

# **Current status of cardiac rehabilitation and secondary prevention for coronary heart disease patients in mainland China: results from a mixed-methods study**

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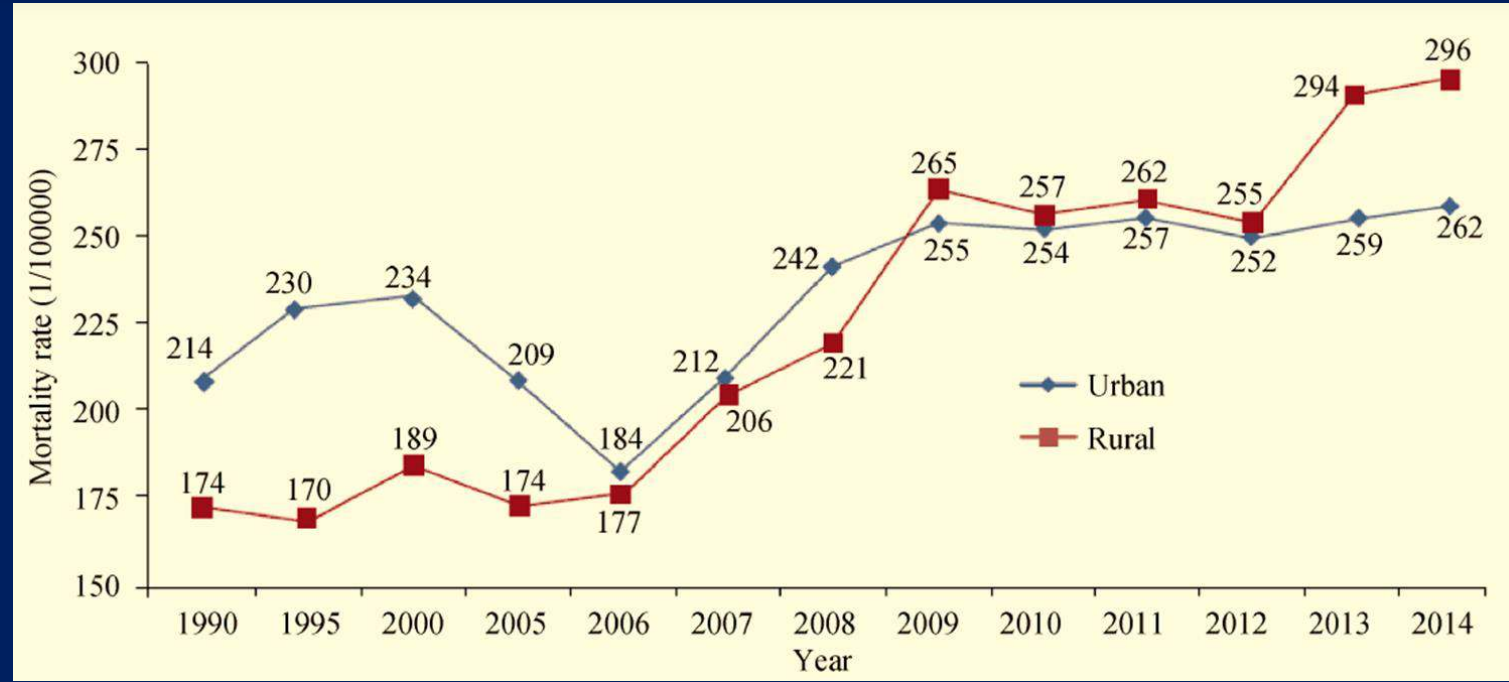
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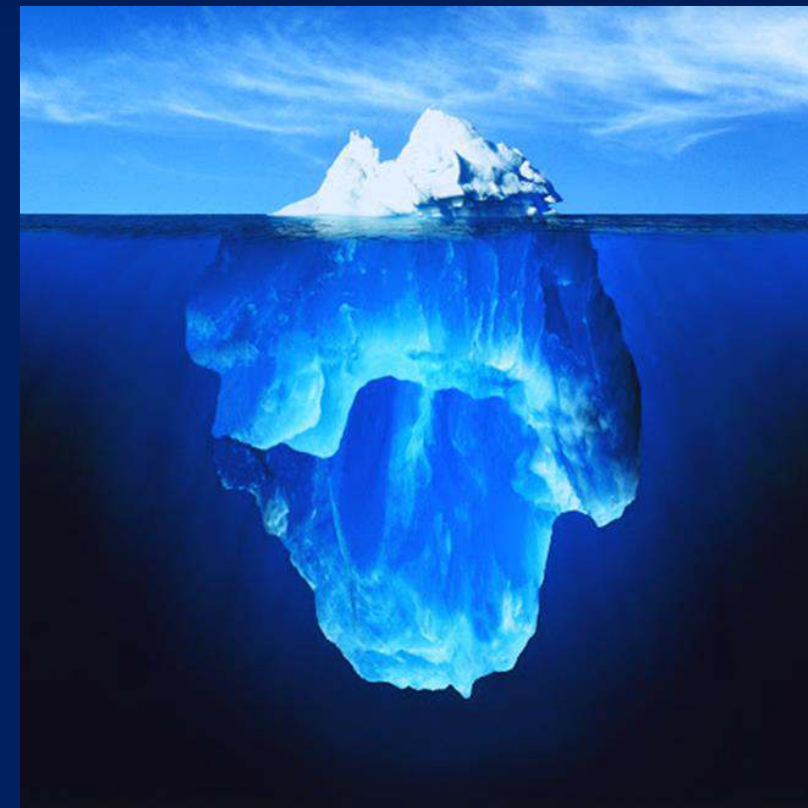
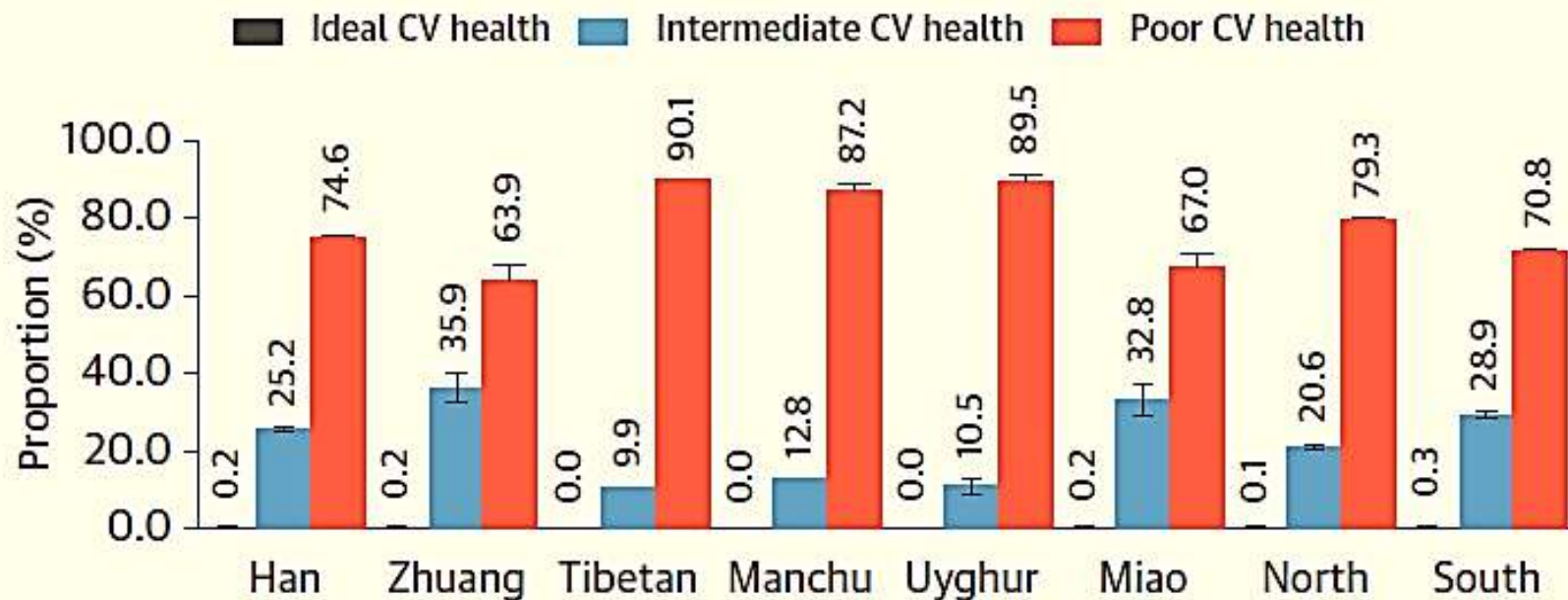
# Current CVD status in China



