Medical students' perception of a unique humanistic mentoring program in a religious university: a convergent parallel mixed methods study

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Abstract

Background The medical school of Tzu Chi University in Taiwan offers a unique, group-based, humanistic mentoring program as a complement to the programs mentored by faculty members and school counselors. The humanistic mentors are senior volunteers who are subject-matter experts in various fields and who embody the spirit of humanism in their lives. The average mentee-to-mentor ratio is around 3. This study explored medical students' perceptions of this unique program and focused on three major themes: guidance/support, mentor–mentee interaction/relationship, and cultivation of humanistic literacy.

Methods During the 2018–2019 academic year, we conducted a mixed methods study with a convergent parallel design targeting clerks and graduates undertaking post-graduate year training as the study population. The content validity index and Cronbach's alpha were used to assess the validity and reliability of the questionnaires. Data comparisons between two subgroups were assessed using the Chi-square test. Quantitative data from 86 respondents based upon convenience sampling were collected by using a validated self-administered questionnaire (20 items each utilizing a Likert scale). Qualitative data from 20 interviewees based upon purposive sampling were collected through one-to-one interviews based on a semi-structured interview guide. Data were analyzed in parallel using thematic analysis and merged at the point of interpretation, allowing for triangulation and validation of results.

Results Regarding the functional roles of three focused themes both quantitative and qualitative data revealed that participants viewed the program positively. The three quantitative items with the highest percentages of positive responses were related to mentors' endeavors to provide support (72%), to stay connected (69%), and to share their career and life experiences (72%). Interviewees perceived that their mentors provided timely guidance and support in response to their physical or mental needs and empowered them to cultivate humanistic literacy, both of which were mediated through a trusting, caring mentor–mentee relationship.

Conclusion The participants had positive perceptions regarding this unique humanistic mentoring program. As an educational strategy for medical students this type of humanistic mentoring holds great potential.

Keywords Medical education, Humanistic mentoring, Senior volunteers, Mixed methods study

†Tsung-Ying Chen and Wen-Lin Lo contributed equally to this work.

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Introduction

Mentoring programs are increasingly recognized in medical schools as a prevalent educational strategy [1–5]. In the education system, mentoring is "a complex and multidimensional process for guiding, teaching, influencing, and assisting students [6]." The backdrop for this strategy is a number of well-recognized stressors that medical students experience: competitive learning environments, intense workload, rigorous curriculum, and lack of work-life balance [4, 7, 8]. These stressors, in combination with the "hidden curriculum", exert negative impacts on medical students, resulting in burnout, demoralization, reduced socialization, challenges to professional identity formation, declines in empathy, and psychological distress [9–13]. To curtail these negative impacts, mentoring programs for medical students incorporate a wide range of objectives [2–5, 11, 12, 14]. For example, academic mentoring programs, mostly mentored by faculty members or experienced physicians, can assist in developing students' knowledge, skills, and well-being, thus maximizing their success during the academic process [1–5]. These academic mentors serve as role models and may empower the students to cultivate professionalism and humanism as well as foster their personal and professional developments [1–5, 11, 12, 14]. In parallel, the mentoring programs provided by school counselors mainly focus on the need for mental health services that promote social/emotional wellness and development for all students [15–18].

Although the benefits of mentoring programs for medical students are well recognized, several challenges remain. For example, faculty members carrying out mentoring sessions often experience time constraints due to the existing workloads of their academic and clinical commitments [2, 19, 20]. Meanwhile, since medical humanities have emerged in many countries as an important teaching modality in medical education [14, 21, 22], a challenge for medical schools is to educate faculty members to be humanistic mentors [11, 23, 24]. Furthermore, among the medical students who become distressed, many do not seek care from mental health counseling services due to lack of time, concerns about confidentiality, stigma against seeking care, and fear of documentation on their academic records [16, 23]. As such, developing strategies to optimize current mentoring programs for medical students are warranted.

In this regard, Tzu Chi University, a religious school in Taiwan, offers a unique, group-based, triple-mentoring program from the first to the fourth year of a six-year medical student curriculum [24]. In addition to faculty members and school counselors, Tzu Cheng/Yi De (TC/YD; males/females) mentors provide a humanistic mentoring program. TC/YD mentors are senior volunteers who are subject-matter experts in various fields, including professors, doctors, lawyers, civil servants, and businesspersons [24, 25]. They are appointed and trained by the university to provide guidance/support and to foster students' humanism. In this program, 3–5 TC/YD mentors and 10–13 students meet monthly for various humanistic activities, such as the Silent Mentor Program [26]. They also interact closely with students in casual environments and frequently participate in students' extracurricular activities. They share their life stories, experiences of altruism and service, and philosophies of humanism and empathy with students. They provide timely support, care, and advice to individual students in need.

In Taiwan, medical students undergo 6-year medical programs beginning after high school (18–25 years old) and are at an important stage in life for building skills, good health, adult behavior, and social engagement. Medical students face stress from a competitive learning environment, a heavy workload, and a lack of work-life balance, which may negatively impact their professional and personal development. To provide timely support, care, and advice to these students, the TC/YD humanistic mentoring program has been implemented in medical education at Tzu Chi University since 1994. Although the university evaluates the program yearly, only one study explored the students' perception of this mentoring program. Tseng et al. [24] conducted a website survey study investigating the role functions of the triple-mentoring program from the perspective of medical students at Tzu Chi University. They found that, for humanistic/moral guidance, students had an equal preference for faculty mentors and TC/YD mentors over school counselors. However, no quantitative and qualitative studies have specifically investigated the students' perception of the TC/YD mentoring program with respect to guidance/support, mentor–mentee interaction/relationship, and cultivation of humanistic literacy. Findings from such a study may provide valuable information to reinforce the program and evidence of its value in medical education.

