

Knowledge, attitudes and readiness of final-year medical students towards clinical goals-of-care discussion

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Dear Editor,

In a rapidly ageing global population,¹ there is increasing recognition of the importance of clinical goals-of-care (GOC) discussions aimed at understanding patients' goals, wishes and care preferences in the event of serious illness or end-of-life situations,² in order to affirm patient-centred decision-making, improve quality of life and facilitate their eventual transition towards end-of-life care.^{3,4} Examples of GOC discussions include informal advance care planning (ACP), legally-binding advance medical directives (AMD), inpatient code status discussions,² and most recently, longitudinal serious illness conversations that improve patient prognostic awareness and psychological coping with advanced disease and end-of-life matters.⁴

Moreover, cultural differences exist in GOC and end-of-life discussions. While Western societies accord importance to individual autonomy, Asian and more collectivistic populations tend to place more value on shared decision-making, familial harmony and filial piety obligations (where children often make health-related decisions on behalf of their elderly parents).⁵ For instance, a survey in the US found that Asian (Korean)-Americans were less likely than their European-American and African-American counterparts to deem it necessary to disclose terminal diagnoses to patients, and more likely to prefer familial decision-making in life-sustaining interventions.⁶

Nonetheless, studies in both Western and Asian societies have found that clinical GOC discussions remain highly suboptimal. A US study found that many seriously ill patients did not have inpatient code status discussions; when such discussions were held, they were often brief and contained

inaccuracies or inadequate details on prognostic information, resuscitation interventions and patient-centric recommendations.⁷ A 2014 Singapore study found that, with appropriate educational interventions, physicians were highly amenable and willing to engage in end-of-life conversations. Nevertheless, most still deferred GOC discussions and decision-making to patients' families, highlighting the prevailing cultural differences.⁸ Aside from cultural context, there are also common practical challenges of holding GOC discussions in routine clinical practice—such as lack of time, knowledge, communication skills and confidence in tackling end-of-life issues, as well as conflicting opinions on disease prognosis and futility of medical treatments or interventions.⁹

We performed a cross-sectional study on a Singapore cohort of graduating final-year medical students, on their knowledge, attitudes and readiness to hold GOC discussion in clinical practice, where we sought to review the study implications on educational pedagogies.

We developed a survey questionnaire (see Appendix) based on literature review of relevant surveys and studies on GOC, end-of-life or code status discussions performed on medical students and practitioners.^{2,10-12} The surveys were distributed physically to 303 final-year medical students from National University of Singapore's Yong Loo Lin School of Medicine. Participation was voluntary and anonymous.

Statistical analyses were performed using IBM SPSS Statistics version 29 (IBM Corp, Armonk, NY, US). Descriptive data were summarised, and univariable analyses of relationship between studied variables were analysed through chi-square/Fisher's Exact test for categorical variables and Pearson's correlation

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for continuous variables. To rule out confounding bias, 10 covariates that pertained to participant profile/demographics, subjective/objective GOC knowledge and clinical experiences were selected for multivariable analyses (i.e. age, gender, ethnicity, presence of GOC learning in medical school, self-perceived familiarity with GOC concepts, objective GOC knowledge scores, personal observations of GOC discussions by others, personal experience participating in GOC discussions, awareness of where to find ACP information on EMR, and awareness of how to seek help for GOC discussions). A binary logistic regression was performed on the included variables, with sequential exclusion of statistically non-significant variables (initial cut-off of $P < 0.1$, followed by cut-off of $P < 0.05$) to generate the final multivariable model. Statistical significance was set at $P < 0.05$, with effect estimate provided by prevalence odds ratio (POR) and 95% confidence interval (CI).

Our response rate for this study was 84.5% (256 out of 303 students). The mean age of participants was 24 years, with 52% males and 93% Chinese. The majority (93.4%) had learnt GOC discussion in medical school, mainly through didactic lectures/tutorials (79.9%), simulation practices (56.5%) or clinical clerkship rotations (55.6%). From subjective self-assessment of GOC knowledge in 6 different domains, median score was 5/6 (83.3%). However, on objective assessment on GOC knowledge with 17 questions, the median score was only 9/17 (52.9%). In terms of attitudes, most (94.1%) agreed that GOC/code status discussions promoted person-centred care and helped to avoid inappropriate life-sustaining therapies. While the majority (79.2%) felt that code status must always be discussed with patients/families, only 33.6% considered their approval as absolutely necessary for implementation. More than half (68.5%) believed patient preference was most important in code status decision-making. Self-identified barriers to GOC discussions included personal lack of knowledge (83.8%) or confidence (80.6%) or patient/family's lack of readiness to discuss end-of-life matters (81%). In terms of readiness, only 1 in 4 students felt confident to hold GOC discussions with patients or families. Moreover, 60.1% reported having observed GOC discussions in clinical clerkship rotations (mostly once or twice), while only 19.4% actually tried engaging in GOC discussions themselves. Only 25% knew where to find ACP documentations on electronic medical records (EMRs).

On multivariable analyses, self-perceived familiarity with GOC concepts, awareness of where

to find ACP information on EMR, and personal experience with GOC discussions during clerkship rotations were associated with confidence in holding clinical GOC discussions with patients, while self-perceived familiarity with GOC concepts, awareness of where to find ACP information on EMR, personal experience with GOC discussions during clerkship, and awareness of how to seek help in GOC discussions were linked to students' confidence in holding GOC discussions with patients' families (Table 1).

There are several practice implications of this study from a medical educational standpoint.