- ❖ Economy growth rates averaging 10% over 30 years
- ❖ Industrialization, urbanization and adverse lifestyle changes
- ❖ Rapid increase of cardiovascular disease (CVD)

# Current CVD status in China

- ❖ 20 million coronary heart disease
- ❖ 270 million hypertension
- ❖ Total CVD population > 300 million



# Study design

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## A mixed-methods study



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graph TD; A[A mixed-methods study] --> B[Face-to-face patient interview (n=200)  
Confirmed coronary heart disease, received percutaneous intervention therapy (PCI) at least six months prior to current admission]; A --> C[Medical staff survey (n=105)  
Cardiologists, nurses and other clinical staff]; B --> D[Focus group discussion (6-8 pts * 7 groups)  
Barriers and facilitators for CR/SP services  
Acceptability to smartphone-based CR/SP];
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### Face-to-face patient interview (n=200)

Confirmed coronary heart disease, received percutaneous intervention therapy (PCI) at least six months prior to current admission

### Medical staff survey (n=105)

Cardiologists, nurses and other clinical staff

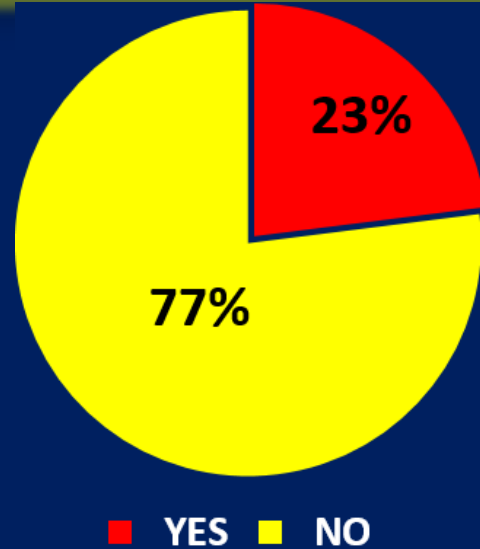
### Focus group discussion (6-8 pts \* 7 groups)

