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Experiences of healthcare professionals returning to work post breast cancer diagnosis in China: A descriptive qualitative study

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Breast cancer survivors face employment challenges. How to promote BC's return to work is important for improving their quality of life and promoting recovery. Numerous studies have reported that BC survivors encounter employment challenges due to cognitive limitations, alongside factors. healthcare Professional has a good educational background and a good cognitive level and is also the closest combination of sociocultural tradition and healthcare systems, however, there is a lack of studies on their experience as BC survivors. A descriptive qualitative study was conducted to investigate the experiences of healthcare professionals returning to work following breast cancer diagnosis. 20 doctors and nurses were interviewed face-to-face with a semi-structured interview guide in three municipal hospitals. Four major themes and corresponding sub-themes were extracted from the collected data as follows: (1) Return to Work: Willingness and Conflicts; (2) Cancer Progression Anxiety; (3) Physical and Mental Re-Awareness, including (1) Decreased Physical Ability, (2) Frustration and Diminished Self-Esteem; 4. Reflection and Re-planning, including (1) Past Self-Questioning, (2) Active Life Re-planning, (3) Revitalizing Life's Value, and (4) Career Changes: Coping and Adapting. This study revealed a positive reintegration into the workforce among participants in China's healthcare professionals with a notably advanced medical understanding. It implies that, for BC survivors, a combination of rich medical knowledge, a stable work environment, substantial income, and robust support from colleagues and superiors play a positive role in enhancing their adaptability post a breast cancer diagnosis. Additionally, interviewees expressed guilt during sick leave, it was suggested that hospitals implement comprehensive support mechanisms related to leave, acknowledging the imperative need for adequate rest during the treatment period.

Keywords Cancer, Breast Cancer, Qualitative research

Breast cancer (BC) stands as the most prevalent malignancy affecting women globally, its occurrence is shaped by factors such as Ethnicity, BC sub-type, and national socioeconomic[1]. The year 2020 witnessed approximately 2.3 million new cases and 685,000 deaths[2]. Survival rates have seen a notable upswing due to advances in screening, a deepened understanding of disease biology, and groundbreaking treatment innovations, resulting in an expanding cohort of BC survivors.

Despite the strides made in medical interventions, survivors grapple with persistent challenges, chief among them being the intricate process of psychological and physical adaptation. The trans-formative impact of bodily changes during treatment, coupled with uncertainties in the recovery phase and the psychological burdens inherent to cancer, presents an enduring hurdle. Moreover, the diagnosis of BC can exert profound ramifications on the professional trajectories of survivors. Reentering the workforce is fraught with numerous challenges, necessitating a considerable investment of time and effort. Unemployment or obstacles in resuming their roles can detrimentally affect the quality of life, and the financial viability of the family[3].

In stark contrast to the adverse effects of unemployment, returning to work during the recovery phase not only enhances physical function but also mitigates anxiety and depression[4]. This reintegration into the workplace

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symbolizes a broader return to normalcy for patients, their families, work units, and society. It signifies a pivotal step toward reclaiming a sense of normalcy and fostering societal reintegration, therefore, how to promote BC's return to work is important for improving their quality of life and promoting recovery.

The process of returning to work after a cancer diagnosis entails either resuming previous roles or embracing new positions, both on a part-time and full-time basis. Research indicates that 73.2% of women resume employment within two years of a BC diagnosis, with a majority opting for part-time roles over full-time[5]. Return-to-work (RTW) rates among breast cancer survivors in North America and Europe exhibit variations between 24% and 66%, and 53% and 82%, respectively, at 6 and 36 months post-diagnosis. In Brazil, RTW rates were reported at 30.3% and 60.4% at 12 and 24 months post-surgery[5–7]. 77% worked continuously after RTW. Taking sick leave was associated with age > 50 years, stage III, tumor sub-type HR+/ HER2+, severe fatigue, workplace accommodation, and life priorities. Unemployment is associated with being > 50, working in the public sector, being small companies, and having fixed-term contracts[4].

