Original Article
DOI: https://doi.org/10.70749/ijbr.v3i1.471

INDUS JOURNAL OF BIOSCIENCE RESEARCH
https://induspublishers.com/IJBR
ISSN: 2960-2793/ 2960-2807

Comparison of Misconception of Heart Attack Pain with Heart Burn How Common Is It

Noman Pervez[1], Muhammad Afzal[1], Fazal Ur Rehman[1], Abdul Ghaffar Khan[1], Muhammad Hashim[1], Syed Abdul Bari[1], Rawindar Kumar[2], Sana Ullah Kakar[3]

[1]Department of Cardiology, Sandeman Provincial Hospital, Quetta, Balochistan, Pakistan.
[2]National Institute of Cardiovascular Diseases NICVD, Karachi, Sindh, Pakistan.
[3]Balochistan Institute of Psychiatry and Behavioral Sciences BIPBS, Quetta, Balochistan, Pakistan.

ARTICLE INFO

Keywords

Heart Attack, Heart Burn, Gastric Reflux Disease, Misconception.

Corresponding Author: Sana Ullah Kakar, Balochistan Institute of Psychiatry and Behavioral Sciences BIPBS, Quetta, Balochistan, Pakistan.
Email: sanaullah786.kakar@gmail.com

Declaration

Author's Contributions: All authors contributed to the study and approved the final manuscript.
Conflict of Interest: The authors declare no conflict of interest.
Funding: No funding received.

Article History

Received: 11-10-2024
Revised: 13-12-2024
Accepted: 01-01-2025

ABSTRACT

Background: The public often misunderstands the difference between a heart attack (myocardial infarction, MI) and heartburn. Heartburn, which is frequently brought on by acid reflux, commonly manifests as a burning ache in the chest, whereas myocardial infarction is characterized by sudden chest discomfort and additional symptoms like palpitations. Particularly among those with limited healthcare literacy, confusion between these two disorders can result in misdiagnosis, increased health risks, and delayed treatment. **Methods:** At a tertiary care hospital in Quetta, 200 volunteers from various socioeconomic levels (upper, middle, and lower) were enrolled in a cross-sectional descriptive study. The study gathered information on symptom interpretation, healthcare-seeking behaviour, and associated characteristics such belching, nausea, and the location of chest pain through semi-structured interviews and self-administered questionnaires. Thematic analysis was used to examine the data. **Results:** The findings showed that a considerable number of people confused MI pain for heartburn, with those from lower socioeconomic classes being most affected (50.5%). Symptoms that were frequently misconstrued included nausea (17.5%), chest discomfort (22%), and epigastric pain (36%). On the other hand, the most often identified MI symptoms were shortness of breath (24.5%) and chest discomfort (28%). **Conclusion:** In conclusion, many people confuse heart attacks with heartburn, particularly those from lower socioeconomic backgrounds who have less access to healthcare and less literacy. To improve early identification of myocardial infarction and lower health problems, this study emphasizes the significance of enhancing public awareness and health education.

INTRODUCTION

Acute myocardial infarction (AMI) commonly referred to as a heart attack is a clinical condition that is characterized by the sudden occlusion of a coronary artery with consequent death of the heart muscle. Many cases of acute myocardial infarction are diagnosed clinically by palpitations, anxiety, nausea, vomiting, perspiration and sudden severe chest ache. Fractional improvement in the outcome means reduction in the risk for other complications or death that results from delays in treatment when asymptomatic signs of heart attacks are detected. One of the long-standing problems in heart attack differential diagnosis is rural between various chest discomforts connected to myocardial infraction and the very similar non-cardial pains, including heartburn. This may also mean early presentation is not done which in turn leads to delayed treatment, incorrect diagnosis, increased morbidity and mortality.

Heartburn, common name for burning discomfort, pyrosis or acid reflux, is a burning discomfort localized in the chest that may radiate to the throat, neck, or mandibular angle. They are associated with regurgitation of stomach acid which is the predominant sign of GERD and ischemic heart disease could be the result of. Heartburn is due to stomach content regurgitation leading to a burning feeling under the cartilage of the breast bone. More symptoms include belching, water rash, chest pain, asthma, persistent cough, hoarseness, and laryngitis (Souney PF, 2013). A poll on people with heartburn indicated that 60 million of the population suffers from this condition at least once a month, while

