Two out of five women have heart attacks without experiencing chest pain, according to a study of more than one million people.

The study findings may partly explain why middle-aged women are more likely to die from a heart attack than men, despite more heart attacks occurring in men of the same age.

Researchers from the Watson Clinic and Lakeland Regional Medical Centre, Florida, analysed data on more than one million heart attack patients seen at US hospitals between 1994 and 2006. Around 42 per cent of the patients were women. Women were, on average, older than men when they had a heart attack (age 74 vs. 67 respectively).

Overall, around 55 per cent of heart attack patients said they didn’t have chest pain or discomfort, probably the best known heart attack symptom. But when researchers looked at symptoms in both sexes, they found that 42 per cent of women didn’t have chest pain, compared with 31 per cent of men.

Middle-aged women were also more likely to die as a result of a heart attack in hospital. Some 14 per cent of women under the age of 55 died compared with 10 per cent of men in the same age group. The gap between male and female death rates narrowed in patients older than this.

Heart attack patients without chest pain may receive less aggressive treatment in hospital, particularly if they are younger, and may also take longer to go to a hospital with their symptoms. This could explain the difference in mortality rates between the sexes, the researchers said.

The authors wrote: "Optimal recognition and timely management of myocardial infarction (MI; heart attack), especially for reducing patient delay in seeking acute medical care, is critical. The presence of chest pain/discomfort is the hallmark symptom of MI.

Furthemore, patients without chest pain/discomfort tend to present later, are treated less aggressively, and have almost twice the short-term mortality compared with those presenting with more typical symptoms of MI.”

Cathy Ross, senior cardiac nurse at the British Heart Foundation, said: "Contrary to popular belief, a heart attack doesn’t necessarily mean dramatic and excruciating chest pains.

“Symptoms vary; for some the pain is severe and yet others may feel nothing more than a mild discomfort or heaviness.

"Younger women may need to heed that advice more than most because they appear to be less likely to have chest pains.

"Their symptoms can be overlooked by inexperienced medical staff because heart attacks in young women are rare.

More research will hopefully identify why there are such variations in the way heart disease affects men and women.

"Interestingly, smoking was found to be the main cause of heart attacks among younger women, compared to high cholesterol and narrowing of the heart’s arteries in older women. It’s a reminder that we should all try to eat a balanced diet, get active and stop smoking."

The study is published in the Journal of the American Medical Association.