The majority of BC studies in Western countries, however, focus on the white population and pay little attention to studies that examine the impact of occupation on BC survivors. While the correlation between cancer survivors and RTW is well-established in Western[5,7,8], research in Asian nations is limited[9,10]. Although China, as one of the largest countries in Asia, has made rapid advancements in RTW research, it still lags behind Western countries, leading to significant productivity losses and challenges in returning to work[11]. Cultural differences between Asian and Western countries make RTW experiences for BC unique. Studies have identified some key cultural differences and challenges (such as high levels of self-stigma, the importance of social relationships, and concerns regarding the disclosure of cancer diagnoses) that profile RTW experiences for Asian cancer survivors[12–14]. Among Asian populations, Confucianism influences gender roles and familial roles, which may affect BC priorities, support, and expectations[12]. To better understand the challenges and difficulties experienced by BC survivors during RTW in an Asian cultural context, it is imperative to study the RTW experience of BC survivors in an Asian cultural context.

According to previous research, cognitive impairments have been identified as a significant factor contributing to unemployment among BC survivors. Kate J. Sohn and Lewis highlighted that education level is positively correlated with RTW[10,15]. Wenmin Hou observes that BC survivors in China encounter employment challenges due to cognitive limitations, alongside factors such as cancer stage, depression, fatigue, and workability, BC survivors face employment challenges[16]. Based on the conclusions of the above research, we are curious whether individuals with strong educational backgrounds and high cognitive levels experience different outcomes. For instance, healthcare professionals serve as a close integration of sociocultural traditions and healthcare systems. Can their experience provide a reference for BC survivors in other occupational groups to actively cope with difficulties and hire employers? To address this knowledge gap, our study conducted qualitative examinations of Chinese physicians and nurses, who were diagnosed with BC. This study aims to reveal the challenges and coping strategies faced by healthcare professionals of Asian cultural backgrounds when returning to work after being diagnosed with BC. The findings will provide a basis for managers or employers to develop strategies that enhance the RTW rate of cancer survivors and improve their illness perception[15].

Methods

Design

Philosophical approach

Descriptive qualitative research is a widely used method in the fields of social sciences and health research[17], aiming to recognize the subjective nature of the problem, and the different experiences participants have and will present the findings in a way that directly reflects or closely resembles the terminology used in the initial research question[18]. To explore the essential experiences of healthcare professionals returning to work after being diagnosed with BC, we used a qualitative descriptive analysis method. The study was conducted following the guidelines for assessing qualitative research reports outlined in the Consolidated Criteria for Reporting Qualitative Research (COREQ)[19], ensuring methodological rigor.

Personal statement

The research team comprises one member with a master's degree and four members with bachelor's degrees. The researchers are not acquainted with the participants and have never been diagnosed with cancer. Aside from specializing in women's healthcare and having extensive administrative assistant experience, all authors have over 15 years of relevant healthcare professional experience. They are females and have received training in qualitative research methods. It is acknowledged by the authors that the emotional experiences of interviewees are sensitive.

Setting and participants

To determine essential themes and provide an exhaustive description of the phenomenon, we carefully considered the interview outline. In developing the interview outline, we employed face and content validity. For content validity, we first conducted a literature review to identify key concepts and variables related to the research theme, ensuring that the outline addressed these elements. We then organized focus group discussions with experts to collaboratively review the content of the outline, ensuring comprehensive consideration of all aspects. For face validity, we invited experts in the relevant field to review the interview outline, ensuring that the wording, structure, and themes aligned with the research objectives. The feedback helped us identify potential issues and ambiguous phrasing. Additionally, we conducted two pilot interviews to gather respondents' feedback on their understanding and perception of the outline's content. We adjusted the wording and order of the questions based on this feedback, ensuring that the interviewed subjects—breast cancer survivors who are

healthcare professionals—were representative and closely aligned with the research theme, thereby enhancing the outline's relevance. After these adjustments, the final interview outline was developed.