Barriers and facilitators for CR/SP services  
Acceptability to smartphone-based CR/SP

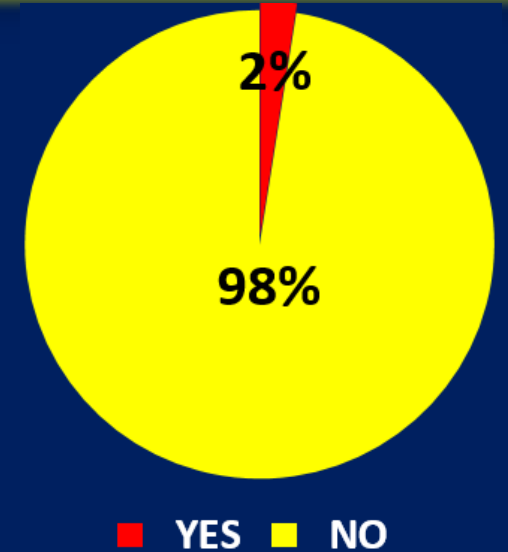
# Results and findings (patients)

## Perceptions of CR/SP

Have you heard of CR ?



Have you attended CR ?

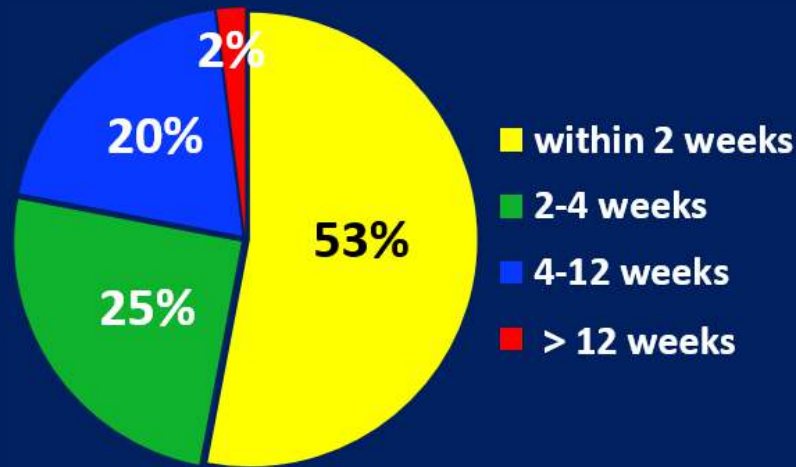


- ❖ “My cardiologist never mentioned CR to me, he just told me to do regular follow-up, taking all the medication. Even if he told me, there is no such service in the hospital.” - Pt. 5
- ❖ “My son puts me in a rehabilitation program at a private hospital, we had to pay from our own pocket, and he spent a lot money for the service.” - Pt. 7

# Results and findings (patients)

## Physical activity

Time you resumed physical activity?



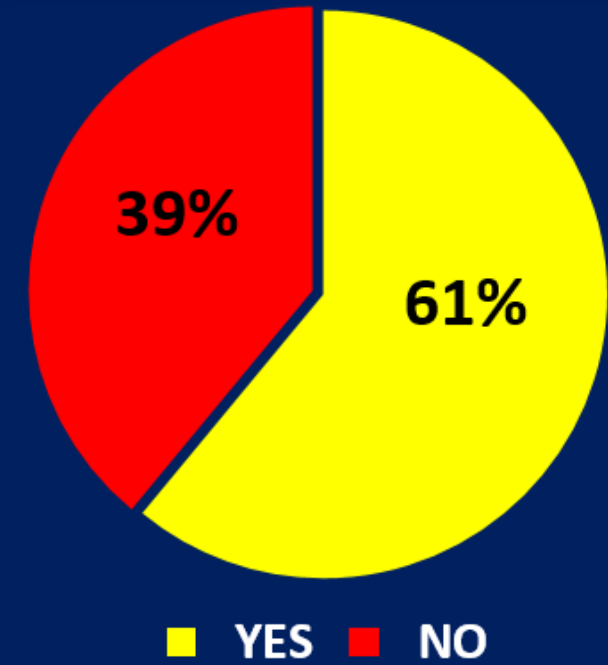
- ❖ “We heard people saying that after PCI, you need avoid vigorous exercise for at least three months, otherwise the newly implanted stent may dislocate and cause problems.” - FGD 2
- ❖ “I am too scared to walk or run, my heart is already very weak, I need to rest as much as possible to let my heart recovery.” - Pt. 15
- ❖ “Nobody told me when and how to do exercise, so I just walk as much as I can every day. I think it will be beneficial to my health.” - Pt. 18

# Results and findings (patients)

## Healthy eating

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Have you received dietary advice during hospital stay ?



