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# **Information Needs of Myocardial Infarction Patients: An Integrative Review**

By

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## **Abstract**

Cardiovascular diseases including myocardial infarction, heart failure, heart attacks and other related risk factors are on the rise in Pakistan. This heart disease is generating a high burden of coronary artery disease on healthcare services and becoming a leading cause of death in the developing countries like Pakistan. Health information is an integral part of patient education and ultimately for patient care. Thus, understanding information needs of heart patients is seriously important and essential in ensuring quality care, controlling heart diseases and improving the self-care abilities of heart patients alongside the advanced medication and treatment strategies. This integrative review intends to outline information needs of patients with myocardial infarction (MI) and related symptoms such as heart failure (HF), and heart attack (HA). The present integrative review has used the methodology of (Whittemore & Knafl, 2005) to analyze the existing literature on information needs of MI patients. This integrative review includes qualitative, quantitative and peer-reviewed research articles that have been published from 2001 to 2020 in the databases of Scopus, PubMed and Web of Science. Those studies are included to summarize and understand information needs of MI patients from multiple perspectives that have addressed the objectives of this paper. Out of 15 published articles, 9 used quantitative research design and 6 used exploratory qualitative research approach. Out of 9 quantitative studies, four adopted HFLNI scale, three adopted CPLNI scale, and rest of three developed/adapted a new scale. Out of six qualitative studies, four used interview methods and two used focus group technique to collect data from MI patients. The top most information needs were identified related to “signs and symptoms management; medication, physical activities, risk factors, diet, psychological factors and treatment and hospitalization”. The less important information needs were including “anatomy and physiology; postoperative complications; discharge instructions; disease management strategy; emergency care; lifestyle factors; community support; and counselling about sexual activity”. The study also found unmet information needs due to disparity in the provision of information to MI patients. This review has identified several similarities in information needs of MI patients across studies. The findings of this review may be helpful for heart specialists, cardiologists, healthcare professionals, heart care organizations and researchers to assess and provide preferred information to MI patients for disease control and high quality cardiac care.

**Keywords:** Health information needs; Myocardial infarction; Heart failure; Heart attack; Integrative review

## Introduction

Globally, heart diseases (HDs) are the foremost cause of and the largest single contributor to morbidity and mortality and may dominate in future. Comparatively, the rate of mortality is high in low-to-middle-income countries for men and women due to the cardiovascular diseases (CVDs) including coronary artery, cerebrovascular, rheumatic and other diseases (CDC, 2021; WHO, 2021). Developing countries including Pakistan are equally affected by non-communicable diseases such CVDs across the world (Afrose & Qamar, 2018).

Heart disease risk factors are on the rise that cause of ischemic, chronic, acute myocardial infarction, heart failure, heart attack and coronary artery diseases in all over the world particularly in developing countries. Thus, the adult natives of subcontinent have generally a high burden of CVDs and myocardial infarction, coronary artery, ischemic. The CVDs are now the leading cause of death across the world, specifically in the subcontinent (Hafeez, Javed, & Kayani, 2010). Whatsoever, myocardial infarction (MI) is a critical heart disease which leads to quick death or serious complications. Moreover, MI and its precursors are a life-threatening problems and its globally prevalence is significantly increasing in both developed and developing countries (Mechanic & Grossman, 2021; Sanchis-Gomar et al., 2016). It is an established fact that the major risks contributing to CVDs can modified with life-style changes (Carlsson et al., 2013). However, patients generally fail to adhere correctly to medical advice or to change their unhealthy behaviors that produces the causes of continuous hospital readmissions (Greco et al., 2016; Odegaard et al., 2011).

Previous research exhibits that important characterizes such as behavioral change, adherence to medicaments, reducing psychological distress, increased satisfaction and greater disease control are associated with the appropriate and effective provision of health information to the patients (Booth et al., 2005; Greco et al., 2016). Generally, the outcomes of providing information to patients are positively reported. Undoubtedly, empowering patients with information that they want increases their knowledge, improves functional ability, reduces stress and facilitates coping, well-being and personal control, enhance patients' competency; develops self-management, self-care and inculcates compliance with treatment; and decreases dependency on health services (Ormandy, 2011; Shu-Fen et al., 2017).

