Primary Health Care Research and Development 2001; **2**: 249–260

Illness behaviour in acute myocardial infarction

Jan Keenan School of Health Care, Oxford Brookes University and Department of Cardiac Medicine, Oxford Radcliffe Hospitals NHS Trust, Oxford, UK

Coronary heart disease is one of the biggest killers in the UK (Department of Health, 2000), with myocardial infarction accounting for the largest proportion of admissions to acute hospitals. In an era in which the speed of initiation of treatment is paramount in terms of achieving maximum potential benefit, the reasons for delay in seeking medical assistance remain poorly understood. Utilizing an interpretive approach informed by phenomenology, this exploratory study describes and analyses the process of help seeking in terms of the experience of patients from the onset of symptoms to seeking medical assistance. A total of 10 patients with confirmed myocardial infarction were interviewed within 6 days of hospital admission. From the data, it was possible to identify four headings under which to categorize factors which might influence delay in help seeking, namely symptoms, cognitive evaluation of symptoms, behavioural response to symptoms, and the influence of others present during the experience. A model of help seeking is proposed which explains the interrelationship between the categories, describes the patient experience, and suggests the process by which individuals may come to seek medical assistance. It is recommended that interventions that will influence cognitive evaluation of symptoms, and the behavioural response to symptoms, should be further explored in order to expedite the process of help seeking in acute myocardial infarction.

Key words: help seeking; illness behaviour; myocardial infarction; pain to needle time

Introduction

Two large international trials (GISSI, 1986; ISIS 2 Collaborative Group 1988) have emphasized the need for speed of initiation of thrombolytic therapy in acute myocardial infarction (MI) as an important factor in patient survival (West, 1997). Early treatment leads to the preservation of ischaemic myocardium, reduction of infarct size and maintenance of cardiac function. For example, Ghiorghiade *et al*. (1996) studied in-hospital mortality rates for MI patients in the period 1981–84, concluding that a fall in mortality from 14.7 to 7.4% was largely due to the 'expanded use of effective therapies', notably those which should be used in the early symptomatic period.

Consequently, the National Service Framework for Coronary Heart Disease (Department of Health, 2000) in the UK has defined a minimum standard for 'call to needle' time of under 60 minutes.

However, although extensive resources and energy have been invested in reducing call to needle time, that proportion of delay to treatment of MI which occurs before an initial call for help is received from the patient remains poorly understood. There is a tendency among acute-sector health professionals to 'label' lengthy delay in help seeking as deviant behaviour. However, social scientists argue that it is in fact normal behaviour to utilize coping strategies rather than immediately seek medical help, even in the event of symptoms being appraised as serious (e.g., Zola, 1973; Field and Taylor, 1993). Researchers variously report

---

Address for correspondence: Jan Keenan, School of Health Care, Oxford Brookes University, Wingfield House, Nuffield Orthopaedic Centre NHS Trust, Headington, Oxford OX3 7LD, UK. Email: jckeenan@brookes.ac.uk

1463-4236(2001)PC082OA

delay times to seeking medical assistance in acute MI to be in excess of 36 hours, after which time any opportunity for early, potentially lifesaving treatment to be administered has passed.

There is therefore a clear need to examine illness behaviour in acute MI, in order that potential solutions to the problematic phenomenon of delay in help seeking may be identified.

Background

Clinical and sociodemographic predictors of avoidable delay

A number of extensive empirical studies have been undertaken in recent years which set out to determine the clinical and sociodemographic predictors of delay in help seeking in acute MI. For example, the GISSI Avoidable Delay Study Group (1995) identified from a sample of 5301 patients that increased age and a history of diabetes mellitus are predictors of long delay in help seeking. In a study of 6676 patients, Ottesen *et al*. (1996) concluded that female gender, age over 65 years and a history of diabetes mellitus, angina or congestive heart failure were likely predictors of longer delay in seeking help. Adding further support to these findings are those reported by Leizorowicz *et al*. (1997), who concluded from a study of 5469 patients that women, those over the age of 65 years, and those who reported symptoms such as angina or chest pains in the 24 hours preceding the acute event were more likely to show long delays in help seeking.

Other researchers have adopted a descriptive survey design, interviewing patients in order to determine predictors of delay. Reilly *et al*. (1994) interviewed 77 patients, concluding that older age and the presence of a family member tended to predict longer delay, as did the appraisal of symptoms as less serious. Utilizing a 'response to symptoms' questionnaire in 277 patients, Dracup and Moser (1997) found that age over 60 years and a history of diabetes mellitus were independent predictors of delay, and that a history of angina or knowledge of the symptoms of MI did not reduce the delay.