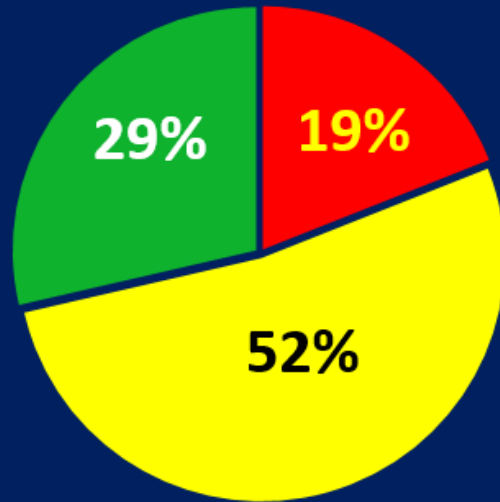
- ❖ “All I was told by doctor and nurse was to eat light, avoid fat meat and eat more vegetables, but no detailed information was given.” - Pt. 25
- ❖ “I stopped eating eggs after my heart attack, nowadays, I am very careful with my food, I grow my own vegetable and eat only imported beef from the U.S.” - Pt. 27



# Results and findings (patients)

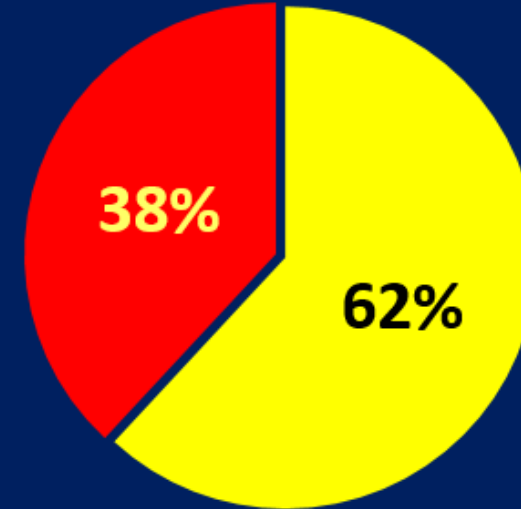
## Smoking cessation

Your Current smoking status ?



■ Current Smoker ■ Ex-smoker ■ Non-smoker

Have you received tobacco cessation advice ?



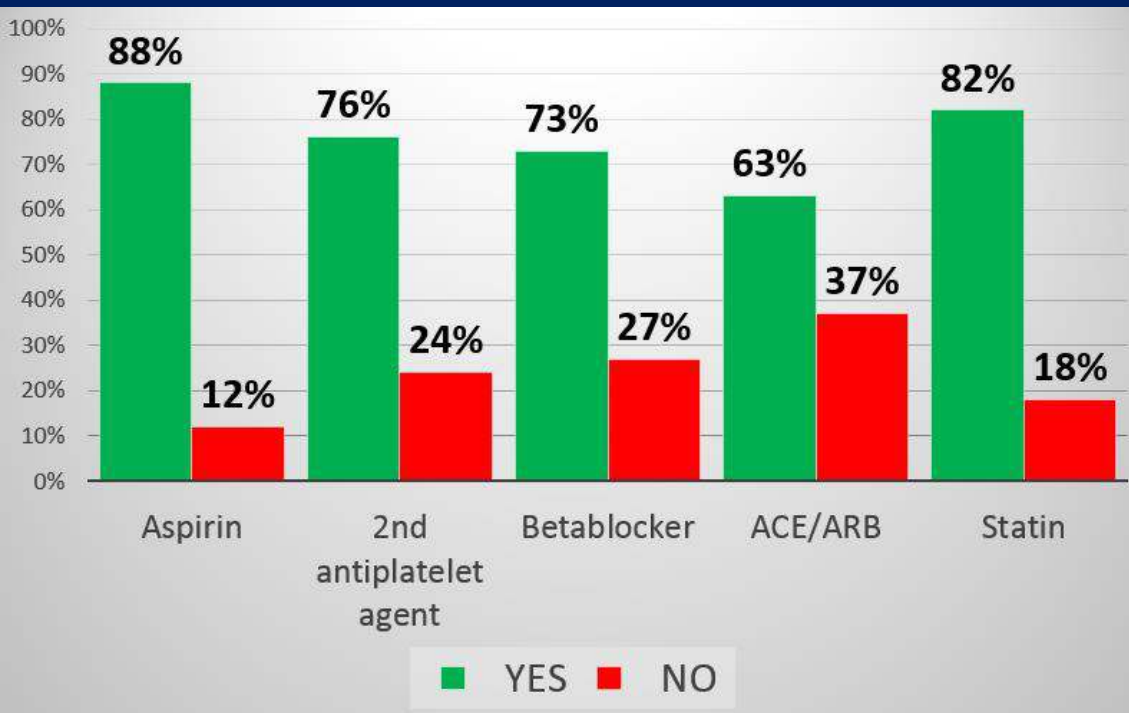
■ YES ■ NO

- ❖ I still can't believe that smoking caused my heart problem, Chairman Mao smoked throughout his life without suffering from coronary heart disease. - Pt. 18
- ❖ I know smoking is bad for health, but no doctor taught me how to quit, all they say is you need to be tough to yourself and determined. Anyway, I have tried very hard in last six months, but its not that easy. - Pt. 22



