

How doctors communicate the initial diagnosis of cancer matters: cancer disclosure and its relationship with Patients' hope and trust

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Abstract

Objective: The study is to examine the relationships between perceived initial cancer disclosure communication with doctors, levels of hope, and levels of trust in doctors among cancer patients in China.

Methods: A total number of 192 cancer inpatients in a cancer hospital in China were surveyed. Perceived disclosure strategies, levels of hope, levels of trust in their doctors, as well as the demographic information were obtained from the participants.

Results: In addition to age, patients who had higher levels of perceived emotional support from doctors, or higher levels of perceived personalized disclosure from doctors, or higher levels of perceived discussion of multiple treatment plans with doctors were more likely to have higher levels of trust in doctors. In addition to perceived health status, perceived emotional support from doctors significantly predicted participants' levels of hope. That is, patients who had higher higher levels of perceived doctors' emotional support were more likely to have higher levels of hope. Key disclosure person was a marginally significant variable, that is, patients who were mainly disclosed by family members might have higher levels of hope compared with patients who were mainly disclosed by doctors.

Conclusions: When communicating with a cancer patient, doctors might not ignore the importance of emotional support during cancer diagnosis communication. Doctors might want to involve family and collaborate with family to find out ways of personalized disclosure. During the communication process, doctors could provide their patients with multiple treatment options and discuss the benefits and side effects of each treatment.

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Background

How bad news is delivered influences patients' understanding, treatment decisions, adherence to treatment, adjustment, subjective well-being, satisfaction, and even their survival [1–3]. The adverse effects due to the ineffective communication of bad news will linger and cannot be easily reversed after news delivery [1]. Communicating a bad initial cancer diagnosis, a specific context of communicating bad news, is an important doctor–patient communication process during which doctors disclose diagnoses, help their patients know the diseases and the stages, discuss treatment plans, and answer questions.

Because of the cultural variations between Western and Asian countries, strategies of effective cancer diagnosis Communication in Western countries may not be effective in Asian countries. Attention should be given to the unique cancer disclosure practices in Asian countries. For instance, one study investigating disclosure preferences of

cancer patients in Japan found many patients preferred that doctors break bad news in a setting with family [4]. Some scholars [1,5,6] argued that avoiding euphemisms when delivering bad news is appropriate and recommended. However, a study [7] proposed that in Japan, patients prefer doctors' use of euphemisms (i.e., avoiding repeatedly using 'cancer') after clear disclosure (i.e., using 'cancer' during the initial disclosure).

To date, studies focusing on cancer disclosure strategies in China have discussed disclosure and nondisclosure practices among cancer patients [8], doctors' disclosure strategies [9,10], and cancer patients' attitudes toward disclosure [11]. But few studies have addressed factors predicting effective disclosure in China to ease the Chinese doctors' communication difficulties. Physicians in China are facing the difficulties common to physicians in other countries, such as the stressful delivering process, the time constraints of the communication process, the goals of meeting a certain number of patients and reducing

costs, facing anxious people [2], having little exposure to the training of effective bad news communication [12], and having no standard strategies for bad news communication [4]. Moreover, doctors in China are also facing a disclosure dilemma because of the Asian culture, although more and more doctors and patients believe true disclosure is better than nondisclosure [11,13,14]. The disclosure dilemma the doctors are facing is, on the one hand, doctors in Asian countries, like doctors in Western countries, should disclose true diagnosis to patients; on the other hand, because of the influence of family-centered decision-making styles, doctors in Asian countries should consult patients' family first, and doctors can be asked by patients' family to give no disclosure, ambiguous disclosure, or even false disclosure to cancer patients [15].

Thus, because of the cultural differences and the pressing need for more studies on effective training programs on communicating cancer diagnosis for doctors, it is quite necessary to further investigate initial cancer diagnosis communication in China. So far, to our best knowledge, no studies have investigated the relationships between disclosure communication and patients' levels of hope and their levels of trust in doctors among cancer patients who are aware of their cancer diagnosis.