Information need is an identification of inadequate knowledge to achieve an aim (Mai, 2016) within a situation or context that anyone finds oneself at a specific point in the time". Concerning health-related information, people compare their current knowledge level against their health goals. a perceived gap drives them to seek further health information to satisfy their needs of detailed information about health issues, such as illness symptoms, medicine or

surgery information, prevention or treatment choices, type of health services (Abrahamson et al., 2008; Wilson, 2008; Zhao et al., 2019).

Patients are the individuals who require information about their disorders or conditions in a way to be enabled them in finding appropriate medical services, reducing risks of their illness, controlling their diseases, recognizing the side effects of medicines, and making informed health decisions about their care and treatments. Patients' preferred information needs are related to the aspects of their diagnosis, variety of symptoms, treatment, and side effects of therapy (Güleser, Taşci, & Kaplan, 2012). Prior studies highlight that the heart patients' information needs are very important required to be met. The evidences suggested that the heart patients perceived information needs as important with preferences related to risk factors, symptoms management, diagnosis, medication, cardiac anatomy and physiology, treatment, diet and physical activity (Astin et al., 2008; Greco et al., 2016).

A systematic review underlines that patient education is seriously important and essential in controlling heart diseases and improving the self-care abilities of heart patients (Yu et al., 2016). Correspondingly, understanding what type of information the patients need to know is essential to ensure quality care (Rutten et al., 2005), and enhance effectiveness and efficacy of education in reducing hospitalization. Moreover, provision of needed information about care and treatment algorithms (clear, undoubted, concise treatment pathways) encourages effective interaction with clinicians, reduces limitations of patients' functional ability produced by the disease, and endorses patient active involvement in making health decision. Therefore, assessment of information needs is apropos to make education more tailored, patient-oriented (Yu et al., 2016) and effective involvement in treatment decision making of heart patients (Decker et al., 2007).

### **Purpose of the Integrative Review**

This integrative review intends to examine the quantitative research to date in order to identify, evaluate, and summarize the patterns of health-information needs of patients with MI precursors. A focused literature review reveals that various quantitative and qualitative studies are carried to investigate and explore health-information needs of patients with the antecedents of MI (Scott & Thompson, 2003); however, scarcity is found for an integrative study. The scope of this review is then expanded to design a comprehensive study to integrate the patterns of patients' information needs related to MI precursors for potential implications. The study is primarily intended to facilitate cardiac health professionals and heart related organizations in developing heart patients' education programs, patient-clinician communication and health decision-making and to provide an important methodological resource in the field.

## Methods

The integrative review is an approach to explore the literature, critically appraise, synthesize, and summarize the empirical facts, results, and outcomes published in previous research in order to make effort for in-depth understandings, and apprehension or identify aspects of the phenomenon being researched and create new knowledge (Anthony & Jack, 2009; Torraco, 2016). The present integrative review is guided by the methodology of (Whittemore & Knafl, 2005) as it consists of five strategic steps including identifying problem, searching, evaluating, analyzing literature, followed by synthesizing and presenting results as illustrated in Figure 1. The reason of using Whittemore and Knafl's approach is as it allows to include diverse data sources such as qualitative explorations, quantitative investigations, and grey literature to reflect a problem. Thus, an extensive literature search is carried out in accordance with Whittemore and Knafl's methodology to evaluate what has been presently explored about patients' information needs related to myocardial infarction. This study is also intended to identify gaps in existing research and suggest future research that may target the information needs of heart patients (Whittemore & Knafl, 2005).

**Figure 1.** Whittemore and Knafl's Methodology for Integrative Review



### Search Methods

**Databases.** A comprehensive search strategy has been formulated to identify empirical literature from online databases including PubMed, Web of Science and Scopus according to the flowchart of literature search presented in Figure 2. A hand-searching in various journals (for the articles not indexed in databases) has also been conducted.

**Search strategy.** Different keywords are used to search and identify research studies addressing the information, learning and educational needs of heart patients to ensure a robust and definitive conclusion (Whittemore & Knafl, 2005). A list of keywords used in online databases is presented in search query.

**Search Query.** The following search query is applied to locate literature in the selected databases in the fields of title, abstract and keywords.

