

# Factors That Influence the Training Transfer and Maintenance of Conflict Resolution Programs of Healthcare Training and Development Units: A Retrospective Study

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**Abstract** Conflict resolution skills are important for all healthcare professionals. Conflict and miscommunication can have detrimental effects on decision-making, potentially impacting on patient-care, morbidity and mortality, making upskilling of health professionals' conflict resolution skills important. However, research suggests only around 10–15% of training knowledge and skills transfers to the workplace, making training a seemingly poor investment. Via a retrospective online survey, this study examined factors associated with the transfer and maintenance of conflict resolution skills of medical officers and healthcare professionals who undertook relevant training. The results of multivariable linear regression analyses showed that 77% of the variance was predicted for training transfer and 42% for training maintenance predominantly by individual (e.g. emotional intelligence and motivation) and organisational transfer climate factors (e.g. support and goal-setting cues). These results have implications for healthcare organisations in regards to how they motivate and support staff before and after training to increase transfer and maintenance of conflict resolution skills.

**Keywords** Transfer of learning · Conflict resolution · Motivation  
Emotional intelligence · Organisational transfer climate

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## 1 Introduction

Conflict resolution skills are important for all healthcare professionals as conflict and miscommunication in healthcare settings can have detrimental effects on decision-making, potentially impacting on patient-care, morbidity and mortality, thereby making it important to upskill health professionals' conflict resolution skills. For example, research of decisions to limit life-sustaining treatment in intensive care units found conflict in 78% of 102 consecutive cases, with 48% of cases identified as clinician–family conflict and 48% of cases identified as clinician–clinician conflict (Back & Arnold, 2005; Katz, 2007). Back and Arnold (2005) also cite an informal poll of physician executives who indicated that they spent “at least 20% of their time dealing with conflict” (p. 1375). Gilin Oore, Leiter and LeBlanc (2015) concur, stating that business managers and leaders in Canadian organisations spend an average of 7.5 h between direct interventions on, and worrying about, workplace conflict every week. On top of this, research suggests that workplace conflict is most likely underreported (Back & Arnold, 2005).

According to Gilin Oore et al. (2015), poorly handled workplace conflict is common and costly in both economic and social terms. Research has shown that teams with high relationship conflict tend to have greater staff turnover, absenteeism, work dissatisfaction and reactivity to job stressors, as well as lower team productivity, compared to teams with lower relationship conflict (Gilin Oore et al., 2015). In a review of conflict communication causes, costs, benefits and interventions in nursing, Brinkert (2010) listed several effects of conflict such as burnout (33% of intensive care nurses in France had severe burnout syndrome associated with conflict). The costs of nurse–physician conflict included medication errors, patient injuries and patient deaths. Other costs listed included the direct costs of litigation, lost management productivity, employee turnover, disability and worker compensation claims, regulatory fines, increased care expenditures to handle adverse patient outcomes and intentional damage to property. Indirect costs of conflict included individual emotional impairment and damage to team morale, costs to patients and increased incidence of disruptive behaviour by organisational personnel (Brinkert, 2010).

Conflict resolution training has the potential to improve the communication skills of healthcare staff; however, there is a lack of research evaluating the effectiveness of conflict resolution training in healthcare settings, including the extent to which skills learnt are transferred to the workplace (Lee et al., 2008). Transfer of learning is defined as the effective and continuing application of knowledge, skills and attitudes (KSA) learned or acquired from training to the workplace with subsequent generalisation and maintenance of these KSA (Baldwin & Ford, 1988). In health professionals' continuing education, transfer of learning is particularly important because of the risk to patient health due to preventable medical errors which account for up to 98,000 patient deaths and costs of \$17–\$29 billion per year in the USA alone (Gitonga, 2007). Yet several researchers

(e.g. Gitonga, 2007; Lee et al., 2008; Zweibel, Goldstein, Manwaring, & Marks, 2008) highlight that little is known about whether the conflict resolution skills taught are subsequently transferred to (i.e. utilised in) healthcare. Other transfer of learning studies quotes only a 10–15% return on investment in work performance of the billions of dollars spent worldwide on staff training and development (Baldwin & Ford, 1988; Gitonga, 2007; Kontoghiorghes, 2002), making training a seemingly poor investment.