15 million suffering from it daily with older people and pregnant women being the most affected. The prevalence of GERD was investigated in the following regions: North America, 18.1–27.8%, Europe, 8.8–25.9% East Asia, 2.5–7.8%, the Middle East, 8.7–33.1%, Australia, 11.6%, South America 23% (El-Serag HB, et al., 2014). According to the social demographic aspect, high rise urban population in Pakistan affected (Jafri N, et., 2005). Self-perceived dyspepsia together with IBS in the population and moreover, people with BMIs more or less than normal influenced and brought alterations to heartburn (Olafsdottir LB et al., 2012). When a person bends down, he or she experiences a worsening of his or her heartburn (Sodeman WA, 2005). Other agents include food products, xenophiles and some ingredients like junk foods, spicy foods and citrus products which may cause certain patients heart burn while they do not affect another (Sodeman WA, 2005). Some of the variables that causes heartburn but are easily changed are such things as using over the counter drugs, smoking, alcohol, anxiety, stress and obesity (Sodeman WA, 2005).

Most people with extremely severe heartburn often wake up with a unpleasant, bitter taste on their tongue or back of the throat (Sodeman WA, 2005) Morro D, 2019. Most people assume that the heartburn and MI symptoms are similar, especially when the pain is believed to be located in the epigastrium, the belly area. The sickly person may also spit, and just like coughing, when they burp, which is a sign of the MI, the affected person is assumed to be suffering from stomach upsets. When undergoing such pain, one will not go to a doctor but beseech it as stomach ache (Eslick GD et al., 2003). They do not visit the cardiologist due to ignorance and when they end up visiting the clinic, their MI is had already reached an important stage (Lee T, 2006;4. McLeod MEA, et al., 1996; Mayo Clinic Staff, 2012). This might be due to defunct or confined understanding regarding the content of MI, on the part of the people involved (Tullmann DF, et al.,2005; Mata J, et al., 2014). Besides the pain in the left arm and chest, they have no knowledge of having other symptoms (Tullmann DF, et al.,2005; Eslick GD et al., 2003). Lastly, those in the poverty bracket try to self-treat the diseases and infections disregarding knowledge about a disease, and rarely access the doctor. Therefore, as time progresses the illness becomes even worse and has other even uglier side effects. In one survey, it was revealed that forty per cent patients with definitive myocardial ischemia had previous chest pain which they and their general practitioner's thought was dyspepsia (Simpson FG, et al., 1984).

LITERATURE REVIEW

The early signs of GERD are often mistaken for early signs of a heart attack by the general population. Nevertheless, the commonest reason for an atypical chest pain is GERD. , discomfort and pain from heart and GERD might be differentiated by a clear history and examination of the patient (. Dimache M, et al.,2010). Epidemiological review of data on GERD symptomatology – less than an hour eating, retrosternal pain, vomiting, burning and pain shows a positive relationship with GERD related chest pain. Warmth, rigida, exercise-induced paresthesias, pleuritic sensations that are worsened by motion or deep breathing and left anterior chest pain are all inversely related to the symptoms. There is one case study that connects acute coronary syndrome with GERD. From the case report the patient may have had increased oxygen demand due to uncontrolled GERD and hence was suspected to have Acute coronary syndrome (Bösner S, et al.,2009). Many research attempts have aimed at relating GERD to non-ST segment elevation myocardial infarction (NSTEMI) where GERD discomfort may increase oxygen demand through adrenergic stimulation, which increases blood pressure and rate. Another mechanism is that the acid that may churn in the oesophagus can inhibit the oxygen supply of the heart through the esophago-cardiac reflex. In this case, due to uncontrolled GERD, the patient has acute coronary syndrome and prior history of heart disease (Hui CMC, et al., 2015). With reference to a GERD and angina research, only 0.4% of GERD patients suffer chest pain due to coronary ischemia. Hence, when assessing patients who present a spectrum of typical GERD symptoms, possibility of ACS should not be ruled out (Kato H, at el.,2009). The study conducted by McSweeney et al. (2010) has found out that many patients' – especially females – rushing to the emergency with cardiac symptoms misinterpret them for less severe disorders, such as heartburn or indigestion. They noted that over 50 percent of women said they had such non-COVID symptoms, including back pains and nausea which are often treated for gastrointestinal issues. In addition, it is found out from the American Heart Association (AHA, 2020) that people's awareness is generally low, and only 27 percent of the people got the right answer when they asked to recognize the early symptoms of a heart attack. This lacks understanding is rather important because preventing the high morbidity and mortality rates means recognizing the early signs of a heart attack (AHA, 2020). That's why misconceptions about the signs and symptoms of a heart attack can be dangerous to your health. O'Brien et al (2018) have established that patients who have inaccurate symptoms perception are poor admissions candidates for immediate medical help thus their health can deteriorate. They also found that patients receiving care more than two hours after arrival had a 30% higher mortality risk than those