Psychological predictors of avoidable delay

Burnett *et al*. (1995), in a study of 501 patients, found that sociodemographic variables did not impact significantly on delay times, but that cognitive and affective responses to symptoms determined delay. Where there was early 'loss of control' over symptoms, a response occurred earlier. Hartford *et al*. (1993) surveyed 226 patients, of whom 63% attempted some form of self-treatment, and 78% sought advice from others before seeking medical help. In addition, they concluded that the recognition of symptoms as cardiac in origin did not necessarily mean that immediate help was sought. Dempsey *et al*. (1995) undertook a grounded theory study of 16 women in an attempt to define the process of help seeking, developing a model based on control theory, in which coping mechanisms are used to maintain psychological control of symptoms. Control is only relinquished when the symptoms are no longer manageable. The implication appears to be that some process of symptom evaluation affects delay. Given that studies indicate 'loss of control' acts as a trigger to help seeking, it appears that there are strong behavioural and cognitive influences on the illness behaviour of MI patients.

Contextual predictors of avoidable delay

Ottesen *et al*. (1996), in addition to their primary research findings, identified the fact that delay is influenced by context, with longer delays predicted in those with onset of symptoms at night. The GISSI Avoidable Delay Study Group (1995) identified that individuals living alone delayed longer, but they did not explore this finding further. In addition, those who described their pain as moderate delayed longer than those who described their pain as severe.

The approach taken to the study of the phenomenon of delay in seeking medical help in MI is largely of a quantitative nature, adopting a survey design. Demographic factors that clearly predict longer delay are advancing age, female gender and a medical history of angina or diabetes mellitus. Other studies have identified a role played by others in influencing delay, and contextual influences such as time of day or whether the patient was at home or at work. Psychological processes which influence delay, such as cognitive and affective responses to symptoms, have also been studied, and have been found to have some influence on the process (Dempsey *et al*., 1995).

Focusing entirely on the clinical characteristics or sociodemographic predictors of delay is problematic in that it carries with it the assumption that delay in help seeking is patient centred and therefore inevitable. However, while there are some common findings, differing methodological approaches employed by the researchers, differing definitions of delay, and differing inclusion criteria for studies demonstrate that the phenomenon of delay remains poorly understood (see Table 1). In addition, given the differences in culture and health care delivery systems worldwide, the transferability of findings of some studies is a complex issue.

In order that strategies can be identified which will expedite the help-seeking process, a true understanding of the experience of patients who are suffering MI is required.

The research question was formulated as follows. What are the processes by which people seek help and, ultimately, medical advice?

Methodology

This paper provides a summary of an exploratory, interpretive study informed by the phenomenological research tradition. The interpretive paradigm is concerned with the social world, in which reality is not fixed but varies with context and is influenced by (among other things) culture, gender and politics. Interpretive research is inductively derived. The phenomenological tradition seeks to understand the lived experience of individuals and their intention in their 'life world' (Morse and Field, 1996). Rose *et al*. (1995) state that 'the purpose of phenomenological inquiry is to explicate the structure or essence of the lived experience of a phenomenon, and its accurate description'. Thus the findings of phenomenological research are descriptive rather than predictive or explanatory.

Ethical issues

Ethical approval for the study was sought through a Local Authority Research Ethics Committee. Patients were not invited to participate in the study if their clinical condition was considered to be unstable. All interviews were conducted in counselling rooms and away from any potential interruption. Given that participants had recently suffered MI, the clinical background of the researcher provided for patient support and the opportunity for patient information as questions arose throughout the interview.

Sampling

A purposive sample of 10 patients was selected so that patients with varying delay times could be included. Given the intended approach was that of an interpretive study with a relatively small sample, the decision was made to include both men and women in the study. Purposive sampling provided variation in the target population, which is useful in instances where a decision is made a priori to have coverage of variables that are likely to be important in understanding how diverse factors configure a whole. In this case, the diverse factor that was identified was length of delay in seeking medical assistance. For the purposes of this study, 'delay' is defined as the time from onset of symptoms to the first call for medical assistance. All participants had a confirmed diagnosis of MI, accepted according to the criteria of serial electrocardiograph (ECG) recordings and cardiac enzyme levels indicative of MI.

Procedure

Patients were approached and asked to participate in the study within 48 hours of admission to a coronary care unit. All interviews were conducted before patients were discharged from hospital, and all within 6 days of admission. Details of the participants are shown in Table 2.

Rather than utilizing any formal structure for interviews, patients were asked a brief introductory question, 'Can you tell me what happened to you when you became unwell, before you came to hospital?', from which it was possible to allow them to respond, with encouragement, by telling their story in their own words. All interviews were tape-recorded.