("information needs" OR "informational needs" OR "information requirements" OR "informational requirements" OR "information wants" OR "informational wants" OR "information preferences" OR "informational preferences" OR "learning needs" OR "educational needs" OR "care needs") AND ("myocardial infarction\*" OR "coronary artery\*")

**Figure 2:** Flowchart of Literature Search



**Inclusion criteria.** The inclusion criteria for selecting and synthesizing articles is based on the studies of (1) peer-reviewed; (2) addressing adults with age ( $\geq 60$  years); (3) being published in English; (4) using qualitative and (5) quantitative research. Although the inclusion of all available related research is ideal for a study based on integrative review; however, a justifiable sampling decisions can be applied in order achieve the objective of review timely and cost-effectively (Whittemore & Knafl, 2005).

**Exclusion criteria.** The studies were excluded if published under (1) Non-English languages; (2) focus on children or younger subjects (<25 years); (3) psychometric measurements/ assessments or tool developments; (4) study protocols, posters, unpublished dissertations, conference abstracts, or commentaries; (5) systematic reviews; (6) focusing on congenital heart disease or did not explore information needs. Only the primary article is included if multiple articles have been articulated on a single research study.

## **Results**

Out of 21 studies related to patients' information needs about MI, 15 published studies met our inclusion criteria. Out of 15 included studies, three have used CPLNI, five have adopted HFLNI and two studies have developed or adapted their data collection tools. Whereas, two exploratory studies have been carried out using focus group technique and four with interview method as presented in Table 1. Most important domains of information needs for patients with MI, HF and HA are including "risk factors, sign and symptoms management, information about medication, diet, physical activity and treatment" have been indicated that patients are required for their heart health.

### **Identification of studies**

A searched is being made in selected databases to locate studies on patients' information needs, learning needs, educational needs, information preferences, etc. related to myocardial infarction and its precursor such as heart failure, heart attack using any media or methods. Literature searched is made in the database including: Scopus, PubMed and Web of Science. Bibliographies of relevant papers have been searched and experts in the field contacted. Studies used either quantitative or qualitative method have been included to gather data on the self-perceived information needs of MI patients.

### **Quality Assessment**

Quality assessment shows that majority of selected studies  $f=9(60\%)$  have used quantitative research approach (Boyde et al., 2009; Clark & Lan, 2004; Fredericks, 2009; Kim, 2013; Shu-Fen et al., 2017; Smith & Liles, 2007; Timmins & Kaliszer, 2016) and  $f=6(40\%)$  have employed qualitative approach (Astin et al., 2008; Decker et al., 2007; Hanssen, 2005; Harding et al., 2008; Kimani et al., 2018; Yu et al., 2016). Quantitative studies have used cross-sectional survey, descriptive and correlational methods. On the other hand, four qualitative studies have used open and closed-ended in-depth interviews (Astin et al., 2008; Hanssen, 2005; Kimani et al., 2018; Yu et al., 2016) and two studies have employed focus group (Decker et al., 2007; Harding et al., 2008) as method of data collection. All the studies clearly stated the study purpose or objective.

**Table 1:** Characteristics and outcomes of studies that quantify or explore information needs of patients' with myocardial infarction and its precursors

Author (Year)	Objective	Methods & Setting	Sample Characteristics	Top Information Needs	Conclusion
Astin et al., (2008)	➤ Explored information needs of patients treated with heart attack angioplasty	Qualitative/ Interview conducted among post discharge patients	29 angioplasty HA patients Male= 17 Female=12	- Risk of recurrence - Heart muscle damage - Discharge medications - Physical activity - Diet	- Patients were satisfied with health information provision and it should be individualized to reflect patients' preferences.
Baert et al., (2019)	➤ Investigated information needs HF patients regarding sexual activity and problems	Quantitative/ Survey self-administered at hospital	74 HF patients Male= 54 Female=24	- Counselling about sexual activity - Relationships - Symptoms - Relaxation	- Patients needed information about counselling of sexual activity, relationships and relaxation
Boyde et al., (2009)	➤ Investigated learning style and learning needs of HF patients	Quantitative/ Survey administered at hospital	55 HF patients Male=38 Female=17	- Signs and symptoms - Prognosis	- Patients preferred learning style - read/write - auditory - kinaesthetic
Clark & Lan, (2004)	➤ Examine the perceived learning needs of HF patients	Quantitative/ Survey administered after post discharge	33 HF patients Male=16 Female=17	- Signs & symptoms - Medications - Prognosis - Risk factors - General HF Information - Diet - Activity - Psychological factors	- Due to lack of information about disease, patients could not be able to participate in assessments and did not have awareness about diagnosis of disease.
Decker et al., (2007)	➤ Describe MI patient preferences for involvement in decision making	Qualitative/ Focus Group conducted at cardiac center	19 MI Patients Male=15 Female=4	- Event and emergency care. - Treatment and hospitalization. - Discharge instructions. - Transfer to home. - Rehabilitation and recovery.	- Information needs changed as the patient progressed to recovery - Clinicians would assess preferences and increase awareness of evolving information needs
Fredericks, (2009)	➤ Identified learning needs of CABG patients ➤ Examined the relationships between identified LNs and demographic variables	Quantitative/ Survey administered at Hospitals	38 CABG Patients Male=29 Female=9	- Physical activities - Recognizing complications - Medication - Anxiety - Emotional reactions - Symptoms management	Learning needs significantly related to -patients' age - gender - cultural background - level of education