who received care immediately. Loss of location and chest pain character makes many persons they have myocardial infarction where actually it is just gastroesophagal reflux. As has been illustrated by different authors, the existence of this misconception has been demonstrated in many other studies. For instance, the article by Aro et al. (2012), reveals that the individual who approached with chest pain during an emergency was consequently identified with GERD instead of a cardiac event. In addition, there is an issue identified by Williams et al. (2014) that the extent of the problem is aggravated by the public's lack of awareness of the distinction between heartburn and heart attack pain. Overall, there is a need for increasing people's knowledge, as only thirty percent of those surveyed were able to distinguish the difference between heartburn and heart attack with a good degree of certainty.

RESEARCH OBJECTIVE

Specifically, the goal of this study is to answer the following questions: How often people dismiss the discomfort related to heart attacks as mere heartburn? Which groups of people are most affected by this assumption? What consequences can this error bring? The existence of this misconception is also expected to be quantified in relation to symptoms' self- assessment, health literacy, and awareness. Also, this study will examine whether a number of specific educational efforts can reduce the number of wrong evaluations and can encourage early evaluation if the chest pain develops. Thus, through this research, our aim is to reduce the risk of increasing health consequences of these diseases by explaining why it is important to differentiate between these two disorders and improve the signs of potential heart attack diagnosis at the early stages.

MATERIAL AND METHODS

In this qualitative cross sectional descriptive survey, the researchers aimed at assessing common misconceptions exists about pain related to heartburn and heart attacks. It was conducted in the tertiary health care hospital Quetta. For the purpose of this study, a nonprobability sampling was used to select 200 participants in order to achieve a sample diversity across the population. Patients were contacted within several outpatient clinics and emergency wards including those patients who had complaints on chest pain or discomfort. Both genders and three different socioeconomic levels – lower, middle, and upper – will be used in the sample population to improve understanding of various effects of socio-economic status on symptom perception. Socioeconomic class will therefore be determined according to their average self reported monthly income, occupation, and educational status. This classification will also allow an assessment of patients' understanding of their signs and symptoms and if they are more likely to confuse heartburn with a heart attack or vice versa, based on the socio-economic backgrounds. The participants will undergo a semi structured questionnaires interviews to get qualitative data. The reason behind this interview guide is to get more information on; The symptoms the patient experienced before consulting a doctor, why they presumed it was only heartburn or a heart attack, and if the patient never had the two at any one time respectively. Further, a five-item self-completed questionnaire will also be incorporated alongside the interviews to assess the location, duration, severity of the pain and any sign that exist such as sweating, vomiting or breathing difficulties. This will help in the identification of common interfering features present in heartburn and heart attack patients. The authors interviewed only qualified medical experts by providing them with a set of leading questions that would facilitate an open- ended approach. This study helped participants provide insights into their personal experiences and perception of misconceptions in the community but this lead to a more advanced understanding of the misconceptions in the community. The nature of the interviews was such that all the participants agreed to this procedure and all of the interviews were recorded.

Coding and comparison of the results were conducted using thematic analysis; recurring ideas and patterns related to the misconceptions about discomfort of heartburn vs heart attack have been searched in the transcripts. As for the whole study, confidentiality and voluntary participation were maintained by strictly following ethical principles. In order to enhance the knowledge of the patients and the general public, the study was aimed to find out not only what misconceptions exist but why they exist at all.

RESULTS

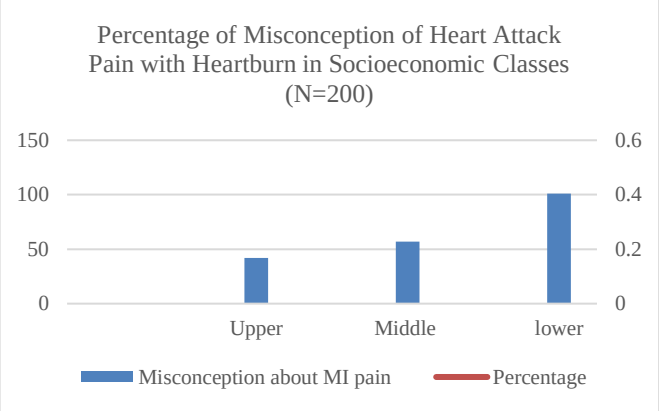
Here are four tables that show the qualitative findings from a comparison of 200 patients from various socioeconomic backgrounds' beliefs about heartburn and heart attack pain. The findings draw attention to the frequency of these false beliefs, their correlation with a range of gastrointestinal symptoms, frequently misinterpreted heart attack symptoms, and the similarity between gastric reflux illnesses and misleading heart attack pain.

