

## MEDICATION BELIEFS IN PATIENTS FOLLOWING PERCUTANEOUS CORONARY INTERVENTION: A CROSS-SECTIONAL STUDY

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### Abstract

Patients post percutaneous coronary intervention need to take medication for their health. Beliefs about medication influence patients' adherence in taking their medication regimens. Therefore, the study aimed to identify medication beliefs in patients following percutaneous coronary intervention in Indonesia. This research used a cross-sectional study with the convenience sampling method. A total of 132 adult patients following Percutaneous Coronary Intervention participated in this study. This study used The Beliefs about Medicines Questionnaire to identify patients' beliefs about medication. The majority of respondents were male (85.6%) with a mean age of 60 years. Beliefs about general overuse were found to be the highest among other categories; specific-necessity, specific concern, and general harm. Elucidating patients' beliefs about the medication will provide health care providers with a better understanding of patient medication behaviors after percutaneous coronary intervention. Recognition of patients' beliefs may aid in targeting specific intervention programs to improve patients' adherence to medication following Percutaneous Coronary Intervention procedure.

**Keywords:** medication beliefs, percutaneous coronary intervention (PCI)

### Abstrak

**Keyakinan Pengobatan pada Pasien yang Menjalani Intervensi Coronary Percutaneous: A Cross-Sectional Study.** Pasien pasca intervensi koroner perkutan atau percutaneous coronary intervention (PCI) perlu minum obat untuk kesehatannya. Keyakinan terhadap pengobatan berpengaruh pada kepatuhan pasien dalam menjalani rejimen pengobatan. Penelitian ini bertujuan untuk mengidentifikasi keyakinan pengobatan pada pasien yang mengikuti PCI di Indonesia. Penelitian ini menggunakan studi cross-sectional dengan metode convenience sampling. Sebanyak 132 pasien dewasa yang menjalani prosedur PCI berpartisipasi dalam penelitian ini. Penelitian ini menggunakan The Beliefs about Medicines Questionnaire untuk mengidentifikasi keyakinan pasien tentang pengobatan. Mayoritas responden adalah laki-laki (85,6%) dengan usia rata-rata 60 tahun. Keyakinan tentang penggunaan berlebihan secara umum ditemukan sebagai yang tertinggi di antara kategori lainnya yaitu kebutuhan-spesifik, perhatian khusus, dan bahaya umum. Informasi mengenai keyakinan pasien tentang pengobatan akan memberikan pemahaman yang lebih baik bagi penyedia layanan kesehatan tentang perilaku pengobatan pasien setelah prosedur PCI. Pengakuan keyakinan pasien dapat membantu dalam menargetkan program intervensi khusus untuk meningkatkan kepatuhan pasien terhadap pengobatan setelah prosedur PCI.

**Kata Kunci:** keyakinan pengobatan, percutaneous coronary intervention (PCI)

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### Introduction

Percutaneous coronary intervention (PCI) is a commonly used treatment for patients with coronary artery disease to restore coronary blood flow. The number of PCI procedures has risen steadily every year. In the United Kingdom, the

number of PCI procedures in 2013 was 92,589 and there was increasing in the rate of primary PCI which reached 380 per million population (Ludman, 2011), while in India in 2011 there was 28.8% growth of PCI procedures which a total of 152,322 procedures (Ramakrishnan, Mishra, Chakraborty, Chandra, & Mardikar,

2014). In Indonesia, the number of PCI procedures that have been performed is unknown. Nonetheless, since cardiovascular disease is the leading cause of death cases in Indonesian hospitals (9.49%) in 2010 (Kemenkes RI, 2012), an increasing number of PCI procedures can be postulated.

Despite the effectiveness of PCI as a first-line reperfusion therapy, PCI has a high risk of complications. The most significant clinical problem after PCI procedure is restenosis (Odell, Grip, & Hallberg, 2006). Related to restenosis, after a PCI, patients must take their medication regularly, which means that they need to adhere to take their medication to decrease the risk factors associated with PCI complications. However, studies conducted in Spain, Germany, Italy, and Scotland have expected that up to 30% of PCI patients did not follow their prescribed regimens (De la Torre-Hernández, et al., 2008; Iakovou, et al., 2005; Rushworth, Cunningham, Mort, Rudd, & Leslie, 2012).

Factors associated with medication adherence have been previously described in studies regarding patients with chronic disease conditions such as hypertension, hyperlipidemia, diabetes, and others. Rolnick, Pawloski, Hedblom, Asche, dan Bruzek (2013) have identified various demographic data such as gender, age, education, income, ethnic, and comorbidity as predictors of medication adherence. However, across studies and countries, patient demographics are not consistent in predicting medication-taking behavior. A study by Gatti, Jacobson, Gazmararian, Schmotzer, and Kripalani (2009) in Atlanta found that gender, race, marital status, education, and income were not associated with medication adherence. Interestingly, in following medication routines, beliefs about treatment are recognized as one factor that has a strong influence on improving patients' adherence (DiMatteo, Haskard & Williams, 2007). Belief about medication is related to people view about medicines that are categorized into two aspects, the first is beliefs about medication in general, and the second is focused on

specific medications that have been prescribed for a particular disease (Horne & Weinman, 1999). Several studies have indicated that patients who have positive beliefs about medication, which mean beliefs about the necessity of medicines to maintain their health status, have a high level of adherence compared with patients who have negative beliefs, which more concern about medication that being addictive, poisonous, harmful, and overprescribed by physicians, and the adverse effect of medicine in long-term treatment (Byrne, Walsh, & Murphy, 2005; Gatti et al., 2009).