Data analysis

Interview transcripts were repeatedly read in order to familiarize the researcher with the content. At each reading, notes were made and transcripts annotated. Statements were selected from each of the transcripts in order to identify areas of the patients' descriptions that were of importance to the individuals recounting their experiences. A set of codes was used to identify emerging areas of significance. From the codes it was possible to identify four related clusters, or themes, as follows:

Table 1 Major studies showing method, sample size and findings

Researchers	Design and method	Sample size (country)	Mean/median delay	Findings
Ottesen *et al.* (1996)	Quantitative; empirical comparative survey	6676 (Denmark)	Mean 9.1 hours Median 3.25 hours	Women, those over age 65 years, and those with a history of diabetes mellitus or angina or congestive heart failure are likely to delay longer. Delay is influenced by context; time of onset of symptoms, longer delay if symptoms occur at night or on a weekday. Severity of symptoms influences delay time
GISSI Avoidable Delay Study Group (1995)	Quantitative; empirical epidemiological study	5301 (Italy)	Mean 8.25 hours Median 3.7 hours	Increased age, history of diabetes mellitus and those living alone independently predict longer delay times. People describing their pain as moderate to severe delay significantly longer than those describing their pain as severe
Leizorowicz *et al.* (1997)	Quantitative; empirical; *post-hoc* analysis of data generated for pharmaceutical trial	5469 (15 European countries and Canada)	Not stated	Women, those over age 65 years, and those who reported pain or symptoms in the 24-hour period preceding the acute episode delayed longer. Those with pulmonary oedema were more likely to present earlier
Reilly *et al.* (1994)	Quantitative descriptive survey	77 (USA)	Mean 25.4 hours Median 5 hours	Older age and presence of a family member at the onset of symptoms predicted a longer delay. Patients describing their symptoms as less serious delayed longer
Johnson and King (1995)	Descriptive survey; symptom response questionnaire as interview guide	59 (USA)	Not stated	Patients who had expectations of symptoms of MI did not necessarily experience those symptoms. The mismatch between experience and expectations contributed to longer delay times
Trent *et al.* (1995)	Quantitative; empirical; survey; clinical measurement	93 (UK)	Median 30 minutes	Positive correlation between early presentation and deteriorating left ventricular function
Dracup and Moser (1997)	Descriptive survey	277 (USA)	Mean 110 minutes Median 90 minutes	Age over 60 years or a history of diabetes are independent predictors of longer delay. A history of angina or knowledge of the symptoms of MI did not lessen delay. Context in which symptoms occurred was found to affect delay
Burnett *et al.* (1995)	Descriptive survey	501 (USA)	Not stated	Demographic variables were not significant. Cognitive and affective response to symptoms determined delay times. Where there was early 'loss of control' of symptoms, response was earlier

Table 1 Continued

Researchers	Design and method	Sample size (country)	Mean/median delay	Findings
Hartford *et al.* (1993)	Descriptive survey	226 (Sweden)	Not stated	63% of patients attempted self-treatment; 78% sought advice from others – spouse or children – before seeking medical help. Recognition of symptoms as cardiac does not necessarily mean immediate help is sought
Dempsey *et al.* (1995)	Grounded theory	16 women (USA)	Not analysed	Describe model based on control theory in which coping mechanisms are used to maintain psychological control. Control is only relinquished when symptoms are no longer manageable

Table 2 Details of the study participants by sex, age and delay time

Patient	Sex	Age (years)	Symptom onset	Call for help	Delay time
1	Male	52	15.30 hrs	15.55 hrs	25 min
2	Male	32	17.00 hrs	21.50 hrs	4 hrs 50 min
3	Male	50	07.20 hrs	08.40 hrs	1 hr 20 min
4	Male	71	00.00 hrs	07.00 hrs	7 hrs
5	Female	72	10.45 hrs	09.00 hrs	22 hrs 15 min
6	Male	64	04.00 hrs	06.00 hrs	2 hrs
7	Male	63	12.00 hrs	13.10 hrs	1 hr 10 min
8	Female	63	15.00 hrs	17.50 hrs	2 hrs 50 min
9	Male	59	04.00 hrs	19.30 hrs	15 hrs 30 min
10	Male	68	22.00 hrs	08.00 hrs	10 hrs

- symptoms experienced;
- cognitive response to symptoms;
- behavioural response to symptoms;
- influence of others who were present at the time.

Study findings and discussion

Symptoms

Various symptoms were experienced, although patients had a tendency to describe their symptoms not as 'pain', but as sensations of 'gripping', 'suffocating', 'tightness', 'heaviness' and 'tingling', or an 'ache'.

