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Clinical Competencies and Professional Quality of Life Associated With Nurses' Culturally Competent Cancer Care for LGBT Individuals: A Cross-Sectional Study

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ABSTRACT

Background: Disparities in cancer care among lesbian, gay, bisexual and transgender (LGBT) individuals persist across health-care systems worldwide. Nurses play an important role in delivering culturally competent cancer care; however, limited research has examined nurses' practices in caring for LGBT individuals with cancer and identified factors influencing such care, particularly in non-Western cultural contexts.

Aim: To examine nurses' experiences in providing cancer care for LGBT individuals, their cancer care behaviours, influencing factors and perceived needs regarding knowledge, skills and care settings for delivering culturally competent cancer care.

Design: Cross-sectional survey.

Methods: Between September and December 2024, a cross-sectional survey was conducted in Taiwan across two hospitals, ten nursing associations, five cancer-related foundations and three online nursing communities. A total of 608 nurses with experience caring for patients with cancer were recruited through purposive and snowball sampling. Nurses completed either an online or paper-based survey.

Results: Nearly half of the nurses had no prior experience providing cancer care for LGBT individuals. Experience providing such care was associated with older age, non-heterosexual identity, longer length of service, higher LGBT-related care competencies and higher levels of job-related compassion satisfaction and stress. Affirmative cancer care behaviours were associated with a broader and more integrated set of competencies, including knowledge, attitudes, skills, affirmative beliefs and job-related compassion satisfaction. Nurses also reported unmet needs regarding knowledge, skills and care settings for delivering culturally competent cancer care to LGBT individuals.

Conclusion: These findings highlight the importance of education, resources and resilience support to strengthen nurses' delivery of culturally competent cancer care for LGBT individuals.

Implications for the Profession and/or Patient Care: Related training courses, curricula and supporting resources are essential to enhance nurses' culturally competent cancer care practices for LGBT individuals.

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1 | Introduction

According to the World Health Organization (WHO 2025), cancer is the second leading cause of death worldwide. Tobacco use, alcohol consumption, an unhealthy diet, physical inactivity and a high body mass index have been suggested to cause approximately one-third of cancer-related deaths (WHO 2025). Lesbian, gay, bisexual and transgender (LGBT) populations have a higher prevalence of alcohol consumption, smoking and obesity compared with heterosexual and cisgender populations, which may increase their risk of developing cancer (Kratzer et al. 2024). However, studies have shown disparities in cancer care among LGBT individuals (Azzellino et al. 2025; Cheung et al. 2023; Kluitenberg Harris et al. 2024).

Among LGBT individuals with cancer, difficulties communicating and interacting with healthcare providers are important factors associated with dissatisfaction and disappointment with cancer care services (Azzellino et al. 2025). Moreover, healthcare providers' heteronormative assumptions (Franco-Rocha et al. 2023) and limited knowledge, skills and sensitivity to culturally competent cancer care for LGBT individuals (Azzellino et al. 2025; Rodrigues et al. 2023) contribute to negative care experiences in this population. In 2023, interviews with 30 Taiwanese LGBT individuals with cancer revealed that approximately 56% of the participants reported negative experiences with healthcare providers. Perceived discrimination by healthcare providers and their lack of knowledge and sensitivity towards LGBT individuals with cancer were barriers to accessing cancer care services among LGBT individuals with cancer (Wang et al. 2024).

International studies have suggested that healthcare providers' behaviours, concerns and levels of confidence and comfort in providing care for LGBT individuals with cancer are affected by personal (Barcellini et al. 2025; Gannon et al. 2022; Rodrigues et al. 2023) and structural (Gannon et al. 2022; Zazzera et al. 2024) barriers. Personal factors include healthcare providers' knowledge of, skills related to and sensitivity and attitudes towards LGBT populations; beliefs about providing care for LGBT individuals with cancer; length of service; LGBT acquaintances; and previous experiences of providing care for LGBT individuals with cancer. These factors were associated with their confidence, comfort and concerns about providing cancer care to LGBT individuals (Barcellini et al. 2025; Chan et al. 2023; Gannon et al. 2022; Rodrigues et al. 2023; Sutter et al. 2021). Regarding structural factors, healthcare providers' concerns about multidisciplinary teamwork, colleagues' attitudes towards LGBT individuals, related training courses provided by managers in clinical settings, the healthcare environment and related policies were associated with healthcare providers' behaviour and concerns about providing cancer care for LGBT individuals (Gannon et al. 2022; Sampson et al. 2023; Sutter et al. 2021; Zazzera et al. 2024).

Nurses play a key role in cancer care as the largest group of healthcare professionals, with the most frequent and sustained contact

with patients (van Klinken 2023). To promote equitable health outcomes and deliver culturally informed care to LGBT individuals, nurses require cultural knowledge, awareness of patient backgrounds and a compassionate approach rooted in sensitivity and compassion (Pezzella 2025). Papadopoulos (2018) emphasised that culturally competent care involves acknowledging each individual's unique history and tailoring support to their specific needs. This is viewed as an evolving process—progressing through cultural awareness, knowledge and sensitivity and culminating in competent practice (Papadopoulos 2018; Papadopoulos et al. 2016). In this context, competence is reflected in practice through the integration of knowledge, attitudes, skills and compassionate engagement (Papadopoulos 2018; Papadopoulos et al. 2016), all of which are vital for providing culturally competent care to LGBT individuals (Baiocco et al. 2022). Moreover, in clinical practice, affirmative practice is defined by both practitioners' beliefs and behaviours: it involves affirming sexual and gender identities while purposefully avoiding heterosexist assumptions, with affirmative care behaviours serving as its enactment (Crisp 2006). These constructs reflect the multifaceted nature of providing care for LGBT individuals and are consistent with international research identifying personal and structural barriers.

Same-sex marriage was legalised in Taiwan in May 2019. Since then, the visibility of the LGBT population in Taiwanese society and the healthcare system has increased rapidly. In 2023, individual interviews with 25 nurses in Taiwan revealed that nurses' behaviours and intentions to provide care to LGBT individuals with cancer were related to intrapersonal factors (e.g., nurses' attitudes, skills, knowledge, level of confidence and beliefs about providing cancer care to LGBT individuals), interpersonal factors (e.g., multidisciplinary teamwork), community factors (e.g., availability of related training courses and organisational climate) and societal and policy factors (e.g., policy and social atmosphere) (Wang et al. 2025). Notably, nurses' job-related compassion satisfaction, perceived helpfulness and stress were significantly associated with their beliefs about and behaviours towards providing culturally competent cancer care for LGBT individuals, taking into account each person's background and specific care needs (Wang et al. 2025). These qualitative findings partly reflect dimensions of cultural competence—such as knowledge, attitudes, skills and compassion—as discussed in prior literature (Papadopoulos 2018). However, there is limited quantitative evidence regarding how these factors relate to nurses' cancer care practices with LGBT individuals.

LGBT individuals with cancer have been found to face multiple challenges in healthcare settings, such as those related to interactions and communication within nursing care (Azzellino et al. 2025). Although nurses have been identified as playing an important role in reducing health disparities among LGBT individuals with cancer (Azzellino et al. 2025), existing evidence has largely been derived from studies involving healthcare providers from multiple professional backgrounds (e.g., oncologists, radiation therapists and nurses) without examining nurses as a distinct group and has been conducted mainly in Western

What does this paper contribute to the wider global clinical community?