Most patients prefer their physicians to convey some measure of hope when delivering bad news [7]. In Japan, 92% of the patients surveyed want their physicians to tell what they can hope for [4]. In China, cancer patients rated conveying a sense of hope as the most preferred disclosure strategy [10]. Conveying a sense of hope is also a consensus recommendation for breaking bad news [1,6]. Hope is essential for effective coping [16] in that strong hope provides people with strength and courage to cope with difficulties, while weak hope 'can lead to passivity and resignation' (p. 357) in life-threatening situations [17,18]. Hope can decrease the sufferings because of illness and promote wellness [18,19].

High levels of trust encourage patient self-disclosure and reduce patients' anxiety [20], promote patients' willingness to seek medical help and adherence to treatment plans [21,22], and improve health outcomes [23] and patient satisfaction [24]. However, scholars have argued that levels of trust are decreasing 'due to changes in healthcare organization that might pave the way to less continuity of care and less personal attention for the patient' (p. 228) [21]. China has been experiencing a trust crisis, that is, patients' levels of trust in hospital physicians and in healthcare sector in China are relatively low because they believe that some physicians tend to 'dupe them into paying more' (p. 828) [25,26]. One of the reasons of the trust crisis is that doctors in China lack doctor-patient communication skills and patient-centered behaviors [27]. Therefore, the aim of the study is to examine the relationships among cancer disclosure communication, patients' levels of trust in their doctors, and patients' levels of hope.

Theoretical framework, hypotheses, and research questions

Cutrona and Russell's [28] social support theory suggests that patients need emotional support and informational support most from doctors. Goldsmith [29] argued that social support should be provided adequately and coherently after evaluating a patient's specific situation. Thus, following the line of research on cancer disclosure, guided by the social support theories, this study intends to extend previous work by examining the relationships between perceived cancer diagnostic disclosure communication, levels of hope, and levels of trust in doctors among cancer patients in China.

Communicative support, disclosure strategies, and trust

In our study, we intended to examine cancer patients' levels of trust in their primary care doctors who delivered cancer diagnosis, discussed treatment plans, and provided major care in hospitals in China. One of the strongest predictors of trust is physicians' communication skills [22]. Moreover, physicians' communicative support (e.g., informational support and emotional support) tend to influence patients' trust in physicians [30]. Patients prefer emotional support from physicians when physicians deliver a cancer diagnosis [31]. It is also recommended that when communicating bad news, 'physicians should use supportive expressions to relieve patients' emotional distress' (p. 214) [32].

Higher levels of patients' preferred communication strategies were linked to their higher levels of satisfaction [4], and satisfaction is positively correlated with trust [33]. Patients who prefer full disclosure will become suspicious and quite stressful because of doctors' partial or gradual disclosure, and the trust level will decrease [34]. One study [21] indicated that patient-centered communication strategies enhance patients' levels of trust. Therefore, it might be possible that patients' preferred cancer disclosure strategies will positively predict patients' level of trust in doctors.

Because of the high cost of cancer treatment and the aforementioned trust crisis, patients in China may not trust their doctors if doctors do not discuss treatment plans with patients and do not involve patients in decision-making. However, if doctors spend time in discussing the benefits (e.g., lower levels of physical discomfort) and drawbacks (e.g., high cost) of each and every treatment with patients, then patients may be more likely to trust their doctors.

Thus, the following hypotheses were proposed: In China, during the initial cancer diagnostic disclosure stage, higher levels of perceived informational support from doctors (H1a), higher levels of perceived emotional support from doctors (H1b), higher levels of personalized disclosure from doctors (H1c), and higher levels of

perceived discussion of multiple treatment plans with doctors (H1d) predict higher levels of cancer patients' trust in their doctors.

Communicative support, disclosure strategies, and hope

Hope is affected by interpersonal relationships in that great attention, support, and care from family members, friends, and especially from healthcare providers will provide patients with the value of life, the courage to fight cancer, and the expectations about future [16,18]. When communicating bad news, physicians should convey some measure of hope [1,4,6,32]. Healthcare providers such as nurses are sources of hope, and they are encouraged to communicate in a way that inspires hope [16]. Physicians' psychological support was negatively correlated with patients' level of hopelessness [35].