Table 1

Percentage of Misconception of heart attack pain with heart burn in Socioeconomic Classes N= 200

Socioeconomics class	Misconception about MI pain	Percentage
Upper	42	21%
Middle	57	28.5%
lower	101	50.5%

Figure 1



The misconception was most in lower class (50.5%), followed by 28.5% in middle class and least in upper class 21%.

Table 2

Misconception of MI with different Variables

Variable	People who Mistook MI Pain
Gastric Disease	20 (10%)
Pain in epigastrium	72 (36%)
Pain in chest	44 (22%)
Nausea/vomiting	35 (17.5%)
Belching	29 (14.5%)

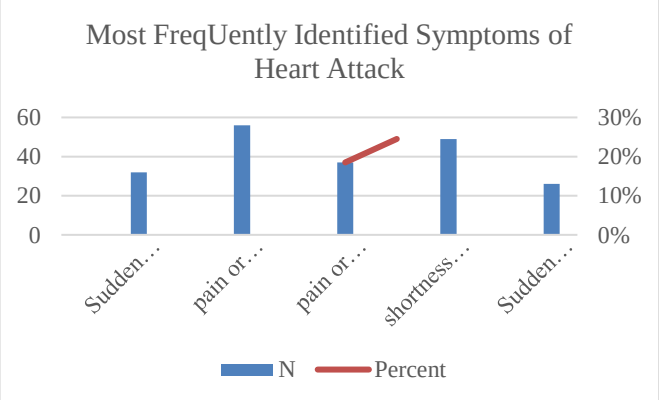
We also investigated whether patients with epigastric pain, chest pain, gastric illness, nausea, vomiting, and belching had misdiagnosed their MI discomfort for heartburn. Individuals with gastrointestinal issues, and particularly those experiencing pain in the epigastrium, showed a favourable correlation with the misperception of MI discomfort.

Table 3

Most frequently identified symptoms of heart attack

Symptoms	N	Percent
Sudden pain or discomfort in jaw, neck, or back	32	16%
pain or discomfort in the chest	56	28%
pain or discomfort in the arms or shoulders	37	18.5%
shortness of breath	49	24.5%
Sudden disturbance of vision in one or both eyes	26	13%

Figure 2



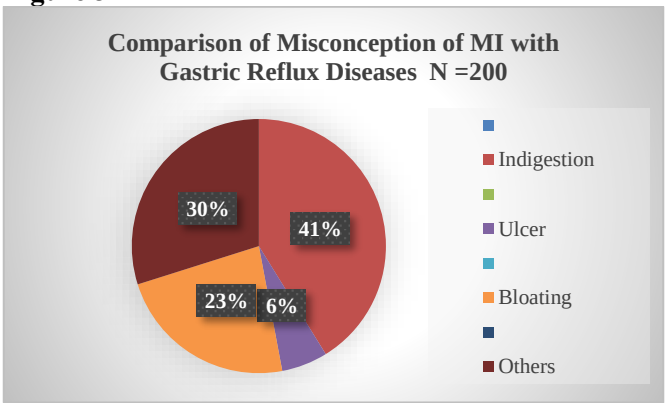
The most frequently identified symptoms of heart attack were pain or discomfort in the chest (28%), shortness of breath (2452%), sudden pain or discomfort in the arms or shoulders (18.5%), sudden pain or discomfort in jaw, neck, or back (16%) and sudden disturbance of the vision in one or both eyes (13%)

Table 4

Comparison of Misconception of MI with Gastric Reflux Diseases N =200

Gastric Reflux Disease	Mistook First MI
Indigestion	24.26%
Ulcer	3.46%
Bloating	13.6%
Others	17.6%

Figure 3



Indigestion was the most prevalent stomach condition among those reported, while ulceration was the least common. In this others condition include people who experience heartburn when sleeping after meals. Among other diseases heartburn when sleeping after meal is very common.

DISCUSSION

The research carried out indicates a lack of understanding of the public regarding the differences between heartburn and heart attacks, more so, concerning symptoms, as well as social and economic status. The findings are significant because misunderstanding these two incidents can deny timely medical response of heart attack, leading to increased heart attack morbidity and mortality.