- This study provides evidence of nurses' culturally competent cancer care for LGBT individuals and its associations with nurses' competencies and professional quality of life.
- The findings show that affirmative cancer care behaviours among nurses are associated with integrated competencies, including knowledge, attitudes, skills and affirmative beliefs.
- The study highlights the importance of education, organisational support and resilience resources to support nurses in delivering culturally competent cancer care for LGBT individuals.

countries, particularly the United States (Azzellino et al. 2025; Chan et al. 2023; Rodrigues et al. 2023; Zazzera et al. 2024). Only a few studies have been conducted to examine culturally competent cancer care for LGBT individuals among nursing students or nurses (George et al. 2025; Radix and Maingi 2018). Limited research exists on nurses' behaviours and competencies in providing culturally competent cancer care to LGBT individuals in relation to job-related compassion satisfaction and stress. Hence, the aim of this survey was to (1) assess nurses' affirmative cancer care behaviours towards LGBT individuals and their associations with knowledge, attitudes, skills, beliefs in providing cancer care to LGBT individuals and their professional quality of life (i.e., compassion satisfaction, burnout and stress); (2) assess nurses' experiences in providing cancer care to LGBT individuals and the influencing factors; and (3) explore nurses' perceived needs related to knowledge, skills and environmental support for delivering culturally competent cancer care to LGBT individuals.

2 | Methods

2.1 | Study Design

A descriptive, cross-sectional survey was conducted. All procedures were approved by the Research Ethics Committee C of the National Taiwan University Hospital (Ref. 202312037RINC; Date of approval: 27th August 2024).

2.2 | Participants and Setting

Nurses with experience in providing care or services to patients with cancer were invited to participate in the study. Given the sensitivity of the study topic and the need to recruit nurses from different areas of Taiwan, purposive and snowball sampling were employed. Participants were recruited from 2 hospitals, 10 nurse associations and 5 cancer care and research foundations. Of the total 17 organisations, most were located in northern Taiwan (11/17, 64.7%), followed by central Taiwan (3/17, 17.6%), southern Taiwan (2/17, 11.8%) and eastern Taiwan or the offshore islands (1/17, 5.9%). Participants were also recruited from three online chatrooms (e.g., PTT: nurses; Dcard: nurses and healthcare providers) to include nurses outside the accepted establishments and

reach establishments where managers and supervisors declined to participate due to the sensitivity of the study topic.

In total, 696 nurses responded to the survey. Of these, 88 participants were excluded (incomplete surveys, $n=87$; not working in Taiwan, $n=1$), resulting in a final analytic sample of 608 nurses (response rate: 87.4%). The required sample size was calculated using G*Power version 3.1.9.7, based on an a priori power analysis for hierarchical multiple linear regression ($\alpha=0.05$, power=0.90, $f^2=0.02$). The analysis indicated that a minimum sample size of 528 participants was required for the final model with 15 predictors. In logistic regression analyses, Bujang et al. (2018) indicated that a sample size of at least 500 could yield statistics representative of the target population. Therefore, the sample size of 608 nurses was considered sufficient for regression analyses.

2.3 | Measures

The questionnaire included seven sections: (1) demographics, (2) cancer care knowledge, (3) the Gay Affirmative Practice (GAP) Scale (Crisp 2006), (4) the Sexual Orientation Counsellor Competency Scale (SOCCS) for LGB populations (LGB SOCCS) (Bidell 2015), (5) the SOCCS for the transgender population (T SOCCS) (Bidell 2015), (6) the Professional Quality of Life Scale version 5 (PROQOL 5, Chinese version) (Stamm 2005, 2021) and (7) open-ended questions.

2.3.1 | Demographics

The demographic section included items related to nurses' age, sex assigned at birth, gender identity, sexual orientation, educational level, religion, relationship status, region of work, length of service, experience approaching LGBT individuals, experience caring for LGBT individuals with cancer and experience providing care and information to caregivers of LGBT individuals with cancer (Banerjee et al. 2018; Jivraj et al. 2023; Sutter et al. 2021; Tamargo et al. 2022). All demographic variables were categorical except for age, which was treated as a continuous variable.

2.3.2 | Cancer Care Knowledge

The Cancer Care Knowledge section comprised 10 statements covering issues such as satisfaction with cancer care for LGBT individuals, lesbians with breast or cervical cancer and human papillomavirus vaccines among LGBT populations (see Table S1 for detailed statements). As no existing tool has been used to examine nurses' knowledge of cancer care for LGBT populations in Taiwan, this section was developed based on related research (Jivraj et al. 2023; Tamargo et al. 2017; Ussher et al. 2022) and our previous qualitative study conducted on 30 Taiwanese LGBT individuals with cancer (Wang et al. 2024). A panel of five experts in gender, healthcare and oncology evaluated the content validity of this section. The internal consistency of the scale was 0.77. Responses were rated on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5), with the additional option of 'do not know or prefer not to answer' (scored as 0). Total scores ranged from 0 to 50, with higher scores indicating greater knowledge of cancer care for LGBT individuals.

2.3.3 | The Gay Affirmative Practice (GAP) Scale

The GAP scale was used to evaluate the nurses' affirmative care beliefs and behaviours towards LGBT individuals with cancer. In the GAP model, affirmative practice is defined as an approach that acknowledges and supports the identities of sexual and gender minority individuals, promotes diversity and eliminates heterosexist assumptions in care delivery (Crisp 2006). Affirmative care beliefs within this model reflect healthcare providers' evaluative perspectives towards inclusive practices, whereas affirmative care behaviours pertain to their enactment in clinical practice (Crisp 2006). The original scale was designed to assess healthcare providers' beliefs and behaviours when working with gay and lesbian clients (Crisp 2006). To align with the aims of the present study, the wording was modified from 'gay/lesbian clients' to 'LGBT individuals with cancer' to ensure the behaviours assessed were relevant to cancer care delivery.

The scale consists of two sections. The first section focuses on beliefs related to providing affirmative cancer care for LGBT individuals (GAP-Beliefs). It contains 15 items rated on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The second section addresses affirmative cancer care behaviours in clinical practice (GAP-Behaviours) and comprises 15 items rated on a 5-point Likert scale ranging from never (1) to always (5). Higher scores indicate more affirmative practices towards LGBT individuals with cancer. The Chinese version of the GAP scale has been previously used and validated among Taiwanese nurses in our prior study (Wang et al. 2022). The original GAP scale showed high reliability (Cronbach's $\alpha=0.95$; Crisp 2006). In the present study, Cronbach's α was 0.93–0.95.

2.3.4 | The Sexual Orientation Counsellor Competency Scale (SOCCS)

Nurses' attitudes towards, knowledge of and skills in culturally competent cancer care for LGBT individuals were assessed using the SOCCS (Bidell 2015). This scale (Version 1) was developed to assess sexual orientation competencies among healthcare providers offering mental health services. The SOCCS was then modified into two versions to assess LGB cultural competence (LGB SOCCS, Version 2) and transgender cultural competence (T SOCCS, Version 3) in broader healthcare settings and specialisations. Each version comprises 29 statements across three subscales: (1) skills (skill subscale, SS), including 11 statements focused on LGBT-affirmative clinical work; (2) attitudinal awareness (attitude subscale, AS), including 10 statements appraising self-awareness of LGBT-related biases; and (3) knowledge (knowledge subscale, KS), comprising 8 statements assessing knowledge of LGBT issues and needs. The SOCCS uses a 7-point Likert scale ranging from 1 (not at all true) to 7 (totally true), with higher scores indicating greater levels of cultural competence.

To align with the aims of this current study, the term 'LGB patients' was modified to 'LGB individuals with cancer' and the term 'transgender patients' was modified to 'transgender individuals with cancer.' The Chinese version of the SOCCS was successfully used with Taiwanese nurses and student nurses in our previous research, with internal consistency values ranging

from 0.75 to 0.79 (Wang et al. 2023). The original instrument reported Cronbach's α ranging from 0.76 to 0.90 (Bidell 2015), whereas the version implemented in the present study had Cronbach's α ranging from 0.72 to 0.84.