Some patients are anxious for complete and true cancer disclosure to reduce their stress [36]. When patients desire the truth and are not fully disclosed, their sense of hope will decrease [34,37]. Although some patients prefer full disclosure, some other patients are not ready for the truth or are not willing to know the truth. Instead, they prefer their family to be the surrogacy to receive the initial diagnostic cancer disclosure, a common practice in China, which highlights the importance of personalized disclosure.

Treatment options are of great concern to cancer patients, and the way of disclosing treatment plans may influence patients' levels of hope. One study [37] found that one of the most hopeful disclosure strategies is that doctors mention the availability of multiple treatments plans. Moreover, the presence of multiple treatment options gives patients the possibility of greater control over the disease and that greater control may lead to greater hope [34].

Doctors are expected to be the key person to disclose a bad diagnosis to patients in Western countries. However, in China, because of the family-centered decision-making practice, some patients have been disclosed of a bad diagnosis by family members who communicate with doctors first about the patients' diagnosis. However, no studies have explored whether or not who to disclose a bad cancer diagnosis would be a variable predicting patients' levels of hope.

Thus, the following hypotheses and research question were proposed: In China, during the initial cancer diagnostic disclosure stage, higher levels of perceived informational support from doctors (H2a), higher levels of perceived emotional support from doctors (H2b), higher levels of perceived personalized disclosure from doctors (H2c), higher levels of perceived discussion of multiple treatment plans with doctors (H2d), predict higher levels of cancer patients' hope. RQ1: In China, will the key

disclosure person (who is mainly responsible for disclosing the initial cancer diagnosis) be a factor predicting cancer patients' levels of hope?

Methods

Participants

All the participants were inpatients in Harbin Medical University Cancer Hospital. The eligibility criteria for participants were: patients who received cancer diagnosis recently (defined as within a year) and had experienced communicating cancer diagnosis with doctors during the current stay in the target cancer hospital, who were 18 years old or above, who were judged by their nurses to be literate to understand the questionnaire, and who were mentally as well as physically capable of participating in the survey. Because many family members in China are not willing to let the patients know their cancer diagnoses, we collaborated with the nurses of each medical division and compiled a list of the qualifying cancer patients who were fully disclosed of their diseases. Then, stratified random sampling was used to select participants. All the medical divisions of the hospital except the ICU were included. Then patients randomly selected from each medical division were contacted. About 321 potential participants were contacted and 209 inpatients filled questionnaires (response rate: 65.1%). The major reason for patients not participating in the survey was due to their physical and psychological conditions. After screening the answers, we excluded three incomplete questionnaires (if a patient filled 70% or more of the questionnaire, then it were considered complete). Another 14 participants who received their cancer diagnoses more than a year ago were also excluded from the study. The final sample size was 192.

Procedures

The study was approved by the Institutional Review Board of Harbin Medical University Cancer Hospital, China. The selected inpatients were approached and were given the information about the purpose and the procedures of the study. Participants were assured that their answers and their privacy would be kept confidential. Participants were also assured that there was no ID information (i.e., name, patient ID number, or hospital bed number) recorded in the questionnaire and their responses to the questionnaire would not be shared with or released to the physicians. They were also told that their participation was voluntary and they could withdraw from the study at any time. There were two rounds of data collection. In 2013, 91 questionnaires were collected, and in 2014, another 118 questionnaires were collected. The questionnaire was in Chinese. The English version of the hope scale and the trust scale was translated into Chinese.

The Chinese version of the scales was then back translated into English to check for consistency. Then, the whole set of questionnaire was proofread and revised by healthcare professionals in China and was tested among cancer patients in China before use. Another mini questionnaire in Chinese with only two items about cancer site and cancer stage was filled by nurse managers based on the patients' medical charts, because we intended to minimize the patients' distress they might encounter during the survey. We also used 'the disease' instead of 'cancer' throughout the questionnaire for the same concern. The researchers responsible for survey administration were trained by the second author before survey administration and would answer any questions the patients might have during the process. The hardcopies of the questionnaire along with pens or pencils were provided to participants, and they were asked to circle the responses according to the facts to the best of their knowledge. If needed, survey administrators would read the questions to the participants.