The semi-structured interview guide included five open-ended questions. (1) What motivates you to keep working? (2) What have you found in your experiences with RTW? (3) When it comes to getting back to work, what obstacles do you encounter? What are the barriers and challenges you face? (4) What are your strategies for dealing with it? (5) Do you have anything else you would like to share with us beyond these questions? During the interviews, after respondents provided initial answers to the questions, the interviewers employed probing questions to elicit clearer and more specific responses. This approach facilitated a deeper exploration of the details of the research phenomena, allowing for a more thorough understanding of the respondents' experiences[20].

This study employed a purposive sampling approach to acquire participants. Fliers were distributed to three major healthcare institutions in Huzhou City, located in the eastern region of China, representing the three largest hospitals in the area. The recruitment fliers explicitly targeted individuals with professions in healthcare diagnosed with BC and emphasized that participation was voluntary. To ensure a comprehensive and in-depth understanding of the participants' experiences upon returning to work, we specified that participants must have been back to their work for over 30 days. The experience of returning to work may be different between age groups. To collect as many relevant topics as possible, BC participants returning to work not be age-restricted. Participants were excluded if they had recurrent cancer were in the terminal stage of the disease, displayed mental illness. The fliers described their participation as a face-to-face interview, with a focus on their experiences of returning to work after treatment. When potential participants expressed interest in the study, researchers contacted them by phone to arrange interview dates and times. If the researchers identify that a participant has difficulty understanding the questions during the initial phone communication, they will be excluded from the study.

Data collection

This study, which was conducted through interviews between February and August 2023, lasted a total of 195 days. A semi-structured interview approach was used. The interviews were face-to-face and individual interviews. The researchers conducted the interviews in a quiet room specifically prepared for participants, ensuring no other individuals were present. To create a warm and peaceful environment, the researchers arranged the setting in advance, adjusting the soft lighting, placing plants, and preparing tea and fruit snacks. The interviews were conducted and recorded by the first author during the interview, accompanied by another researcher with over 15 years of hospital management experience. The interview sessions were audio-recorded. Before the interviews, participants were provided with a comprehensive explanation of the study's objectives, content, and methodology, along with assurances of confidentiality, the voluntary nature of participation, and the need for informed consent. A verbal survey was also conducted to gather demographic information. The language used during the interviews was selected according to the preferences of the participants. Throughout the interview process, the interviewers consistently maintained alignment with the language of the participants, primarily utilizing Mandarin and local dialects. This approach aimed to facilitate a more relaxed and comprehensive communication experience for the participants.

Collecting demographic data and informed consent typically requires approximately 10 to 15 min. By offering appropriate acknowledgment and encouragement, researchers actively engaged with participants during the interviews, sharing their experiences. The interview content was also adjusted based on the interview context, allowing participants to delve deeply into their thoughts and feelings, pose questions, reiterate points, and seek guidance as needed. In-depth communication techniques were employed to prevent misunderstandings. Real-time observation and recording of non-verbal cues from participants were conducted to maintain the integrity of the interviews. Each participant was interviewed for approximately one hour, and each participant underwent one interview session only. The interviewer summarized the conversations to improve accuracy, after which the audio recordings were transcribed verbatim by the interviewer but were not returned to the interviewee, considering the integrity of the study and time resource limitations. Through face-to-face interviews, researchers established rapport with each participant. Saturation was achieved after the 18th interview, with two additional interviews conducted to ensure no further data could be collected. No participants withdrew from the interviews.

Data analysis

The researchers were keenly interested in understanding the experiences of healthcare professionals diagnosed with BC as they returned to their work. These recordings were transcribed into text within 24 h, and another researcher verified the accuracy and completeness of the transcribed interviews. The qualitative interview data were manually analyzed by team members using thematic content analysis. The entire team reviewed 20 transcripts together, and codes related to effective communication were consolidated into distinct themes.

In this study, we opted to use the Colaizzi method[21], and thematic analysis was employed. As a reliable phenomenological approach, Colaizzi's data analysis method is rigorous and robust for comprehending human experiences[22]. This method has found extensive use in healthcare and medical research due to its capability to identify"fundamental themes"[23].