Author (Year)	Objective	Methods & Setting	Sample Characteristics	Top Information Needs	Conclusion
Hanssen (2005)	➤ Explored information needs and preferences for follow-up contact	Qualitative/ Focus Group conducted after discharge from hospital	14 AMI Patients Male=12 Female=2	- Hospital stay - Coming home - Patients' follow-up preferences	<b>Patients had unmet information needs regarding</b> - in-hospital and - Post-discharge.
Harding et al., (2008)	➤ Explored information needs of CHF patients to generate guidance for appropriate information provision to patients and their families	Qualitative/ Interview conducted in-hospital	20 CHF patients Male=16 Female=4	- Symptoms management - Symptom control efficacy	<b>Patients had poor understanding regarding</b> - Symptoms management - Symptom control efficacy - Disease progression and future care - Absence of discussion with staff - No choices offered for managing future exacerbations - Confusion regarding implications of diagnosis - Living with inadequate information that create uncertainty& anxiety - Psychological morbidity - Inability to plan appropriately
Ivarsson et al., (2009)	➤ Determined information types needed after MI to patients and their partners about sexual and relationships	Quantitative/ Survey administered at Coronary care units	MI patients at 73 Hospitals	- Counselling on sexual activity - Relationships - Symptoms - Relaxation	- Patients perceived cardiac specialists did not have sufficient competence and information regarding the topics of sexual and coexistence
Kim, (2013)	➤ Assessed the learning needs of HF patients	Quantitative/ Survey administered at hospital	121 HF Patients Male=80 Female=41	- Signs and symptoms - Medication - Risk factors - General HF information - Prognosis	<b>Korean patients had</b> - Lower learning needs than Western countries. - Low level of knowledge - Not recognise the importance of being informed - Depend on their physicians to make health decisions.

Author (Year)	Objective	Methods & Setting	Sample Characteristics	Top Information Needs	Conclusion
Kimani, Murray, & Grant, (2018)	➤ Explored the experiences of patients living and dying with HF	Qualitative (Interview)	18 HF patients Female=10 Male=8	- Information about illness - Prognosis - Self-care - Lifestyle changes - Prevention strategies	<b>Patients experienced</b> - Physical, psychosocial, spiritual and financial distress - Unmet needs for information about illness - Not know how it would affect them and how they could get better.
Shu-Fen et al., (2017)	➤ Investigate the learning needs of HF hospitalized patients	Quantitative/ Survey administered at hospital	97 HF Patients Male=69 Female=28	- Signs & symptoms - Risk factors - General HF information Medication	- Patients required essential information before discharge in line with reducing risk of readmissions, and learning needs.
Smith & Liles, (2007)	➤ Explore the information needs of MI patients who have received treatment before their discharge from hospital.	Quantitative/ Survey administered at hospital	20 MI Patients Male=17 Female=3	- Medications - Complications & symptoms - Treatment & activities of living	- Need information before discharge
Timmins & Kaliszer, (2003)	➤ Assessed post-MI patients' perceptions in a cardiac education programme at 1 <sup>st</sup> week ➤ Compared their perceptions 1 <sup>st</sup> week with 6 <sup>th</sup> week after the event	Quantitative/ Survey administered at hospital	27 MI Patients	- Physical activity - Symptom management - Medication information - Lifestyle factors - Sexual activity	- Patients required to be educated for the provision of important information to enable them to focus on recovery and prevention from disease.
Yu et al., (2016)	➤ Assessed information needs of older people with HF	Qualitative/ Interview conduct among HF patients at hospital	26 HF Patients Male=15 Female=11	- HF patients had little knowledge of disease - Coping strategies want to learn manage their disease.	<b>Living with inadequate information</b> - Content of INs - Motivators for information learning - Barriers to information acquisition - Preference for information delivery