2.3.5 | The Professional Quality of Life Scale Version 5 (PROQOL 5)-Chinese Version

The PROQOL 5 (Chinese version) (Stamm 2005, 2021) was used to assess nurses' job satisfaction, burnout (BO) and secondary traumatic stress (STS). The scale was developed by Stamm (2005, 2021). Job satisfaction is defined as an individual's emotional perception of their work, comprising positive (compassion satisfaction, CS) and negative (compassion fatigue) aspects. Compassion fatigue can be further divided into BO and STS. Thus, the scale comprises 30 statements across three dimensions (CS, BO and STS), rated on a 5-point Likert scale ranging from never (1) to very often (5), with higher scores indicating higher frequencies of work-related experiences (positive or negative) in the last 30 days. According to the PROQOL manual, subscale scores were categorised as low (≤ 22), middle (23–41) and high (≥ 42) (Stamm 2010). Higher scores indicate higher levels of CS, BO or STS. The Chinese version has been successfully employed with Taiwanese healthcare providers (Fan and Lin 2022; Su et al. 2021). Cronbach's α for the original tool ranged from 0.75 to 0.88 (Stamm 2005, 2021) and for the version used in this study ranged from 0.78 to 0.92.

2.3.6 | Open-Ended Questions

Three open-ended questions were included to understand nurses' knowledge, skills and environmental needs for providing culturally competent cancer care to LGBT individuals. An additional open-ended question was included to allow participants to report any concerns or needs beyond knowledge, skills and environmental needs.

The full questionnaire was reviewed by five experts from diverse professional backgrounds, including oncology nursing, LGBT health, psychiatry, psychological counselling and nursing education. Among them, three experts possessed extensive experience working with and/or belonging to LGBT communities, which strengthened the contextual relevance of the instrument. Based on their feedback, minor modifications were made to ensure clarity and appropriateness.

2.4 | Data Collection

Data were collected from September to December 2024 (four months). Given the sensitive nature of the study topic and some questions (e.g., sexual orientation or gender identity), and to ensure participant comfort, both online and paper-and-pencil questionnaires were employed. Participants indicated their preferred method of participation.

The online questionnaire was hosted on SurveyMonkey (<https://www.surveymonkey.com/>) and accessed via a link or a quick response code. The welcome page provided a link to the online

participant information sheet, which contained the same information as the informed consent form, except for the signature section. Before the survey, participants were asked to review this information (also provided in the paper-and-pencil survey) and indicate their consent by clicking the 'Next' button on the welcome page.

For the paper-and-pencil survey, nurses emailed their names, postal addresses and phone numbers to the first author, who then mailed the questionnaire and informed consent form, along with a stamped return envelope. Written informed consent was obtained from nurses who participated in the paper-and-pencil survey. To prevent duplicate participation, both survey formats included a note asking participants to respond only once.

Of the 608 nurses, 485 completed the paper-and-pencil survey (mean age: 35.27 years, standard deviation [SD]: 8.226) and 123 completed the online survey (mean age: 32.77 years, SD: 8.022). Compared with nurses who were in the paper-and-pencil survey, online respondents were more likely to be male (both in terms of sex assigned at birth and gender identity) and non-heterosexual.

2.5 | Data Analysis

Data were analysed using IBM SPSS Statistics (version 26.0; IBM, Armonk, NY, USA). Descriptive statistics, including frequencies, percentages, means and standard deviations, were calculated as appropriate. Pearson's correlation coefficients were used to examine associations among cancer care knowledge, the GAP scale (beliefs and behaviours), the LGB/T SOCCS subscales (AS, SS and KS) and the PROQOL scale (CS, BO and STS). The strength of correlations was interpreted according to Cohen's effect size criteria, with values of 0.1, 0.3 and 0.5 representing small, medium and large effect sizes, respectively.

To identify the factors associated with nurses' affirmative cancer care behaviours towards LGBT individuals (GAP-Behaviours), hierarchical multiple regression analysis was conducted. In Model 1, nurses' length of service and cancer care experience were entered as independent variables, based on previous national and international evidence (Domogauer et al. 2023; Wang et al. 2025). In Model 2, variables related to nurses' knowledge, skills and attitudes towards culturally competent cancer care for LGBT individuals were entered as independent variables, including cancer care knowledge and LGB/T SOCCS subscale scores (AS, SS and KS). Model 3 included nurses' PROQOL subscale scores (CS, BO and STS). Finally, the GAP-Beliefs variable was entered into the last model (Model 4) to examine its incremental contribution to affirmative cancer care behaviours, after controlling for length of service, cancer care experience, LGB/T SOCCS subscale scores and PROQOL subscale scores. Variance inflation factors (VIF) were calculated to assess multicollinearity; all VIFs ranged from 1.05 to 3.21, indicating no multicollinearity.

Furthermore, binary univariate and multivariate logistic regression analyses were performed to examine the factors associated with nurses' experience in providing care to LGBT individuals

with cancer (experienced vs. not experienced). All demographic variables were examined using univariate logistic regression analyses to identify personal (e.g., age and sexual orientation) and professional (e.g., region of work and length of service) characteristics associated with nurses' experiences in providing care for LGBT individuals with cancer. Variables with $p < 0.25$ were included in the multivariate logistic regression model, constructed using a backward stepwise method. The standard level of statistical significance was set at $p < 0.05$.

For the open-ended questions, response frequencies were summarised to describe nurses' reported needs regarding knowledge, skills and care settings for providing culturally competent cancer care to LGBT individuals.

3 | Results

3.1 | Demographics and the Measurement Instruments

The mean age of the 608 nurses included in this study was 34.76 years (SD = 8.240; Table 1); most were female (sex assigned at birth, 90.9%; gender identity, 90.6%), heterosexual, college-educated, followers of a folk religion, single, working in northern Taiwan and with a service length of more than 10 years. Although approximately 93.9% of the nurses reported having experience interacting with LGBT individuals, only approximately 49.6% had experience providing care to LGBT individuals with cancer. Among 282 respondents who had experience providing care for LGBT individuals with cancer, approximately 77.3% had experience providing care and information to their caregivers.

Overall, the mean scores for cancer care knowledge, GAP-Beliefs and GAP-Behaviours were 35.07 (SD = 6.238), 62.23 (SD = 8.727) and 55.26 (SD = 11.168), respectively. Scores on the LGB and T SOCCS subscales were as follows: AS (LGB: $M = 5.54$, $SD = 0.785$; T: $M = 5.41$, $SD = 0.878$), SS (LGB: $M = 3.60$, $SD = 1.085$; T: $M = 3.04$, $SD = 1.090$) and KS (LGB: $M = 3.69$, $SD = 1.082$; T: $M = 3.90$, $SD = 1.189$). Regarding PROQOL subscale scores, most nurses reported moderate levels of CS (79.8%), BO (65.0%) and STS (73.0%), with relatively few participants falling into the high (CS: 16.3%; STS: 0.5%) or low (CS: 3.9%; BO: 35.0%; STS: 26.5%) levels.

3.2 | Correlations Among Cancer Care Knowledge, GAP, SOCCS and PROQOL Scores

Cancer care knowledge had small to medium positive correlations with GAP-Beliefs ($r = 0.204$, $p < 0.001$; Table 2), GAP-Behaviours ($r = 0.206$, $p < 0.001$), LGB SOCCS-KS ($r = 0.469$, $p < 0.001$), T SOCCS-KS ($r = 0.434$, $p < 0.001$) and PROQOL-STS ($r = 0.123$, $p = 0.002$). In addition, small negative correlations were found between cancer care knowledge and LGB SOCCS-SS ($r = -0.090$, $p = 0.027$) and T SOCCS-SS ($r = -0.099$, $p = 0.014$).