# Results and findings (patients)

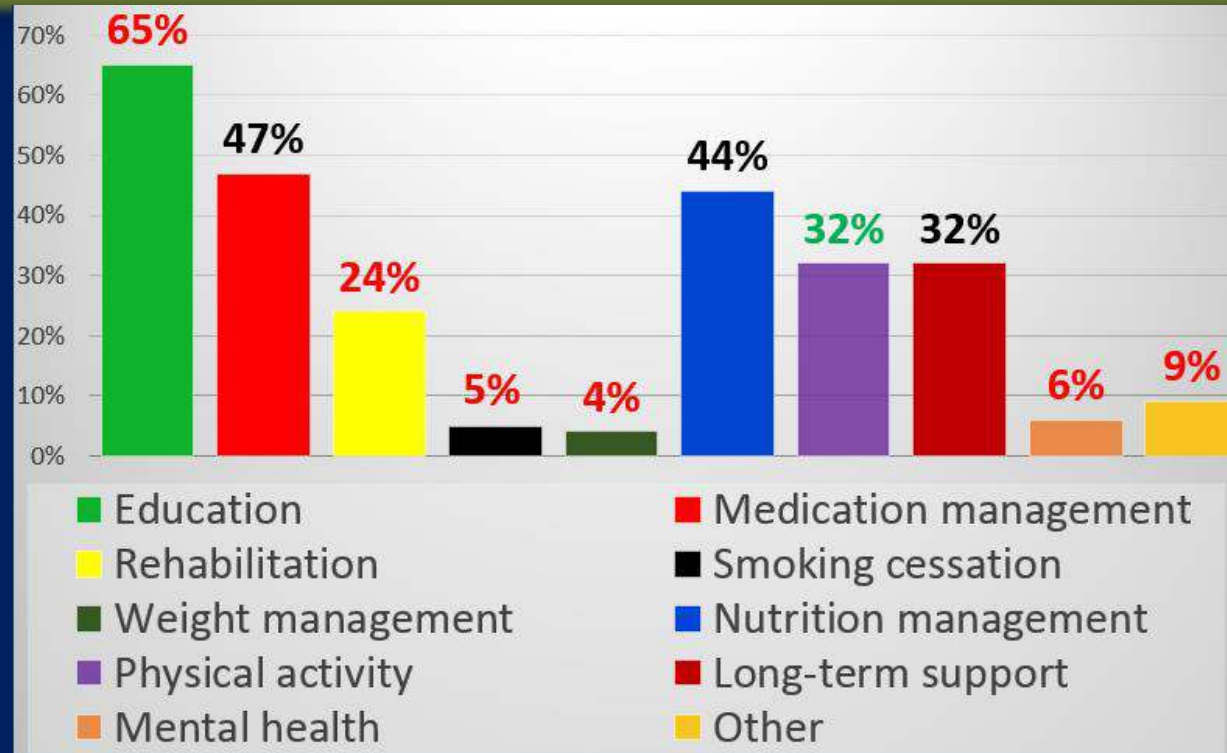
## Medication adherence



- ❖ “I stopped taking medication three month after the operation, because I felt good and never experience any chest pain after the stent was implanted. I strongly believe that PCI therapy has cured my heart disease.” - Pt. 31
- ❖ “Statin are very bad to liver, so I am scared to take it. Now I am taking traditional medicine instead. I think its working very well!” - Pt. 16
- ❖ “Every two week I need travel three hours to this hospital to get the five medications, it’s inconvenient. But I have no other options, so I will keep coming.” - Pt. 4

# Results and findings (patients)

CR/SP needs at least 6 months post PCI

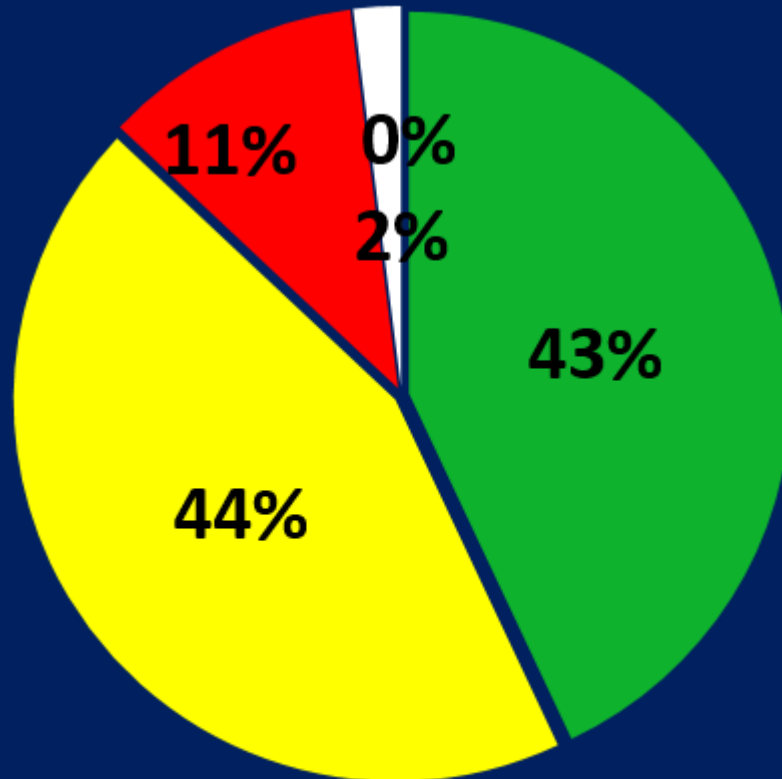


- ❖ “I am totally lost after PCI. How long should I take these medications? Can I run as usual? Can I travel by airplane? To be honest with you, I don’t know.” - Pt. 42
- ❖ Its very hard to get advice from highly qualified doctors, to come here, every time I have to queue for at least three hours for the 5 to 10 minutes consultation with a cardiology, and most time they don’t have time to answer my questions.” - Pt. 39