Training effectiveness is not only about the training content and the quality of the training methods used (Ascher, 2013), but also relies on other factors such as the trainees' ability and motivation, and the organisational environment and transfer climate before, during and after training to support effective transfer of newly learnt knowledge and skills to the workplace (Baldwin & Ford, 1988; Chiaburu, Van Dam & Hutchins, 2010; Thayer & Teachout, 1995). Key factors that have been identified include trainee motivation, including intrinsic motivation, motivation-to-learn and motivation-to-transfer (Colquitt, LePine, & Noe, 2000; Noe & Schmitt, 1986; Sankey & Machin, 2014); self-efficacy (Gegenfurtner, Veermans, Festner, & Gruber, 2009); organisational commitment (Daffron & North, 2006); opportunity to use the skills learnt (Holton, Bates, & Ruona, 2000); and the organisational culture and climate that may support or inhibit the transfer of learning to the workplace (Chiaburu, Van Dam, & Hutchins, 2010; Holton, Bates, Seyler, & Carvalho, 1997; Thayer & Teachout, 1995). Ascher (2013) explains that the work environment and its transfer climate include the actions, situations or consequences that encourage or prevent the transfer of training KSA to the workplace. Holton et al. (1997) suggest that these are mediating factors between the organisational context and an individual's attitude towards their workplace, which then encourages or discourages the utilisation of new skills. Research suggests that healthcare organisational culture and climate may be part of the issue regarding how healthcare workers resolve conflict. For example, Zweibel et al. (2008) point out that systemic problems in healthcare settings, such as time and resource pressures, hierarchies within and between several healthcare professions, intergenerational differences in what knowledge and skills are deemed important, and physicians' preference for autonomy, are aspects of organisational culture and climate that all have the potential to increase conflict. Kaufman (2011) concurs and argues that conflict is inevitable due to these healthcare systemic issues. Hence a better understanding of how organisational culture and climate influence the transfer of newly acquired conflict resolution skills is needed.

One factor that has not been studied in relation to transfer of conflict resolution skills, yet is consistently found to be important and associated with these skills (Jordan & Troth, 2002), is emotional intelligence. Goleman (1995) defined emotional intelligence (EI) as the ability to be aware of, and engage with, one's own and others' emotions more constructively. Wong and Law (2002) outline different dimensions of EI: being able to appraise, express and regulate one's own emotions, appraise and recognise emotions in others, and being able to use emotions effectively and constructively. High EI allows people to engage in interpersonal interactions such as conflict more competently (Schreier, 2002). EI theorists suggest that

highly emotionally intelligent individuals will have superior conflict resolution skills, engage in greater collaboration and adopt a range of conflict resolution styles adaptively according to the situation compared to individuals with low emotional intelligence (Jordan & Troth, 2002). These findings are supported by a study by Ayoko, Callan and Härtel (2008) which found that teams that were less able to manage their emotions reported more conflict as well as higher conflict intensity. They also found that teams in conflict but with lower levels of team EI reported more destructive reactions to conflict. Some researchers have argued for the need to incorporate EI skills in conflict resolution training as a way of improving organisational interpersonal skills or improving transfer of conflict resolution skills (Dearborn, 2002; Jordan & Troth, 2002). However, the impact of EI on training transfer has not been examined despite many studies into EI and conflict management (refer to meta-analysis by Schlaerth, Ensari & Christian, 2013).

This retrospective study was conducted to examine the training transfer and maintenance of conflict resolution skills from training programs conducted by two Australian healthcare training and development units, targeting primarily nurses and medical registrars. The aim was to explore which individual, training and organisational factors influence the transfer and maintenance of conflict resolution skills in the context of healthcare. Based on the above research, it was hypothesised that:

1. Individual factors measured (i.e. self-efficacy, emotional intelligence, organisational commitment, intrinsic motivation, motivation-to-learn and motivation-to-transfer) will be positively associated with training transfer and maintenance;
2. The training factor *length of training* will be positively associated with training transfer and maintenance (i.e. as length/hours of training increases, transfer and maintenance levels will increase);
3. The training factor *time since training* will be negatively associated with training transfer and maintenance (i.e. as more time passes since training was completed, transfer and maintenance levels will decrease); and
4. Organisational climate factors measured such as *opportunity-to-use*, *organisational support*, *social cues* and *goal-setting cues* will be positively associated with training transfer and maintenance.

## 2 Method

### 2.1 Conflict Resolution Training Programs

Training programs on conflict resolution offered by two Australian healthcare training and development units were included in this retrospective study. The two training units offered training to different staff within the same Australian healthcare system: one targeted the medical profession (e.g. medical registrars) and the other targeted nurses, although allied health, administration and corporate

learners were able to access some programs. For clarity, the participants from the first unit will be referred to as *Medical* and those from the later as *Professions*.

Conflict resolution training length/duration varied amongst the conflict resolution training offered, from 2.5 h to five days, depending on whether it was a stand-alone conflict resolution training or a component of a larger program. The longer training courses (two to five days) tended to be programs that included a conflict resolution component; for example, one of the training programs included in the study was a five-day nursing leadership program which included a three-hour conflict resolution component.

Three training programs offered to registrars (*Medical* group) are included in this study, namely *Professional Development Program for Registrars (PDPR)* (2.5 h conflict resolution component within a two day program) ( $N = 111$ ); *Next Steps* (2.5 h conflict resolution component within a one day program) ( $N = 14$ ); and *Managing Workplace Conflict* (2.5 h conflict resolution program) ( $N = 13$ ). Note that the *Next Steps* program was only offered to medical officers and registrars who had completed the *PDPR*. Training programs included in this study that were offered to the *Professions* group are as follows: *Conflict resolution in the workplace* (1 day) ( $N = 36$ ), *Respond effectively to difficult and challenging behaviours* (3 h) ( $N = 95$ ), *Leadership and management for Registered Nurses-level 2* (three hours of four-day program) ( $N = 96$ ), *Leadership and management for Registered Nurses-level 3* (three hours of five-day program) ( $N = 20$ ) and *Enhancing positive team culture* (3 h) ( $N = 93$ ), all of which either concerned or had a component regarding conflict resolution.