The current study adhered to the following process: (1)repeated readings of the interviews; (2)extraction of significant statements; (3)construction/coding of recurring perspectives; (4)integration of coded perspectives to form theme prototypes; (5)definition and description of theme prototypes; (6)comparison of similar theme prototypes, extraction of congruent perspectives, and formation of themes.

Stages 5 and 6 were completed by the first author, and team meetings were regularly convened to discuss, review, and finalize data analysis for these stages. Stage 7(seeking validation of the fundamental structure)was omitted without controversy, following Giorgi[24], who considered providing participants with an opportunity to

validate the fundamental description as inappropriate, as perspectives would inevitably differ from systematic analysis; thus, this step was avoided. Study participants did not provide feedback on the findings.

Ethical considerations

This study was approved by the Ethics Committee of the hospitals where it was conducted(Approval Number:2022-J–086; Date:2022–09–16), allowing the use of human subjects. Informed consent was obtained before conducting the interviews, encompassing all necessary assurances regarding confidentiality and anonymity, along with a commitment to prevent retaliation. No incentives provided to the participants.

During the interviews, we anticipated any anxiety participants might experience when discussing potential emotional traumas as thoroughly as possible. Plans were established to ensure the safety of participants in case of any special circumstances. Each participant provided oral consent in addition to written consent.

Participants were informed that they could withdraw from the study at any time. All transcripts were stored on password-protected computers, accessible only to the researchers. The real names of each participant were concealed during the data analysis process.

Methodological rigor

Credibility refers to the accuracy of the survey findings and was ensured through the recording of interviews. Authenticity pertains to portraying the research findings as the outcomes of the participants. Throughout the interview process, researchers maintained the authenticity and accuracy of recorded data and conducted on-site audio recording. Although the researchers conducted thorough interviews with the interviewees and fully analyzed and distilled the interview content, the potential for gaining insights from participants was limited due to the researchers' cognition and the fact that they lacked shared experiences as the interviewees. Additionally, researchers remained vigilant about their biases, requesting clarification when necessary rather than steering the interview direction.

Furthermore, we carefully considered how personal biases might influence study design, data collection, and analysis. we began by writing down personal and theoretical assumptions regarding these experiences. These notes were reviewed regularly to ensure that the participant's understanding of their experiences remained as objective as possible. We invited other experts to review our methods and findings to detect and address potential biases. This practice ensured biases were acknowledged, safeguarding the study's integrity and mitigating the threat of bias.

Results

Description of participants

Interviews were conducted with 9 doctors and 11 nurses, all of whom were married with 1–2 children except 1 divorced with a child. Participants averaged 38.5 years old. It is noteworthy that all interviewees had a university education and belonged to a relatively high socioeconomic stratum, earning more than three times the minimum wage. In addition to their 13–20 years of healthcare experience, these professionals also specialize in a variety of fields such as endocrinology, obstetrics, nursing, pediatric internal medicine, and hospital infection control.

Modified radical mastectomies were performed on the participants, including the removal of all breast tissues, including the skin, nipples, areola, and affected axillary lymph nodes, while the pectoralis major muscle was preserved. All interviewees expressed a desire to return to work. Most interviewees returned to work 1–2 months after surgery, 1 interviewee with the longest sick leave not exceeding 4 months. They usually continued to work while undergoing chemotherapy or other treatments. If needed, short-term leaves were taken during chemotherapy.

Table 1 provides a concise overview of the key characteristics of the study participants, offering insights into their demographics, professional backgrounds, and sick leave days.

Themes

We obtained four major themes and their corresponding sub-themes: Table 2 provides a concise overview of themes. To maintain maximum anonymity, participants' ages and unit assignments have been deliberately omitted from the verbatim excerpts.

Return to work: Willingness and tangles

During the interviews, participants vividly recounted experiences that underscored the substantial medical knowledge possessed by their colleagues and superiors, affording them access to convenient medical resources. Following a certain threshold of physical recovery, a prevailing sentiment among the majority of BC survivors was an eagerness to promptly resume their professional roles.

N1: "With only my husband and me at home, I crave the bustling atmosphere of work, which I find more beneficial."

N13: "My emotions are under control, and I'm mentally sharp, so why not return to work?"