Cognitive evaluation of symptoms

For all participants, a strong emphasis was placed both on the experience of symptoms in the period preceding the acute event, and on the antecedents to the symptoms. When patients were asked the introductory question, the initial response was overwhelmingly to offer the researcher some background to their experience. For example:

> First of all I was at work doing my normal 12 or 11 hours. . . . I'm a labourer on a building site. It can be quite physical sometimes, sometimes not, sometimes more than others. I'd been in a lot of dust, really black dust up in the roof space, there was this great joist up there . . . I had to knock it down and clear it away. I was all right when I was . . . knocking it down wasn't the problem I got. When it comes to clearing it away.
>
> 1(5)

> I was at the gym. I had been working out and I was in the shower when I felt ill . . . I hadn't even done that much, it wasn't a really heavy session. I didn't even ache anywhere after.
>
> 2(4)

It was important to the patients to describe their experience in terms of the context in which it unfolded, as the data extracts illustrate. This supports the indication within earlier research that context plays an important role in the cognitive evaluation of symptoms. Several studies have highlighted the importance of context in terms of its influence on delay time. For example, Ottesen *et al*. (1996) concluded that there was more likely to be a delay in presentation if symptoms occurred during the night or on a weekday. This is illustrated exceptionally well by the action of one participant in the study, whose symptoms started at night:

> Erm, when I got home I just went to bed. I did use it (the nitrate spray) about five or six times, but it didn't seem to have any effect. And this is when I started reading the book (about heart disease) and I came to the conclusion that, er, angina, basically, if you, if it was like that, and you stop, the pain normally goes away. I think I even contemplated ringing the doctor in the middle of the night, but tried to get away without doing that.
> 10(368)

What is interesting about the above illustration is the patient's reticence about contacting his general practitioner at night, despite the fact that he had clearly recognized that he was having a heart attack. He was asked about this:

> Why do you think you hesitated about that?
> 1(382)
>
> Well, I suppose some of it would have been fear, what's going to happen, because once you've got into that chain it would be into the hospital, which it has been. So you put that off as long as possible. At least I would.
> 10 (385)

'Putting off' seeking medical assistance is described succinctly in this instance, and although this response was not common, it is to some extent supported by the findings of Hartford *et al*. (1993), who observed that recognition of symptoms as cardiac in origin did not necessarily mean that people immediately sought medical help. This tendency to 'put off' seeking medical help was also apparent in discussion with another participant:

> If just one thing I did, Mars Bars, breathing in the bag, moving around. If anything I had done had made it better I wouldn't have got the doctor out.
> 2(62)
>
> If absolutely anything I did had made it feel better I wouldn't have got the doctor out. You see all these things about time wasters and wasting ambulances' and doctors' time.
> 2(145)
>
> Where do you see them?
> I(151)
>
> In the paper I suppose. On telly. I suppose it's ingrained that you don't want to waste someone's time. I wouldn't have called the doctor if I'd felt even a bit better for moving. I'd've sat in the bath all night.
> 2(153)

This process was also identified by Dracup and Moser (1991), who found that patients were more likely to delay seeking medical help if they had a tendency to worry about troubling others, or if they feared the consequences of seeking medical help.

Several of the study participants talked about their beliefs or assumptions about MI or their preexisting ideas about what a heart attack is and the experience of it. In addition, several participants offered some ideas about how their beliefs might have been generated;

> [the numbness] went down the back of my arms, but both arms, not one. Well, you tend to get this impression from other people it's sort of – they tell you it's always down the left.
> 10(198)
>
> I thought a heart attack was something where you grab hold of your chest, crease up, and everybody goes rushing about saying, 'he's having a heart attack, what can we do?'.. . . I've known a couple of people to have heart attacks and they've been flat out on the floor. The other times I've known about heart attacks is when they end up in casualty or something with electrodes on them (laughing).
> 3(201)
>
> But I never expected it to be so gentle and mild.
> 3(222)

In these illustrations it is clear that assumptions held about the symptoms or experience of MI influenced the cognitive response of patients to their symptoms. Participants were matching the symptoms they individually experienced with their image of what a heart attack was.

