

## Improving Psychological Distress Screening in Colorectal Cancer Patients: A Mental Health Quality Improvement Project

### Abstract

Psychosocial aspects of colorectal cancer (CRC) patients are not screened and addressed. No structured protocol is available. The project aims at implementing psychosocial screening for all newly diagnosed CRC patients and refers those screened positive to clinical psychologist (CP) and medical social worker (MSW) for assessment and support. It also aims at incorporating screening into the routine workflow.

**Method:** A Quality Improvement Team consisting of colorectal surgeons, nurses, CP and MSW was formed. A retrospective review of patients to see if any psychological distress screening was done prior to this project was performed. All newly diagnosed CRC patients were screened by a structured and validated Depression Anxiety Stress Scale (DASS21) questionnaire. Those screened extremely severe/severe in depressive and anxiety score were referred to CP and MSW for support and assessment. DASS21 was repeated 3 months after the diagnosis. Patients' demographics, disease status, number screened positive and referred, treatment received and follow up DASS21 score were collected and analysed. 2 PDSA cycle were implemented for continuous assessment and improvement throughout the project.

**Results:** Retrospective review of 115 patients showed no psychosocial distress screening was done.

This project included 115 patients with 23 (20%) and 65 (57%) patients screened positive with depression score >20 and anxiety score >14 respectively. 13% and 43.5% were referred to CP+MSW and MSW only respectively. There is reduction of mean depression score from 25->6 and mean anxiety score from 22->5 in follow up DASS21. Screening rate raised from 80->100% after 2 PDSA cycle. 100% screened positive patients were referred to CP and MSW for assessment.

**Conclusion:** This pilot project involving multidisciplinary team in which psychosocial aspect of CRC patients are addressed and screened. It is now incorporated into our routine workflow.

#### What we already know

- Psychological distress in colorectal cancer patients in Hong Kong is usually not addressed
- There is a lack of structured psychological distress screening program for colorectal cancer patients in Hong Kong
- Unwilling to address mental distress of patients due to busy clinic schedule
- What this article adds
- It is an Important and Milestone project which applies Structured tool, standardized guideline and process and involves all parties in the Multidisciplinary Team in quality improvement effort
- Mental distress of colorectal cancer patients is Addressed
- Incorporate screening to Routine workflow is feasible.

**Keywords:** Colorectal cancer; Psychological distress; Mental health screening; Psychological support; Depression anxiety stress scale

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## Introduction

### Background

Systematic reviews showed an increase risk of depression, anxiety and even suicide in cancer patients [1-3]. The prevalence of major depression in cancer patients is 15% (4). Other risk factors of suicide in cancer patients include [4].

- Old age
- Male

**Cancer specific factors:** metastasis, poor prognosis, low survival rates, limited treatment options etc.

Risk elevated in the 1st month after diagnosis ( $p < 0.01$ ) and significantly decreased with time ( $p = 0.005$ ) [5].

Relative risk of suicide was greatest in 1st year after cancer diagnosis. Pain and declining physical functioning are the main risk factors. Besides, psychological distress can impose great impact on cancer patients with reduced quality of life, poor response and adherence to treatment, poor self-management, higher healthcare costs and higher mortality.

Concerning the current situation in Hong Kong, colorectal cancer ranked 1st in Male and 2nd in Female in 2017. There are 5635 new cases per year and 2138 mortalities per year. Around 50% cases are Stage III and IV upon diagnosis. In the United Christian Hospital (UCH), there are around 200-250 colorectal cancer new cases per year. Around 170 patients will proceed to operation. There is no psychosocial screening service in UCH at this moment. Cancer case managers will only refer patients to the medical social worker for financial support. Recently, 2 patients committed suicide. One of them had newly diagnosed advanced ca colon and the other suffered from recurrent ca rectum. This rang the ALARM bell that attention to patients' mental health and early identification and treatment of depression, anxiety and stress is important. Need based services with multidisciplinary involvement should be given to patients and caregivers.

Currently there is a lack of standardized process/guideline in my unit on screening the psychological distress of colorectal cancer patients. Patients with mental distress are prone to be undiagnosed and untreated. They are also not familiar with the treatment options and have limited access to mental health resources.