However, limited studies have been conducted to explore beliefs about medications in patients following PCI (Austin, Casan, Baldi, Meredith, Hope, & 2009). Austin, et al. (2009) who conducted a study in Australia found that a belief about medication was associated with medication adherence. Related to that, diversity of ethnic and religion may affect patients' beliefs about medications, especially in Indonesia whose has diverse ethnicities and religions. However, no study has been conducted before in Indonesia. In order to understand patients' beliefs about medication-taking behavior after PCI procedure, it is necessary for Indonesian nurses as health care professionals who closed to the patients to identify medication beliefs in medication-taking behavior in patients post PCI. Identifying this condition can enhance nurses' knowledge and avail new perspectives about medication beliefs in patients following PCI for a better understanding of this phenomenon that hopefully leads to interventions that help patients post PCI. Therefore, the objective of this study was to identify beliefs about medication in patients following PCI in Indonesia.

## **Methods**

**Design and Sampling.** This research used a cross-sectional study with a convenience sampling method to identify participants' candidates at out-patient department of a general hospital in West Sumatera, Indonesia. Patients

who underwent PCI from March to April 2014 were eligible to participate. Patients were included if they were over 18 years old, had undergone a successful PCI with no post-procedure complications, and were able to understand or read Bahasa Indonesia. Patients with a self-reported history of malignancy or psychiatric disease were excluded.

**Instruments.** In addition to a demographic questionnaire, medication beliefs of patients following PCI were measured using the *Beliefs about Medicines Questionnaire (BMQ)*. The BMQ developed by Horne, Weinman, and Hankins (1999) and consisted of two factors: specific beliefs and general beliefs about medications. Beliefs about medication in specific beliefs, it consists of specific-necessity, which focuses on the effectiveness of medication in maintaining a person's health status, and specific-concerns, which emphasized on possible adverse effects of medications in long-term treatment. For general, include general-harm that is concerned about the potential of any medication to be harmful, poisonous and addictive, and general-overuse that addresses the notion that medication is over-prescribed by physicians.

The BMQ includes 19 items with four subscales: necessity (5-items), concerns (6-items), harm (4-items), and overuse (4-items). The subject applies a 5-point Likert scale range from 1= strongly disagree to 5= strongly agree and the total score ranges from 19 to 95. For each subscale of the BMQ, the range scores were varied. Specific necessity is ranging from 5 to 25, specific-concerns 6 to 30, general-harm and general-overuse 4 to 20, respectively. Higher scores on the specific-necessity represent stronger beliefs about the necessity beliefs, while higher scores on the specific-concerns, general-harm, and general-overuse indicate the stronger beliefs about the potential adverse effects of medicine in long-term period, potential medicine being harmful, poisonous, or addictive, and overprescribed of medicine by physicians.

The original BMQ was translated into Bahasa Indonesia based on international guidelines using forward and backward translation procedures to preserve the accuracy of the translation (Guillemin, et al., 1993; Wild, et al., 2005). Upon completion of the translated version, four cardiovascular experts were invited to review the content validity of the translated instrument. The Content Validity Index (CVI) for each item and subscales was calculated (Polit & Beck, 2006). The mean item CVI and subscale CVI of the translated BMQ were 0.90. The original BMQ had established internal consistency in patients with chronic cardiac disease ranged from 0.51 to 0.76 (Horne et al., 1999). Cronbach's alpha for the Bahasa BMQ items ranged from 0.30 (harm) to 0.68 (concern).

**Procedures.** The research ethical approval was acquired from Faculty of Nursing Universitas Indonesia and permission to conduct the study was obtained from M. Djamil general hospital, West Sumatera, Indonesia. Subjects were recruited in the cardiac outpatient department. Subjects who met the inclusion criteria of this study were identified through medical record review. After providing written informed consent, subjects completed the research instruments in the Cardiac Outpatient Department while waiting for a clinic visit.

## Results

**Participants' Characteristics.** A total of 132 patients were invited and agreed to participate. The majority were male  $n= 113$  (85.6%) with a mean age of 60 years old ( $SD= 9.5$ ) (Table 1). All patients were married. Most of them had finished education at junior high or above. More than half of the respondents did not work (60.6%). The respondents were predominantly of Minangkabau ethnicity (91.7%). Nearly 75% reported comorbid disease with  $n= 80.3\%$  ( $n=106$ ) taking over 5 kinds of medications. Nearly a quarter of the participants reported experiencing a PCI more than once with most undergone an elective PCI. Time since the last

PCI ranged from 6 months to 14 years with a mean of 22.6 months (SD = ± 21.03).