The objective of this study was to explore medical students' perceptions of the TC/YD humanistic mentoring program and focused on three major themes: guidance/support, mentor–mentee interaction/relationship, and cultivation of humanistic literacy. We conducted a mixed methods study with a convergent parallel design and collected quantitative and qualitative data from clerks (fifth- and sixth-year students) and graduates undergoing post-graduate year (PGY) training because they had only very recently been through the program.
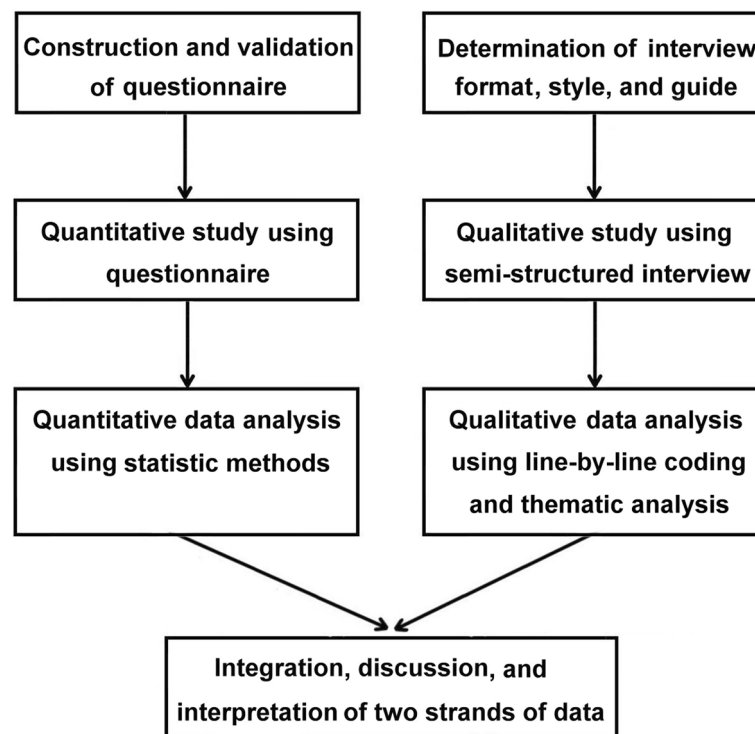
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Fig. 1 The design and methods followed in this study

Methods

Study design and setting

We conducted a mixed methods study with a convergent parallel design to explore medical students' perceptions of a unique humanistic mentoring program in Tzu Chi University, Hualien, Taiwan. The investigation consisted of a quantitative descriptive study and a qualitative exploratory study that were simultaneously conducted [27, 28]. The objective of using a mixed-methods study was to integrate quantitative and qualitative research data through a complementary approach that maximizes strengths of each data type and facilitates a more comprehensive interpretation of the research aims [27, 28]. Figure 1 shows the design and methods followed in this study.

This humanistic mentoring program is a unique, group-based program as a complement to the programs mentored by faculty members and school counselors. The program is provided by Tzu Cheng/Yi De mentors who are senior volunteers with non-medical professions [24, 25]. They are vegetarians and environmentalists who maintain ideals of volunteerism and altruistic behavior. They are selected and recruited from the TC/YD Association affiliated with the Buddhist Tzu Chi Foundation, an international non-governmental organization (NGO) with five major missions: disaster relief, charity, medicine, education, and humanistic culture [29]. They interact closely with students to provide timely support, care, and advice. This humanistic mentoring program collaborates with, but does not interfere with the other two mentoring programs offered by faculty mentors and school counselors.

Study population and sample

This study's target population was clerks and PGY graduates, with a total of 220 students in the 2018–2019 academic year. In the quantitative study, participants were invited to complete the survey questionnaire at several academic events based upon convenience sampling. In the qualitative study, the participants were invited to take part in a face-to-face semi-structured interview based on purposive sampling to achieve data saturation [30]. The implementation of purposive sampling was initiated through public announcements of recruitment of interviewees via emails and the website of the Department of Medication. The voluntary participants who were clerks or PGY were recruited with a consideration of a balanced proportion of sex. The recruitment ended once a maximum of 20 participants was reached.

Themes, evaluation model, and theoretical framework

This study focused on three major themes: guidance/support, mentor–mentee interaction/relationship, and cultivation of humanistic literacy. These themes were

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Table 1 Short version of the survey questionnaire used in this study

Theme	Item	Statement	Kirkpatrick levels[a]
Guidance/support	1	Hope to receive more guidance from mentors	1, 2
	2	Received a lot of guidance and support from mentors for emotional management.	1, 2
	3	Very touched by mentors' endeavors to provide support for our extracurricular activity	1
	4	Increased my confidence in studies as a result of affirmation and praise from mentors	1
	5	Received more care from mentors than I expected	1
	6	Felt uncomfortable when mentors cared about my daily routines (Reverse coding)	1, 2, 3
	7	Felt pressure when mentors mentioned my academic performance (Reverse coding)	1, 2
	8	Did not like it when mentors mentioned the issues of etiquette and rules (Reverse coding)	1, 2
Mentor–mentee interaction/ relationship	9	Very touched by mentors' endeavors to stay connected	1
	10	Mentors' care was very similar to teachers' care	1
	11	Felt comfortable when mentors referred to themselves as "Mom and Dad"	1
	12	Interactions with mentors were more like those with elders rather than like those with friends	1, 2, 3
	13	Would like to continue attending gatherings with mentors after starting training in the hospital	1
	14	Like the gatherings arranged by mentors	1, 2
	15	Felt uncomfortable when mentors discussed my private matters (Reverse coding)	1, 2
	16	Did not feel uncomfortable about the fact that most of mentors are Buddhists	1, 2
Cultivation of humanistic literacy	17	Like it when mentors remind us to help others with humanistic consideration	1, 2, 3
	18	Like it when mentors used Tzu Chi volunteers as examples for our future goal	1
	19	Like it when mentors shared their career and life experiences, and how they fulfill their social responsibility	1, 2
	20	Mentors' life experiences inspire me to become a humanistic doctor.	1, 2, 3

TC/YD, Tzu Cheng/Yi De (males/females). Each item was referred to Kirkpatrick levels serving as the evaluation model

[a] Kirkpatrick levels; Level 1 refers to the level of reaction or feelings by the respondents to the mentoring program. Level 2 refers to the changes in the respondents caused by participation in the mentoring program. Level 3 reveals whether or not the mentoring program has created a change in the respondents' behavior

Table 2 Themes, categories, and Hofstede's cultural dimensions for the qualitative study

Themes	Categories	Hofstede's Cultural dimensions
Theme 1: Guidance/support	Valuable guidance from mentors	Power distance, Long-term orientation
	Mentors' unconditional support	Uncertainty avoidance, Collectivism
Theme 2: Mentor–mentee interaction/relationship	Family-like interaction with mentors	Power Distance, Masculinity
	Trustworthy relationship with mentors	Indulgence, Long-term orientation
Theme 3: Cultivation of humanistic literacy	Embracing humanistic mentoring	Power Distance, Long-term orientation

constructed according to the three core evaluation indicators of the annual performance of the TC/YD mentoring program. For the quantitative study, a questionnaire consisting of twenty survey items was constructed based on these three themes. Table 1 describes the survey items of the questionnaire and each item was referred to Kirkpatrick levels serving as the evaluation model. The Kirkpatrick Model [31] consists of four levels of evaluation: reaction, learning, behavior change, and organizational performance. For the qualitative study, these

three themes encompassed a total of 5 categories, allowing us to analyze and interpret the data of the qualitative research using Hofstede's theory [32, 33] as the framework (Table 2). Hofstede's cultural dimensions include power distance, individualism vs. collectivism, uncertainty avoidance, masculinity vs. femininity, restraint vs. indulgence, and short vs. long-term orientation [32, 33].