HF= Heart failure

HA= Heart attack

MI= Myocardial infarction

AMI= Acute myocardial infarction

INs= Information needs

LN= Learning needs

Furthermore, out of 15 selected studies, four adopted HFLNI (Boyde et al., 2009; Clark & Lan, 2004; Kim, 2013; Shu-Fen et al., 2017), three CPLNS or PLNS (Fredericks, 2009; Smith & Liles, 2007; Timmins & Kaliszer, 2016), and two used developed or adapted questionnaires (Baert et al., 2019; Ivarsson et al., 2009) for data collection. Gerard and Peterson (1984) formulated an instrument “Cardiac Patient Learning Needs Inventory (CPLNI)” for their study that was consisted of 43 items segmented into 8 domains: “cardiac anatomy & physiology, risk factors, medications, psychological concerns, physical activity information, dietary information, introduction to CCU and miscellaneous information”. Each category contains between four and seven items and the patients were asked to rate on two Likert-type scales. Additionally, a miscellaneous section as well as an open question were added at the closure of the tool (Gerard & Peterson, 1984) as presented in Table 1.

Similarly, the tool “Heart Failure Learning Style and Needs Inventory (HFLNI)”, is a blend of two formerly validated survey tools (Clark & Lan, 2004; Fleming & Mills, 1992) including (VARK: visual–aural–read/write–kinesthetic) and modified (Outpatients HFLNI). The HFLSNI consisted of 46 closed-response items; 13 multiple-choice; and one open-ended question segmented into 8 domains such as “risk factors, signs & symptoms, prognosis, medications, psychological factors, activity, diet, and general heart failure information” (Clark & Lan, 2004; Fleming & Mills, 1992) as presented in Table 1.

As the two studies were found non-CPLNI and HFLNI (Baert et al., 2019; Ivarsson et al., 2009). These studies used different instruments and produced heterogeneous results. A narrative summary is quantitative as well as qualitative studies presented in the meta-analysis.

### **Discussion**

The present integrative review tends to synthesize previous research produced to investigate and explore perceived information, learning and educational needs of MI patients as well as the study addressing the precursors of MI. Although several studies have focused on learning, educational and information needs of MI patients; however, the study in hand is the first integrative review that has synthesized empirical literature concentrating on information needs of MI patients.

A focus group based study by Decker et al. (2007) had explored information needs of MI patients. The study explained the key information needs were including “event and emergency care; treatment and hospitalization; discharge instructions and clear understanding about map of directions”. The study concluded both the role of the patient in decision making and information needs changed as the patient progressed from the acute event to recovery. Moreover, well informed patients reported active involvement in their rehabilitation and recovery and they took a very proactive role in re-establishing their health. Another similar

study by Harding et al. (2008) underlined the HF patients' major information needs including "symptoms and management understanding of disease, symptom control efficacy, and disease progression and future care". Astin et al. (2008) synthesized and highlighted the important information needs of patients with heart attack including a "need for more specific information about the risk of recurrence, the level of heart muscle damage, discharge medications, appropriate levels of physical activity and diet". The study concluded that health information provision should be individualized to reflect patients' preferences.

Yu et al. (2016) underlined that HF patients were living with inadequate information, poor understanding of heart disease, inadequate knowledge of medication and feel uncertainty about coping strategies. However, the study summarized the important information needs of HF patients were regarding "risk factors, medication, and disease management strategy." The study concluded that by addressing patients' information needs, health professionals therefore could assist patients to adapt and manage their disease effectively. Kimani, Murray, and Grant (2018) explored the information needs and found out that the HF patients experienced physical, psychosocial, spiritual and financial distress. The study summarized the important information needs were "information about illness, how it affects and be recovered better, symptoms and responsive treatment".

CPLNS studies reported highly important information needs of MI patients were related to "medications, complications and physical activities" alongside "driving, returning to work and community support" (Smith & Liles, 2007). Second study based on CPLNS added the most frequently learning needs including "performance of physical activities, recognizing the complications, prevention and management of sudden swelling, decreasing and avoiding postoperative complications, and dealing with chest and/or incision pain (Fredericks et al., 2009). Furthermore, another used CPLNS and identified highest ranks of information domains including "symptoms management; medication information; lifestyle factors; anatomy and physiology" (Timmins & Kaliszer, 2003).