# Results and findings (Medical staff)

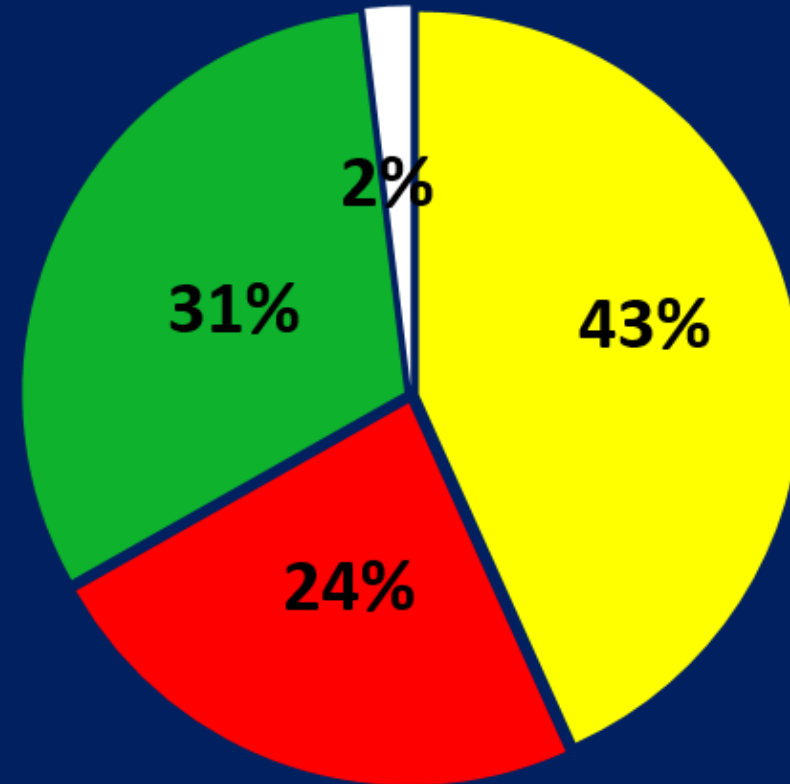
## Perceptions of CR/SP

CR/SP is underdeveloped in China



- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Obstacles for developing CR/SP