Quantitative study   The design of the questionnaire was based on the three major themes and key indicators of

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the evaluation of the mentoring program. A panel of 6 experts initially determined the number of survey items (20 items) required and their proportions (40%, 40%, and 20%, respectively) under three major themes. They then constructed a draft with 26 items through two terms of panel discussion. Subsequently, 6 experts, 3 authors, and 5 medical students voted for the suitability of these 26 items, and the top 20 items were included as the preliminary version of a self-administered questionnaire in Chinese, which was circulated to an advisory committee for evaluation of the content and clarity of wording. The questionnaire was revised through iterative feedback and subsequently submitted to a group of 6 experts drawn from the fields of culture pedagogy, social work, interdisciplinary education, medical education, or medical anthropology. A content validity ratio was developed by these experts to aid in determining the rejection or retention of the survey items. After items had been identified for inclusion in the final form of the questionaries, the content validity index (CVI) was computed. Content validity was determined using the opinions of six experts who were asked to rate each item in the three areas of relevance, clarity, and simplicity in the range of 1 to 4. To calculate CVI, we divided the number of experts who chose option 3 and 4 by the total number of experts. The CVI was found to be 0.93, indicative of good content validity [30]. The reliability assessment of the questionnaire was conducted using 86 responses. The overall Cronbach's alpha for the entire questionnaire was 0.917, which was considered excellent. The questionnaire was divided into three components for detailed analysis; the Cronbach's alpha of Component 1 (items 1–8), Component 2 (items 9–16), and Component 3 (items17-20) were 0.832, 0.784, and 0.778. Each component's Cronbach's alpha fell within the "good" range, further supporting the reliability of our questionnaire. Further confirmatory factor analysis of the questionnaire to evaluate the fit of the data to the hypothesized measurement model revealed that the chi-square/ degrees of freedom ratio (χ^2/df) was 2.65 (442.689/167) and the comparative fit index (CFI) was 0.721, indicating an acceptable model fit. This survey questionnaire consisted of socio-demographic data and 20 items of statements. The respondents specified their level of agreement to each of the statements on a 5-point Likert–scale ranging from 1 (strongly disagree) to 5 (strongly agree). Survey items 1–8, 9–16, and 17–20 were designed under the themes of guidance/support, mentor–mentee interaction/relationship, and cultivation of humanistic literacy, respectively. The questionnaires were distributed directly to the responders and took no more than 8 min to complete. The short and full versions of the questionnaire in English are shown in Table 1 and Table S1 (supplementary materials), respectively.

Qualitative study

Prior to the study, members of the study team held extensive discussions in order to reach consensus regarding the types of interview format, style, and guide. From May 2019 to November 2019, interviews were conducted by team members trained in qualitative moderation. Semi-structured interviews were used to obtain data, and the interview guide in English is shown in Table S2 (supplementary materials). The interviews were conducted at a time and in a venue that was suitable for both interviewers and interviewees. To conduct interviews, the participants were informed in advance about the statements regarding the ethical principles, such as the interviewee's right to interrupt the interview at any time, to mark certain parts of the transcript as non-public, and to refuse to be interviewed midway, and how the interview data would be handled, stored, and reported afterward with respect to the interviewee's privacy. After this explanation, a consent form was signed in duplicate, with both parties retaining a copy. When contacting the interviewees, the purpose of the research and the reason for their invitation were explained, and an interview guide was provided. In this study, in-depth interviews were conducted. The interviews were conducted at a time and in a venue that was suitable for both interviewers and interviewees. Participants were interviewed separately in a face-to-face fashion. Open-ended questions derived from the interview guide were used to help the interviewee describe their perception of the major themes and categories. The interviewer focused on the development of the narrative rather than strictly adhering to the outline, avoiding excessive guidance. When the content related to the research topic became saturated, the interviewer did not arbitrarily interrupt the narrative. Interviews took approximately 40 to 120 min to explore participants' perceptions related to the themes of guidance/support, mentor–mentee interaction/relationship, and cultivation of humanistic literacy. Interview data were transcribed verbatim on the spot and also captured on an audio recorder for later analysis. Interviews continued until data saturation was reached [28]. Collaborative thematic analysis by teamwork was used in the qualitative study to identify, analyze, and report patterns in data.

Quantitative data analysis

We used G*Power (version 3.1.9.2) to calculate the sample size needed. For the comparison of the difference between two independent proportions, we set a group 1 proportion of 0.6, group 2 proportion of 0.9, α of 0.05, power (1-β) of 0.80, sample size ratio of 1, and a two-sided test. Considering an anticipated incomplete survey response rate of 10%, a minimum sample size of 70 participants (i.e., 35 per group) was required.

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Socio-demographic data and points of each item in the questionnaire are presented as mean ± standard deviation (SD) or n (%). The percentages of participants rating points 1–5 for each survey item are presented as 100% stacked bar charts. Differences in the percentages between subgroups (male versus female or clerk versus PGY graduate) were assessed using the Chi-square test. $P < 0.05$ was considered statistically significant. All analyses were conducted using SPSS statistical software program version 22.0.

Qualitative data analysis

Two authors initially coded and organized the transcripts, refining the categories and the three themes. To ensure accurate data interpretation, the authors independently read over the transcripts and engaged in coding by highlighting underlying patterns. The authors then started to group these codes into categories based on their similarities and relationships. The authors discussed the coded transcript together and resolved any discrepancies until a consensus was reached. The coding list was then reorganized to reflect the primary three themes and all transcripts were reviewed again to ensure that the major themes adequately represented student responses. They then used line-by-line coding and repeatedly analyzed the text to locate excerpts that were relevant to the themes of interest (Table S2).

Peer review was conducted to achieve credibility. Two peers trained in qualitative research reviewed and assessed whether the analyzed themes and subcategories align with the interviewees' intentions. These two peers inspected the textual records at each step to ensure the validity of the analytical method, with a focus on consistency. This peer debriefing mechanism also promoted reflexivity by encouraging authors to reflect on possible biases and assumptions that may influence the interpretation of the findings. By incorporating peer debriefing, the confirmability of the quality of the research was enhanced. Also, transferability was achieved as the authors adapted purposive sampling. Participants were selected specifically to ensure the findings were applicable to similar contexts. An experienced senior researcher was invited to participate in data triangulation to ensure the consistency of the results in terms of credibility. Since the transcripts were translated from Chinese to English by a professional English editor, this senior researcher, who is proficient in both languages, also checked the fidelity of the translation.