N10: "Due to my profession, I quickly accepted the transition from being a doctor to a cancer patient. Having a good grasp of the treatment process and required recovery time, I'm eager to return to work at the hospital and avoid idleness."

N5: "Adhering strictly to post-operative recovery requirements, I am fully aware of my physical condition."

However, a subset of interviewees expressed contrasting views, introducing a nuanced perspective. When considering the extension of sick leave, hesitations emerged regarding seeking approval from supervisors.

N2: "I'm worried about others comparing my leave to theirs."

N7: "Some might misconstrue my request to extend sick leave as being overly dramatic."

N15: "Continuing sick leave feels guilty when human resources are tight."

No	Gender	Age (year)	Profession	Educational Background	Marital Status	Sick Leave Days	Post RTW Days	Household Income Per Capita Monthly	
								< Local per ca. pita income	≥Local per ca. pita income
1	Female	45	Doctor	Bachelor	Married	95	168	√	
2	Female	40	Nurse	Bachelor	Married	30	34		√
3	Female	47	Doctor	Bachelor	Married	40	77		√
4	Female	25	Doctor	Bachelor	Married	28	285		√
5	Female	53	Doctor	Bachelor	Married	32	96		√
6	Female	44	Doctor	Bachelor	Married	60	47		√
7	Female	31	Doctor	Bachelor	Married	35	114		√
8	Female	30	Doctor	Master	Married	28	232	√	
9	Female	52	Doctor	Bachelor	Divorce	50	398	√	
10	Female	42	Doctor	Doctor	Married	32	431		√
11	Female	44	Nurse	Bachelor	Married	48	94		√
12	Female	52	Nurse	Bachelor	Married	35	476		√
13	Female	31	Nurse	Bachelor	Married	42	243		√
14	Female	33	Nurse	Bachelor	Married	38	522		√
15	Female	45	Nurse	Bachelor	Married	30	183		√
16	Female	40	Nurse	Bachelor	Married	35	301		√
17	Female	30	Nurse	Bachelor	Married	43	62		√
18	Female	39	Nurse	Bachelor	Married	112	353	√	
19	Female	35	Nurse	Bachelor	Married	51	379	√	
20	Female	32	Nurse	Bachelor	Married	30	126		√

Table 1. Information of the Participants.

Major themes	Sub-themes
1. Return to Work: Willingness and Conflicts	
2. Cancer Progression Anxiety	
3. Physical and Mental Re-Awareness	(1) Decreased Physical Ability
	(2) Frustration and Diminished Self-Esteem
4. Reflection and Re-planning	(1) Past Self-Questioning
	(2) Active Life Re-planning
	(3) Revitalizing Life's Value,
	(4) Career Changes: Coping and Adapting

Table 2. Major Themes and Corresponding Sub-themes.

To facilitate participants in their RTW, the hospital took measures such as changing their duties, reducing workloads, and eliminating night shifts. These initiatives significantly bolstered the motivation of interviewees to resume their professional responsibilities.

N4: "Grateful for my leader arranging a capable assistant, I decided.
to return to work sooner."

Cancer progression anxiety

Despite their comprehensive understanding of cancer as healthcare professionals, this helped them quickly transition from being "healthcare providers" to "cancer patients", all interviewees shared a common fear. Despite being cognizant of high clinical cure rates, interviewees experienced anxiety about their future, life, and family. During interviews, 11 interviewees specifically voiced concerns about the potential for cancer recurrence, leading to heightened mental stress.

N5: "Although clearly know the prognosis of BC from a professional perspective, I still can't control my emotions."

N18: "Even though I'm back at work, I'm still nervous about potential cancer recurrence."

N3: "I can't fully engage in my duties. Cancer is like a time bomb, making any changes in my body a cause for concern."

N8: "A COVID−19 infection disrupts the immune system, adding to my worry about a recurrence after infection."

N7: "Having a better understanding of the cancer patients I used to care for, I am no less sensitive to health issues than they are."