Previous symptoms, either of MI or of other illnesses, gave patients some experience with which to compare their event. In some cases, patients reported pre-existing conditions to which symptoms were attributed, for example:

> I took no notice of it, see. I suffered a lot from rheumatism, especially in the arm (points to left arm). I have a job to lift me arm up sometimes.
>
> 4(71)

> over the year, I've had odd aches and pains – as you get older you expect them, you're bound to get odd pains. You don't take any notice of all of them.
>
> 8(32)

Previous experience of symptoms of any nature affords the individual an opportunity to evaluate their current symptoms. For this reason, however, it is questionable whether a person who has not actually experienced MI is likely to match their current symptoms to those expectations. One participant in the study who had previously suffered MI did not match the symptoms to those suffered earlier until the exact pattern of symptoms re-emerged, as illustrated by the following comment:

> I wasn't sure 'cause in my mind I've sort of had that pain before and you know if it's – you know, you don't forget it. Then of course I had the tingling in my arms. That started. Then I knew.
>
> 6(20)

Behavioural response to symptoms

The behavioural response to symptoms cannot be viewed entirely in isolation from the cognitive response. Actions taken during the occurrence of symptoms bore a strong relationship to the evaluation of symptoms. A common finding in MI patients is the confusion arising with the resemblance of their symptoms to indigestion. Patients referred to gastrointestinal symptoms such as 'colic' or 'indigestion', and attempts at self-treatment were in accordance with the interpretation of symptoms:

> I thought it was colic, er, and when I got home, which was probably a couple of hours later, still had it, I had a swig of anti-colic sort of jollop.
>
> 3(17)

> erm, I thought I'd take some milk of magnesia see if it helped. . . I was rubbing my chest and all I was doing was belching.
>
> 6(8)

One participant believed that his symptoms had occurred as a result of having been 'working out' at a gym immediately prior to their onset, before having eaten. His response was to relieve his symptoms by attempting to eat:

> I thought I was hyperventilating, and I hadn't had anything to eat, so I tried to eat two Mars Bars because I just thought my blood sugar was low, but it really made me feel terrible. . . . I went upstairs and sat in the bath because I thought it would cool me down and make me feel much better, I was sweating so much.
>
> 2(32)

The above extract is an example of how cognitive interpretation of symptoms may lead to some attempt at self-treatment. Hartford *et al*. (1993) found that 63% of their sample made some attempt at self-treatment. In the context of this study, this is unsurprising given the clear indication that the behavioural response to symptoms follows evaluation in terms of patterns of recognition that are partially dependent on previous illness experience.

A further behavioural response was to look for nonmedical assistance in some way. It appeared that some proximity to other people was important to participants during the time when they felt unwell, as if each individual was simultaneously seeking both assistance and reassurance from the presence of others:

> He [husband] wasn't in the least bit bothered and all he said was that's the second time in two days. I just went to bed and I was all right, I knew he wouldn't go out without telling me but he wasn't that bothered.
>
> 5(218)

Another patient distanced himself from his partner, although again he clearly gained comfort from her presence in the house:

> No, my partner was there. I was awful to her, really abusive because I couldn't do anything

> . . . All the time I was upstairs she was really worried. She got a bit hysterical and she was crying . . . I was awful, swearing at her and really aggressive . . . I stayed upstairs and kept out of the way. She didn't leave me, she kept on calling me to see if I was all right.
>
> 2(48)

Perhaps because of the proximity of other people to those involved in the study, only one patient actively sought other nonmedical assistance, by asking his partner to contact family members by telephone:

> I got her to ring my sister in Scotland, she's a [hospital] sister. Jane asked her if I was just hyperventilating and she said I probably was. . . . I told her to ring my other sister as well. My younger sister. She's not even medical and I don't know what I expected her to do. I just wanted some help. But she didn't know.
>
> 2(50)

Other patients also demonstrated that they felt more comfortable at home. For example:

> I really started to feel more sick and the pains were getting worse, that tightness, I asked my daughter to drive and she just took me home. I wanted to go home.
>
> 8(34)

> Erm, I went to erm, to Bristol, and then I went back to my brothers, I was having a pain here (points to chest and arms). When I gets into the car to drive home, that's when it starts back again and it didn't really stop then. . . . I thought I'd better get home. Why I felt it was wise to even drive home, I don't know.
>
> 9(306)

In particular, the finding that patients implied a desire for the comfort provided by the proximity of other people supports the finding of Hartford *et al.* (1993), who ascertained that 78% of their sample sought advice from others before seeking medical help. It is not clear whether the patients in the study were actually seeking help from those around them. What appears to have been most important at the time was for the patients to seek comfort and reassurance from the company of others, rather than expecting active assistance.

Cognitive and behavioural responses to symptoms did not occur in isolation from each other. As the health threat was labelled at the onset of symptoms, there followed a process of self-treatment, help seeking and further evaluation, which might thereafter lead to further self-treatment, or the utilization of additional coping strategies. Thus a 'cycle' of cognitive and behavioural responses to symptoms emerged from the data.