Data integration

The qualitative and quantitative data were initially analyzed separately before being interpreted together in relation to the focused themes. The study team integrated

and triangulated these two independent strands of data, discussed areas of convergence/divergence, and considered how complementary value might be provided by both approaches.

Ethical considerations

The study was approved by the Institutional Review Board of Tzu Chi University and Hospital (approval number: IRB106-106-B). Detailed information was provided to participants allowing them to make a considered decision to participate in the study. Informed consents were obtained from all participants. Confidentiality and anonymity principles were adhered to throughout the study process.

Results

Quantitative study

The short version of the survey questionnaire is presented in Table 1. A total of 86 respondents sampled from 18 mentoring groups completed the questionnaire. The mean age of the respondents was 24.49 ± 2.31 years old ($n = 86$). The respondents included an equal number of males and females, with more clerks (66%) than PGY graduates (34%). The respondents were from 18 mentoring groups. Figure 2 shows the percentages of responders rating points 1–5 for the 20 survey items under three major themes: guidance/support, mentor–mentee interaction/relationship, and cultivation of humanistic literacy. As shown, 13 out of 20 items (items 1, 3, 4, 5, 9–14, 16, 19, and 20) had greater than 40% of responders rating point 4 (agree) or 5 (strongly agree). Conversely, 8 out of 20 items (items 2, 6–8, 11, 15, 18, and 20) had greater than 20% of responders rating point 1 (strongly disagree) or 2 (disagree). Among these 8 items, 4 items were reverse-coded (items 6–8 and 15), while the other 4 were forward-coded (Fig. 2). Table 3 shows quantitative data of the percentages of participants' ratings disagreed to strongly disagreed, neutral, and agreed to strongly agreed on twenty survey items under three focused themes. In Table 3, each item of the survey questionnaire was referred to Kirkpatrick levels [31], serving as the evaluation model. As shown, our quantitative analysis involved 3 out of 4 Kirkpatrick levels: reaction, learning, and behavior change.

Further subgroup analysis of male versus female responses revealed no significant differences in the percentage of respondents rating 1–5 points in any survey items except item 12 (Table S3; supplementary materials); as for item 12, a greater percentage of female respondents than male respondents rated it at point 4 or 5 (Fig. 3). Also, subgroup analysis of clerk versus PGY graduate respondents revealed no significant differences in percentage in any survey items except items 9, 16, and 19
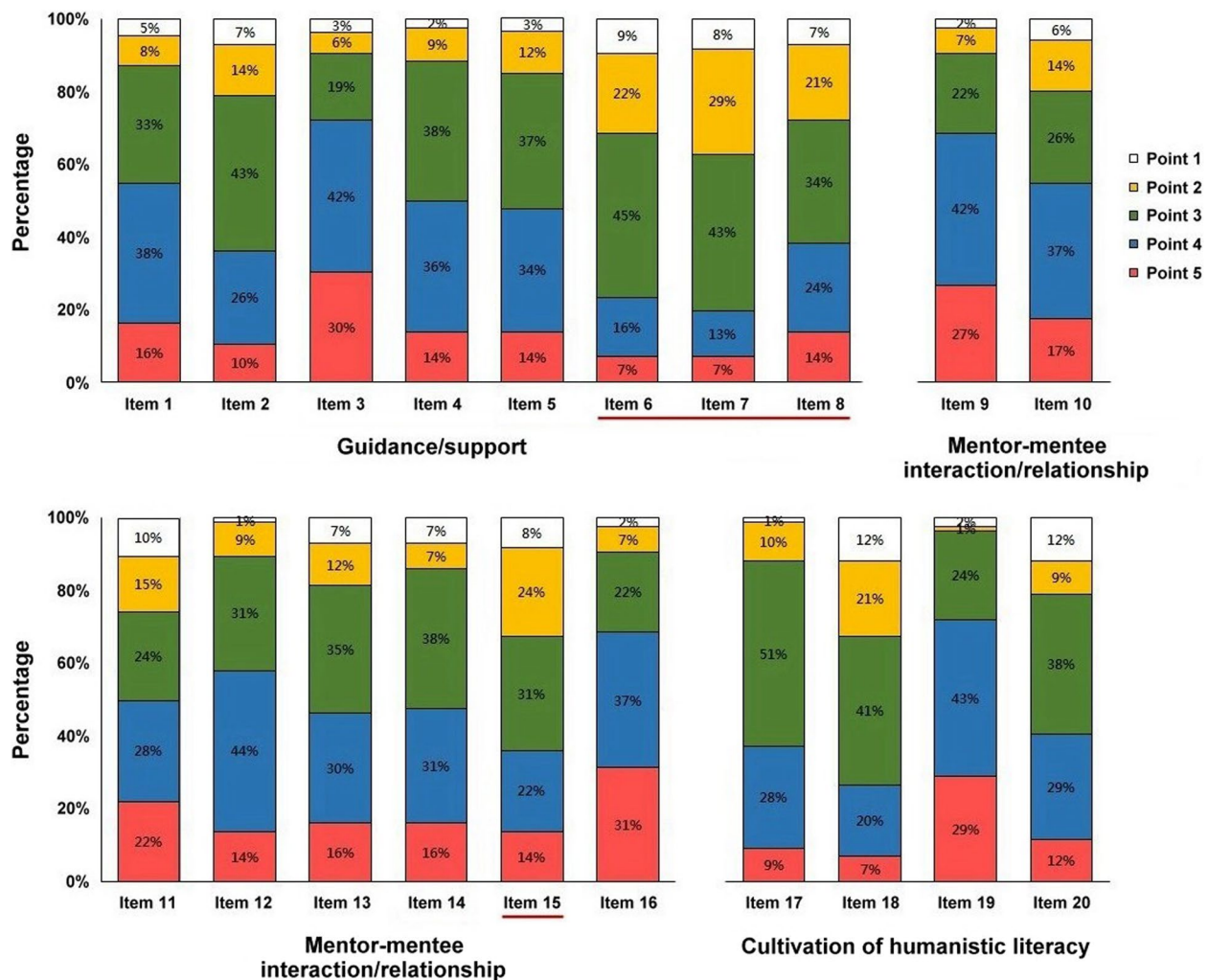
Fig. 2 100% stacked bar chart showing the percentages of participants rating by points 1–5 of twenty survey items under three focused themes. Statements in items with red underlines were reverse-coded

(Table S3); these 3 items had a greater percentage of PGY graduates than clerks rating point 4 or 5 (Fig. 3). Table 4 shows differences in the percentages of participants' ratings disagreed to strongly disagreed, neutral, and agreed to strongly agreed between male and female participants or between clerks and PGY graduates.