GAP-Beliefs had a large positive correlation with GAP-Behaviours ($r = 0.593$, $p < 0.001$) and small positive correlations with LGB SOCCS-AS ($r = 0.161$, $p < 0.001$), LGB

TABLE 1 | Demographics and the measurement instruments.

Age (<i>N</i> = 608)	Range 21–65	Mean 34.76	SD 8.240
		<i>N</i>	%
Sex assigned at birth (<i>N</i> = 607)	Male	55	9.1
	Female	552	90.9
Gender identity (<i>N</i> = 605)	Male	57	9.4
	Female	548	90.6
Sexual orientation (<i>N</i> = 607)	Heterosexual	514	84.7
	Non-heterosexual ^a	93	15.3
Educational level (<i>N</i> = 608)	< College	26	4.3
	College	489	80.4
	Postgraduate	93	15.3
Religion (<i>N</i> = 600)	Buddhism	92	15.3
	Daoism	133	22.2
	Folk religion	201	33.5
	Other ^b	49	8.2
	No religion	125	20.8
Relationship status (<i>N</i> = 605)	Partnered	158	26.1
	Married	217	35.9
	Single	230	38.0
Region of work (<i>N</i> = 607)	Northern Taiwan	379	62.4
	Central Taiwan	173	28.5
	Other regions of Taiwan ^c	55	9.1
Length of service (<i>N</i> = 607)	< 3 years	93	15.3
	3–5 years	68	11.2
	5.1–10 years	143	23.6
	> 10 years	303	49.9
Experience approaching LGBT individuals (<i>N</i> = 606)	Yes	569	93.9
	No	37	6.1
Experience caring for LGBT individuals with cancer (<i>N</i> = 573)	Yes	284	49.6
	No	289	50.4
Experience providing care and information to caregiver(s) of LGBT individual with cancer (<i>N</i> = 282)	Yes	218	77.3
	No	64	22.7
	Mean	SD	
Cancer care knowledge (<i>N</i> = 608)	35.07	6.238	
GAP-beliefs (<i>N</i> = 608)	62.23	8.727	
GAP-behaviours (<i>N</i> = 608)	55.26	11.168	
LGB SOCCS-AS (<i>N</i> = 608)	5.54	0.785	
LGB SOCCS-SS (<i>N</i> = 608)	3.60	1.085	
LGB SOCCS-KS (<i>N</i> = 608)	3.69	1.082	

(Continues)

TABLE 1 | (Continued)

	Mean	SD
T SOCCS-AS (<i>N</i> = 608)	5.41	0.878
T SOCCS-SS (<i>N</i> = 608)	3.04	1.090
T SOCCS-KS (<i>N</i> = 608)	3.90	1.189
PROQOL-CS (<i>N</i> = 608)	34.84	6.880
	<i>N</i>	%
PROQOL-CS low (≤ 22)	24	3.9
PROQOL-CS middle (23–41)	485	79.8
PROQOL-CS high (≥ 42)	99	16.3
PROQOL-BO (<i>N</i> = 608) ^d	Mean 24.63	SD 5.399
	<i>N</i>	%
PROQOL-BO low (≤ 22)	213	35.0
PROQOL-BO middle (23–41)	395	65.0
PROQOL-STs (<i>N</i> = 608)	Mean 25.96	SD 5.526
	<i>N</i>	%
PROQOL-STs low (≤ 22)	161	26.5
PROQOL-STs middle (23–41)	444	73.0
PROQOL-STs high (≥ 42)	3	0.5

Abbreviations: AS, attitude subscale; BO, burnout; CS, compassion satisfaction; GAP, Gay Affirmative Practice; KS, knowledge subscale; LGB, lesbian, gay and bisexual; PROQOL, Professional Quality of Life Scale; SD, standard deviation; SOCCS, Sexual Orientation Counsellor Competency Scale; SS, skill subscale; STS, secondary traumatic stress; T, transgender.

^aNon-heterosexual (*N* = 93) included lesbians (*N* = 18), gays (*N* = 26), bisexuals (*N* = 48) and those who declined to respond (*N* = 1).

^bOther religions (*N* = 49) included Catholics (*N* = 38), Christians (*N* = 4) and Yiguandao (*N* = 7).

^cOther regions of Taiwan (*N* = 55) included southern Taiwan (*N* = 42), eastern Taiwan and offshore islands (*N* = 13).

^dNone of the participants had a PROQOL-BO score of > 41.

SOCCS-KS ($r = 0.216$, $p < 0.001$), T SOCCS-AS ($r = 0.221$, $p < 0.001$), T SOCCS-KS ($r = 0.267$, $p < 0.001$) and PROQOL-CS ($r = 0.270$, $p < 0.001$). In contrast, GAP-Beliefs showed a small negative correlation with PROQOL-BO ($r = -0.169$, $p < 0.001$). In addition, GAP-Behaviours demonstrated small positive correlations with LGB SOCCS-AS ($r = 0.151$, $p < 0.001$), LGB SOCCS-SS ($r = 0.129$, $p = 0.001$), LGB SOCCS-KS ($r = 0.207$, $p < 0.001$), T SOCCS-AS ($r = 0.161$, $p < 0.001$), T SOCCS-KS ($r = 0.251$, $p < 0.001$) and a medium positive correlation with PROQOL-CS ($r = 0.312$, $p < 0.001$). In contrast, GAP-Behaviours showed a small negative correlation with PROQOL-BO ($r = -0.231$, $p < 0.001$).

The SOCCS subscale scores showed small correlations with the PROQOL outcomes. For the PROQOL-CS, small positive correlations were observed with LGB SOCCS-SS ($r = 0.277$, $p < 0.001$), LGB SOCCS-KS ($r = 0.102$, $p = 0.012$), T SOCCS-SS ($r = 0.254$, $p < 0.001$) and T SOCCS-KS ($r = 0.133$, $p = 0.001$). For PROQOL-BO, a small negative correlation was observed with LGB SOCCS-SS ($r = -0.102$, $p = 0.012$). For PROQOL-STs, small positive correlations were observed with LGB SOCCS-KS ($r = 0.221$, $p < 0.001$), T SOCCS-SS ($r = 0.143$, $p < 0.001$) and T SOCCS-KS ($r = 0.133$, $p = 0.001$), while small negative correlations were observed with LGB SOCCS-AS ($r = -0.200$, $p < 0.001$) and T SOCCS-AS ($r = -0.155$, $p < 0.001$).

3.3 | Hierarchical Multiple Regression Analysis for Factors Associated With Nurses' Affirmative Cancer Care Behaviours for LGBT Individuals

A hierarchical multiple regression analysis was conducted to identify factors associated with nurses' affirmative cancer care behaviours (GAP-Behaviours) for LGBT individuals (Table 3). Model 1 included length of service and cancer care experience; neither was significantly associated with nurses' affirmative cancer care behaviours (adjusted $R^2 = -0.004$; $F = 0.478$; $p = 0.752$).

Model 2 incorporated cancer care knowledge and SOCCS subscales. Five to ten years of service ($b = -0.081$, $p = 0.047$) and cancer care experience ($b = -0.121$, $p = 0.010$) were negatively associated with nurses' affirmative cancer care behaviours. Cancer care knowledge ($b = 0.129$, $p = 0.004$), LGB SOCCS-SS ($b = 0.122$, $p = 0.038$), T SOCCS-AS ($b = 0.204$, $p = 0.001$) and T SOCCS-KS ($b = 0.254$, $p < 0.001$) were positively associated with nurses' affirmative cancer care behaviours. The explanatory power of Model 2 was 16.4% ($F = 11.163$; $p < 0.001$).