Influence of others

Studies to date conflict in their findings with regard to relationships between delay and the presence of others at the time of symptom onset. Reilly *et al.* (1994) and the GISSI Avoidable Delay Study Group (1995) deduced from their data that the presence of a family member predicted longer delay, whilst Dracup and Moser (1997) concluded that there was no significant difference in delay associated with the presence of another individual. In the context of this study it is not possible to propose such a relationship. It is more appropriate to examine the influence that others had on the experience of patients. The influence of others was identifiable in similar terms of cognitive and behavioural response, which may also be identified as 'palliative' or 'instrumental' in nature, a similar distinction having been made by Reilly *et al.* (1994).

Implicit rather than explicit in interview transcripts was the palliative response of others, particularly partners of patients, who provided support during symptom experience and evaluation simply through their presence. Study participants made frequent reference to the presence of partners or others in terms of how they assisted with the cognitive evaluation and behavioural response to symptoms, and in this sense it is complex to extricate a process succinctly from the data. More explicit, however, were specific actions taken by those involved – what might be referred to as the instrumental response:

> the wife came down later on, said are you all right, I said yes. Anyhow I was sick again, she said I'm not having this. So she called the doctor.
>
> 4(42)

> So I called [my wife], she didn't hear me the first time but there was no way I could get up so I just called a bit louder and she came

> in. Asked me how I felt. Felt me sweltering (touches forehead) and immediately phoned an ambulance.
>
> 6(81)

The actions taken appear to have been informed by the partner's cognitive evaluation of symptoms. This may not necessarily mean recognition of MI, but the actions taken imply appraisal of the nature of symptoms as serious. One could argue that this appraisal, like that of the patient, is likely to be influenced by previous experience of illness and symptoms, and similarly by assumptions about MI.

What is noteworthy is that the presence of others was clearly desirable for the unwell individual, and the influence was demonstrably of either a palliative or an instrumental nature. This influence was apparent in the entire process of the prehospital experience, not simply as Dempsey *et al.* (1995) illustrate in later stages of acute illness, where the failure of the individual's coping strategies later led to the involvement of others. What was apparent was that throughout the prehospital experience of the MI patient, the influence of others became more evident.

Thus the model presented in Figure 1 arises from the data, explicating a cyclical process of cognitive evaluation of symptoms with a co-existing behavioural response, following which at some point the individual breaks free of the cycle in order to seek medical assistance. The darkening overlay labelled 'influence of others' demonstrates the increasingly instrumental involvement of others present at the time of the acute event.

Issues of rigour

Interpretive research methods are frequently criticized for being subjective in nature, although it is difficult to see how such an understanding of the patient experience might be reached utilizing the positivist paradigm. However, it is important, to stress that the model presented here describes the experiences of the patients participating in this study at this time. It does not seek to generalize these experiences to other patients suffering acute MI, but to enlighten, by identifying the process of help seeking from the patient perspective.

Despite research highlighting the fact that there may be gender differences in the way in which individuals respond to the symptoms of illness, to determine any differences in gender response within this study would have been inappropriate. The nature and purpose of the study and the small sample size would rule out any possibility of comparison. Similarly, there was no intention to

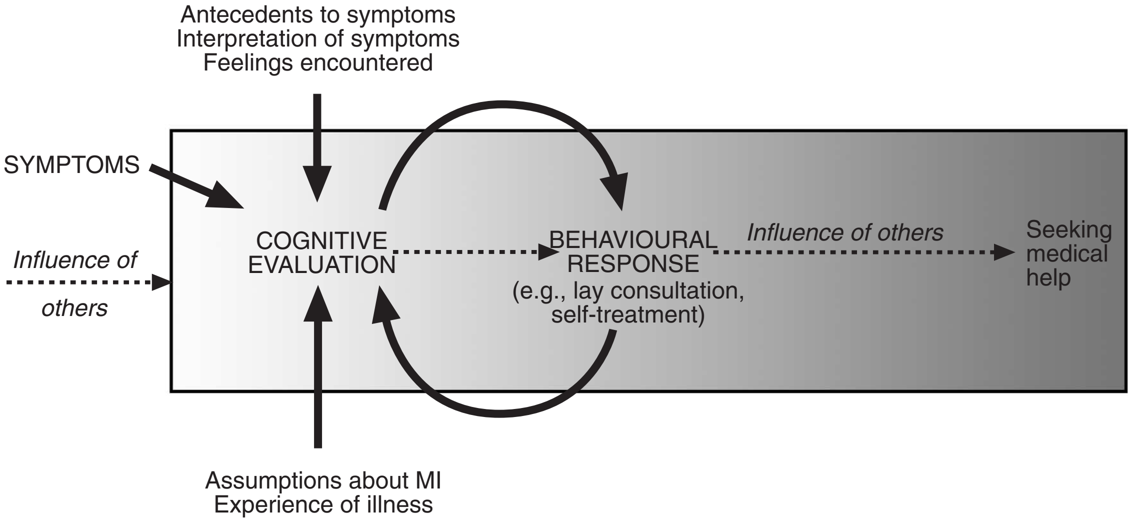

Figure 1 Illness behaviour in acute myocardial infarction.

determine cultural differences in illness behaviour within the sample.