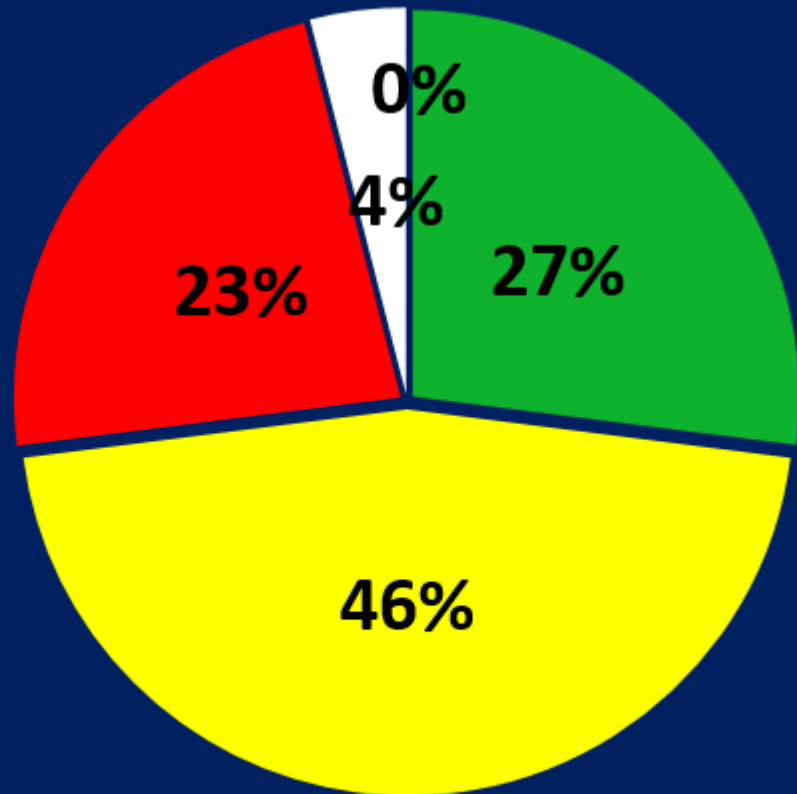


- Health system factors
- Care giver factors
- Patient factors

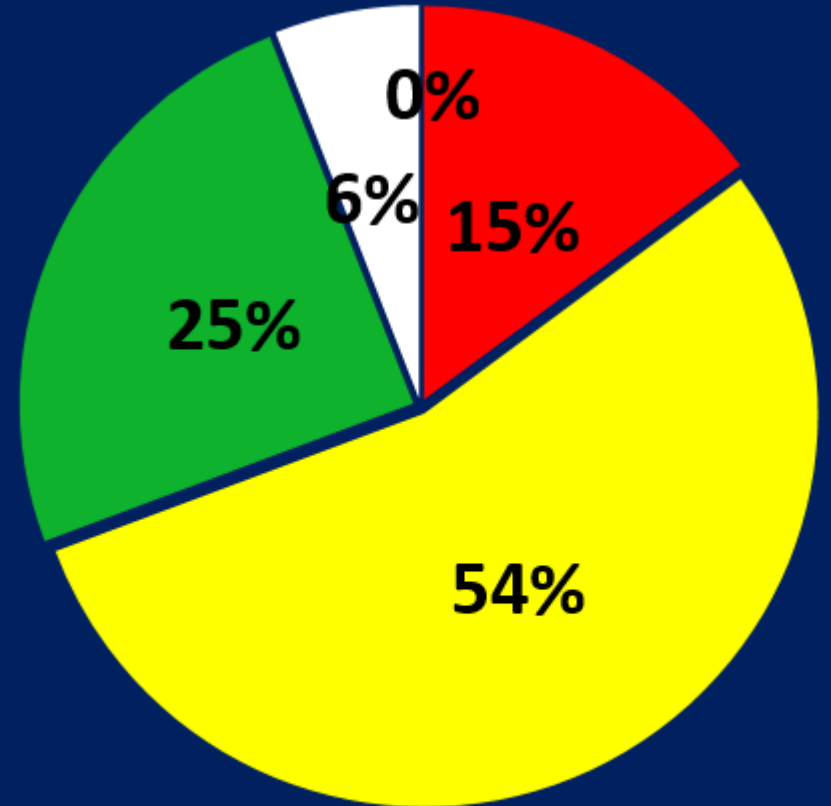
# Results and findings (Medical staff)

## Post PCI care and patient self management

Uncontrolled risk factors were common in patients    Medication adherence is poor in patients