Model 3 included the PROQOL-CS, BO and STS. Cancer care experience ($b = -0.109$, $p = 0.016$) remained negatively associated with nurses' affirmative cancer care behaviours, whereas cancer care knowledge ($b = 0.122$, $p = 0.005$), T SOCCS-AS ($b = 0.187$,

TABLE 2 | Correlations among cancer care knowledge, GAP, SOCCS and PROQOL scores.

	GAP-Beliefs	GAP-Behaviours	LGB SOCCS-AS	LGB SOCCS-SS	LGB SOCCS-KS	T SOCCS-AS	T SOCCS-SS	T SOCCS-KS	PROQOL-CS	PROQOL-BO	PROQOL-STs
Cancer care knowledge	0.204** <0.001	0.206** <0.001	-0.062 0.127	-0.090* 0.027	0.469** <0.001	-0.056 0.166	-0.099* 0.014	0.434** <0.001	0.027 0.507	0.012 0.759	0.123** 0.002
GAP-Beliefs		0.593** <0.001	0.161** <0.001	0.079 0.051	0.216** <0.001	0.221** <0.001	-0.002 0.954	0.267** <0.001	0.270** <0.001	-0.169** <0.001	-0.021 0.605
GAP-Behaviours			0.151** <0.001	0.129** 0.001	0.207** <0.001	0.161** <0.001	0.071 0.080	0.251** <0.001	0.312** <0.001	-0.231** <0.001	-0.043 0.285
LGB SOCCS-AS				-0.065 0.111	-0.342** <0.001	0.751** <0.001	-0.184** <0.001	-0.206** <0.001	-0.078 0.056	-0.011 0.781	-0.200** <0.001
LGB SOCCS-SS					0.071 0.078	-0.045 0.273	0.663** <0.001	0.082* 0.043	0.277** <0.001	-0.102* 0.012	0.067 0.098
LGB SOCCS-KS						-0.287** <0.001	-0.016 0.700	0.766** <0.001	0.102* 0.012	0.060 0.138	0.221** <0.001
T SOCCS-AS							-0.174** <0.001	-0.303** <0.001	-0.076 0.060	0.011 0.793	-0.155** <0.001
T SOCCS-SS								-0.008 0.850	0.254** <0.001	-0.072 0.077	0.143** <0.001
T SOCCS-KS									0.133** 0.001	0.001 0.974	0.133** 0.001
PROQOL-CS										-0.604** <0.001	-0.030 0.462
PROQOL-BO											0.573** <0.001
PROQOL-STs											

Abbreviations: AS, attitude subscale; BO, burnout; CS, compassion satisfaction; GAP, Gay Affirmative Practice; KS, knowledge subscale; PROQOL, Professional Quality of Life Scale; SOCCS, Sexual Orientation Counsellor Competency Scale; SS, skill subscale; STS, secondary traumatic stress.

*The correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

TABLE 3 | Hierarchical multiple regression analysis for factors associated with nurses' affirmative cancer care behaviours for LGBT individuals.

	Model 1					Model 2					Model 3					Model 4				
	B	SE	b	t	p	B	SE	b	t	p	B	SE	b	t	p	B	SE	b	t	p
Length of service (reference: < 3 years)																				
3–5 years	0.188	1.405	0.006	0.134	0.894	−0.718	1.324	−0.023	−0.542	0.588	0.478	1.285	0.015	0.372	0.710	0.773	1.121	0.025	0.690	0.491
5–10 years	−1.684	1.520	−0.049	−1.108	0.268	−2.804	1.406	−0.081	−1.994	0.047	−0.654	1.391	−0.019	−0.471	0.638	−0.433	1.214	−0.012	−0.357	0.721
> 10 years	−0.714	1.171	−0.027	−0.610	0.542	−1.583	1.102	−0.060	−1.436	0.152	−0.859	1.063	−0.033	−0.809	0.419	−0.977	0.928	−0.037	−1.053	0.293
Cancer care experience (reference: had no experience)	−0.496	0.958	−0.022	−0.517	0.605	−2.689	1.042	−0.121	−2.581	0.010	−2.438	1.005	−0.109	−2.425	0.016	−2.103	0.878	−0.094	−2.395	0.017
Cancer care knowledge						0.233	0.081	0.129	2.880	0.004	0.221	0.078	0.122	2.830	0.005	0.146	0.068	0.080	2.133	0.033
LGB						1.365	0.898	0.096	1.519	0.129	1.527	0.866	0.107	1.763	0.079	1.332	0.756	0.094	1.762	0.079
SOCCS-AS						1.261	0.608	0.122	2.075	0.038	0.781	0.587	0.076	1.329	0.184	0.719	0.513	0.070	1.402	0.161
LGB						0.484	0.685	0.047	0.707	0.480	0.735	0.667	0.071	1.103	0.271	0.474	0.582	0.046	0.814	0.416
SOCCS-KS						2.591	0.804	0.204	3.223	0.001	2.382	0.773	0.187	3.081	0.002	0.456	0.690	0.036	0.660	0.510
T SOCCS-AS						0.909	0.544	0.089	1.672	0.095	0.644	0.529	0.063	1.218	0.224	0.624	0.461	0.061	1.353	0.177
T SOCCS-SS						2.371	0.593	0.254	4.002	<0.001	1.958	0.573	0.210	3.419	0.001	0.797	0.508	0.085	1.570	0.117
T SOCCS-KS											0.349	0.092	0.213	3.779	<0.001	0.166	0.082	0.101	2.021	0.044
PROQOL-CS											−0.189	0.135	−0.092	−1.395	0.164	−0.166	0.118	−0.081	−1.403	0.161
PROQOL-BO											−0.001	0.108	−0.001	−0.010	0.992	−0.008	0.094	−0.004	−0.082	0.935
PROQOL-STS																				
GAP-Beliefs																0.620	0.047	0.485	13.234	<0.001
F(p)	0.478 (0.752)					11.163 (<0.001)					13.166 (<0.001)					27.805 (<0.001)				
R ² (adj. R ²)	0.003 (−0.004)					0.180 (0.164)					0.249 (0.230)					0.429 (0.413)				

Abbreviations: AS, attitude subscale; BO, burnout; CS, compassion satisfaction; GAP, Gay Affirmative Practice; KS, knowledge subscale; LGB, lesbian, gay and bisexual; PROQOL, Professional Quality of Life Scale; SOCCS, Sexual Orientation Counsellor Competency Scale; SS, skill subscale; STS, secondary traumatic stress; T, transgender.

$p=0.002$), T SOCCS-KS ($b=0.210$, $p=0.001$) and PROQOL-CS ($b=0.213$, $p<0.001$) were positively associated with nurses' affirmative cancer care behaviours. The explanatory power of Model 3 was 23.0% ($F=13.166$; $p<0.001$).

Model 4 incorporated the GAP-Beliefs variable, which was positively associated with nurses' affirmative cancer care behaviours ($b=0.485$, $p<0.001$). Additionally, cancer care knowledge ($b=0.080$, $p=0.033$) and PROQOL-CS ($b=0.101$, $p=0.044$) were positively associated with nurses' affirmative cancer care behaviours. In Model 4, cancer care experience ($b=-0.094$, $p=0.017$) remained negatively associated with nurses' affirmative cancer care behaviours. Cumulatively, this model explained 41.3% of the variance in nurses' affirmative cancer care behaviours ($F=27.805$, $p<0.001$).