The ethical requirement to allow participants the opportunity to reflect on the decision to participate in the study also afforded them the opportunity to reflect on the circumstances surrounding their experience prior to help seeking. This may have prevented the achievement of the true 'prereflective' description of experience advocated by Jasper (1994) as desirable for a phenomenological study, and may therefore be considered to be a limitation.

Conclusions and recommendations

The model presented in Figure 1 describes the illness behaviour of a group of people who have suffered MI. The value of this is in some ways limited, although it provides a useful framework for the exploration of interventions which might expedite the help-seeking process. As the model suggests, interventions can be considered in terms of how it may be possible to influence both cognitive evaluation of symptoms and behavioural response to symptoms.

Cognitive evaluation of symptoms

It is tempting to suggest that early recognition of MI should be promoted through local and national education campaigns. This would follow a similar postulation derived from the recommendations of other studies (e.g., Reilly *et al*., 1994; GISSI Avoidable Delay Study Group, 1995; Ottesen *et al*., 1996). However, this is problematic in that it relies on the assumption that individuals are 'knowledge driven' and need only to recognize the signs and symptoms of MI in order immediately to summon medical assistance. The results of this study suggest that simply to provide knowledge is insufficient. In addition, in the literature the impression is created that this approach has been used, but with minimal sustained success. For example, Moses *et al*. (1991) used brochures, television advertisements, public talks and radio advertising, to name only a few interventions, in order to raise community awareness of possible symptoms experienced in MI. Their campaign had no significant impact on the amount of time people took to seek medical assistance. Conversely, Ho *et al*. (1989) undertook a similar campaign with some effect, although their results were not sustained over a period of time.

What is noteworthy is that patients in the study frequently spoke of media-generated images of what a heart attack involves. For the most part these tended to be inaccurate. Although a few people do 'collapse' when suffering MI, the consistently inaccurate portrayal of the event by the media clearly influences some individuals' evaluation of their symptoms. It may be that, rather than campaigns concentrating on public education specific to symptoms of MI, an appropriate educational strategy would be the achievement of consistently accurate portrayal of MI by the media.

The National Service Framework for Coronary Heart Disease (Department of Health, 2000) suggests that community health teams should identify those who might be at risk of the development of coronary heart disease. It may be that registers will support the early identification and monitoring of individuals who are most likely to delay help seeking in the event of acute MI. Specialist clinics within the community should be in a position to offer advice to 'at-risk' patients and their carers with regard to the nature of symptoms which might be experienced. However, preventive initiatives of this type are still in the very early stages of development, and as yet there has been little evaluation of their impact. None the less, it is possible to speculate that focusing community education with regard to evaluation of symptoms in the event of acute MI on high-risk groups may have a significant impact on the behavioural response to symptoms.

Behavioural response to symptoms

It is both natural and normal to attempt to treat oneself in the event of suspected illness. Change in behaviour is a complex issue. To expect an individual to breach established coping strategies and seek assistance may be unrealistic. What is evident from the study data is that it may be possible to expedite the behavioural response. There is a reluctance to seek medical assistance, and health care professionals must ask themselves why this is the case. The impression created – that one may be wasting the time of ambulance crews or general practitioners – may be related to a tendency of the media to portray professionals as inaccessible. It appears that there may also be a role in terms of the behavioural response to symptoms of community or acute sector clinics. Rapid-access chest pain clinics have a role in the identification of patients who are at risk of MI. By appropriately advising patients on how to respond to their symptoms, some of the public perception of inaccessibility of acute services may be broken down. Again, however, it is rather early to consider the potential impact of either acute or community-focused services.

It is only by understanding what happens to individuals, on what basis decisions are made, and why medical assistance is ultimately sought that it is possible to advise those who may be at risk of MI on how to recognize and respond to symptoms. Given the enormity of the financial cost of coronary heart disease to the National Health Service, it is not surprising that interest in illness behaviour in MI is re-emerging (Alonzo and Reynolds, 1997) after a period in which research interest has been subjugated to developing treatments for decreasing mortality and morbidity. However, in terms of the psychosocial cost of morbidity and mortality from MI, there is a moral obligation for health professionals to take the issue of expediting help seeking seriously.