Qualitative study

The interview guide showing themes of interest is presented in Table S2. A total of 20 interviewees sampled from 11 mentoring groups completed the interview. The mean age of the participants was 25.85 ± 1.63 years old ($n = 20$). The participants included an equal number of males and females, with more PGY graduates (55%) than clerks (45%). The demographic information of the participants in the qualitative study is shown in Table 5. Three major themes encompassed a total of 5 categories,

allowing us to analyze and interpret the data of the qualitative research using Hofstede's theory [31, 32] as the framework (Table 2). Summaries of the thematic analyses of interview texts and representative quotes for each theme are given below (Table 6).

Theme 1: Guidance/support

This theme encompassed two categories: valuable guidance from mentors and mentors' unconditional support (Table 2); the former category referred to power distance and long-term orientation of Hofstede's cultural dimensions, whereas the latter referred to uncertainty avoidance and collectivism. Participants unanimously stated that their TC/YD mentors gave timely guidance and support to them. However, the needs, types and contents of the guidance, and support varied among the participants. Based on their descriptions, their mentors usually

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Table 3 Quantitative data of the percentages of participants' ratings of twenty survey items under three focused themes

| Themes	Items	Disagreed to Strongly Disagreed (%)	Neutral (%)	Agreed to Strongly Agreed (%)	Mean Score[b]	Kirkpatrick levels[c]
Theme 1: Guidance/support	1	13%	33%	54%	3.53 ± 1.01	1, 2
	2	21%	43%	36%	3.19 ± 1.04	1, 2
	3	9%	19%	72%	2.90 ± 1.02	1
	4	11%	38%	50%	2.81 ± 1.00	1
	5	15%	37%	48%	3.17 ± 1.13	1
	6[a]	31%	45%	23%	3.50 ± 0.93	1, 2, 3
	7[a]	37%	43%	20%	3.84 ± 0.98	1, 2
	8[a]	28%	34%	38%	3.90 ± 1.02	1, 2
Theme 2: Mentor–mentee interaction/relationship	9	9%	22%	69%	3.47 ± 1.11	1
	10	20%	26%	54%	3.36 ± 1.27	1
	11	25%	24%	50%	3.60 ± 0.89	1
	12	10%	31%	58%	3.37 ± 1.11	1, 2, 3
	13	19%	35%	46%	3.43 ± 1.07	1
	14	14%	38%	47%	3.34 ± 0.84	1, 2
	15[a]	32%	31%	36%	2.90 ± 1.07	1, 2
	16	9%	22%	68%	3.09 ± 1.16	1, 2
Theme 3: Cultivation of humanistic literacy	17	11%	51%	37%	3.95 ± 0.89	1, 2, 3
	18	33%	41%	27%	3.88 ± 1.01	1
	19	3%	24%	72%	3.43 ± 0.98	1, 2
	20	21%	38%	41%	3.20 ± 1.14	1, 2, 3

[a] Statements in items were reverse-coded

[b] The respondents specified their level of agreement to each of the statements on a 5-point Likert–scale ranging from 1 (strongly disagree) to 5 (strongly agree)

[c] Kirkpatrick levels; Level 1 refers to the level of reaction or feelings by the respondents to the mentoring program. Level 2 refers to the changes in the respondents caused by participation in the mentoring program. Level 3 reveals whether or not the mentoring program has created a change in the respondents' behavior
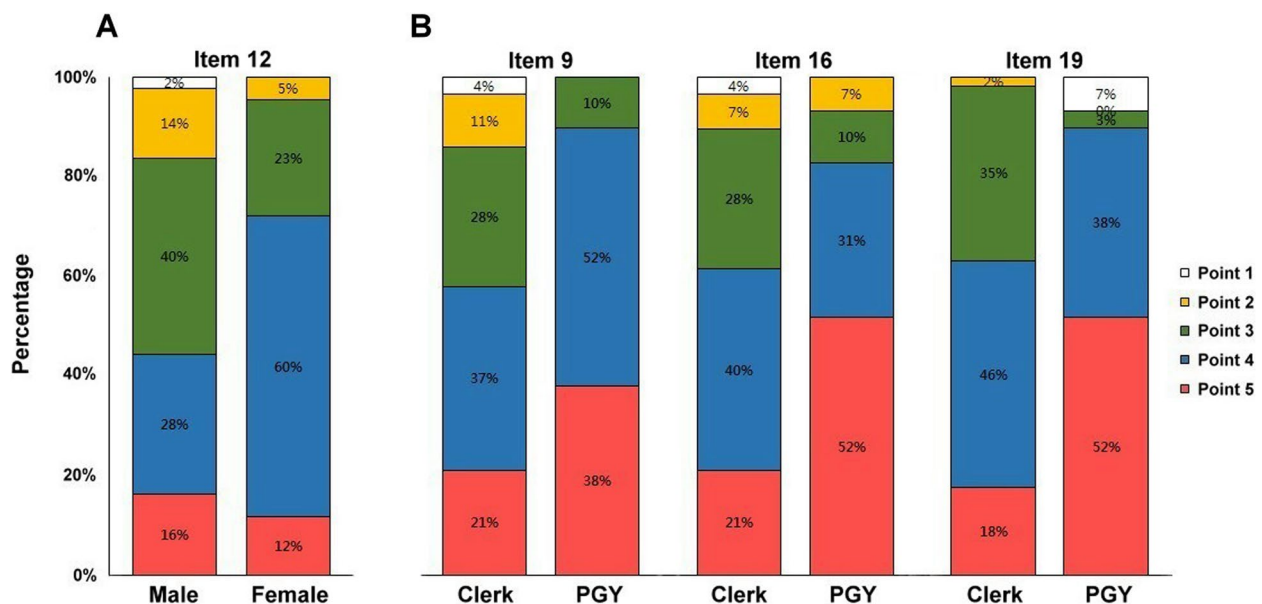
Fig. 3 100% stacked bar chart showing the percentages of participants rating by points 1–5 of four survey items. (**A**) Difference between male and female participants; (**B**) Difference between clerks and graduates undergoing post-graduate year (PGY) training

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Table 4 Differences in the rating percentages between male and female participants or between clerks and PGY graduates