## 2.2 Methodology

Staff who had completed the eligible training within the past three years were emailed by their respective training units on behalf of the researchers. They were asked to complete an online survey regarding the conflict resolution program/session they had attended. An information sheet explaining the study was included in correspondence. Consent was obtained as part of the online survey process. Email reminders regarding survey completion were sent twice following the original email. For the *Professions* group, on receiving feedback from the organisation regarding low staff usage of email, hardcopy surveys were posted out to all eligible participants with addresses on file.

## 2.3 Data Collection

**Participants.** Eligible participants were staff who had completed a conflict resolution training program or component as outlined above (*Medical*  $N = 133$  emailed from 138 cohort; *Professions*  $N = 328$  emailed from a cohort of 340; plus hardcopy

**Table 1** Descriptive statistics for independent categorical variables ( $N = 41$ )

Variables	Professions $N$ (%)	Medical $N$ (%)	Missing <sup>a</sup> $N$
<i>Gender</i>			
Female	25 (86.2)	5 (41.7)	0
Male	4 (13.8)	7 (58.3)	0
<i>Education</i>			
Bachelor degree or above	22 (75.9)	12 (100)	0
<i>Employment status</i>			
Full-time	21 (72.4)	10 (83.3)	0
Part-time	7 (24.1)	2 (16.7)	0
Other	1 (3.5)	0 (0)	0
<i>Support</i>			
• Yes	14 (53.9)	2 (18.2)	4
• No	12 (46.1)	9 (81.8)	
<i>Barriers</i>			
• Yes	9 (34.6)	5 (41.7)	3
• No	17 (65.4)	8 (58.3)	

<sup>a</sup>Data not supplied by participant(s)

Note These descriptive data relate only to quantitative data analyses

surveys posted  $N = 329$  from the cohort of 410 which included recently completed program attendees not emailed before; 81 participants did not have a postal address on file). A total of 64 learners (*Medical*:  $N = 18$ ; *Professions*:  $N = 46$ ) participated in the study; however, only 41 surveys (*Medical*:  $N = 12$ ; *Professions*:  $N = 29$ ) were able to be analysed quantifiably due to data omitted from surveys. Interestingly, 23 participants did not complete the item measures. Of the *Professions* group, 39 were nurses (61%), four were allied health professionals (6%), and two were administrative staff (3%), with one person of unknown profession (2%). Ages for the *Medical* group ( $N = 11$ ) ranged from 28 to 52 years old, with a mean age of 34.9 years (SD 6.93), whereas for the *Professions* group ( $N = 29$ ), age ranged from 24 to 65 years, with a mean age of 43.7 years (SD 11.6); Table 1 provides demographic information categorised by group for the quantitative data analyses ( $N = 41$ ).

The response rate was low at approximately 14% of those contacted successfully ( $N = 462$ ); plus a large proportion of these surveys were not completed fully (36%). This response rate was not unexpected as both units had advised prior to the surveys being sent to expect a low response rate on the basis of their previous general experience with staff surveys.

## 2.4 Materials

The survey (generated online through *SurveyMonkey*) asked questions in relation to the individual, their work role and the training, including demographic questions

(e.g. age, gender, education level); work role (i.e. job title and level, department); employment status (full-time, part-time, casual); geographical work location (metropolitan area, regional or rural); and conflict resolution training details, such as length of training (number of hours), date when attended, who training was organised by and reason for attending the training.

The survey consisted of several individual and organisational measures, namely:

- *New General Self-Efficacy Scale*: an eight-item measure developed by Chen, Gully and Eden (2001). The Cronbach's alpha coefficient in this study for the *Professions* group was 0.92 and for the *Medical* group was 0.93.
- *Wong and Law Emotional Intelligence Scale (WLEIS)*: a 16-item measure with four subscales, namely *self-emotion appraisal* (EI:SEA), *others' emotion appraisal* (EI:OEA), *use of emotion* (EI:UOE) and *self-regulation of emotion* (EI:ROE), developed by Wong and Law (2002). Each scale is comprised of four items. The Cronbach's alpha coefficient in this study for the subscales was as follows: *Professions* group was 0.91, 0.94, 0.82 and 0.92, respectively, and for the *Medical* group was 0.92, 0.76, 0.80 and 0.80, respectively.
- *Intrinsic motivation*: a three-item measure developed by Guay, Valler and Blanchard (2000). The Cronbach's alpha coefficient for the *Professions* group was 0.80 and for the *Medical* group was 0.86.
- *Motivation-to-learn*: a three-item measure adapted from Noe and Schmitt's (1986) eight-item measure. Cronbach's alpha coefficient for the *Professions* group was 0.84 and for the *Medical* group was 0.94.
- *Motivation-to-transfer*: a two-item measure adapted from Noe and Schmitt's (1986) eight-item measure. The Cronbach's alpha coefficient for the *Professions* group was 0.83 and for the *Medical* group was 0.94.
- *Organisational Commitment Questionnaire (OCQ)*: the short version of the OCQ with nine positively worded items, developed by Mowday, Steers and Porter (1979) was utilised. Mathieu and Zajac (1990) in their meta-analysis of research utilising the OCQ found that 80 studies reported an average internal consistency reliability of 0.882 (SD = 0.038). The Cronbach's alpha coefficient for this study for the *Professions* group was 0.84 and for the *Medical* group was 0.81.
- *Organisational Transfer Climate: Positive Work Environment* measure is comprised of three subscales; the subscale *Social Cues (OTC: Social cues)* was included. This is a 10-item measure developed by Thayer and Teachout (1995). An item example is *When staff return from training, supervisors encourage them to share what they've learned with other staff*. The Cronbach's alpha coefficient for this study for the *Professions* group was 0.95 and for the *Medical* group was 0.93.
- *Organisational Transfer Climate: Positive Work Environment* measure subscale *Goal-setting (OTC: goal-setting)* was utilised in this study. It is a six-item subscale, developed from Thayer and Teachout (1995). An example of an item is *Managers set goals for employees that encourage them to use new training*. The Cronbach's alpha coefficient for this study for the *Professions* group was 0.86 and for the *Medical* group was 0.79.