Measures

The whole set of questionnaire contained several sections including demographic and other control factors, perceived doctor's communication strategies, the hope scale, and the trust scale. The measures were evaluated by experts in healthcare professionals in China and had good face validity.

One item (i.e., who mainly told you about your disease diagnosis?) was used to measure the key person disclosing cancer diagnosis to the patient.

Emotional support was measured by four items: 'During the diagnostic communication, my doctor encouraged me to have confidence;' 'During the diagnostic communication, my doctor comforted me;' 'During the diagnostic communication, my doctor told me stories of cancer survivors;' and 'During the diagnostic communication, my doctor told me how to face the disease.' The items were based on a pilot study on doctors' strategies to provide emotional support to cancer patients in China. The Cronbach's alpha of the measurement was 0.85.

Informational support was measured by three items: 'During the diagnostic communication, my doctor answered all of my questions;' 'During the diagnostic communication, my doctor told me all about my disease;' and 'During the diagnostic communication, my doctor's answers to my questions were complete.' The Cronbach's alpha of the measurement was 0.75.

Personalized disclosure was measured by three items: 'My doctor communicated with me about my disease according to my pace;' 'My doctor communicated with me about my disease after I feel ready for it;' and 'My doctor communicated with me about my disease after his/her talking with my family.' The Cronbach's alpha of the measurement was 0.75. The items were designed based

on the pilot study conducted in China (i.e., interviewing doctors about their sessions of communication with cancer patients about cancer diagnosis).

Treatment discussion was measured by three items: 'During the communication with my doctor, my doctor only mentioned a single treatment plan;' 'During the communication with my doctor, my doctor mentioned all treatment options available to me;' and 'My doctor decided the treatment for me without my involvement.' The items were designed based on the previous study [4]. The Cronbach's alpha of the measurement was 0.66.

Herth's [19] hope instrument (12 items) was used to measure cancer patients' hope. The instrument encompasses three factors: 'temporality and future,' 'positive readiness and expectancy,' and 'interconnectedness'. The instrument has good validity and reliability [19]. The Cronbach's alpha of the measurement for this study was 0.90.

The Wake Forest physician trust scale [24], a 10-item scale, was used to measure patients' trust in their doctors. The scale has four sections: fidelity, competence, honesty, and global trust. This scale has high reliability and good construct validity [24]. The Cronbach's alpha of the measurement for this study was 0.88. A 5-step Likert scale (1=strongly agree to 5=strongly disagree) was applied to all the items of the survey except some of the demographic variables.

Data management and data analysis

SPSS version 19 was used for data management and data analysis. Statistical analyses such as Pearson's correlation were used to test bivariate analyses. Hierarchical multiple regression analyses were performed to test the factors predicting patients' levels of hope and their levels of trust in doctors.

Results

Sample characteristics

Descriptive statistics of the participants were presented in Table 1. There were 42% male participants and 57% female participants. The mean age was 55.33 (SD=9.86), and the median age was 56.00. The majority of the participants were diagnosed with lung cancer (39%) or with breast cancer (33%).

Predictors of trust

The demographic variables that have significant bivariate relationships with trust in doctors were entered into the regression model, followed by the key variables (i.e., perceived informational support from doctors, perceived emotional support from doctors, perceived personalized disclosure, perceived discussion of multiple treatment plans with doctors). Because of the multiple hypotheses testing, a

Table 1. Sample characteristics ($N = 192$)