Physical and mental Re-awareness

Decreased physical ability Participants, drawing on their medical expertise, reported enhanced self-health management. Gradual improvements in cognitive abilities, attention, and emotional resilience fostered confidence in their return to work. However, upon resuming their positions, feelings of inadequacy emerged due to physical decline. 9 BC survivors reported decreased memory, thinking, and energy, leading to stress, poor concentration, memory loss, intolerance of crowded spaces, and depression.

N2: "Looking back, I seem to have overestimated myself."

N9: "As a pediatric nurse, I sometimes feel tired and lack patience, especially concerned about its impact on my work."

N10: "Despite my best efforts, I still feel chest tightness and weakness in my legs, hindering my ability to handle my previous workload."

N4: "The hospital is noisy and crowded, but I often feel tired and drowsy, needing to stay alert as mistakes are not acceptable."

N17: "To perform the same tasks as before, I need an assistant."

Frustration and diminished self-Esteem The amalgamation of physical and psychological challenges has impeded the participants' integration into society and communication, fostering feelings of loneliness, anxiety, and depression. Notably, these challenges have been exacerbated by anxieties and a sense of inferiority stemming from post-treatment changes, such as hair loss and alterations to their bodies.

N15: "Colleagues discussing breast-related topics make me feel silent and depressed."

N2: "When my colleagues inquired about my hairstyle, despite sensing their concern, it still evoked a sense of sadness."

N1: "When colleagues express concern, I experience a blend of inferiority and gratitude."

Confronted with demanding tasks, participants recounted instances where they had to relinquish certain responsibilities, resulting in disappointment and a pervasive sense of inability to continue their previous work.

N7: "Despite my love for my previous job, I couldn't keep up with the demands, necessitating a shift to a support role. It's disheartening that my professional skills aren't being fully utilized."

N1: "I invested more effort into becoming a doctor than most people, but now I feel like a broken machine."

N16: "I find myself irritable, depressed, unable to concentrate, and my work efficiency has declined. Direct patient care is no longer a suitable role for me, leaving me disappointed in myself."

Reflection and Re-planning

Past self-questioning Following their encounters with cancer, interviewees initiated the profound process of reevaluating life's meaning, prompting adjustments to pre-illness values and alterations in lifestyle choices.

N1:As a doctor, I always avoided these risk factors. I have no bad habits, so I don't understand why BC would affect me. Being young doesn't mean being safe!

N3: "The realization dawned that my previous work approach was not sustainable, leading to endocrine disorders and excessive health depletion. I recognized the need to slow down."

N4: "Neglecting my annual check-ups, under the assumption of good health, proved to be a mistake. I now understand the importance of cherishing my health."

N8: "My role as a nursing manager was physically demanding. Falling ill made me realize that health takes precedence over everything."

N5: "The demands of studying and research consumed most of my energy. Cancer served as a warning from my body, and I'm grateful it was detected in time."

Active life Re-planning Upon stepping back from work and family duties, interviewees engaged in reflective contemplation regarding past omissions, catalyzing proactive planning and transformative changes.

N10: "The demands of my workload and a lack of personal time resulted in less time spent with my son during his high school years. I am committed to making up for that now."

N6: "I visit my parents more frequently now to compensate for the lack of companionship. Through this illness, I've come to understand that the essence of life lies in being alive and healthy. A meaningful future can only be achieved by living well in the present."

Revitalize life's value Beyond serving as a means of income, the act of returning to work held profound symbolic significance, representing a return to normalcy and successful reintegration into society. Despite being part of a high-income socioeconomic group, participants experienced a notable loss of income during their leave. Returning to work not only alleviated financial strains for the participants and their families but also reinstated a sense of confidence and hope.

N1: "Although I have some savings, taking care of my parents and children depleted my finances due to BC. Returning to work has relieved that financial pressure."

N9: "The diagnosis came at a time when I was planning to have my second child. My child is still young, and my husband's income cannot cover all our expenses. Now, I need to alleviate the financial burden of my family and contribute more effectively."

N5: "My daughter needs me, and my return to work reassures her that Mom is still there for her, and life continues as before."

The participants' return to work not only assisted in overcoming feelings of "uselessness" but also reignited their sense of social worth and showcased their valuable skill sets.

