

Appendix 1. Summarized information about four online health communities.

OHCs	Ranking (Monthly active member)	Online business services (Specific provided services)				Healthcare Providers
A	Top 1 (11.87 million)	Clinical treatment <i>(Teleconsultation; Personal physicians)</i>	Medical care <i>(Physical examination; Aesthetic medicine)</i>	Health management <i>(Health care education)</i>	Shopping center <i>(Health supplements)</i>	Physicians can work in any hospital, but all pharmacists have to be the official staff of company A.
W	Top 4 (4.30 million)	Clinical treatment <i>(Teleconsultation; Appointment schedule system)</i>	Pharmacy shopping	Insurance services	Health Information Technology	Physicians have to be the official staff working in company W; all specialists work in the First-class 3A Hospitals.
C	Top 3 (5.43 million)					All specialists work in the First-class 3A Hospitals
D	Top 7 (2.20 million)					

Appendix 2. The process of coding self-management needs of diabetic patients based on web crawler data.

Themes	Sub-themes	Web crawler quotes
A. Drugs	A1. effect of drugs	“My mother says her hands and feet are still numb and have no strength. Is it reasonable to ask the doctor about the current medication? Is it possible to modify the current treatment plan?”
	A2. Alternative drugs or treatments such as traditional Chinese medicine	“I heard that electromagnetic therapy can cure diabetes, but I don't dare to try it. What is the principle of electromagnetic therapy and can it cure diabetes?”
	A3. Timing of drug administration, drug selection and combination	“I've been on intensive insulin therapy for six months, and I'm planning to switch to oral medication. What oral medication should I choose for thinner people? How do the medications go together?”
	A4. Change of drugs	“I am currently taking Acarbose tablets and have been experiencing some stomach discomfort and farting a lot, not smelly. Should I switch to a different medicine?”
	A5. Discontinuation of drugs	“I have diabetes at the age of 35. Can I stop taking the medication now that my blood sugar is almost under control?”
	A6. Drug side effects	“I have type 2 diabetes and have been taking Metformin, but I changed to Liglipitin tablets because of diarrhea. What organs are they harmful to?”
	A7. Poor blood sugar control after taking drugs	“I'm taking Metformin and Acarbose regularly every day, but my fasting blood sugar of 7.8 won't come down (female, 54 years old).”
	A8. Complications despite drugs	“I have had type 2 diabetes for over 10 years with a long list of complications, neuropathy, vasculopathy, and recently my eyes have been blurring badly, why? My blood sugar is controlled in the normal range.”
	A9. Drugs for diabetic complications and comorbidities	“An elderly man in my family has coronary heart disease, had stent surgery,

and also has high blood pressure and diabetes, how can he take medication for this condition?"

B. Conflict between disease and daily life

- B1. Conflicts with diet, exercise "Diabetics drink alcohol once a year is okay, really want to drink too much. Although I know this is very disrespectful to my body, but I still want to ask if it is okay to drink once a year?"
- B2. Associating physical discomfort with diabetes "I have diabetes, are the blisters on my feet toxic?"
- B3. Impact on life and work "How to treat impotence and premature ejaculation caused by diabetes? Intercourse is a man's responsibility and I am sad."
- B4. The need for the ability to cope with negative emotions "The diabetic always speaks in a very negative, sighing kind of tone, saying every day that he is stressed out."

C. Diets

- C1. Type and amount of diet "My blood sugar is now between 7.5 and 10 2 hours after meal, with a low sugar fruit in the morning and a glass of low-fat plain milk in the afternoon and evening! Do I need to reduce the amount of staple food now? How many grams of meat per meal should I control? Is there no limit for green vegetables?"
- C2. Frequency and timing of diet "What time is it good to drink milk at night for diabetes (female, 53 years old)?"

D. Knowledges

- D1. Diagnosis of diabetes "The results of my two tests are different, what are the chances of misdiagnosis? I just need to go to the test on an empty stomach, right? Staying up late does not affect the test results, right?"
- D2. Causes of diabetes "I don't usually smoke or drink, so how could I get diabetes?"
- D3. Knowledge about diabetes genetics and fertility "I am genetically diabetic, if I want to have children, will I pass it on to my children?"
- D4. Cost of treatment "How much does intensive diabetes

		treatment usually cost?"
	D5.Hospitalization and department selection	"When should I be hospitalized? I feel that hospitalization is just to control blood sugar, is it necessary to go to hospital?"
	D6. Surgical treatment of diabetes	"I heard that gastric diversion surgery for diabetes can restore normalcy, is it possible?"
E.Glucose monitoring		
	E1.Frequency and timing of Glucose Monitoring	"How many times a day should I test my blood glucose at home? At what time of day is it appropriate to take blood glucose?"
	E2. Judgment of glucose monitoring results	"What is the normal blood glucose value for diabetes treatment?"
F. Physical exercise		
	F1. Types of exercise	"I am currently exercising in terms of going swimming regularly, can I?"
	F2. Amount of exercise	"Is there anything I should pay attention to in terms of exercise and how long is appropriate for a diabetic who is drowsy and has heart disease and fatty liver?"