Items	Participants	Disagreed to Strongly Disagreed (%)	Neutral (%)	Agreed to Strongly Agreed (%)
12	Male	16	40	44
	Female	5	23	72[*]
9	Clerk	14	28	58
	PGY	0	10	90[*]
16	Clerk	11	28	61
	PGY	7	10	83[*]
19	Clerk	2	35	63
	PGY	7	3	90[*]

PGY, graduates undergoing post-graduate year training. [*], significantly different from male or clerk. Differences in the percentages between subgroups were assessed using the Chi-square test

Table 5 Demographic information of the participants in the qualitative study

Participants	Gender	Age	Status
N1	Female	25	PGY
N2	Female	25	PGY
N3	Male	25	PGY
N4	Male	28	PGY
N5	Female	27	PGY
N6	Male	25	PGY
N7	Female	26	Clerk
N8	Male	24	Clerk
N9	Female	24	Clerk
N10	Male	25	PGY
N11	Male	25	Clerk
N12	Male	31	Clerk
N13	Female	24	Clerk
N14	Female	25	Clerk
N15	Female	26	Clerk
N16	Male	27	PGY
N17	Female	26	PGY
N18	Male	25	Clerk
N19	Male	27	PGY
N20	Female	26	Clerk

N, the number of the interviewees; PGY, graduates undergoing post-graduate year

provided guidance and support to individuals when personal contact was required or to the whole members of the mentoring group during gathering events or students' extracurricular activities. The strategies used to provide these functions also varied among mentors and were mainly determined on a case-by-case basis. When participants had personal issues, they looked for one-on-one engagement with certain mentors who had close interaction with them. Participants recalled that the guidance was mostly given through explanation of examples of mentors' life experience or the strategies mentors had been using. Participants also perceived that the support mostly responded to their physical or mental needs. At least 8 participants expressed their appreciation to their mentors for this unconditional giving.

Valuable guidance from mentors
Representative quotes for this category are:

<…> because of a very close interactive relationship, they were able to share their life experience and to impart some of their own "motto". <…> I think, for my own growth, I can move my own judgment in a clearer direction without too many regrets. (N4)

They shared with us ideas regarding what problems they handled, what difficulties they encountered, and what approaches they took. <…> This is something I would like to learn from them. (N6)

My mentors told me that the study in medicine should be very much like running a marathon. A marathon runner moves slowly, but requires stamina to reach the end. (N17)

Mentors' unconditional support
Representative quotes for this category are:

When I was a freshman, they were quite helpful to me because I had just started my college life and there were a lot of things that were new to me. <…> They are very warm and attentive. They really treated me like their own child and I actually could feel it. (N7)

I remember, one time, one of my classmates had an unfortunate situation in his family. <…> The school teacher contacted our mentors and they immediately went to the classmate's home to help. I felt like they were a team of special forces, that is, whenever there was a need, they were called in to help. (N2)

During my fourth year in college, I was struggling with certain personal issues and pressure from the busy curriculum and board exam. I was very upset, and my life was quite miserable during that period of time. <…> I then reached out to them. <…> When I looked back, I felt I couldn't get through these difficult situations without their help and support. (N5)

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Table 6 Themes, categories, and exemplary quotes

Themes	Categories	Exemplary Quotes
Theme 1: Guidance/support	Valuable guidance from mentors	Because of a very close interactive relationship, they were able to share their life experience and to impart some of their own "motto". <…> I think, for my own growth, I can move my own judgment in a clearer direction without too many regrets. (N4) They shared with us ideas regarding what problems they handled, what difficulties they encountered, and what approaches they took. <…> This is something I would like to learn from them. (N6) My mentors told me that the study in medicine should be very much like running a marathon. A marathon runner moves slowly, but requires stamina to reach the end. (N17)
	Mentors' unconditional support	When I was a freshman, they were quite helpful to me because I had just started my college life and there were a lot of things that were new to me. <…> They are very warm and attentive. They really treated me like their own child and I actually could feel it. (N7) I remember, one time, one of my classmates had an unfortunate situation in his family. <…> The school teacher contacted our mentors and they immediately went to the classmate's home to help. I felt like they were a team of special forces, that is, whenever there was a need, they were called in to help. (N2) During my fourth year in college, I was struggling with certain personal issues and pressure from the busy curriculum and board exam. I was very upset, and my life was quite miserable during that period of time. <…> I then reached out to them. <…> When I looked back, I felt I couldn't get through these difficult situations without their help and support. (N5)
Theme 2: Mentor–mentee interaction Mentor–mentee relationship	Family-like interaction with mentors	It's just that the connection was not strong enough at the beginning, but the relationship was good later on. <…> I frequently stayed in their homes, and that was the time we started to develop a good connection. (N11) I think they were more like our grandparents. <…> My interaction with them was a bit more relaxed. The first thing you could feel was that they really wanted to get to know you and to take care of you even before they came to talk to you. (N13) My experience with my mentors was quite good. <…> I was invited to stay in their homes over the weekend several times. <…> They took care of me just like their own children. I even occasionally went out with them for fun. (N16)
	Trustworthy relationship with mentors	I felt, unlike what we experienced with my school teachers, my relationship with them was more in-depth regarding our life" (N2) They were a bit like very nice elder relatives in my own family. <…> However, I still felt there was a certain gap between us because of the age difference. My relationship with my academic mentors was more like that between friends. (N14) I think my relationship with my mentors was more two-way. My mentors shared information with me about their personal lives. <…> There were many times that I chatted with them about their real life. (N3)
Theme 3: Cultivation of humanistic literacy	TC/YD mentors' Humanistic influence	Their altruistic behavior simply shows us the spirit of planting trees so others can enjoy the shade. <…> They hope someday when these students become doctors and provide service to patients, the students will have the same spirit and do the same thing. (N3) I think their examples will encourage us to establish sufficient communication and to build up a trustworthy relationship with patients, and hopefully to provide better treatments for patients. (N4) I think they are my role model, not only in the medical field, but also in my real life. For example, one of my mentors was a government administrator with a high-ranking role. <…> He said that, as long as he has time, he would not ask what kind of people need help, but simply go to help them. (N17)

TC/YD, Tzu Cheng/Yi De (males/females); N, the number of the interviewees

Theme 2: Mentor–mentee interaction/relationship

This theme encompassed two categories: family-like interaction with mentors and trustworthy relationship with mentors (Table 2); the former category referred to power distance and masculinity of Hofstede's cultural dimensions, whereas the latter referred to indulgence and long-term orientation. Most of the participants placed a high value on the interaction and relationship between TC/YD mentors and mentees. Based on their descriptions, the mentors interact with their mentees through monthly meetings at the university, group gatherings in casual environments, or students' extracurricular activities. The interaction was further solidified by one-on-one engagements. Social media groups were used to foster conversation and connection among mentors and mentees. TC/YD mentors paid at least one visit to each mentee's family to introduce themselves to mentees' parents. Although these approaches were common to all mentoring groups, the style of interaction largely depended on the characteristics of mentors. Even within the same mentoring group, some mentors were more dominant in navigating the interaction activity, while others were more passive. Four participants perceived that they felt pressure when they interacted with their mentors for reasons including their own personalities and committing extra time to the program activity. Five participants mentioned that their participation in group gatherings was less frequent in the fourth academic year due to the increased curriculum load. Five participants stated that they would like to maintain a long-term relationship with their mentors. Most of the participants noted that they regarded their mentors as elders and that mentors regarded them as young people in their family. The participants' relationship with TC/YD mentors was somewhat different from the one they experienced with faculty members. It seemed that at least one year of interaction was required to cultivate a mature mentor–mentee relationship.

