP includes two different parts which are theoretical learning and clinical practice; each part is of 210 hours' duration. The theoretical content includes four parts, which are wound care/stoma/continence care (85–90%) and professional development (10–15%).

The ETNEP is mainly taught by overseas and domestic ETs as well as professional workers. The clinical preceptors are local ETs within the province, with a guiding commanding principle of “one preceptor to oversee two students”. The

preceptors are committed to: cultivating students' clinical capabilities in stoma, wound and incontinence care; improving their assessment abilities; and helping them master ostomy complications, complex wounds and issues associated with incontinence. Furthermore, preceptors assist in the development of capable ETs by advancing students' knowledge base, clinical skills, problem-solving abilities that allows ETs to assess patients and family members' health problems and implement relevant nursing and health education strategies independently.

Approximately 100,000 new cases of permanent ostomies are created every year in China¹⁰. The basic nursing education curriculum in China does not include stoma care or specialist care provided by ET nurses¹¹. Clinical nurses in China lack a standard model of care for ostomates compared with ETs. The total number of ETs in China is currently very small, which means the needs of all patients with ostomies are not met. Therefore, it is very important to provide better training for ETs

Table 3: The roles and functions of ETs

Item	Before learning (%)	After learning (%)
Nursing manager (head nurse)	21 (15.4)	33 (24.2)
Clinical nursing (nurse)	95 (69.9)	52 (38.2)
(ET) specialised nursing	0 (0%)	31 (22.8)
Outpatient wound and stoma care clinic	20 (14.7)	20 (14.7)

and evaluate the effect of these specialised nurses. Kirkpatrick's Four Levels of Training Evaluation model was adopted to evaluate the Wenzhou ETNEP and the effect of the ETNEP on individual ET nurses and their employment in order to promote cultivation of ETs as specialised nurses.

Reaction level: satisfaction of educators and teaching conditions

The results from the Reaction level showed that students were on the whole quite satisfied with the learning environment, teaching resources provided and clinical practice opportunities experienced at base hospitals as well as the quality of training provided by the preceptors. However, it was thought the ETNEP lacked consistency with teaching materials, ability to diversify teaching methods to meet student requirements and program evaluation methods given the trainees are from all over China. Therefore, the curriculum should be designed according to the characteristics and needs of students from different regions around the country. Therefore, the ETNEP school will make appropriate adjustments to the ET training courses such as: strengthening training in the clinical practice and application of stomal therapy techniques and increase requirements of hospitals providing clinical placements to ensure ET nursing students are exposed to as much clinical experience as possible. Another change would be increasing ET students education in research techniques that would increase their ability to participate in clinical and scientific research. These changes will be made to ensure that the training of ETs is more in line with the clinical needs of patients with stomas and in advancing the ET nursing as a specialist field.

Learning level and change in ET students' educational qualifications

The Learning level demonstrated that all ET students successfully completed their training and obtained certification as an ET. Among the 136 students surveyed, there were no students with a doctoral degree. However, five students had a master's degree (3.7%), 124 had a bachelor's degree (91.2%), and seven had a college degree (5.2%). The need for specialised nursing care of patients with stomas, the importance of having trained nurses to provide ostomy, wound and continence care and the professionalism associated with certified ET or wound, ostomy and continence nursing services, and the benefits to patients and health care services are widely recognised internationally¹². Therefore, it is necessary to gradually advance the standards required for candidates of ET training, especially educational background and foreign language level.

Behavioural level: working status of ETs

Findings from the Behavioural level show that all ETs' role and functions were approved by their respective hospital and supervisors. Approximately 130 hospitals (95.5%) have operational specialised stoma and wound care clinics with established consultation systems. The development of the ET role is inseparable from the support of hospital, medical and nursing executive and cooperation of clinical medical staff within relevant hospital departments and outpatient services. The majority of ETs [(n=113 (83.1%))] believed their hospitals attached great importance to the specialised nature of the ETs'

work and 126 (92.6%) believed that other departments were very cooperative with ETs, allowing them to fulfil their role and function. Some ET nurses pointed out that due to internal organisational processes and bonuses received by authorised personnel for clinical work undertaken, some departments were unwilling to accept ET nursing services for all areas of hospital. Part-time ETs identified they not only participated in stomal therapy work, but also undertook clinical or managerial work on the wards, which meant they had a relatively heavy workload¹³.

However, only 31 ETs respondents (22.7%) in this survey enjoyed additional special bonuses and only 30 respondents (22.1%) indicated they thought their incomes were relative to their workload, which is bound to affect ETs' work enthusiasm. Therefore, it is necessary to improve the professional working conditions and level of remuneration of specialised ET nurses, to properly use available incentive mechanisms to engender the enthusiasm, initiatives and creativity of specialised nurses¹³.

Results level: ETs' role and research status

Data within the Results level shows that ETs nurses have many roles in addition to their traditional clinical nursing role. ET nurses also functioned as an educator, teacher and nurse consultant. Furthermore, they not only reviewed stoma and wound patients in outpatient clinics and hospital outreach services but also provided ET nurse consulting services to these patients in the ward. As educators, ET nurses provided related ostomy care courses for clinical nurses and medical health workers. ETs also participated in scientific research and published articles in many Chinese and international journals (such as the *Chinese Nurses Journal*, *Morden Nurses Journal*, *International Journal of Nursing Sciences* and so on).

DISCUSSION

Overall the results of the study would indicate that the ETNEP school curriculum requires review and revision. The quality of teaching could be improved by adopting the method of 'going out, coming in' with the exchange of ET teachers between China and international ETNEP teachers. This would allow Chinese ET nurses to participate in and learn from advanced teaching techniques used within international ETNEPs¹³ and provide international ETs with the cultural experience of teaching in China which would also strengthen international communication. This exchange would also assist in compiling standardized teaching materials, improve students' academic experiences and foreign language level. It would also establish a communication platform for the teaching staff [12]. In addition, more attention needs to be paid to ET nurse's professional growth and development after obtaining certification as an ET. Practicing ETs require easily accessible platforms to enable them to update their knowledge. They require mentoring in how to establish channels of communication with all levels of hospital hierarchy as well as associated medical personnel or organizations. Generally, in China, more professional support needs to be provided to ETs in their workplace to enhance their roles as specialized

nurses. This would allow Chinese ET nurses to fulfil their roles and functions to the best of their abilities, which would enhance patient care, achieve better patient and organizational outcomes and facilitate higher levels of individual achievement in clinical care, scientific research, teaching and managerial elements of ET nursing.

CONCLUSION

Kirkpatrick's Four Levels of Training Evaluation model was used from a holistic perspective to evaluate the effectiveness of the Wenzhou ETNEP in order to determine any changes that may be required to the content and implementation of the ETNEP. The Behavioural and Results levels showed that training currently provided could be improved to increase trainees' qualities and abilities. Wenzhou ETNEP is committed to cultivating ET students with excellent professional qualities. Nowadays the difference between it and foreign developed countries has become smaller. However, we still need to learn from each other.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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