### Current evidence

According to the American College of Surgeons Commission on Cancer an accrediting body of hospitals, it set standards for patient centered care that require distress screening and appropriate referral for service. The ASCO's Quality Oncology Practice Initiative (QOPI) suggested distress screening is an integral part of patient centered care. The NCCN Clinical Practice Guidelines in Oncology for Distress Management recommended cancer centers incorporate distress screening into routine care [6-10].

### Objectives

This quality improvement project aims to raise healthcare providers' awareness and increase early identification of colorectal cancer

patients who were at high risks of mental distress. It sets a structured process and guideline with the use of a validated screening tool Depression Anxiety Stress Scale 21 (DASS 21) for screening and referring mental distress patients. It also aims at incorporating distress screening as standard patient centered care and using the Plan Do Study Act (PDSA) model guided healthcare practice change and determines outcome measures [11].

## Method

### Subjects

**Inclusion criteria:** Patients with newly diagnosed colorectal cancer, at least 18 years old and communicable.

**Exclusion criteria:** Patients who have cognitive disability.

### Interventional protocol

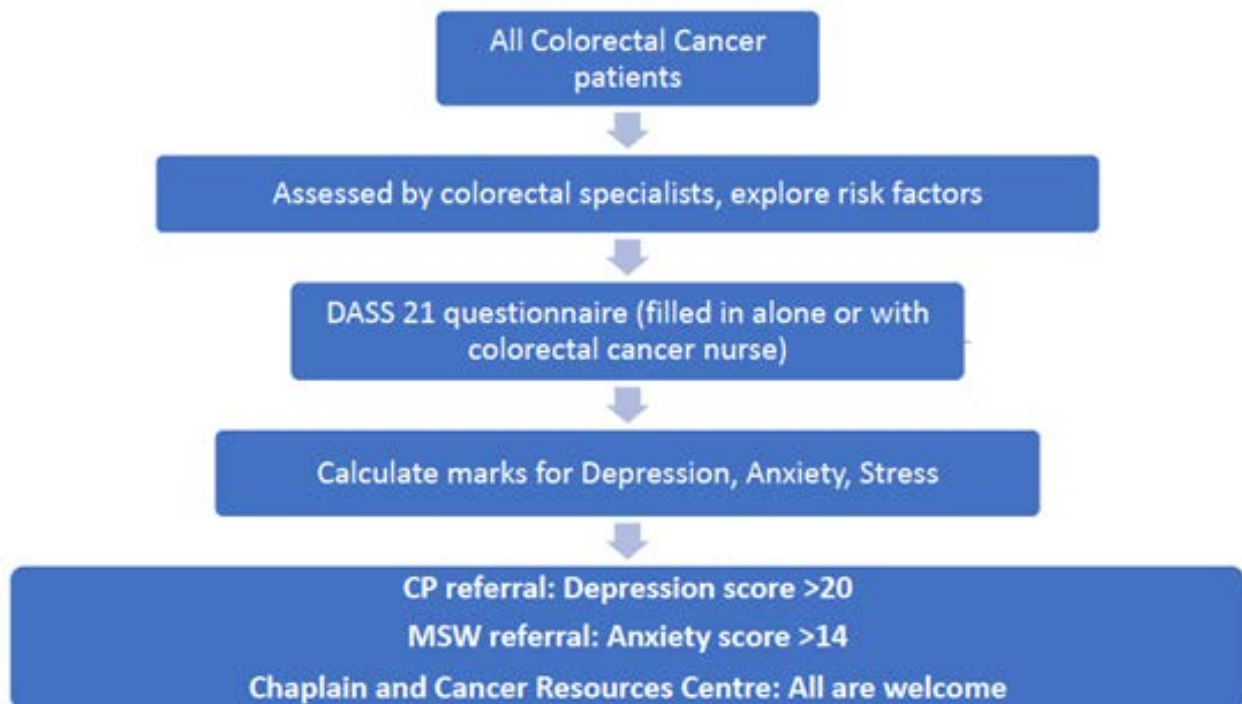
A retrospective review of 115 colorectal cancer cases in 2020 [12]. Before this project was done it was noted that NO distress screening was performed. A validated standardized screening: DASS 21 (Chinese version) was used. DASS 21 will be done in the first follow up after breaking bad news and 3 months after diagnosis.