Family-like interaction with mentors

Representative quotes for this category are:

It's just that the connection was not strong enough at the beginning, but the relationship was good later on. <…> I frequently stayed in their homes, and that was the time we started to develop a good connection. (N11)

I think they were more like our grandparents. <…> My interaction with them was a bit more relaxed. The first thing you could feel was that they really wanted to get to know you and to take care of you even before they came to talk to you. (N13)

My experience with my mentors was quite good. <…> I was invited to stay in their homes over the weekend several times. <…> They took care of me just like their own children. I even occasionally went out with them for fun. (N16)

Trustworthy relationship with mentors

Representative quotes for this category are:

<…> I felt, unlike what we experienced with my school teachers, my relationship with them was more in-depth regarding our life (N2).

They were a bit like very nice elder relatives in my own family. <…> However, I still felt there was a certain gap between us because of the age difference. My relationship with my academic mentors was more like that between friends. (N14)

I think my relationship with my mentors was more two-way. My mentors shared information with me about their personal lives. <…> There were many times that I chatted with them about their real life. (N3)

Theme 3: cultivation of humanistic literacy

This theme encompassed one category: embracing humanistic mentoring (Table 2); this category referred to power distance and long-term orientation of Hofstede's cultural dimensions. Most of the participants perceived that their TC/YD mentors set an example by demonstrating the ideas of volunteerism and humanistic behavior through actual practice in their everyday lives. Ten participants provided solid statements regarding how their concept of being a humanistic doctor was reinforced through mentorship. Based on their descriptions, the mentors did not preach, but simply shared their stories and experiences relevant to this concept. Participants perceived that the mentors tried to convey their concept to the mentees and hoped that the mentees would become doctors who embody compassion and humanism.

Embracing humanistic mentoring

Representative quotes for this category are:

Their altruistic behavior simply shows us the spirit of planting trees so others can enjoy the shade. <…> They hope someday when these students become doctors and provide service to patients, the students will have the same spirit and do the same thing. (N3)

I think their examples will encourage us to establish sufficient communication and to build up a trust-

worthy relationship with patients, and hopefully to provide better treatments for patients. (N4)

I think they are my role model, not only in the medical field, but also in my real life. For example, one of my mentors was a government administrator with a high-ranking role. <...> He said that, as long as he has time, he would not ask what kind of people need help, but simply go to help them. (N17)

Discussion

This study explored medical students' perceptions toward a unique humanistic mentoring program. Overall, our results indicate that participants held positive opinions about this program. Quantitative and qualitative data are now discussed together in relation to each of the 3 focused themes.

Theme 1: Guidance/support

A significant number of participants agreed with the survey statements of items 1, 3, 4, and 5. These results verify the role functions of mentors in guidance and support regarding these specific aspects. The participants, however, had a divided opinion about the statements in items 2 (Received a lot of guidance and support from mentors for emotional management) and 6–8 (Felt uncomfortable when mentors cared about my daily routines; Felt pressure when mentors mentioned my academic performance; Did not like it when mentors mentioned the issues of etiquette and rules). These results are not surprising because mentors usually offered guidance and support for emotional management only to mentees in need, but not to all mentees. Also, some of these young students (aged 18–22) may dislike their mentors or even their parents asking about these specific issues. In this regard, mentors may need to be better trained in counseling skills when they intend to provide guidance/support.

Our qualitative data reveal details about the needs, types, and contents of the guidance and support, which varied among participants. Participants perceived that they received guidance that was valuable to their medical career or entire life (quotes from N4, N6, N8, and N17). They perceived receiving support that was either individual (quotes from N2, N5, and N7) or provided to the whole mentoring group (quote from N16). The benefit of one-on-one engagement with mentees who had personal issues was noted (quote from N5). Collaboration with other mentoring programs can be evidenced (quote from N2). From the verbatim transcription, it cannot be determined whether mentors reported cases of critical personal issues to academic mentors or school counselors. It would be a delicate matter for mentors to maintain confidentiality and the trust of mentees, while also contacting mentors from other programs to help. It is remarkable that the mentors could confer support on a case-by-case basis; this could not be accomplished without an excellent mentee-to-mentor ratio (average = 3) of this program. Also, each mentoring group contains both male and female mentors who could provide guidance and support for students of both sexes.

Theme 2: Mentor–mentee interaction/relationship

Under this theme participants ranked all survey items highly except item 15 (Felt uncomfortable when mentors discussed my private matters). Group gathering appeared to be their most favored activity (items 13 and 14), one which requires time and funding provided by mentors. It is important to notice that the fact of mentors being Buddhists was not a barrier to interaction with mentees (item 16). The age difference may explain why most of the participants regarded their mentors as elders but not friends (item 12). Perhaps, owing to this perception of the relationship, they had a divided opinion about mentors' attempts to discuss their private matters (item 15). It appears that more females regarded their mentors as elders than males did (item 12). It should be noted that more PGY graduates agreed with the statements in items 9 (Very touched by mentors' endeavors to stay connected), 16 (Did not feel uncomfortable about the fact that most of mentors are Buddhists), and 19 (Like it when mentors shared their career and life experiences, and how they fulfill their social responsibility) than clerks did. The clinical experience of PGY students acquired after graduation may allow them to appreciate these aspects more and contribute to this disparity.

Our qualitative data revealed that the mentors committed a great deal of time and energy using various approaches to interact with mentees and to cultivate the mentor-mentee relationship. This must have been quite difficult because considerable diversity existed among mentees and mentors. The difficulty was further increased both by mentees' shortage of time due to heavy curriculum, and by the age difference between mentors and mentees. Fortunately, most of the participants had a good experience of interaction (quotes from N2, N11, N13, and N16) and a good relationship with their mentors (quotes from N2, N3, N7, and N14). It is important to note that the relationship of some participants with their mentors was a give-and-take (quotes from N3 and N16), highlighting the sense of equity and mutual reciprocity of the mentorship [5].