- *Opportunity-to-use* (OTC: opportunity-to-use): a five-item measure developed for this study, based on the work of Holton, Bates and Ruona (2000) and Thayer and Teachout (1995). An item example is *I consciously allocated time to practice new skills/strategies learnt in the conflict resolution training*. The Cronbach's alpha coefficient for this study for the *Professions* group was 0.72 and for the *Medical* group was 0.80.
- *General Training Climate Scale* subscale: *Organisational Support* (GTCS: *Org Support*) measure, with five items, was utilised in this study. It was developed by Tracey and Tews (2005). One example of the items is *There is a performance review and development system that ties recognition and rewards to use of newly acquired knowledge and skills*. In this study, the Cronbach's alpha coefficient for the *Professions* group was 0.81 and for the *Medical* group was 0.80.
- *Training transfer*, a five-item measure assessing participants' transfer of learning of conflict resolution KSA, adapted from Xiao's (1996) six-item measure. Two-item examples are *The quality of my conflict resolution skills has improved since attending the training* and *I have found it difficult to use what I learnt at the training in my workplace* (reverse scored). The Cronbach's alpha coefficient in this study averaged at 0.93 for the two groups (*Professions* 0.91 and *Medical* 0.95).
- *Training maintenance*, a four-item measure assessing participants' maintenance of their learning of conflict resolution KSA since attending the training, adapted from Xiao's (1996) training transfer measure. Examples of items included in the scale are *Since attending the conflict resolution training, I have been able to continue using the conflict resolution strategies I learnt* and *Since attending the conflict resolution training, I have returned to old ways of dealing with conflict* (reverse scored). Cronbach's alpha coefficient in this study averaged at 0.79 (*Professions* group was 0.63 and *Medical* was 0.95).

All measures utilised a seven-point Likert scale, with response options ranging from one (*strongly disagree*) to seven (*strongly agree*). There was an internal consistency across the scales in this study, with a Cronbach's alpha coefficient generally 0.7 or above, and hence, the measures can be considered reliable (Pallant, 2005). The survey also incorporated ten questions/comment sections asking participants about their motivation, reason for attending, examples of utilising their learning and of being able to maintain it, and if they received support or encountered any barriers, and examples thereof. These comments were included to elicit more comprehensive and holistic data, as Brown and McCracken (2009) stated this is more likely when both quantitative and qualitative research methods are utilised.

## 2.5 Ethical Considerations

Participants received information about the nature of the study which included that responses would be confidential and only group results would be reported.



The research project was approved by the healthcare organisation's Human Research Ethics Committee and endorsed by the University of Adelaide's Human Research Ethics Committee. Governance approval to proceed with the research project was also received from each of the relevant health organisational sites.

### 3 Results

#### 3.1 Data Analysis

All statistical analyses were conducted using the statistical software SAS 9.4 (SAS Institute Inc., Cary, NC, USA). Mean values and standard deviations, or appropriate frequencies, for all measures were calculated. Descriptive statistics (by group) for categorical independent variables are presented in Table 1 and for continuous independent variables are presented in Table 2. As shown in Table 2, variables that are not normally distributed (majority were negatively skewed) have the median and interquartile range (Q1, Q3) reported. Assumptions of a linear regression were found to be upheld for all linear regression models with the outcome variables mean training transfer and mean training maintenance.

For analysis of responses to the open-ended questions, a conventional content analysis approach, based on the method outlined by Hsieh and Shannon (2005), was used, by "systematic classification process of coding and identifying themes or patterns" (Hsieh & Shannon, 2005, p. 1278). Content analysis was conducted by the first author and consequently checked individually by the other authors, with agreement reached.

**Power.** In regard to detecting a difference between the two professional groups (*Professions* and *Medical*), there is power of 80% (where  $\alpha = 0.05$ ) to detect a clinically significant difference of 0.13 for the transfer variable and a clinically significant difference of 0.15 for the maintenance variable, between the two groups.