First, the study found that there is fairly poor objective knowledge of important GOC concepts, which naturally hinders the students' ability in holding accurate and effective GOC discussions when they enter actual practice. Moreover, poor understanding of GOC concepts can have professional and ethical repercussions, where junior medical practitioners could fail to uphold important principles of beneficence and non-maleficence by acquiescing to inappropriate/harmful/futile medical interventions requested by patients/families, or neglect patient autonomy and shared decision-making by colluding with families or prioritising their wishes over the patients. Therefore, to improve GOC knowledge among medical trainees, comprehensive GOC educational courses can be conducted for medical trainees that incorporate didactic teaching on chronic disease trajectory, prognostication and end-of-life care, with simulation practice with standardised patients and supervised GOC discussions in real-life clinical encounters using mini-clinical evaluation exercise (mini-CEX) formats.¹³ Communication adjuncts, such as the serious illness conversation guide,¹⁴ can also be made readily available in the wards for use by medical trainees and practitioners. Importantly, the cultural nuances and ethical considerations behind GOC discussions should also be highlighted during the course of training, where empathic communications and understanding of how to seek hospital support/ethical consultations would be valuable to navigate these challenges. For example, in Asian contexts, strict adherence to an autonomous model of GOC decision-making, such as framing life-sustaining interventions as purely a medical decision or holding GOC conversations only with the patient, may not be culturally acceptable and can lead to complaints or even medicolegal disputes.

Second, there is a clear discrepancy between subjective and objective assessments of GOC knowledge, which we attribute to the trainees' lack of insight into own performance¹⁵ or confounding effect of social desirability bias that skews self-

Table 1. Multivariable (binary logistic regression) model of independent covariates associated with students’ confidence in holding goal-of-care discussions with patients and families.

(A) Factors independently associated with student confidence in holding goal-of-care discussions with patients.

Covariate	POR	95% CI	P value
Self-perceived familiarity with GOC concepts (≥5 out of 6 categories)	4.45	2.13–9.31	<0.001
Awareness of where to find ACP information on EMR	3.44	1.71–6.93	<0.001
Personal experience with engaging in GOC discussion with patients/families during clerkship rotations	3.69	1.74–7.83	<0.001

(B) Factors independently associated with student confidence in holding goal-of-care discussions with patients’ families.

Covariate	POR	95% CI	P value
Self-perceived familiarity with GOC concepts (≥5 out of 6 categories)	4.20	1.98–8.94	<0.001
Awareness of where to find ACP information on EMR	5.21	2.52–10.78	<0.001
Personal experience with engaging in GOC discussion with patients/families during clerkship rotations	2.77	1.28–6.04	0.01
Awareness of how to seek help in GOC discussions	2.98	1.17–7.59	0.022

ACP: advance care planning; CI: confidence interval; EMR: electronic medical record; GOC: goals-of-care; POR: prevalence odds ratio

reported scores. From a learning theory perspective, the tendency for inaccurate trainee self-assessments may be emblematic of the Dunning-Kruger effect of illusory superiority where poorer-achieving students are not able to recognise their limitations, as well as imposter phenomenon, where high-achievers tended to be excessively critical of their own performance.¹⁵ To illustrate this, a previous cohort study done on third-year medical students revealed that low-achievers tended to overestimate their own and their peers’ performance, whereas high-achieving individuals were harsh towards themselves but accurate in scoring their peers.¹⁶ To address this problem, metacognitive training, self-assessment practices (e.g. post-test dictions), and feedback literacy are evidence-based modalities to enhance trainee insight in medical education.¹⁵

Third, it is reassuring that many of the surveyed respondents held positive attitudes towards clinical GOC discussions and valued the importance of patient autonomy. For instance, the majority of the students felt that patients/families should be involved in all code status discussions and patient preference is an important consideration. However, given that approximately one-third of students believed that decisions related to life-sustaining therapies/interventions must always be approved by patients/families, there is a need for our healthcare and education systems to provide clarity on navigating between upholding patient autonomy in health-related decision-making and

knowing when to withhold futile or inappropriate interventions in the end-of-life settings, even when it might conflict with the patients/families’ wishes.

Finally, only a small percentage of students expressed confidence in holding clinical GOC discussions with patients/families, which could be related to the lack of experiential learning in this area during clinical clerkship rotations. From multivariable analyses, it is evident that self-perceived familiarity, direct clinical experience and awareness of how to find ACP documentations were significantly associated with greater confidence in holding GOC discussions with patients/families. To enhance task familiarity and promote hands-on clinical experience, GOC communication skills could be taught through both simulation training with standardised patients and real-life, embedded and supervised learning during clerkship rotations.

Limitations of the study include its cross-sectional nature, which prevents temporal associations from being drawn between studied variables. There is also the risk of bias that affects the study validity, particularly non-response bias where participants and non-participants may have different characteristics; as well as social desirability bias in self-reported data for knowledge and confidence. To improve accuracy of these studied variables, simulated objective structured clinical examinations can be conducted as part of the research study with observer appraisals of trainee performance in holding GOC discussions based on standardised

assessment metrics. Finally, there could be a lack of generalisability of study findings to medical students in other societies and health systems, given the significant cultural differences on the emphasis of GOC discussions and the understanding of its constructs, thereby necessitating similar studies to be replicated in other settings for comparisons.

Our findings suggest the need for more comprehensive curricular teaching and assessment of foundational GOC concepts, as well as hands-on experiential/simulated learning to improve trainee confidence in handling real-world clinical scenarios requiring GOC discussions.

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Ethics statement

Institutional review board (IRB) approval (NUS-IRB-2023-1059) was obtained for this study.

Declaration

The authors have no affiliations or financial involvement with any commercial organisation with a direct financial interest in the subject or materials discussed in the manuscript.

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