3.4 | Binary Logistic Regression Analyses of Factors Associated With Nurses' Experiences of Providing Care for LGBT Individuals With Cancer

Univariate regression analyses (Table 4) showed that being older (OR = 1.026, 95% CI 1.006–1.047), self-identifying as non-heterosexual (OR = 1.629, 95% CI 1.035–2.564), having a longer length of service (3–5 years: OR = 2.665, 95% CI 1.340–5.301; 5.1–10 years: OR = 4.056, 95% CI 2.228–7.383; > 10 years: OR = 3.690, 95% CI 2.141–6.361), having higher scores on LGB/T SOCCS-SS (LGB: OR = 4.445, 95% CI 3.434–5.754; T: OR = 2.252, 95% CI 1.857–2.730) and having higher scores on PROQOL-CS (OR = 1.050, 95% CI 1.024–1.076) and PROQOL-STs (OR = 1.034, 95% CI 1.003–1.066) were positively associated with nurses' experiences of providing cancer care for LGBT individuals. Conversely, having no religion (OR = 0.438, 95% CI 0.250–0.765), being single (OR = 0.568, 95% CI 0.373–0.866), working in central Taiwan (OR = 0.593, 95% CI 0.405–0.867) and having higher scores on the LGB SOCCS-AS (OR = 0.805, 95% CI 0.650–0.996) were negatively associated with nurses' experiences of providing cancer care to LGBT individuals.

Multivariate regression analyses showed that a length of service ranging from 5.1 to 10 years (OR = 2.669, 95% CI 1.325–5.425) and > 10 years (OR = 2.747, 95% CI 1.447–5.215), and higher scores on the LGB SOCCS-SS (OR = 4.431, 95% CI 3.402–5.835) were positively associated with nurses' experiences of providing cancer care for LGBT individuals.

3.5 | Open-Ended Responses

Nurses' needs regarding knowledge, skills and care settings for supporting culturally competent cancer care are presented in Table 5. The three most frequently reported knowledge needs were sexual and gender diversity, inclusive cancer care and mental health and psychological support. Regarding skill needs, the top three needs were communication skills, trust-building skills and clinical assessment and individualised care skills. In terms of care settings and environmental needs, an LGBT-inclusive and safe care environment, a comfortable and stress-reducing care environment and visible signals of inclusivity and

affirmation were most frequently reported as important for supporting culturally competent cancer care.

Nurses also reported needs related to institutional, policy and organisational support for LGBT individuals with cancer and raised concerns regarding limited understanding of LGBT individuals' family structures and partner relationships, along with structural and practical constraints in clinical practice.

4 | Discussion

The results of this study revealed that approximately half of the nurses had no experience providing care to LGBT individuals with cancer. Nurses who were older, identified as non-heterosexual, had a longer length of service and scored higher on the LGB/T SOCCS-SS, PROQOL-CS and PROQOL-STs were more likely to have such experience. Regarding nurses' affirmative cancer care behaviours for LGBT individuals, cancer care knowledge, LGB SOCCS-SS, T SOCCS-AS, T SOCCS-KS, PROQOL-CS and GAP-Beliefs were positively associated with nurses' affirmative cancer care behaviours. In contrast, prior cancer care experience and five to ten years of service were negatively associated with nurses' affirmative cancer care behaviours.

The findings indicate that experience in providing care to LGBT individuals with cancer does not necessarily reflect the provision of affirmative cancer care. These results are partially consistent with findings from previous international and national research (Chan et al. 2023; Wang et al. 2024, 2025). Gaps between expected and received cancer care services among nurses and LGBT individuals with cancer have been identified in previous international research (Chan et al. 2023; Zazzera et al. 2024) and in our previous qualitative research conducted among nurses (Wang et al. 2025) and LGBT individuals with cancer in Taiwan (Wang et al. 2024). In our previous interviews with 25 Taiwanese nurses, most reported having experience caring for LGBT individuals with cancer. However, several mentioned that they did not need or were unwilling to take related training courses because they perceived no differences in cancer care between general cancer patients and LGBT individuals with cancer (Wang et al. 2025). Similar findings have been reported in previous international studies, indicating that healthcare providers emphasised providing 'the same' cancer care services to all patients (Sutter et al. 2021; Ussher et al. 2022). However, in our previous qualitative interviews conducted among 30 LGBT individuals with cancer in Taiwan, approximately three-fifths reported negative experiences with healthcare providers, including challenges in interactions with those who lacked knowledge and sensitivity regarding culturally competent cancer care and experiences of perceived discrimination (Wang et al. 2024). Furthermore, Chan et al. (2023) conducted a systematic review of 14 studies assessing the needs and experiences of LGBT individuals with cancer. Most of these studies were conducted in Western nations, including the United States, the United Kingdom, Australia and Colombia. They found that many reported dissatisfaction with their care and described ongoing discrimination and disparities during treatment (Chan et al. 2023). Similarly, Zazzera et al. (2024) reviewed 22 studies assessing cancer care needs and concerns among LGBT individuals and

TABLE 4 | Binary logistic regression analyses of factors associated with nurses' experiences of providing care for LGBT individuals with cancer.

	Univariate regression			Multivariate regression		
	OR	95% CI	<i>p</i>	OR	95% CI	<i>p</i>
Age	1.026	1.006–1.047	0.012			
Gender assigned at birth						
Male	Ref.					
Female	0.787	0.442–1.403	0.418			
Gender identity						
Male	Ref.					
Female	0.670	0.378–1.188	0.170			
Sexual orientation						
Heterosexual	Ref.					
Non-heterosexual	1.629	1.035–2.564	0.035			
Educational level						
< College	Ref.					
College	0.788	0.334–1.859	0.586			
Postgraduate	0.955	0.374–2.440	0.924			
Religion						
Buddhism	Ref.					
Daoism	0.609	0.351–1.058	0.078			
Folk religion	0.637	0.385–1.056	0.080			
Other	1.517	0.712–3.235	0.281			
Had no religion	0.438	0.250–0.765	0.004			
Relationship status						
Partnered	Ref.					
Married	0.825	0.538–1.263	0.376			
Single	0.568	0.373–0.866	0.009			
Region of work						
Northern Taiwan	Ref.					
Central Taiwan	0.593	0.405–0.867	0.007			
Other regions of Taiwan	0.705	0.395–1.258	0.237			
Length of service						
< 3 years	Ref.			Ref.		
3–5 years	2.665	1.340–5.301	0.005	1.924	0.849–4.357	0.117
5.1–10 years	4.056	2.228–7.383	<0.001	2.669	1.325–5.425	0.007
> 10 years	3.690	2.141–6.361	<0.001	2.747	1.447–5.215	0.002
Experiences with LGBT individuals						
Yes	Ref.					
No	0.199	0.023–1.717	0.142			
Cancer care knowledge	0.997	0.971–1.024	0.813			

(Continues)

TABLE 4 | (Continued)

	Univariate regression			Multivariate regression		
	OR	95% CI	<i>p</i>	OR	95% CI	<i>p</i>
GAP-Beliefs	1.003	0.984–1.022	0.772			
GAP-Behaviours	0.996	0.982–1.011	0.609			
LGB SOCCS						
AS	0.805	0.650–0.996	0.045			
SS	4.445	3.434–5.754	<0.001	4.431	3.402–5.835	<0.001
KS	1.103	0.948–1.284	0.205			
T SOCCS						
AS	0.833	0.689–1.006	0.058			
SS	2.252	1.857–2.730	<0.001			
KS	1.099	0.958–1.261	0.177			
PROQOL						
CS	1.050	1.024–1.076	<0.001			
BO	1.002	0.972–1.032	0.910			
STS	1.034	1.003–1.066	0.031			

Abbreviations: AS, attitude subscale; BO, burnout; CI, confidence interval; CS, compassion satisfaction; GAP, Gay Affirmative Practice; KS, knowledge subscale; LGB, lesbian, gay and bisexual; OR, odds ratio; PROQOL, Professional Quality of Life Scale; SOCCS, Sexual Orientation Counsellor Competency Scale; SS, skill subscale; STS, secondary traumatic stress; T, transgender.

healthcare providers, with most studies conducted in the United States, with supplementary data from the United Kingdom, Australia, Canada and Italy. They identified healthcare providers' heterosexism, lack of knowledge and insensitivity as key challenges in delivering culturally competent care (Zazzera et al. 2024).