Acknowledgements

This work was undertaken as part of an MSc in Health Care Studies at Oxford Brookes University. I would like to acknowledge the help and support of Sue Atkins, Principal Lecturer, School of Health Care, Oxford Brookes University, in the preparation of this paper.

References

Alonzo, A. and **Reynolds, N.** 1997: Responding to signs and symptoms of myocardial infarction – how do you educate the public? A social-psychologic approach to intervention. *Heart and Lung* 26, 263–72.

Burnett, R., Blumenthal, J., Mark, D., Leimberger, J. and **Califf, R.** 1995: Distinguishing between early and late responders to symptoms of acute myocardial infarction. *American Journal of Cardiology* 75, 1019–22.

Dempsey, S., Dracup, K. and **Moser, D.** 1995: Women's decision to seek care for symptoms of acute myocardial infarction. *Heart and Lung* 24, 444–56.

Department of Health 2000: *National Service Framework for Coronary Heart Disease*. London: Department of Health.

Dracup, K. and **Moser, D.** 1991: Treatment-seeking behaviour among those with signs and symptoms of acute myocardial infarction. *Heart and Lung* 20, 570–75.

Dracup, K. and **Moser, D.** 1997: Beyond sociodemographics: factors influencing the decision to seek treatment for symptoms of acute myocardial infarction. *Heart and Lung* 26, 253–62.

Field, D. and **Taylor, S.** 1993: *Sociology of health and health care*. Oxford: Blackwell Science.

Ghiorghiade, M., Ruzumna, P., Borzak, S., Havsted, S., Ali, A. and **Goldstein, S.** 1996: Decline in the rate of hospital mortality from acute myocardial infarction: impact of changing management strategies. *American Heart Journal* 131, 250–56.

GISSI Avoidable Delay Study Group 1995: Epidemiology of avoidable delay in the care of patients with acute myocardial infarction in Italy. *Archives of Internal Medicine* 155, 1481–88.

Gruppo Italiano per lo Studio della Streptochinasi nell'Infarto Miocardico (GISSI) 1986: Effectiveness of intravenous thrombolytic treatment in acute myocardial infarction. *Lancet* i, 397–401.

Hartford, M., Karlson, B., Sjolin, M., Holmberg, S. and **Herlitz, J.** 1993: Symptoms, thoughts and environmental factors in suspected acute myocardial infarction. *Heart and Lung* 22, 64–70.

Ho, M., Eisenberg, M., Litwin, P., Schaeffer, S. and **Larsen, M.** 1989: Delay between onset of chest pain and seeking medical care: the effect of public education. *Annals of Emergency Medicine* 18, 727–35.

ISIS-2 Collaborative Group 1988: Randomised trial of intravenous streptokinase, oral aspirin, both or neither among 17 187 cases of suspected myocardial infarction (ISIS 2). *Lancet* ii, 349–60.

Jasper, M. 1994: Issues in phenomenology for researchers of nursing. *Journal of Advanced Nursing* 19, 309–14.

Leizorowicz, A., Haugh, M., Mercier, C. and **Boissel, J. on behalf of the EMIP Group** 1997: Pre-hospital and hospital time delays in thrombolytic treatment in patients with suspected acute myocardial infarction. Analysis of data from the EMIP study. *European Heart Journal* 18, 248–53.

Morse, J. and **Field, P.** 1996: *Nursing research: the application of qualitative approaches*, 2nd edn. London: Chapman and Hall.

Moses, H., Engelking, N., Taylor, G., Prabhakar, C., Vallala, M., Colliver, J., Silberman, H. and **Schneider, J.** 1991: Effect of a two-year public education campaign on reducing response time of patients with symptoms of acute myocardial infarction. *American Journal of Cardiology* 68, 249–51.

Ottesen, M., Kober, L., Jorgensen, S. and **Torp-Pederson, C. on behalf of the TRACE Study Group** 1996: Determinants of delay between symptoms and hospital admission in 5978 patients with acute myocardial infarction. *European Heart Journal* 17, 429–37.

Reilly, A., Dracup, K. and **Dattolo, J.** 1994: Factors influencing prehospital delay in patients experiencing chest pain. *American Journal of Critical Care* 3, 300–306.

Rose, P., Beeby, J. and **Parker, D.** 1995: Academic rigour in the lived experience of researchers using phenomenological methods in nursing. *Journal of Advanced Nursing* 21, 1123–29.

West, R. 1997: Time trends in hospitalisation for acute myocardial infarction in England and Wales 1974–1995. *Coronary Health Care* 1, 218–24.

Zola, I. 1973: Pathways to the doctor – from person to patient. *Social Science and Medicine* 7, 677–89.