Female and the participants from the lower SES were the most prone to have this misunderstanding, 50.5% of them said that discomfort related to MI was heartburn, 28.5% of participants from the middle SES, and 21% of participants from the upper SES. These differences could be due to differences in these populations' health literacy, the amount of medical information they can receive or access to healthcare services and products. They lacks adequate information, reside in parts of the country with no access to health facilities and culturally, their families encourages them too use home remedies in treating pains and other ailments before rushing to a doctor. These factors might make them fail to understand the signs of chest pain appropriately. Those on the other end of the social-

economic scale were more confused between the signs of MI, heartburn because most of them had poor health literacy and poor access to health facilities.

Regarding misidentification of the symptoms, it emerged from the study that percentage of participants who had epigastric pain (36%) and chest pain (22%) most probably confused their MI pain with heartburn. These findings suggest that there is about one in three risk of MI being misdiagnosed and location of pain is a major contributing factor. There may be a tendency of diagnosing the MI with epigastric pain which is commonly associated with the gastrointestinal disorders. In addition, it was established that while 17.5% out of the patients who suffered or vomited, 14.5% out of patients who experienced belching, had a misunderstanding of the symptoms, it may be that gastrointestinal problems are masking a far worse cardiac issue. This is an area of concern for public educational crusades that aim at raising awareness of the subtle differences between the manifestations of a heart attack and heartburn.

When the symptoms of MI that the participants properly identified were analyzed, the most recognized symptoms were the chest pain in (28%) and then short breath in (24.5%) while other participants were able to identify pain in the arms or shoulders in (18.5%), and discomfort in the jaw, neck back in (16%). To our surprise, visual changes were the least associated with MI 13% which may point to a lack of awareness of the other signs of heart attack.

Of all the MI symptoms, the participants were most familiar with pain in the arms or shoulders (18.5 percent), discomfort in the jaw, neck, or back (16 percent), and chest pain, (28 percent), shortness of breath (24.5 percent). Again, it was worth noting that visual disorders were less commonly known with MI (13%) and this may suggest a relative lack of awareness regarding the full range of signs and symptoms of heart attacks.

CONCLUSION

The study shows that there is significant public ignorance of the distinction between heartburn and MI discomfort discomfort even in the insured population, more so the low-income earners. Lower-class persons as opposed to middle- and upper-class patients misunderstood discomfort in the MI region as heartburn. Such disparities are explained by poor possession of other natural, medical resources and health literacy. Furthermore, misidentification was related to the place of the pain, and the study concluded that patients with epigastric and chest pain commonly misidentified their symptoms. The findings indicate the importance of raising the general public's awareness and launching more campaigns and programmes to differentiate heartburn and heart attack symptoms that reduce the time that people take to seek urgent medical help. Improved knowledge may help individuals visit a healthcare provider when they present symptoms suggestive of a heart attack.

REFERENCES

1. Dimache, M., Turcan, E., & Nătase, M. (2010). [Noncardiac chest pain and gastroesophageal reflux disease]. *PubMed*, *114*(2), 342–348.
2. Jafri, N., Jafri, W., Yakoob, javed, Islam, M., Manzoor, S., Jalil, A., & Hashmi, faraz. (2005). Perception of gastroesophageal reflux disease in urban population in Pakistan. *PubMed*, *15*(9), 532–534.
3. American Heart Association. (2020). *Heart Attack Symptoms*. https://www.heart.org/en/health-topics/heart-attack/symptoms-of-a-heart-attack
4. Aro, P., Ronkainen, J., Storskrubb, T., et al. (2012). Gastroesophageal reflux symptoms and health care utilization: A population-based study in Finland. *Scandinavian Journal of Gastroenterology, 47*(3), 267-275.
5. Bösner, S., Haasenritter, J., Becker, A., Hani, M. A., Keller, H., Sönnichsen, A. C., Karatolios, K., Schaefer, J. R., Baum, E., & Donner-Banzhoff, N. (2009). Heartburn or angina? Differentiating gastrointestinal disease in primary care patients presenting with chest pain: a cross sectional diagnostic study. *International Archives of Medicine*, *2*(1), 40. https://doi.org/10.1186/1755-7682-2-40
6. El-Serag, H. B., Sweet, S., Winchester, C. C., & Dent, J. (2014). Update on the epidemiology of gastro-oesophageal reflux disease: a systematic review. *Gut*, *63*(6), 871–880. https://doi.org/10.1136/gutjnl-2012-304269
7. Eslick, G. D., Jones, M. P., & Talley, N. J. (2003). Non-cardiac chest pain: Prevalence, risk factors, impact and consulting — a population-based study. *Alimentary Pharmacology & Therapeutics*, *17*(9), 1115-1124. https://doi.org/10.1046/j.1365-2036.2003.01557.x
8. Hui, C. M., Padala, S. K., Lavelle, M., Torosoff, M. T., Zhu, X. C., & Sidhu, M. S. (2015). Acute coronary syndrome: An unusual consequence of GERD. *Case Reports in Cardiology*, *2015*, 1-4. https://doi.org/10.1155/2015/939641
9. Kato, H., Ishii, T., Akimoto, T., Urita, Y., & Sugimoto, M. (2009). Prevalence of linked angina and gastroesophageal reflux disease in general practice. *World Journal of*