Theme 3: cultivation of humanistic literacy

Participants provided positive feedback for survey items 17 and 19. These results verify the role function of

mentors in the cultivation of humanistic literacy regarding these specific aspects. The participants, however, had a divided opinion about the statements in items 18 and 20. Tzu Chi volunteers need to devote a great deal of time and effort to accomplish the organization's missions [29]. Some of these young students who are just starting their medical careers may not be able to foresee the future possibility of being a Tzu Chi volunteer or to realize the meaning of "a humanistic doctor." It should be noted that more PGY graduates agreed with the statements in item 19 than clerks did. Again, it is likely that the clinical experience of PGY students acquired after graduation may contribute to this disparity.

Our qualitative data revealed that only half of the interviewees could solidly perceive how their concept of being a humanistic doctor was reinforced through mentorship. Many medical students or young doctors may need several years before they realize the meaning of being a humanistic doctor. However, they did clearly perceive that the life experiences shared by the mentors conveyed an embodiment of humanism not only as a doctor, but also as a person (quotes from N3, N11, and N17).

A complement to other mentoring programs

Several challenges for the optimization of mentoring programs in medical schools remain to be addressed. These include time constraints of academic mentors in undertaking mentoring sessions [2, 19, 20], and the needs to provide humanistic mentors [11, 21, 34] and to support distressed medical students who do not seek health care [16, 23]. Against the background of this context, TC/YD mentors exist as senior volunteers and subject-matter experts [24, 25] who have the wisdom, time, and resources to confer guidance and support to mentees. These mentors can share their experiences of volunteerism, humanistic behavior, and service in the fulfillment of social responsibility with mentees and can offer themselves as examples of the embodiment of humanism. The results of this study show that this unique mentoring program provides all these benefits to complement the other two mentoring programs.

Comparisons of the findings with previous studies

The mentoring programs for medical students are usually provided by faculty members and school counselors [1–5]. The academic mentoring programs mentored by faculty members can assist in developing students' knowledge, skills, and well-being, thus maximizing their success during the academic process [1–5]. These academic mentors serve as role models and may empower the students to cultivate professionalism and humanism as well as foster their personal and professional developments [1–5, 11, 12, 14]. The mentoring programs

provided by school counselors mainly focus on the need for mental health services that promote social/emotional wellness and development for all students [16–19]. Since the TC/YD mentoring program is very different from those provided by faculty members and school counselors, it is difficult to compare findings from this study with those from other mentoring programs. Several challenges for the optimization of mentoring programs in medical schools remain to be addressed. These include time constraints of academic mentors in undertaking mentoring sessions [2, 19, 20] and the need to provide humanistic mentors [11, 21, 34] and to support distressed medical students who do not seek health care [16, 23]. Against the background of this context, TC/YD mentors exist as senior volunteers and subject-matter experts [24, 25] who have the wisdom, time, and resources to confer guidance and support to mentees. The results of this study show that this unique mentoring program provides all these benefits to complement the other two mentoring programs. A recent study [24] investigated the role functions of the triple-mentoring program from the perspective of medical students at Tzu Chi University. They found that, for humanistic/moral guidance, students had an equal preference for faculty mentors and TC/YD mentors over school counselors. Accordingly, the quantitative and qualitative results of this study provide an in-depth understanding of this mentoring program.

Also, nurturing the humanistic predispositions of medical students is an important factor in equipping future physicians to manifest the attributes of professionalism and to provide excellent patient care [35]. Educational reform efforts to nurture humanism are primarily channeled through formal programs, courses, and seminars [36]. A great effort has been made to educate medical school faculty as humanistic mentors [11, 34, 36]. The TC/YD humanistic mentors are mostly drawn from elites within the non-medical professions. Our humanistic mentoring program follows the approach of "*nurturing the person within*" [34]. This approach incorporates care and nurture for the mentees through a trusting, empathetic relationship and places more importance on this relationship than on the knowledge and skills imparted [34]. The cultivation of this relationship mainly takes place through "storytelling" [37]. However, replicability of this concept in other institutions remains challenging because this mentoring program requires the willingness and extra time of both non-faculty mentors and students. In this regard, the fundamental characteristic of TC/YD humanistic mentors is that they are senior volunteers who embody the spirit of humanism in their daily lives. These mentors gain the benefits of fulfilling social responsibility, maintaining physical and mental health, interacting with the young generation, and personal

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satisfaction [25]. Also, this mentoring program can be integrated into existing mentoring structures or activities in order to minimize additional time demands from the students. More importantly, it is crucial that this mentoring program converts the students' perception of "paying extra time" into "getting extra care and support." We believe that, though it would not be easy, it is feasible to recruit people who embody these characteristics and are pursuing these benefits to implement a similar humanistic mentoring program in other medical schools.

Strengths and limitations

The strength of this work is that a convergent parallel mixed method study was used to explore the research topic. Complementary values including increases in credibility, understanding, and clarification of results were obtained by intertwining both qualitative and quantitative data [27]. However, the study does have some limitations. First, due to the uniqueness of the TC/YD humanistic mentoring program, the data could only be collected from the medical students in Tzu Chi university. Thus, the generalization of our findings to other humanistic mentoring programs is not applicable. Second, the study's target population was clerks and PGY graduates in a single academic year. Our findings require validation via a future study or studies with students across several academic years.

Conclusion

Overall, the participants in this study viewed the TC/YD humanistic mentoring program positively. Data from the thematic analysis provide evidence to support the overarching goal of this program: providing timely guidance and support to and cultivating the humanistic literacy of students through a trusting, caring mentor–mentee relationship. Although its merit is apparent, the long-term impact of this program on the humanistic healthcare provided by our graduates remains to be elucidated. As an educational strategy for medical students, this type of humanistic mentoring holds great potential. Further implementation of this type of humanistic mentoring program in a global context, such as in culturally similar institutions, is warranted.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12909-024-06547-z.

Supplementary Material 1.

Supplementary Material 2.

Supplementary Material 3.

Data availability
The quantitative data that support the findings of this study are available from the corresponding author upon reasonable request. The qualitative data of this study are not publicly available since the data consist of information that could compromise research participants' privacy and consent.

Declarations

Ethics approval and consent to participate
The interviews and documentary analyses did not involve collection of sensitive data and the project was approved by the Institutional Review Board of Tzu-Chi University and Hospital (approval number: IRB106-106-B). All methods were conducted in accordance with relevant guidelines and interviewees gave informed consent before starting.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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