Quantitative results are reported first, followed by the themes identified from the content analysis of the comment sections elicited from the surveys. Table 1 shows the descriptive statistics for both groups and the independent categorical variables. Note that due to the small sample, not all demographic information is reported to avoid inadvertent identification of any participants.

Multivariable linear models were performed for the two dependent variables: transfer and maintenance. All individual factors with a  $P$  value  $< 0.2$  in a univariate model versus transfer (i.e. emotional intelligence: self-emotion appraisal (SEA), others' emotion appraisal (OEA) and self-regulation of emotions (ROE); motivation-to-learn; intrinsic motivation; and motivation-to-transfer) were included in an initial individual factor multivariable model. The professional variable (*Professions/Medical*) was included no matter what its  $P$  value, as an a priori variable. Backwards elimination was performed until all covariates had a

**Table 2** Descriptive statistics for continuous independent and dependent variables

Variables (mean)	Professions (N = 29)						Medical (N = 12)					
	N	Mean	Std Dev	Median	Interquartile range		N	Mean	Std Dev	Median	Interquartile range	
					Q1	Q3					Q1	Q3
Training transfer	27	4.95	1.23				10	5.08	1.10			
Training maintenance	27	4.91	0.95				10	4.90	1.37			
Length of training (hours)	28	5.27	1.84	6.00	3.50	6.00	12	1.42	0.97	1.00	1.00	1.00
Time since training (months)	28	9.73	5.55	10.00	5.00	13.0	12	16.53	9.03	17.54	10.17	20.00
Self-efficacy	29	6.12	0.67	6.10	5.90	6.60	11	6.05	0.69	6.00	5.80	6.50
EI:SEA	29	6.02	1.01	6.00	5.50	6.80	11	5.11	1.21	5.50	3.50	6.00
EI:UOE	29	5.99	0.79	6.00	5.30	6.80	11	4.99	1.01	5.00	4.80	6.00
EI-OEA	29	5.72	1.09	6.00	5.30	6.50	11	5.38	1.01	5.80	4.50	6.30
EI-ROE	29	6.01	0.89	6.00	5.50	7.00	11	5.48	0.91	5.30	5.00	6.00
Intrinsic motivation	29	6.17	0.68	6.00	6.00	6.70	11	5.98	0.82	6.30	5.30	6.30
Motivation-to-learn	29	6.23	0.68	6.30	6.00	6.70	11	6.20	0.76	6.30	6.00	7.00
Motivation-to-transfer	29	6.26	0.93	6.50	6.00	7.00	11	6.05	1.04	6.00	5.50	7.00
OCQ	29	5.96	0.78	6.10	5.20	6.40	11	5.26	0.89	5.20	4.80	6.00
OTC: social cues	29	4.91	1.24	5.10	4.10	5.90	11	4.75	1.23	4.80	4.30	5.70
OTC: goal-setting	29	4.45	1.05	4.50	4.00	5.20	10	4.59	0.95	4.45	3.70	5.70
OTC: opportunity-to-use	29	3.92	1.15	4.00	3.60	4.80	10	4.10	1.24	4.40	3.00	5.20
GTCS: Org.Support	28	4.49	1.15	4.60	4.10	5.30	10	4.88	1.14	4.80	4.40	6.00

*Note* Negatively skewed variables have the median and interquartile (Q1, Q3) range also reported

$P$  value  $< 0.2$ . This is Model 1 in Table 3: a final multivariable linear regression of the transfer variable versus individual factors.

Training factor variables (*time since training* and *training length*) were then added and backwards elimination performed again until  $P$  values  $< 0.2$ . This is Model 2 in Table 3: a final multivariable linear regression of the transfer variable versus individual and training factors. Note that the adjusted R<sup>2</sup> remained basically unchanged after these factors were added to the model. Organisational variables with  $P$  value  $< 0.2$  (i.e. *support*, *barrier*, organisational transfer climate measures of *social cues*, *goal-setting* and *opportunity-to-use*, and *General Training Climate Scale* measure of *organisational support*) were then added and backwards

**Table 3** Multivariable linear regression results: outcome training transfer versus three levels of predictors

Predictor variable	Estimate (95% CI)	$P$ value	Adjusted R <sup>2</sup>
Model 1—individual factors			0.5995
Study (Medical vs. Professions)	0.61 (0.02, 1.19)	0.0437	
EI:OEA (mean)	0.43 (0.14, 0.92)	0.0051	
EI:ROE (mean)	0.43 (0.12, 0.75)	0.0086	
Intrinsic motivation (mean)	-0.43 (0.11, 0.10)	0.1062	
Motivation-to-transfer (mean)	0.80 (0.45, 1.16)	<0.0001	
Model 2—individual and training factors			0.5983
Study (Medical vs. Professions)	0.76 (0.08, 1.45)	0.0291	
EI:OEA (mean)	0.42 (0.13, 0.71)	0.0062	
EI:ROE (mean)	0.46 (0.14, 0.79)	0.0063	
Intrinsic motivation(mean)	-0.42 (-0.95, 0.1)	0.1119	
Motivation-to-transfer (mean)	0.81 (0.45, 1.16)	<0.0001	
Time since training (months)	-0.02 (-0.06, 0.02)	0.3499	
Model 3—individual, training and organisational factors			0.7686
Study (Medical vs. Professions)	0.92 (0.36, 1.47)	0.0022	
EI:OEA (mean)	0.39 (0.16, 0.62)	0.0015	
EI:ROE (mean)	0.51 (0.25, 0.76)	0.0004	
Intrinsic motivation) (mean)	-0.53 (-0.94, -0.12)	0.0128	
Motivation-to-transfer (mean)	0.55 (0.24, 0.85)	0.0010	
Time since training (months)	-0.03 (-0.07, 0.00)	0.0587	
OTC: goal-setting (mean)	0.47 (0.23, 0.71)	0.0003	
Support (no vs. yes)	-0.52 (-0.97, -0.07)	0.0248	