Gastroenterology, *15*(14), 1764. https://doi.org/10.3748/wjg.15.1764

10. Lee, T. (2006). Ask the doctor. I'm worried that someday I will confuse my heartburn with my angina or a heart attack and end up in the emergency room for nothing. How do I tell the difference?. *Harvard Heart Letter: From Harvard Medical School*, *16*(7), 8-8. https://europepmc.org/article/med/19663034
11. Mata, J., Frank, R., & Gigerenzer, G. (2012). Symptom recognition of heart attack and stroke in nine European countries: A representative survey. *Health Expectations*, *17*(3), 376-387. https://doi.org/10.1111/j.1369-7625.2011.00764.x
12. Mayo Clinic Staff. (2012). *Heartburn or chest pain: when is it heart attack?* Florida: Mayo Foundation for Medical Education and Research (MFMER); 2012.
13. McSweeney, J. C., Anderson, N. J., & Arslanian-Engoren, C. (2010). Gender differences in heart attack symptoms: A systematic review. *Journal of Women's Health, 19(*4), 731-740.
14. Mehta, A. J., De Caestecker, J. S., Camm, A. J., & Northfield, T. C. (1996). Castro-oesophageal reflux in patients with coronary artery disease: How common is it and does it matter? *European Journal of Gastroenterology & Hepatology*, *8*(10), 973-978. https://doi.org/10.1097/00042737-199610000-00007
15. Moro, D. (2019). Confronting the Obvious: An Epistemological Examination of the Evidence Informing Evidence-Based Medicine. *Journal of Integrative Research & Reflection*, *2*(2), 70–80. https://doi.org/10.15353/jirr.v2.1575
16. Olafsdottir, L. B. (2012). Irritable bowel syndrome: Physicians' awareness and patients' experience. *World Journal of Gastroenterology*, *18*(28), 3715. https://doi.org/10.3748/wjg.v18.i28.3715
17. Simons-Linares, C. R. (2019). Behind the Case. *ACG Case Reports Journal*, *6*(11), e00282. https://doi.org/10.14309/crj.0000000000000282
18. Simpson, F. G., Kay, J., & Aber, C. P. (1984). Chest pain--indigestion or impending heart attack? *Postgraduate Medical Journal*, *60*(703), 338–340. https://doi.org/10.1136/pgmj.60.703.338
19. Sodeman, W. A., & Sodeman, T. C. (2005). Gastro-Intestinal Diseases. In: Sodeman WA, Sodeman TC, editors. Instructions for Geriatric Patients. 1. 3rd ed. Philadelphia, Pennsylvania 19106: Elsevier Saunders; 01-6.
20. Souney, P. F, & Zimmermann, A. E. (2013). Peptic Ulcer Disease and Related Acid-Associated Disorders, Chapter 44, Comprehensive Pharmacy Review for NAPLEX. 8th ed. Shargel L, Mutnick AH, Souney PF, Swanson LN, editors. Philadelphia, PA 19103, United States of America: Lippincott Williams & Wilkins 886-929.
21. Tullmann, D. F., & Dracup, K. (2005). Knowledge of Heart Attack Symptoms in Older Men and Women at Risk for Acute Myocardial Infarction. *Journal of Cardiopulmonary Rehabilitation*, *25*(1), 33–39. https://doi.org/10.1097/00008483-200501000-00008
22. Wikipedia Contributors. (2019, October 24). *Wikipedia, the free encyclopedia*. Wikipedia; Wikimedia Foundation. http://en.wikipedia.org/wiki/
23. Williams, R. A., Tsui, J., Morris, M., et al. (2014). Public understanding of heart attack symptoms and heartburn. *Journal of Cardiovascular Nursing, 29*(3), 209-216.