**Beliefs about Medicines.** The data provides the average patients’ beliefs about medication in long term treatment for each subscale. The item mean score of the BMQ categories was identified, as shown in Table 2. The subscale

score item means ranged from 2.6 to 3.1, with a total score item mean of 2.8. The belief that physicians overprescribe scored as the highest. In short, the item mean of general overuse beliefs was found to be the highest among other categories, which indicated that patients have strong beliefs that the medications were overprescribed by physicians.

Table 1. Demographic Data and Clinical Factors

Variables	N	%	M ±SD	Range
Age			60 ± 9.46	37–98
Gender				
Male	113	85.6		
Female	19	14.4		
Marital status				
Married	132	100		
Education level				
Basic education (< junior high)	24	18.2		
High education (> junior high)	108	81.8		
Employment status				
Unemployee	80	60.6		
Employee	52	39.4		
Ethnicity				
Minang	121	91.7		
Others	11	8.3		
Comorbidities				
No disease	39	29.5		
1 or more diseases	93	70.5		
Number of medications				
1-4	26	19.7		
>5	106	80.3		
Number of PCI				
1	103	78.0		
More than 1 time	29	22.0		
Reason for PCI				
Emergency	44	33.3		
Elective	88	66.7		
Last PCI procedure (month)			22.59 ± 21.03	6–168

Table 2. Descriptive of The BMQ Scales

	Maximum score	Mean score (SD)	Item mean (SD)
BMQ-specific necessity	25	14.67 (3.32)	2.93 (0.66)
BMQ-specific concerns	30	15.74 (3.43)	2.62 (0.57)
BMQ-general overuse	20	12.44 (2.44)	3.11 (0.61)
BMQ-general harm	20	10.77 (2.21)	2.69 (0.55)
BMQ-total score	95	53.62 (7.69)	2.82 (0.41)

## Discussions

In this study, the item mean score of each BMQ subscale was identified. The item mean score was used to indicate strong beliefs about medications. Generally, in this study, general overuse which mentioned as the notion that medication is over-prescribed by physicians was revealed as the highest item mean score ( $3.11 \pm 0.61$ ) compared to other categories. Contrary to the current study, Mahler, et al. (2010) found that the item mean score ranged as follows; specific necessity ( $4.45 \pm 0.71$ ), specific concern ( $2.71 \pm 1.00$ ), general overuse ( $2.93 \pm 0.96$ ), and general harm ( $2.12 \pm 0.89$ ). Moreover, another study revealed with different findings that the item mean score for the specific necessity was  $2.2 \pm 0.7$  and  $3.8 \pm 0.5$  for the general harm (Sud, et al., 2005). Varying results between previous studies and the current research may occur due to patients' characteristics that relate to culture issues because the majority (91.7%) of the respondents in this study is Minangkabau ethnic who have unique cultures' characteristics. The unique Minangkabau ethnic characteristics associated with the strong Islamic faith, matrilineal customs, which assumed as the largest matrilineal ethnic groups in the world, and out-migration (Kato, 1982). Islamic people believe that everything happens because of God's will. Therefore they only depend upon God and not on necessity. Those characteristics may influence patients' views about medication in general and specifically for particular diseases.

More specifically for patients following PCI, the specific-concerns and general-overuse with long-term medication adherence seems to be reasonable when it is related to PCI procedure characteristics which involved a short length of stay in hospital (Patel, et al., 2010) and improved psychological well-being along with immediate functional status improvement following the procedure (Allen, Fitzgerald, Swank, & Becker, 1990). Those characteristics may have an impact on receiving information about prescribed medication regimens from health

care providers, because the short period of time may reduce the consultation session, particularly discussing the necessity and potential side effects of medication. A strong belief in overuse means that patients perceive that physicians prescribe too many medications, rely too much on the prescribed medication regimen, and do not have enough time for patients. Those conditions seem logically acceptable because physicians may add more medications if the prescribed medications for patients cannot control their health. The belief that doctors do not have enough time for patients and more likely to trust medication might occur due to deficits in the patient and doctor communication (Hughes, 2004). Consequently, patients may pay more attention to the potential adverse effects of medication and think that their medications were overprescribed by physicians. Therefore, specific-concerns and general-overuse may relate medication adherence behavior in patients post PCI. Understanding those beliefs will be useful for health care professionals to improve patients' beliefs about medication. Actually, there are still many issues that need to be considered in further understanding medication beliefs in patients undergoing PCI.

The present study has a limitation. Subjects in this study were from one hospital in Indonesia, which limits generalization of the study findings.

## Conclusions

This study highlights the beliefs about medication in patients following PCI in Indonesia. General overuse, which means the physician overprescribe the medication had the highest score. Certainly, this study can be the first step toward comprehending medication beliefs in medication-taking behavior for health care providers in taking care of patients post PCI. Recognition of patients' beliefs about medication may aid in targeting specific intervention programs to improve patients' adherence to medication following PCI procedure (GC, HS, DW).

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