| Characteristics | N | % | Mean | SD |
|-------------------------------------|-----|------|-------|------|
| Sex | | | | |
| Male | 81 | 42.2 | | |
| Female | 110 | 57.3 | | |
| Age | | | 55.33 | 9.86 |
| Education | | | | |
| Elementary and below | 52 | 27.1 | | |
| Middle School | 102 | 53.1 | | |
| Associate's Degree | 25 | 13 | | |
| Bachelor's Degree | 10 | 5.2 | | |
| Master's Degree | 1 | 0.5 | | |
| Income (RMB, the currency of China) | | | | |
| 1000 and below | 57 | 29.7 | | |
| 1001–2000 | 86 | 44.8 | | |
| 2001–3000 | 32 | 16.7 | | |
| 3001–4000 | 8 | 4.2 | | |
| 4001–5000 | 3 | 1.6 | | |
| 5001 and higher | 0 | 0 | | |
| Health | | | | |
| Very poor | 8 | 4.2 | | |
| Poor | 48 | 25 | | |
| So so | 56 | 29.2 | | |
| Good | 58 | 30.2 | | |
| Very good | 22 | 11.5 | | |
| Cancer Site | | | | |
| Lung | 75 | 39.1 | | |
| Breast | 64 | 33.3 | | |
| Other | 51 | 26.6 | | |
| Cancer Stage | | | | |
| Early | 47 | 24.5 | | |
| Mid | 61 | 31.8 | | |
| Late | 76 | 39.6 | | |
| Who mainly disclosed diagnosis | | | | |
| Family member | 40 | 20.8 | | |
| Doctor | 52 | 27.1 | | |
| Family and doctor | 87 | 45.3 | | |
| Guessed and confirmed later | 13 | 6.8 | | |

Note: Because of missing values in some variables, the sum of the percentages of all the categories of the variable is less than 100%.

RMB1000 = USD159; RMB2000 = USD317; RMB3000 = USD476; RMB4000 = USD635; RMB5000 = USD794

Cancer stage: The categorization is in accordance with cancer staging specified by U.S. National Cancer Institute.

more conservative alpha (i.e., $p < .01$) was employed. It can be implied in Model 2 in Table 2 that in addition to age, patients' perceived emotional support from doctors, perceived personalized disclosure from doctors, and perceived discussion of multiple treatment plans with doctors significantly predicted patients' levels of trust in doctors. That is, perceived emotional support from doctors was positively associated with levels of trust in doctors; higher levels of perceived personalized disclosure predicted higher levels of trust in doctors; and higher levels of perceived discussion of multiple treatment plans predicted higher levels of trust in doctors.

Predictors of hope

The demographic variables that have a significant bivariate relationship with hope were entered into the regression

model, followed by the key variables (i.e., perceived informational support from doctors, perceived emotional support from doctors, perceived personalized disclosure, perceived discussion of multiple treatment plans with doctors, and the key person of disclosure). Because of the multiple hypotheses testing, a more conservative alpha (i.e., $p < .01$) was employed. Model 3 in Table 3 indicated that in addition to perceived health status, perceived emotional support from doctors significantly predicted participants' levels of hope. That is, higher levels of perceived doctors' emotional support predicted higher levels of hope. The key disclosure person was a marginally significant factor, and the relationship was in the direction that patients who were mainly disclosed by family members had higher levels of hope compared with patients who were mainly disclosed by doctors.

Table 2. Hierarchical multiple regression models with trust as dependent variable ($N = 192$)

| | Beta | P | R ² | Adjusted R ² | R ² Change | P of R ² Change |
|--|-------|--------|----------------|-------------------------|-----------------------|----------------------------|
| Model 1 | | | 0.21 | 0.20 | | |
| Health | 0.16 | 0.03 | | | | |
| Support from family | 0.34 | <0.001 | | | | |
| Age | 0.24 | <0.01 | | | | |
| Model 2 | | | 0.49 | 0.47 | 0.27 | <0.01 |
| Health | 0.04 | 0.49 | | | | |
| Support from family | 0.14 | 0.02 | | | | |
| Age | 0.16 | <0.01 | | | | |
| Emotional support | 0.39 | <0.001 | | | | |
| Information support | -0.12 | 0.07 | | | | |
| Personalized disclosure | 0.22 | <0.01 | | | | |
| Discussion of multiple treatment plans | 0.24 | <0.001 | | | | |

Discussion

Studies found that 79.5% of cancer patients agreed that the benefits of disclosure outweigh its harm and 90.4% of cancer patients wanted to know their true diagnoses [10]. Therefore, rather than addressing the practice of nondisclosure in Asia, our study focused on the effect of diagnostic disclosure and cancer communication between doctors and cancer patients on patients' levels of hope and their levels of trust in doctors in China. Because of the cross-sectional nature of the study, the results and discussion should be interpreted with caution.