elimination performed again until  $P$  values  $< 0.1$ . This is Model 3 in Table 3: a final, most parsimonious multivariable linear regression model of transfer versus individual, training and organisational factors. Adjusted  $R$  squared values are also shown for each model.

In regard to the final (third) model, there was a statistically significant association between training transfer and professional group, when controlling for the other individual, training and organisational factors within the final model (global  $P$  value = 0.0022). Comparing these professional groups, medical officers rated their training transfer (mean) almost one unit greater than those in the *Professions* group (estimate = 0.92, 95% confidence interval (CI): 0.36, 1.47). There was also a statistically significant association between training transfer and *goal-setting* when controlling for the other variables (e.g. individual, training and organisational factors and professional group) within the model (global  $P$  value = 0.0003). For every one unit increase in *goal-setting*, the mean training transfer variable increased by approximately half a unit (estimate = 0.47, 95% CI: 0.24, 0.71). The other predictor variables such as emotional intelligence (OEA and ROE) and motivation-to-transfer also had statistically significant associations with training transfer when controlling for the other variables in the model, as shown in Table 3. For example, there was a statistically significant association between training transfer (mean) and *support*, when controlling for the individual, training and organisational factors within the model (global  $P$  value = 0.0248). In this study, participants who stated they did not have support had a mean training transfer half a unit less than participants who stated they did have support (support (no vs yes) estimate = -0.52, 95% CI: -0.97, -0.07).

The same procedure was performed in regard to the dependent variable: training maintenance. The same individual, training and organisational factors except motivation-to-learn had  $P$  values  $< 0.2$ , as did employment status, and hence were included. Models 1, 2 and 3 presented in Table 4 are relevant to the dependent variable, maintenance, with adjusted  $R^2$  values shown for each model. Adjusted  $R^2$  ( $R^2$  modified for the number of the predictors included in the models) has been reported as it increases only if the new term improves the model more than would be expected than by chance alone (Pallant, 2005).

In regards to training maintenance, there was no statistically significant difference between the two professional groups. However, *goal-setting* and emotional intelligence were again found to have statistically significant associations, when controlling for the other variables (individual and organisational factors) within the model. For example, for every one unit increase in emotional intelligence of being able to appraise others' emotions (OEA), mean training maintenance increased by approximately half a unit (estimate = 0.45, 95% CI: 0.12, 0.77, global  $P$  value = 0.0082). In contrast, employment status and the organisational transfer climate variable of *social cues* had significant negative associations with training maintenance. For example, as shown in Table 4, when controlling for the individual and organisational factors within the final model (global  $P$  value = 0.0074), part-time participants rated their training maintenance one unit less than full-time participants (estimate = -1.01, 95% CI: -1.73, -0.23).

**Table 4** Multivariable linear regression results: outcome training maintenance versus three levels of predictors

Predictor variable	Estimate (95% CI)	P value	Adjusted R <sup>2</sup>
Model 1—individual factors			0.2563
Study group ( <i>Medical vs. Professions</i> )	0.32 (−0.40, 1.04)	0.3711	
EI:OEA (mean)	0.37 (0.01, 0.72)	0.0424	
EI:ROE (mean)	0.28 (−0.10, 0.66)	0.1411	
Motivation-to-transfer (mean)	0.23 (−0.11, 0.57)	0.1823	
Employment status (part-time vs. full-time)	−0.76 (−1.57, 0.04)	0.0604	
Model 2—individual and training factors			0.2609
Study group ( <i>Medical vs. Professions</i> )	0.54 (−0.29, 1.37)	0.1912	
EI:OEA (mean)	0.36 (0.01, 0.72)	0.0440	
EI:ROE (mean)	0.33 (−0.06, 0.71)	0.0966	
Motivation-to-transfer (mean)	0.23 (−0.11, 0.58)	0.1739	
Employment status (part-time vs. full-time)	−0.81 (−1.61, −0.00)	0.0489	
<i>Time since training</i> (months)	−0.03 (−0.08, 0.02)	0.2836	
Model 3—individual, training and organisational factors			0.4157
Study group ( <i>Medical vs. Professions</i> )	0.09 (−0.56, 0.74)	0.7856	
EI:OEA (mean)	0.45 (0.12, 0.77)	0.0082	
EI:ROE (mean)	0.44 (0.10, 0.78)	0.0131	
Employment status (part-time vs. full-time)	−1.01 (−1.73, −0.29)	0.0074	
OTC <i>social cues</i> (mean)	−0.51 (−0.94, −0.08)	0.0227	
OTC <i>goal-setting</i> (mean)	0.78 (0.31, 1.25)	0.0021	

In regard to the comment sections in the survey, several recurring themes emerged and these are shown in Table 5. Many comments outlined workplace conflict as being an important motivator or consideration in undertaking the training, with those who attended leadership or training for higher levels stating that conflict resolution skills were important skills needed in leadership and management.