The DASS 21 questionnaire consists of 21 items, Depression (Q=7), Anxiety (Q=7), Stress (Q=7). The estimated time to fill in the questionnaire was around 5 minutes. Scoring is follows: Depression score (Severe: 21-27, Extremely Severe 28+), Anxiety score (Severe: 15-19, Extremely Severe: 20+) and Stress score (Severe: 26-33, Extremely Severe: 34+) (Supplemental Figure 1) (Table 1).

**Table 1** DASS 21 Severity Ratings and Referral criteria.

DASS 21 Severity Ratings			
Severity	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

All newly diagnosed Colorectal Cancer patients were included and first assessed by colorectal cancer specialists with risk factors explored. DASS 21 will be filled in alone or with colorectal cancer nurse. Marks for Depression, Anxiety and Stress will be calculated. Depression score >20 will be referred to Clinical Psychologist, Anxiety score >14 will be referred to Medical Social Worker. All patients who requested will be referred to Chaplain and Cancer Resources Centre (Figure 1)



**Figure1** Quality Improvement project workflow

The Quality Improvement Team carried out regular email communication only due to COVID 19 with social distancing advised by hospital. Data entry will be done weekly. Review and discussion will be done. The study period was from August 2020-April 2021. PDSA cycle was performed. Cycle 1 was August 2020-September 2020 and Cycle 2 was October 2020-April 2021. The Data was evaluated in May 2021.

A Fishbone (Ishikawa) diagram was done to assess the predicted challenges during the implementation of the Quality Improvement Project (Supplementary Figure 2). For patient related challenges, it is expected that patients may not want to disclose to others that they have mental distress. They may also default appointment booking and visit. The expected challenges related to staff are that they are lack of awareness of the prevalence and risk factors of mental distress. The Clinical Psychologist and Medical Social Worker appointment and waiting time are expected to be long.

We applied the theoretical framework of Deming cycle in which Plan Do Study Act (PDSA) cycle was implemented (Supplementary Figure 3). Deming cycle: Plan Do Study Act (PDSA) is a model generated for implementation of Quality Improvement. It can also be applied as a framework to assist in promoting effectiveness of this project.

In the Plan phase, we form a Quality Improvement Team with the aim to improve the mental distress screening with the selection of a standardised and validated screening tool DASS 21. All members of the Quality Improvement Team familiarise themselves with the screening process.

In the Do phase, mental distress screening will be done in all

newly diagnosed colorectal cancer patients with referral to clinical psychologist, medical social worker, chaplain or patient support group accordingly.

In the Study phase, data collection and analysis will be done.

In the Act phase, evaluation on the results for the implication to see what changes have to be made based on the results and also to plan for the future direction for action and study.

### Outcome measures

**Primary outcome:** to increase in mental distress screening rate for the newly diagnosed colorectal cancer patients and to increase in referral to clinical psychologist, medical social worker for screening +ve patients.

**Secondary outcome:** to implement mental distress screening as routine practice

### Ethical consideration, consent and confidentiality

The purpose of research and procedure will be explained to patients. Study information is kept confidentially by locked filling cabinet. Data will be encrypted and questionnaires will be anonymous. Only principal investigator can get access to all the data.

### Results

#### PDSA cycle 1 (August to September 2020)

We notice room for improvement in all the clinical psychologists, doctor/colorectal cancer nurses and patient aspect. We also think of the solution to further improve our project.

Concerning Clinical Psychologists, the problem we encountered is mainly manpower issue. It is difficult for the clinical psychologists to arrange an early appointment at the beginning of the project due to manpower constraint. The appointment made is usually up to 6 weeks-8 weeks at the initial stage. The solution is to negotiate with the clinical psychologists and they finally agreed to give appointment within 4 weeks. For those urgent cases they will be admitted inpatient for consultation. Clinical psychologists also suggested DASS 21 screening to be done not immediately after the diagnosis disclosed as it is expected that the marks will be high. Thus the screening should be done at the 1st follow up after the diagnosis disclosed.