Results indicated that patients' levels of trust were related to age, doctors' emotional support, personalized disclosure, and treatment discussion. Part of the results was in agreement with another study [38], which also found a significant relationship between doctors' emotional support and patients' levels of trust in doctors. Our results also supported the claim that physicians' communication styles are strong predictors of trust in doctors [22]. The findings of our study indicated that disclosure style or method would be dependent on each individual patient and therefore, personalized disclosure should be adopted. In order to achieve personalized disclosure, collaboration with patients' family is very important. The collaboration enables doctors to know better their patients' communication preferences. Personalized disclosure could be achieved by doctors' communication with the family first before cancer disclosure in China where family-centered decision-making style has a lot of weight. However, this does not mean that patients' family should make the decision for patients. Family might serve as a bridge to facilitate the communication between a patient and his/her doctor.

Our results showed that higher levels of perceived discussion of multiple treatment plans with patients predicted higher levels of trust in doctors. In China, some cancer doctors have been accused of overtreating their patients by prescribing excessive expensive medication and/or unnecessary treatments. Thus, discussing treatment plans

with cancer patients and/or their family and mentioning all the available treatment options according to the patients' needs and conditions are suggested.

Moreover, in order to gain trust from cancer patients, some doctors in China might change their way of paternalistic communication style. A combination of patient-centered and physician-centered approaches might be employed. Doctors could encourage patients with the help of their family to express symptoms, preferences, and concerns, should listen fully, and attend to patients' needs and benefits.

Neither cancer stage nor cancer site was related to hope or trust. However, perceived emotional support from doctors predicted cancer patients' hope and trust. Those results were somewhat similar to the results of another study [3], which found that doctors' emotional support caused the major variance in patients' acceptability of doctors' disclosure and found that the degree of badness of the news had no impact on patients' levels of acceptability.

The findings that emotional support positively predicted patients' levels of hope and trust, but informational support did not, indicated that when it comes to a severe disease such as cancer, emotional support from doctors is more important than informational support to some extent. Our study does not imply informational support from doctors is not important, but rather highlights the importance of emotional support from doctors. Some doctors and patients in China have the bias that to patients, information is much more important than emotional support from doctors. Moreover, most of the patients do not expect healthcare professionals to provide emotional support [39]. Our study indicated that emotional support from doctors might be helpful for patients to build and maintain trust in their doctors and be helpful for patients to maintain hope and that doctors might not underestimate the benefits of emotional support to patients. In addition, doctors in China might benefit from a comprehensive training course in effective approaches to disclosing cancer diagnosis. One of the goals of the course would be that after training;

Table 3. Hierarchical multiple regression models with hope as dependent variable ($N = 192$)

| | Beta | P | R ² | Adjusted R ² | R ² Change | P of R ² Change |
|--|-------|--------|----------------|-------------------------|-----------------------|----------------------------|
| Model 1 | | | 0.27 | 0.25 | | |
| Education | 0.10 | 0.22 | | | | |
| Health | 0.31 | <0.001 | | | | |
| Income | 0.03 | 0.74 | | | | |
| Support from family | 0.32 | <0.001 | | | | |
| Model 2 | | | 0.40 | 0.37 | 0.13 | <0.01 |
| Education | 0.17 | 0.02 | | | | |
| Health | 0.24 | <0.001 | | | | |
| Income | -0.32 | 0.67 | | | | |
| Support from family | 0.17 | 0.01 | | | | |
| Emotional support | 0.26 | <0.01 | | | | |
| Information support | 0.11 | 0.12 | | | | |
| Personalized disclosure | 0.07 | 0.28 | | | | |
| Discussion of multiple treatment plans | 0.11 | 0.11 | | | | |
| Model 3 | | | 0.42 | 0.38 | 0.02 | 0.07 |
| Education | 0.16 | 0.04 | | | | |
| Health | 0.22 | <0.01 | | | | |
| Income | <0.01 | 0.99 | | | | |
| Support from family | 0.15 | 0.03 | | | | |
| Emotional support | 0.26 | <0.001 | | | | |
| Information support | 0.11 | 0.11 | | | | |
| Personalized disclosure | 0.06 | 0.36 | | | | |
| Discussion of multiple treatment plans | 0.10 | 0.15 | | | | |
| Key disclosure person (Family versus Doctor) | 0.21 | 0.02 | | | | |
| Key disclosure person (Guess versus Doctor) | -0.13 | 0.15 | | | | |