## 4 Discussion

This is the first study of its kind to examine multiple individual and organisational transfer climate factors in relation to transfer and maintenance of conflict resolution skills in health care. The significant results of this study indicated that medical officers who had completed the training more recently and/or participants who rated their emotional intelligence (regarding *appraising others' emotions* and their *emotional self-regulation*) and motivation-to-transfer higher, and received more

**Table 5** Themes from survey comment sections

Questions	Main Themes
Reasons for attending training	<ol style="list-style-type: none"> <li>1. Self-improvement and development (<math>N = 9</math> nurses and 9 MO)</li> <li>2. Organisational processes or recommended (<math>N = 11</math> RN; 6 MO; and 3 AH) such as performance review and development discussions with their manager</li> <li>3. Conflict issues at work (<math>N = 5</math> RN; 2 Adm and 1 AH) Examples included conflict with peers, MO and patients or their family. Other issues mentioned were low morale and “toxic environment”</li> </ol>
Types of conflict examples reported	<ol style="list-style-type: none"> <li>1. Staff- or team-related conflict/dispute examples given (<math>N = 9</math> RN; 3 MO; 1 Adm and 2 AH)</li> <li>2. Patient- or their family-related disputes or conflict example given (<math>N = 3</math> RN) <i>Note: Though several stated they couldn't recall specific incidents or situations where they had used the conflict management skills (<math>N = 6</math> MO, 5 RN and 1 Adm), this may point to these people not consciously attempting to utilise the skills</i></li> </ol>
Ability to maintain conflict resolution skills	<ol style="list-style-type: none"> <li>1. Using skills; many name particular skills and/or examples (<math>N = 19</math> RN; 6 MO; and 1 AH). Examples included were attentive listening skills, body language and emotional awareness</li> <li>2. Haven't been able to maintain; haven't practiced or been able to practice (<math>N = 1</math> RN; 2 Adm; 4 MO and 1 AH)</li> <li>3. Maintaining skills but difficulty of doing so/due to difficulty of situation/conflict; hard to maintain skills “take a deep breath” (<math>N = 6</math> RN and 1 MO)</li> </ol>
Received support to transfer new skills (Total $N = 38$ )	<ol style="list-style-type: none"> <li>1. Received support (<math>N = 15</math> RN and 2 MO)—examples included managers, HR, senior staff (nurse managers and nurse educators) and colleagues, multidisciplinary team</li> <li>2. Did not receive support to transfer their training (<math>N = 10</math> RN, 1 Adm, 1 AH and 9 MO)</li> </ol>
Encountered barriers to transfer new skills (Total $N = 39$ )	<ol style="list-style-type: none"> <li>1. Did encounter barriers to transferring skills (<math>N = 7</math> RN; 5 MO and 2 AH); examples included “boss” and senior staff due to hierarchy and inequalities in power/power usage, “busyness” of work and lack of time/passage of time, colleagues, stressful work and increased change of staff, lack of resources (busy wards and lack of time to practice and lack of funding to train all staff. Another mentioned “favoritism”</li> <li>2. Did not encounter barriers to transferring skills (<math>N = 15</math>)</li> </ol>

(continued)

**Table 5** (continued)

Colleagues/others responded differently to them (Total $N = 33$ )	1. Responded they were treated differently in a positive manner ( $N = 7$ RN, 4 MO, 1 Adm and 1 AH); they thought they were treated with more respect; that others sought them out to help with conflict issues; or that team members were supportive and gave them feedback on their progress. Also that they were treated more seriously. They felt more confident 2. Responded they were treated differently in a negative manner ( $N = 2$ ), examples: that they were seen as a “trouble-maker” by not “letting it go” of issues and “rocking the boat”
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Legend: *MO* Medical Officers; *RN* Nurses; *AH* Allied Health professionals; *Adm* Administrative staff

*organisational support* and *goal-setting cues*, tended to rate their transfer of conflict resolution skills higher. Interestingly, intrinsic motivation was significantly negatively associated with training transfer, which may be due to conflict skills being seen as a necessary skill in the workplace, rather than an interesting one for its own sake. Though not all the individual factors measured in the survey were significant (e.g. self-efficacy, organisational commitment or motivation-to-learn), motivation-to-transfer was significantly positively associated with training transfer, supporting other research regarding motivation which has been consistently found to play a critical role at each stage of the transfer process (e.g. Kontoghiorghes, 2002; Gegenfurtner et al., 2009; Grossman & Salas, 2011; Sankey & Machin, 2014). Surprisingly, other than emotional intelligence (EI), no other individual measures were significant in regard to training maintenance.