N15: "Despite less surgery, teaching students fulfills me. Being needed by others is what matters most to me."

N2: "I need to demonstrate that my physical ailments do not compromise my professional competence."

N20: "I am recognized and appreciated during multidisciplinary consultations, highlighting the value of my contributions."

Career changes: Coping and adapting Prior to their cancer diagnoses, interviewees had well-defined career development plans and expectations. However, the onset of cancer triggered a reevaluation of their career goals and life plans, necessitating adjustments to mitigate physical stress.

N11: "Even though night shifts have been reduced, they still surpass my physical capacity. Continuing to work poses a dilemma, requiring me to make further adjustments."

N13: "My health condition has prompted a reassessment of my career goals, and the leadership in our department has also reevaluated the human resources and development of our team."

N19: "Family encouragement prompted me to reconsider the balance between my career and health, a decision that, albeit painful, led me to make adjustments."

Additionally, some older interviewees, despite strong emotional attachments to their careers, indicated that the prolonged recovery process compelled them to reconsider. Consequently, decisions were made regarding premature retirement or an extended leave of absence.

N17: "Chemotherapy is an extensive process, and continuing to work would not accommodate the necessary recovery treatment."

N12: "Following discussions with my family, I am contemplating early retirement as a viable option."

Discussion

Cancer survivors' RTW is a crucial part of their recovery and economic development. In this study, we examined the RTW experiences of BC survivors as BC is a common type of cancer, and its incidence continues to rise.

This study meticulously examines the nuanced journey of BC survivors with a high level of medical knowledge as they navigate the return to work, unveiling the trans-formative nature of this process. It meticulously traces the trajectory from the anticipation of returning to work to the preparatory phase and subsequently to the post-work experience. Focusing specifically on the experiences of doctors and nurses, the study sheds light on the unique RTW experiences of female BC survivors within the medical profession. This phase stands out prominently compared to other treatment stages, presenting distinct concerns and issues. However, comparing return-to-work experiences across different countries proves challenging due to variations in societal structures, healthcare systems, and governmental backgrounds. Divergent contextual factors impede a direct comparison of these experiences.

According to our study, all interviewees returned to their jobs within 120 days post-surgery, with the majority returning within 1–2 months post-surgery, and the longest sick leave being 112 days. It was one of the differences we observed between Healthcare Professionals and other patients. A study conducted in Italy reported that 55.4% of patients had sick leaves of less than 3 months, while 23.9% had sick leaves of more than 6 months[25]. In comparison with these cases, Chinese healthcare professionals were able to return to work more quickly. Although they usually continued to work while receiving chemotherapy or other treatments, taking short-term leave if necessary during chemotherapy, this may be attributed to the stable work environment in hospitals, the substantial income from their profession, and strong support from colleagues and superiors. Healthcare workers in China have a relatively stable work environment and have little concern about unemployment, as no hospital would terminate employment due to an employee's illness. Furthermore, hospitals provide higher commissions and better medical benefits to their workers, thereby alleviating the significant financial burden they experience.

Approximately 43% of women reported a decline in work capacity after returning to work[25]. Healthcare professionals are also affected by this issue, with reduced work capacities affecting work-ability. Currently, a few researches concerning the impact of occupation on the return to work process for patients with BC. It was noted by van Muijen that one of the most important factors to consider among occupational variables is the nature of the tasks performed, a manual laborer has fewer employment opportunities than a non-manual worker[26]. In contrast, healthcare professionals have diverse strategies to cope with this change. In hospitals, due to the variety of positions available and the high awareness of health among senior management, cancer survivors have ample opportunities for job adjustments. Their career options include transitioning from practitioners to educators or adding an assistant to assist them. It provides them with essential support to return to work as soon as possible. A clear dilemma arises, however, when determining the appropriate time to return to work; interviewees expressed guilt about adding to the burden placed on colleagues while on sick leave. This dilemma may be due to a lack of awareness among employers. It could also be influenced by the interviewees' personalities and roles within the team. We encourage hospitals and healthcare teams to provide comprehensive support regarding sick leave and to recognize that adequate rest is crucial for effective treatment.