Concerning Doctors/Colorectal cancer nurses, the main problem is missing of the screening of some newly diagnosed patients. Some of them just forgot to do screening. They are also not familiar with DASS 21. The solution is to organise a Structured Training and Education session on screening and filling in DASS 21. Education to colorectal surgeons and cancer nurses are given by going through the DASS 21 questionnaire once, observing 2 screening and debriefing (ie answer questions, review documentation procedures, ensure correct scoring and calculation and ensure confidentiality).

Also, we reminded the doctors and colorectal cancer nurses that we have to review the assessment notes of the clinical psychologist and medical social worker to see if any advice is given and whether the patients need any extra support. Also we have reminded them to screen all the cases and not to miss those inpatient cases.

For Patients, the main problem is that patients may not voice out their concern if the caregivers are present. They may forget to make the appointment. They may also default follow up. The solution is to interview the patients alone without the presence of the caregiver so that they will be more willing to disclose their distress. Also we will help the patients to make appointment and phone reminded them to attend the follow up so as to reduce default rate.

PDSA cycle 1 lasted for a month, after that we carried out the PDSA cycle 2 (Oct 2020 to Apr 2021). Interim analysis noted the increase in screening rate from 80% to 100%. Mental distress screening is carried out as our routine now. We hope to ensure the sustainability of the project.

### Data analysis

It was done after the 1st and 2nd cycle. Data on patient's demographics, clinical formation concerning the disease rate and treatment intent, 1st and 2nd DASS 21 score and any referral of screening positive patients to clinical psychologist, medical social worker, chaplain, support group were collected.

A retrospective review of 115 consecutive patients before our project showed no mental stress screening was done and no corresponding referral was done. A total of 115 patients were included. The median age was 67 (38~89). The proportion of male: female is similar (58:57). 53% tumour is located in colon and 47% located in rectum. Majority of them (80.9%) the treatment is of curative intent (Table 2)

**Table 2** Referral Criteria.

Clinical Psychologist (CP)	Severe to extremely severe level on Depression subscale in DASS 21 Severe: 21-27 Extremely severe: 28+
Medical Social Worker (MSW)	Severe to extremely severe level on Stress and Anxiety subscale in DASS 21 Severe: 21-27 Extremely severe: 28+
Cancer Resources Centre (CRC)	Welcome all referral
Hospital Chaplaincy	Welcome all referral if patients agreed

Concerning the source of heightened distress. 21.7% have both emotional and physical distress and 39.1% have other distress related to family and financial aspect.

A total of 23 (20%) patients were screened positive with depression score>20 i.e. extremely severe or severe. 65 (57%) were screened positive with anxiety score>14 i.e. extremely severe or severe. (Supplemental Figure 4) (Table 3).

**Table 3** Patient's Demographics and Disease Status.

No of patient screened before intervention	0/1115
No of patient screened after intervention	115
Demographics	Total:115
Median patient age	67 (38-89)
Gender(M.F)	Male 58
	Female 57
Primary site	Colon 61 (53%)
colon	Rectum 54 (47%)
Rectum	
Intent of treatment	
-curative	Curative 93 (80.9%)
-Palliative	Palliative-22 (19.1%)

Concerning treatment of the heightened distress, 13% were referred to both clinical psychologist and medical social worker. 7% and 43.5% referred to clinical psychologist and medical social worker only respectively. None needs any referral to psychiatrist. 87% screened positive cases were assessed by clinical psychologist with 3 patients defaulted appointment. 100% screened positive patients were assessed by medical social worker. 1 patient requested assessment by chaplain. None of the patients committed suicide or expressed any suicidal thoughts (Table 4).

**Table 4** Source of heightened distress and screened +ve.

Source of heightened distress	Frequency
Emotional	3 (2.6%)
Emotional Physical	25 (21.7%)

Others eg family issue, financial issue	45 (39.1%)
No distress	42 (36.5%)
No of patients DASS 21 screened +ve	No (%)
Extremely severe/severe depressive score(>20)	23 (20%)
Extremely severe/severe Anxiety score(>14)	65 (57%)

After reviewing the clinical psychologist and medical social worker assessment notes, it is noticed that clinical psychologists mainly give counselling and cognitive behavioral therapy to the patients. None of them required referral to psychiatrist for antidepressants. Concerning medical social workers they mainly gave counselling and financial support. Chaplain mainly gave emotional support (Table 5).