The studies based on HFLNI or HFLNI suggested that HF patients' top information needs in post-discharge settings were related to the topics of "signs and symptoms, medications, diet, activity, and psychological factors" (Clark & Lan, 2004). Similar, another such type of study highlighted that HF patients wanted to learn educational topics including "signs and symptoms followed by prognosis" (Boyde et al., 2009). The descriptive and exploratory study of Kim (2013) assessed the learning needs of HF patients HFLNI. The study indicated that HF patients had a low level of knowledge about heart failure and did not recognize the importance of being informed about their disease., which was why Korean patients with heart failure tended to depend on their physicians to make decisions related to

their health management. Later on, the study of Shu-Fen et al. (2017) revealed that HF patients wanted to learn about “signs and symptoms, risk factors, general HF information, and medications”. However, the topics relating to diet, activity, and psychological factors were poorly valued.

The non-CPLNI or non-HFLNI studies (Baert et al., 2019; Ivarsson et al., 2009) reported that the patients and their partners did receive adequate oral or written information about sexual function and coexistence, besides it is a central aspect of human life and wellbeing. However, the important information needs of MI patients were related to sexual function and coexistence with their partners (Ivarsson, Fridlund, & Sjoberg, 2009). The second similar study also indicated the important information needs of HF patients regarding the topics of “counselling about sexual activity, relationships, symptoms and relaxation” (Baert et al., 2019).

### **Limitations**

Due to the inclusion of small body of literature, several limitations can hinder the generalizability of integrative review. First, only three databases such Scopus, PubMed, and Web of Science were selected to search literature on the information needs of MI patients. Therefore, social desirability bias could be a potential confounder of including studies. Methodologically, only a few studies were identified using qualitative and quantitative research approaches that could not address extensively and provide a complete picture of a MI patient’s information needs and ultimately capture the results. Additionally, symptomatic information needs of patients with MI disease were only assessed in a minimal number of studies. There were to this integrative review. Moreover, other limitations include the selection of only peer-reviewed articles, exclusion of non-English studies, gray literature, reports, thesis, systematic reviews, etc. might yield additional findings. Lastly, the author has made filtered search in selected databases (PubMed, Web of Science and Scopus) and fields (Title, Abstract and Keyword) within the time span of 2001 to 2020 that may unable to determine all published articles.

Despite the limitations, the studies indicated that MI patients had unmet information needs after discharged from hospital as they were served inadequately and could not be provided appropriate information about follow-up support (Hanssen, 2005). Additionally, the health staff did not provide proper information regarding the symptoms; therefore, the patients and their carers severely lacked understanding of chronic heart failure condition (Harding et al., 2008). Alike the study of Yu et al. (2016) exhibited that HF patients had inadequate knowledge of their information needs. They did not have understanding of heart disease, medication and coping strategies. The study of Kimani et al. (2018) found out that the HF

patients had unmet needs for information about their illness, how it would affect them and how they could get better. However, the study of (Astin et al., 2008) indicated that the patients were found satisfied with the provision of health information after discharge from hospital.

Therefore, it was suggested that older and retired people would be given more attention to deliver information than younger and employed patients (Smith & Liles, 2007). Similarly, the learning needs are differed by gender as the male patients reported a higher needs of information than their counterparts in addition to across cultural groups and age groups (Fredericks et al., 2009).

## **Conclusion**

Findings of this integrative review demonstrates that the MI patients exhibited the key information needs related to “anatomy and physiology; risk factors; signs and symptoms; symptom control efficacy; treatment and hospitalization; prognosis; medication; emergency care; psychological factors; physical activity; lifestyle factors; disease management strategy; diet; discharge instructions; community support; postoperative care and sexual activity”. The studies reviewed indicated that a disparity in providing proper information to MI patients is existed and several included studies found unmet information needs among the patients with myocardial infarction including heart failure, heart attack, etc. Although some differences among subgroups are existing, this integrative review has identified several similarities in information needs of MI patients across studies. Assessments of information needs among MI patients is found in Pakistan. Healthcare organizations and researchers can use the results from this integrative review to design health-information needs assessments, compare the results that they obtain with those previously disseminated, and to inform higher quality service provision.

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