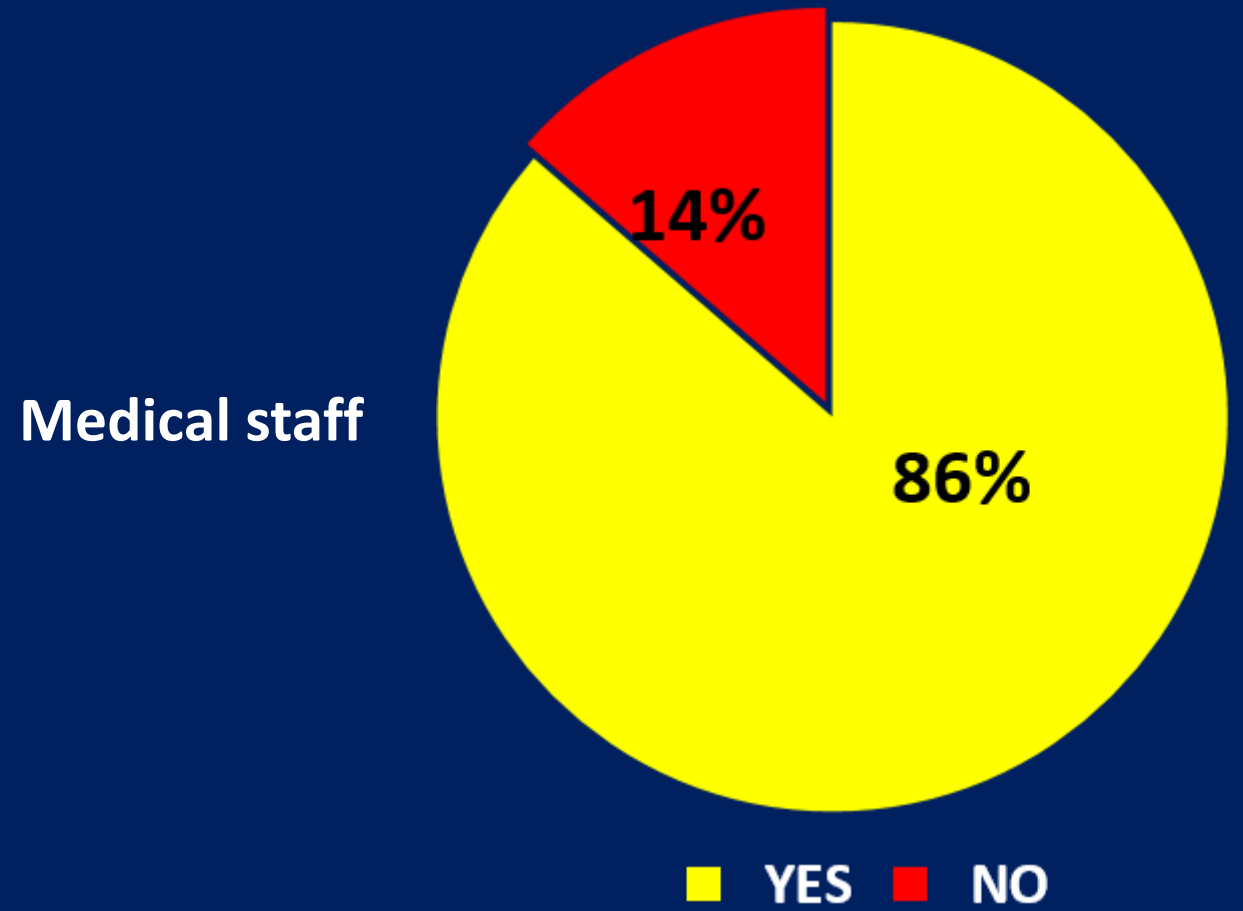
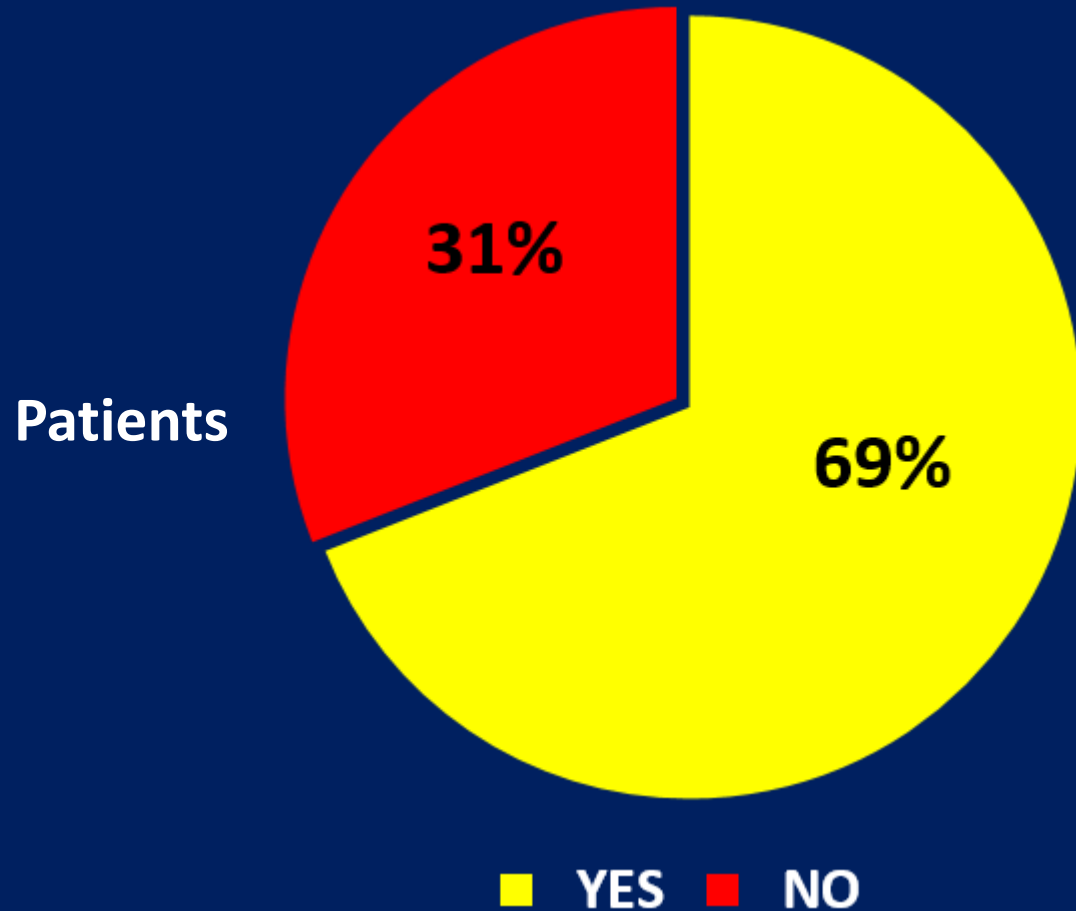
Strongly agree    Agree  
Neutral    Disagree  
Strongly disagree



Strongly agree    Agree  
Neutral    Disagree  
Strongly disagree

# Results and findings

## Feasibility of smartphone and social media-based CR/SP



# Next step

## Smartphone and social media-based cardiac rehabilitation and secondary prevention program: The SMART-CR/SP Study



心脉检测报告

心舒功能 亚健康	心缩功能 很健康	心泵功能 很健康
心肌功能 很健康	动脉血压 很健康	动脉弹性 很健康
测量详情		
心脉指数	85	>60
收缩压 (mmHg)	114	90-140
舒张压 (mmHg)	72	60-90
脉率 (bpm)	59	60-100
压力指数	33	≤30
疲劳指数	23	≤30
焦虑指数	48	≤30

排行榜

小康医生 第141名	1943	4
S123456789 第3名	14723	5
S123456789 第4名	12571	4
S021345678 第5名	12086	0
S031234567 第6名	10980	8
S123456789 第8名	10122	3
U123456789 第9名	9625	0
U123456789 第10名	9382	0
S030456789 第11名	8846	1



# Next step

## Smartphone and social media-based cardiac rehabilitation and secondary prevention program: The SMART-CR/SP Study

### 3. ACEI/ARB类降压药

除了**降低血压**，ACEI/ARB类药物可减少心脏负荷，同时改善远期预后，一般建议患者终身服用。

尤其是对合并有糖尿病的患者，这类药物获益更多。



心绞痛发作时，不同的患者可有不同的疼痛感受。常见的有：压迫感、紧绷感、闷痛感等



推荐五 少盐少油，控糖限酒



小康建议冠心病支架术后患者  
每天食盐不超过**4克**





**Thank you !**