**Table 5** Referral of those screened +ve.

Treatment of heightened distress	No (%)
Clin Psy referral	8 (7%)
MSW referral	50 (43.5%)
Clin Psy + MSW referral	15 (13%)
Psychiatrist referral	0
Patients seen by CP	20/23 (87%)
No. of patients defaulted CP FU	3/23 (13%)
Patients seen by MSW	65/65 (100%)
Patient seen by Chaplain	1 (0.9%)
No of cases committed suicide/ suicidal thought	0

To review the change in DASS 21 score, the group screened positive for depression score and referred clinical psychologist, there is a reduction of the mean depression score from 25 to 6. For the group screened positive for anxiety score and referred medical social worker, there is a reduction of the mean anxiety score from 22 to 5. One patient was screened positive and referred clinical psychologist in the follow up DASS 21 done 3 months after the diagnosis (Tables 6 and 7).

**Table 6** Treatment from CP, MSW and Chaplain

Treatment of heightened distress	
Clin Psy treatment	Counselling CBT-cognitive behavioral therapy
MSW	Counselling Financial Support
Chaplain	Emotional Support

**Table 7** DASS 21 result.

Patients referred CP: DASS 21 Depression score	
1st DASS 21	N=16 (Mean)
2nd DASS 21	25
screened +ve Depression score after 2nd DASS 21	6
patients referred MSW: DASS 21 Anxiety score	
1st DASS 21	N=52 (Mean)
2nd DASS 21	22
Supplemental Material Depression Anxiety Stress Scales DASS 21 (Chinese Version)	5

## Discussion

### Implication

Prior to this project, no routine and structured screening was performed on psychosocial distress screening of colorectal cancer patients. Through implementing a simple screening tool for mental distress in colorectal cancer patients, we are able to screen 100% patients and referred 100% screened +ve patients to clinical psychologist and medical social worker for assessment. It resulted in referring 13% patients to both clinical psychologists+medical social worker and 43.5% to medical social worker. There is also reduction in the follow up DASS 21 score in the subsequent follow up.

This is an important project as it took the initiative to address the mental distress of the colorectal cancer patients. It is a structured, evidence based and standardised approach. The project shows encouraging results in the initial stage and we have now incorporated the screening into the routine practice and workflow without extra manpower or time requirement.

### Recommendation for future research or intervention discussed

This is an on-going project and further data on the change in DASS 21 score will be available in longer follow up. Since we detected one patient with high depressive score in the 3rd month DASS 21 follow up, we should pay attention to the patient's psychosocial distress not only in the initial stage of the disease, but also throughout the whole journey (preferably 1 year after the diagnosis). Timely detection and referral for assessment is important for patients.

We also noticed up to 43.5% patients are screened positive for anxiety and thus referred medical social worker. The main cause of anxiety is financial difficulty especially for those patients who are breadwinners. Apart from CSSA or subsidies from the government, other source of financial support from our hospital eg donation or grant can be further explored.

In view of the positive results from this project, the screening service can be extended to other cancer patients in the future. Detailed planning and discussion with respective parties eg medical social

worker and clinical psychologist will be required due to manpower issue.

We also would like to assess the possibility of shortening the screening time and providing more resources by the use of App. Patients and their relatives can get access to the App in which not only the DASS 21 questionnaire, other resources for psychosocial support and information on the colorectal cancer and treatment will also be available. This will provide an easy way for patients to get help.

For doctor's role, we should be more aware of the psychosocial aspect of the patients. Though we are busy with our daily routines and will usually just focus on the treatment of the patients, we should bear in mind that patient centred management is of utmost importance. Patient's management and treatment compliance and effect can be greatly enhanced if they have enough support both physically, psychologically and financially.

### Culture change

One of the main obstacles in the initial stage is the culture change amongst the surgeons since they all along do not have the mind set about the importance of psychosocial distress of cancer patients. The Kotter's 8 Step Change Model is applied.