Additionally, this study identified a negative association between nurses' experiences providing cancer care to LGBT individuals and their affirmative cancer care behaviours. Although no prior international studies have directly supported this finding, two investigations conducted in the United States explored oncologists' experiences with LGBT individuals and analysed how these experiences influenced their care practices or willingness to participate in related training (Sutter et al. 2021; Tamargo et al. 2022). Sutter et al. (2021) reported that positive oncologist experiences enhanced affirmative cancer care practices for sexual and gender minority patients, including non-judgmental communication, compassion and competence. Similarly, Tamargo et al. (2022) found that oncology providers with positive cancer care experiences demonstrated greater acceptance of sexual and gender minorities and exhibited increased motivation to improve culturally competent care. Conversely, negative experiences were associated with challenges, such as patients' psychosocial needs, care coordination difficulties, family conflict and a lack of support systems; however, their impact on affirmative cancer care behaviours was not explored in these studies (Sutter et al. 2021).

Moreover, our previous qualitative research involving 25 Taiwanese oncology nurses revealed that stressful cancer care experiences with LGBT individuals often stemmed from issues like a lack of social support for patients, loss of contact,

requirements to collect sexual orientation or gender identity information and insufficient organisational policies when patients lacked a primary caregiver (Wang et al. 2025). In Taiwan's clinical environment, nurses may be required to perform these tasks without adequate institutional support or clear guidelines, leading to ethical and emotional challenges (Wang et al. 2025). We propose that such stressful experiences may contribute to reduced participation in affirmative cancer care behaviours, which could partially explain the observed negative association. These context-specific demands underscore that increased experience does not necessarily translate into more affirmative cancer care practices. Further qualitative research is necessary to elucidate the relationship between nurses' negative cancer care experiences with LGBT individuals, their engagement in affirmative cancer care behaviours and their professional quality of life.

Furthermore, nurses' experiences of providing care for LGBT individuals with cancer in the present study (49.6%) were much lower than those reported in the United States (72.2%; Tamargo et al. 2017) and Canada (74.5%; Chan et al. 2021). Although same-sex marriage was legalised in Taiwan in 2019 and the general population is becoming increasingly LGBT-friendly in Taiwan (Chu et al. 2023), many nurses still lack sensitivity and knowledge of sex and gender diversity in providing cancer care to LGBT individuals. This observation aligns with both national and international evidence, which highlights the limited availability of training programmes or curricula addressing sex and gender diversity and the specific care needs of LGBT individuals with cancer (Baiocco et al. 2022; Pezzella 2025; Wang et al. 2025). In Taiwan, cancer care services are delivered by nurses who have received traditional heterosexual medical and

TABLE 5 | Open-ended responses.

Topic	Needs identified	Reported frequency ^a
Q1: Knowledge needs for supporting culturally competent cancer care (N=471)		
Sexual and gender diversity	Knowledge of LGBT populations, including differences between sexual orientation and gender identity and principles of gender equity	238
Inclusive cancer care	Knowledge of LGBT-inclusive cancer treatment and care, including LGBT-specific considerations related to medications and side effects, symptom management, nutrition, daily care, cancer risks and prevention	171
Mental health and psychological support	Knowledge of psychological status, emotional responses, stress coping and mental health concerns of LGBT patients with cancer and their caregivers	164
Social resources and support systems	Knowledge of social welfare resources, benefit systems, referral pathways to social services and relevant information platforms	79
Transgender-specific health and cancer care	Knowledge of transgender-specific health concerns, including gender-affirming care (e.g., hormone therapy) and its interactions with cancer treatment, as well as physiological and care considerations for transgender patients	62
Law and policies	Knowledge of laws and policies concerning sexual and gender minorities, including medical decision-making and proxy rights, partner and family rights, anti-discrimination regulations and complaint mechanisms	54
Q2: Skill needs for supporting culturally competent cancer care (N=469)		
Communication skills	Skills related to respectful communication, inclusive language use, patient interviewing, explaining diagnoses and treatments, responding to sensitive questions and discussing sexual orientation or gender identity in a non-assumptive way	392
Trust-building skills	Skills involving empathy, active listening, emotional presence, validation of patients' experiences and responding to patients' emotional distress or disclosure-related concerns	255
Clinical assessment and individualised care skills	Skills for assessing individual needs, avoiding heteronormative assumptions, integrating patients' identities into care planning and tailoring cancer care to patients' psychosocial and relational contexts	214
Transgender-affirming clinical care skills	Skills related to providing gender-affirming care, managing hormone therapy in cancer treatment, addressing body-related concerns and responding appropriately to transgender-specific clinical needs	168
Interprofessional collaboration and referral skills	Skills for working with multidisciplinary teams, coordinating referrals to mental health or social services, communicating across professions and navigating institutional systems to support LGBT individuals with cancer	143
Managing ethical dilemmas and challenging situations	Skills for handling ethical conflicts, discrimination or bias from colleagues or families, conflicts in decision-making, disclosure-related dilemmas and situations involving stigma or unequal treatment	119
Self-reflection and bias-awareness skills	Skills involving self-awareness, reflection on personal values and biases, recognising limitations in competence and engaging in continuous learning to improve LGBT-inclusive practice	97

(Continues)

TABLE 5 | (Continued)

Topic	Needs identified	Reported frequency ^a
Q3: Care settings and environmental needs for supporting culturally competent cancer care (N=457)		
LGBT-inclusive and safe care environment	Availability of gender-neutral toilets and wards, respect for chosen names and pronouns in signage and systems, privacy protection and environments that reduce fear of discrimination or unwanted disclosure	149
Comfortable and stress-reducing care environments	Quiet and private spaces, adequate lighting, comfortable waiting and treatment areas and environmental designs that reduce anxiety and emotional distress during cancer care	132
Visible signals of inclusivity and affirmation	Display of inclusive symbols, posters or informational materials indicating LGBT-friendly care, which help LGBT individuals feel welcomed and safe within healthcare settings	118
Privacy and confidentiality protections	Environmental and infrastructural arrangements that support confidentiality (e.g., private consultation rooms, secure information displays, reduced risk of involuntary outing)	96
Inclusive administrative and information systems	Registration systems, electronic medical records and forms that allow diverse gender identities, relationship statuses and family structures to be accurately recorded and respected	87
Q4: Additional considerations for supporting culturally competent cancer care (N=293 ^b)		
Roles of family, partners and support systems	Diverse family structures and partner relationships; informal support systems; involvement in medical decision-making and care, primarily due to limited understanding of these family, partner and support structures among nurses	121
Institutional, policy and organisational support needs	Organisational policies and institutional guidelines; managerial support; organisational commitment and system-level support	98
Structural and practical constraints in clinical practice	Staffing and time constraints; workload; limited clinical and organisational resources	74

Abbreviation: LGBT, lesbian, gay, bisexual and transgender.

^aReported frequency reflects the number of times each need was mentioned in the open-ended responses. As the respondents were allowed to report multiple needs, the total frequency did not correspond to the total number of respondents.

^bOf the 419 responses to Q4, responses addressing issues already covered in Q1–Q3 were excluded to avoid conceptual overlap. The present table summarises the responses of the 293 respondents who mentioned at least one of the three topics.

nursing education. Our findings showed that cancer care knowledge was positively associated with nurses' affirmative cancer care behaviours, with the three most frequently reported knowledge needs being sexual and gender diversity, inclusive cancer care and mental health and psychological support. Moreover, multiple linear regression analysis and open-ended responses highlighted knowledge about transgender-specific health and cancer care and transgender-affirming clinical care skills as key needs for supporting culturally competent cancer care for transgender populations. Therefore, managers or supervisors in clinical settings and educators in nursing schools should provide related training courses and curricula for nurses and student nurses to promote their awareness, knowledge and skills in providing culturally competent cancer care to LGBT individuals.