doctors would want to and be able to attend to the emotional needs of cancer patients and provide effective emotional support to cancer patients [40]. The successful training program would be dependent on more research exploring Chinese cancer patients' emotional needs. Moreover, doctors and patients' family members might want to encourage patients to express their need for emotional support from doctors and encourage them to communicate with their doctors about what type of emotional needs they need and what works for them.

In our study, the result that patients who were mainly disclosed by a family member had higher levels of hope compared with patients who were mainly disclosed by a doctor was marginally significant. The reason might be that the family members know the patients' emotional condition best [11] and the patients would probably have received emotional support and comfort from the family member during the diagnosis disclosure. Some doctors in China often inform cancer patients' family members rather than the patients of the bad news because of the important role of family in the decision-making process of an individual [8]. The degree of family involvement can be classified into three levels: the patient and the family make decisions together, the patient asks the family to decide, and the family decides independently of the patient [8]. According to the cultural tradition, disclosing a bad news and talking about death are harmful acts and that they should be avoided; patients should be protected from the possible harm of the truth, so they should not be given any

information on the true diagnosis [8,41]. Some family members still stick to the tradition and object to telling the true diagnosis to the patients. Therefore, doctors often let the family decide whether or not to disclose and sometimes let the family member be the person to disclose the bad news. One study indicated that family members who are responsible for disclosing usually lack enough professional information and disclosure skills [41]. Thus, doctors should lead in their expert areas (e.g., disease knowledge, treatment plans) and work together with patients and their family to achieve mutuality [42].

Limitations and future studies

Because the participants were cancer patients, patients who had just finished surgery or those with very poor physical conditions or with severe depression were not contacted or selected. Also, the reasons of why patients who were selected but did not participate in the study or complete the survey included: perceived poor physical conditions and depression. The perceived health status of the sample was not bad in general. If the variation of the patients' health status were higher, we would have expected the average level of trust in doctors and the average level of hope to be lower. It could be that severe physical pain due to surgery/late stage of cancer leads to patients' doubt of their physicians' competence and leads to lower levels of hope. Moreover, the patients recruited were

limited to patients who were given full cancer disclosure. The levels of trust and hope of the patients who were concealed of true diagnoses were left unmeasured. Because of the aforementioned reasons, the sample size was not big, although two rounds of data collection were carried out. Future studies should focus on using a more diverse sample in bigger size to test the hypotheses.

Another limitation is the cross-sectional nature of the study made it impossible to establish causal relationships between variables. For instance, given the cross-sectional design, it would be impossible to rule out the possibility that an overarching factor, such as patients' optimistic life stance, would explain the significant positive relationship between perceived emotional support and hope.

Also, recollection of disclosure and information provided by doctors may be bad because patients have been distressed. It would have been better if we could measure doctors' disclosure strategies using videos recording the real doctor-patient communication sessions rather than rely on patients' self-report. However, it was not feasible because video recording was now allowed in the hospital. Future studies could use video recording method to investigate cancer diagnosis communication. Moreover, the result of the relationship between the key disclosure person and patients' levels of hope was marginally significant;

thus, more studies on the key disclosure person need to be conducted to further explore the relationship.

Conclusions

When communication with a cancer patient about a cancer diagnosis in China, doctors should not overlook emotional support. Professional training programs on improving doctors' communicating a bad cancer diagnosis are needed, and emphasis might be placed on providing emotional support to cancer patients. Doctors could involve family and collaborate with family to find out ways of personalized disclosure. What a patient wants to know, not what a patient's family wants to know, determines the disclosure strategy. During the communication process, doctors might want to discuss multiple treatment options with their patients and discuss benefits and side effects of each treatment to achieve trust.

The study was approved by the Institutional Review Board of Harbin Medical University Cancer Hospital, China.

Conflict of interest

The authors declare that there are no conflicts of interest.

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