This study also had mixed results regarding EI and training transfer and maintenance. Only two of the subscales of EI (*appraise others’ emotions* and *self-regulation of emotions*) were significantly and positively associated with both training transfer and maintenance. Though it was hypothesised that all four components of EI would be important in being able to transfer and maintain learning, it makes intuitive sense that people who are able to understand others’ emotions and regulate their own are more likely to be able to transfer and then maintain their conflict resolution skills from the training to their workplace. The other two EI subscales (*self-appraisal of emotions* and *use of own emotions*) may be less important aspects of EI in relation to conflict resolution skills, hence resulting in the nonsignificant outcome in this study. However the small sample also needs to be taken into consideration. This study appears to be the first to examine EI in relation to transference and maintenance of conflict resolution skills; however, there are ample studies linking EI to conflict resolution skills in general (e.g. Ayoko et al., 2008; Jordan & Troth, 2002; Schlaerth, Ensari & Christian, 2013; Shih & Susanto, 2010).

In relation to organisational climate factors such as *opportunity-to-use*, *organisational support*, *social cues* and *goal-setting cues* (e.g. cues by managers that encourage practice of skills), the hypothesis was partly supported, with *goal-setting cues* and *support* found to be significant in relation to training transfer and *social cues* and *goal-setting cues* significant in relation to maintenance. Those participants who perceived positive organisational *support* and/or *goal-setting cues* reported being able to transfer their conflict resolution skills more successfully, and those who perceived *social cues* and *goal-setting cues* reported being better able to maintain their skills than others in this study. These findings are supported by other studies regarding organisational climate factors (e.g. Kontoghiorghes, 2002; Thayer & Teachout, 1995; Xiao, 1996). Surprisingly, *social cues* were significantly negatively associated with training maintenance. This could possibly be due to *social cues* over time being perceived negatively, or even as harassing, if managers persist in following up on training maintenance efforts. Another possible explanation is that *social cues* lose influence over time with maintenance of skills.

Only the training factor, *time since training*, was significantly and negatively related to training transfer. The result is as it would be expected in that training transfer would be less likely to occur or change the further time passed by.

Results showed that medical officers reported higher training transfer than their counterparts in the *Professions* group which included nursing, allied health and administration professionals. Due to the small sample, however, this result should be interpreted with caution. The *Medical* group did attend training especially designed for and supported by their profession with medical leaders in attendance, perhaps enhancing the training experience and increasing the transfer potential or likelihood. In comparison, the training that the *Professionals* group attended included those of mixed professional groups which may have reduced participants' ability to speak frankly regarding workplace conflict. Due to the small sample and the large number of different programs included for the *Professionals* group in comparison with the *Medical* group, this finding needs further exploring to determine whether training transfer is enhanced when conflict resolution training occurs within homogeneous groups rather than mixed professional groups.

For transfer maintenance, the employment status of participants was a significant factor, with those who worked part-time reporting significantly lower maintenance of conflict resolution skills since completing the training than others in this study. This result is understandable given that less time spent at work reduces opportunities to practise and fine-tune conflict resolution skills. For example, Ascher (2013) found that the opportunity to apply and practice what was learned in training was rated as the highest predicting factor to the training transfer process, along with motivation to implement learning. Hence, part-time workers not only have less time and therefore opportunity to apply and practice conflict resolution skills, but also may be less motivated to do so over time.

This study has highlighted some of the influencing factors on training transfer and maintenance of conflict resolution skills in healthcare. Individual and organisational factors were both found to be important for training transfer. However, organisational climate factors may be more important when staff are attempting to



maintain new conflict resolution skills, as only the individual factor of emotional intelligence was found to be significant in relation to maintenance and has not been studied before in this context. This may help explain previous research quoting only a low percentage of return of investment regarding training expenditure (Baldwin & Ford, 1988; Gitonga, 2007; Kontoghiorghes, 2002) as transfer and maintenance of learning have traditionally been assumed to have the same, rather than different influencing factors. This would have important implications for organisations regarding ensuring long-term benefits from their training and development expenditure by investing more resources towards assisting staff to maintain new conflict resolution skills after training transfer. However, the relatively small sample in this study, spread over the different professions and training programs, require that these results be replicated with larger samples of each professional group to further explore these differences between transfer and maintenance. In regards to the differences found in training transfer between the two study groups, it would be ideal to compare mixed and homogeneous professional groups completing the same conflict resolution training. Further research regarding emotional intelligence and being able to transfer and maintain conflict resolution skills into practice is also needed to explore this relationship further.

With respect to training transfer and maintenance in organisations generally, the results of this study are consistent with Ascher's (2013) recommendations to improve organisations' transfer climate by providing staff with supportive processes and cues when they attempt to implement new skills in the workplace. This study found that both individual and organisational transfer climate factors were important in influencing and supporting people's endeavours to transfer and maintain new conflict resolution skills in healthcare. These results have implications for healthcare organisations in regard to how they motivate and support staff before and after training to increase transfer and maintenance of conflict resolution skills which are especially important in light of the potential detrimental effects conflict can have on health professionals' decision-making when providing patient-care.

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