In this study, skills-related competencies (LGB/T SOCCS-SS) were positively associated with nurses' experiences in providing cancer care to LGBT individuals. In the open-ended question summaries, communication skills, trust-building skills and clinical assessment and individualised care skills were the most frequently reported needs for delivering culturally competent cancer

care. These findings indicate that skills-related competencies may facilitate nurses' engagement in clinical practice with LGBT individuals with cancer. In contrast, nurses' affirmative cancer care behaviours (GAP-Behaviours) were associated with a broader and more integrated set of competencies, including knowledge (cancer care knowledge and T SOCCS-KS), attitudes (T SOCCS-AS), skills (LGB SOCCS-SS) and affirmative beliefs (GAP-Beliefs). Therefore, while skills were associated with nurses' participation in cancer care experiences with LGBT individuals, affirmative and high-quality cancer care for LGBT individuals required the integration of multiple competency domains. These findings align with the framework of culturally competent care, which emphasises integrating knowledge, attitudes and skills into clinical practice (Papadopoulos 2018). In this context, education and training have been recognised as essential approaches for enhancing these competency domains and promoting their integration into clinical settings, thereby advancing the provision of culturally competent care for LGBT individuals (Baiooco et al. 2022; Pezzella 2025).

In the present study, nurses' compassion satisfaction (PROQOL-CS) was positively associated with their affirmative

cancer care behaviours (GAP-Behaviours) and with their experiences providing cancer care for LGBT individuals. In addition, nurses' stress (PROQOL-ST5) was positively associated with their experiences in providing cancer care to LGBT individuals. These results align with the framework of culturally competent compassion, which defines compassion as involving both an understanding of patients' suffering and commitment to action within specific cultural and clinical contexts (Papadopoulos 2018). Although compassion satisfaction (PROQOL-CS) is conceptually distinct from culturally competent compassion as outlined by Papadopoulos (2018), it may provide a motivational and affective foundation that facilitates the delivery of compassionate, culturally responsive cancer care to LGBT individuals in clinical settings. Furthermore, these findings are consistent with our previous qualitative research, which indicated that nurses with higher levels of compassion satisfaction were more likely to exhibit heightened awareness of the intricate and challenging clinical scenarios encountered by LGBT individuals with cancer. These scenarios encompass caregiving, decision-making and end-of-life contexts (Wang et al. 2025). Such sensitivity may facilitate nurses' participation in affirmative cancer care practices; however, ongoing exposure to ethically and emotionally challenging situations may contribute to psychological stress (Wang et al. 2025).

Additional considerations identified in the open-ended responses included structural and practical constraints in clinical practice, such as staffing and time constraints, heavy workloads and limited policy and organisational support. These findings correspond with those of our previous qualitative research, which revealed that high-pressure nursing environments, severe nursing workforce shortages and a lack of related policies or guidelines constrained nurses' behaviours and intentions to provide cancer care to LGBT individuals (Wang et al. 2025).

Taken together, findings from this survey and our previous qualitative study suggest that both the challenging clinical contexts of culturally competent cancer care for LGBT individuals and the high-pressure nursing environment may place nurses, particularly those with higher compassion satisfaction, at increased risk for stress and compromised psychological well-being. van Klinken (2023) noted that oncology healthcare providers often support patients with cancer through physical, psychological, social, spiritual and cultural crises; are exposed to their patients' traumatic situations; and can be empathetic and sympathetic. However, such sustained exposure may place oncology healthcare providers at risk of compassion fatigue, a negative effect of assisting patients who are experiencing traumatic events or suffering (van Klinken 2023; van Klinken and van Leeuwenhoek 2023). Accordingly, the importance of compassion fatigue resilience programmes and related resources for healthcare providers to better support LGBT individuals with cancer has been emphasised (van Klinken 2023; van Klinken and van Leeuwenhoek 2023). Moreover, support from managers or supervisors in clinical settings and access to legal resources have been considered important in reducing nurses' stress when providing culturally competent cancer care for LGBT individuals, particularly in situations where patients had no legal representatives or adequate social support resources (e.g., no family members, friends or marital partners) and were unable to make medical decisions independently (Wang et al. 2025). These

circumstances underscore the need for coordinated efforts across clinical, educational and policy domains to strengthen organisational support and uphold the rights of LGBT individuals within healthcare settings (Pezzella 2025).

To our knowledge, this is the first study to examine the associations between professional quality of life and culturally competent cancer care for LGBT individuals among nurses, thereby advancing understanding in the international literature. However, several limitations in this study should be considered. First, most participating nurses were heterosexual (84.7%). Therefore, the results may not be generalisable to nurses who self-identified as non-heterosexual (e.g., lesbian, gay, bisexual, transgender and other sexual and gender minorities). Second, although efforts were made to recruit nurses from different areas of Taiwan, only a few nurses (55, 9.1%) were from eastern and southern Taiwan and offshore islands, areas with limited cancer care resources and a negative local atmosphere towards LGBT populations. Hence, the relatively small sample size of nurses from these areas should be noted. Third, as this was a cross-sectional study, changes in nurses' attitudes towards, knowledge of and skills in providing cancer care to LGBT individuals were not measured. Fourth, reliance on self-report measures may have introduced social desirability bias. Finally, purposive and snowball sampling methods were employed due to the sensitivity of the research topic. However, these approaches may have introduced selection bias and limited the sample's representativeness. Participants who opted to take part in this study may have had greater interest or awareness regarding culturally competent cancer care for LGBT individuals, potentially impacting the outcomes. Accordingly, these results should be interpreted with caution.

5 | Conclusion and Implications for Clinical Practices

This study provides an overview of nurses' experiences and behaviours in caring for LGBT individuals with cancer, influencing factors and their needs regarding knowledge, skills and care settings for delivering culturally competent cancer care to LGBT individuals. The findings revealed that culturally competent cancer care for LGBT individuals may not only be associated with nurses' knowledge, skills, attitudes and beliefs but may also be related to nurses' compassion satisfaction and work-related stress in providing cancer care for LGBT individuals. These findings offer additional insight into the potential relevance of professional quality of life in understanding culturally competent cancer care for LGBT individuals across diverse healthcare systems.

The results highlight the importance of providing related training courses or curricula, compassion fatigue resilience programmes and resources for nurses to better care for LGBT individuals with cancer. In addition, support from managers or supervisors in clinical settings and related organisational or governmental policies and guidelines was suggested as important for enhancing nurses' quality of care and reducing stress when providing care to LGBT individuals with cancer. Future efforts in oncology nursing practice should consider integrating competency-based education, emotional support mechanisms

and policy development to promote sustainable and culturally competent cancer care for LGBT individuals.

Author Contributions

Ya-Ching Wang: conceptualisation, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, visualisation, writing – original draft and writing – review and editing. Nae-Fang Miao: conceptualisation, validation, formal analysis, methodology, software and writing – review and editing. Mei-Hui You and Frank T.Y. Wang: conceptualisation, methodology, supervision and writing – review and editing. Chih-Yun Hsu and Po-Han Lee: conceptualisation, methodology and writing – review and editing. Sih-Cheng Du: conceptualisation, methodology, resources and writing – review and editing.

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Ethics Statement

The study protocol was approved by the Research Ethics Committee C of National Taiwan University Hospital (Ref. 202312037RINC).

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Table S1:** Cancer care knowledge. **Data S1:** STROBE statement—Checklist of items that should be included in reports of cross-sectional studies.