**Step 1:** Create Urgency

**Step 2:** Form a Powerful Coalition

**Step 3:** Create a Vision for Change

**Step 4:** Communicate the vision

**Step 5:** Remove Obstacles

**Step 6:** Create Short Term Wins

**Step 7:** Build on the Change

**Step 8:** Anchor the Changes in Corporate Culture

In view of 2 colorectal cancer patients committed suicide, it set the urgency and importance of the issue. A quality improvement project is initiated with the formation of a quality improvement team consisting of doctors, nurses, clinical psychologists and social worker. The vision of the change is created with the aim to screen all colorectal cancer patients for psychosocial distress and make referral for those screened positive patients for support and assessment. Communication of the vision was done through frequent meetings and emails with data analysis. Throughout the process, we encountered problems as some surgeons may forget to do screening for the patients and some are not familiar with DASS 21. Thus a structured training and education session was organised to clarify the queries and reinforce the vision and importance of the project. Short term wins can be achieved with increase in screening rate from 80% to 100%. Surgeons find the results encouraging and thus keep on doing the screening. It is now being incorporated as a routine in our workflow.

This effective change can also be characterised as unfreezing old behaviours (ignore the psychosocial aspect of the patients and just focus on the physical aspect), introducing new ones (psychosocial screening) and re-freezing them (routine screening) [13].

Coetsee's seven change response framework is also useful for understanding of how healthcare professionals respond to changes [14].

- Commitment
- Involvement
  - o Engaging in bottom up changes
- Support
  - o Supporting well founded changes
  - o Supporting well communicated changes
- Indifference
  - o Experiencing change apathy
  - o Experiencing physical responses to changes
  - o Experiencing emotional responses to changes
- Passive resistance
  - o Complaining about changes
  - o Reducing work effort in response to changes
  - o Considering quitting the job in response to changes
- Active resistance
  - o Avoiding involvement in changes
- Aggressive resistance

In this project, all the parties have commitment, involvement and support. There is some passive resistance at the initial stage as it takes time to complete the DASS 21 questionnaire in a busy clinic. However, the process and task become easy and smooth later on. There is no active nor aggressive resistance.

A systematic review on the change management practice suggests that a Change Management Process and Practice includes the following stages [15]:

1. Conduct a needs assessment
2. Establish plans
3. Gain leadership and management support and commitment
4. Identify champions
5. Engage partners and stakeholders
6. Develop and articulate a clear simple vision
7. Assign coordinating roles
8. Communicate changes and understanding
9. Ensure adequate resource
10. Gain stakeholder trust, acceptance and buy in
11. Facilitate ownership of service
12. Provide training and education
13. Develop new work processes, protocol and procedures

14. Monitor change and maintain flexibility
15. Evaluate the changes and maintain flexibility

In this project, we also go through the stages of preparing, managing and reinforcing the change as follows:

- Preparing for Change:
  - o Assess the opportunity or problem motivating the change
  - o Select and support a guiding change coalition
  - o Formulate a clear compelling vision
- Managing Change
  - o Communicate the vision
  - o Mobilise energy for change
  - o Empower others to act
  - o Develop and promote change related knowledge and ability
  - o Monitor and strengthen the change process
- Reinforcing Change
  - o Identify short term wins and use as reinforcement of change process
  - o Institutionalise change in organisational culture, practices and management succession

Thus our project has successfully created a culture change in our surgical team.

### Limitation and Conclusion

This project is from a single centre and includes a small sample size of 115 patients within a short period of 9 months only. It lacks the generalisability. Long term follow up will be required to assess whether patients can maintain successful continuation of needed psychological services and to see if patients will have distress in the later part of the disease process. An evaluation on the patients' view concerning the usefulness of the project in the long run should be done.

Also 13% patients defaulted referral which can be further improved. One solution is to match the clinical psychologist/medical social worker appointment with the other follow up so as to limit the travel time as patients and their care givers find it difficult to take Annual Leave.

The project is limited to 1 type of cancer only. Further extension of service to other cancer patients can be considered.

It takes time to do the DASS 21 in a busy clinic though it takes only 5~6 minutes. Also as stated before, some patients may not be willing to disclose their distress and thus lower the detection rate.

In conclusion, mental distress of colorectal cancer patients should be addressed. Use of structured tool and standardised guideline and process is important. This screening should be incorporated to routine workflow. All parties in the multidisciplinary team should be involved in this improvement project.

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### Declaration of conflicting interests

The Authors declare that there is no conflict of interest.

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