It is common for doctors and nurses in China to have career plans and goals, which often require them to work excessively. When healthcare professionals are diagnosed with BC, they often undergo a period of self-reflection triggered by the illness. Interviewees reflected on their state before the diagnosis, the diagnosis of cancer changed their perception of the meaning of their work and roles in their lives, as well as their frustration at the interruption of their career goals. The "cancer event" affected their chances of promotion, and the unachieved career objectives became "unfinished business" that weighed heavily on their minds, leading to feelings of frustration and loss of confidence. Fortunately, after this period of reflection, they adjusted their life priorities, realigned their career goals, and placed greater emphasis on health and family time. This positive

adjustment reflects their ability to grow and adapt after a major life crisis, demonstrating spiritual growth and significant changes in their values.

Compared to other groups, BC survivors of healthcare professionals share similar concerns about cancer prognosis and health perceptions[4,16]. The close relationships that healthcare professionals diagnosed with BC have with their colleagues provide them with additional support in coping with the stress of cancer, and their trust in the treatment plan gives them a comprehensive understanding of clinical data. These factors contribute to their quick adjustment to cancer patient identity. Despite these advantages, concerns about cancer prognosis, feelings of inferiority, and depression persist. Physical deficiencies and the decline in abilities caused by the disease are sources of these feelings of inferiority and depression. These feelings also serve as the fundamental driving forces behind changes in individual behavior. Even in limited environments and difficult situations, they have an instinctual drive for perfection. They reflect on and adjust their values to rediscover the best lifestyle that suits them. This aligns with Adler's psychology, which posits that individuals compensate for feelings of inferiority due to internal pressure and tension, and in doing so, choose their path and direction for the future[27]. most interviewees choose a combination of inferiority and active compensation, which leads to a strong internal drive and ultimately successful outcomes.

Conclusion

Chinese healthcare professors appear to have positive experiences that may be better than those found in other studies, and they are actively reintegrating into the labor force and returning to work more quickly. In this regard, BC survivors benefit from rich medical knowledge, a stable work environment, flexible positions, substantial income, and strong support from colleagues and superiors. Additionally, these factors contribute to positive personal growth, including spiritual development, as well as notable changes in values, particularly in the context of a profound life crisis.

A noteworthy observation revolves around interviewees expressing guilt during sick leave, attributing this sentiment to concerns about burdening colleagues. This phenomenon warrants the attention of hospital management, prompting a recommendation for proactive measures. It is proposed that hospitals and medical teams implement comprehensive support mechanisms related to leave, acknowledging the imperative need for adequate rest during the treatment period.

In conclusion, this research deepens our comprehension of the intricate experiences of BC survivors within the medical profession, elucidating the trans-formative dynamics of their return to work. The findings underscore the pivotal role of tailored support systems and heightened awareness in fostering a positive return-to-work experience for this unique cohort. This study not only contributes academically but also provides practical implications for hospital management to better address the distinctive challenges faced by medical professionals in their recovery from BC.

Limitations of the study

Due to the fact that this study's results are primarily based on the experiences of a specific sample from economically developed regions of Zhejiang, China, their generalizability is limited and may not fully represent situations in regions with different economic conditions. While we made efforts to select representative participants, the sample characteristics (such as age, gender, and cultural background) may still differ from those of a broader population. Furthermore, direct comparisons between countries are challenging due to differences in social culture, healthcare insurance, and governmental contexts, which may also affect the applicability of the results. Additionally, while we relied on the principle of data saturation during data collection, the limited sample size may have resulted in the omission of relevant perspectives or experiences. We recommend that future research expand both the sample size and scope to enhance the generalizability of the findings.

Data availability

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

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Author contributions

BJ, YC, and YS Contributed equally to the article and are co-first authors. They contributed to the manuscript's conception, design, data analysis, and drafting; YC is the corresponding author. BJ revised the manuscript. PH and YP were involved in its revision. All the authors read and approved the content of the manuscript.

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Declarations

Competing interests

The authors declare no competing interests.

Additional information

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