



Review

The effect of economic downturn on the volume of surgical procedures: A systematic review



Nasa Fujihara ^{a, b}, Meghan E. Lark ^c, Yuki Fujihara ^{a, b}, Kevin C. Chung ^{d, *}

^a International Research Fellow, Plastic Surgery Section, University of Michigan, Ann Arbor, MI, United States

^b Department of Hand Surgery, Nagoya University, Nagoya, Japan

^c Research Associate, University of Michigan Medical School, Ann Arbor, MI, United States

^d Professor of Surgery, Department of Surgery, Section of Plastic Surgery, Assistant Dean for Faculty Affairs, University of Michigan Medical School, Ann Arbor, MI, United States

HIGHLIGHTS

- 12 articles were reviewed.
- Most surgical volumes were generally decreased when economic indicators declined.
- Further research is especially required in the non-elective surgery field.

ARTICLE INFO

Article history:

Received 4 April 2017

Received in revised form

8 June 2017

Accepted 11 June 2017

Available online 15 June 2017

Keywords:

Economic recession

Surgery

Surgical volume

Adverse effect

Systematic review

ABSTRACT

Background: Economic downturn can have a wide range of effects on medicine at both individual and national levels. We aim to describe these effects in relation to surgical volume to guide future planning for physician specialization, patient expectations in the face of economic crises, or estimating healthcare expenditure. We hypothesized that because of high out-of-pocket costs, cosmetic procedure volumes would be most affected by economic decline.

Methods: A systematic review was conducted using MEDLINE, Embase, and ABI/INFORMS. The main search terms were “economic recession” and “surgical procedures, operative”. Studies were included if surgical volumes were measured and economic indicators were used as predictors of economic conditions.

Results: Twelve studies were included, and the most common subject was cosmetic ($n = 5$), followed by orthopedic ($n = 2$) and cardiac surgeries ($n = 2$). The majority of studies found that in periods of economic downturn, surgical volume decreased. Among the eight studies using Pearson’s correlation analysis, there were no significant differences between cosmetic procedures and other elective procedures, indicating that cosmetic procedures may display trends similar to those of non-cosmetic elective procedures in periods of economic downturn.

Conclusions: Surgical volume generally decreased when economic indicators declined, observed for both elective and non-elective surgery fields. However, a few specific procedure volumes such as vasectomy and caesarean section for male babies increased during the economic downturn. Knowledge of these trends can be useful for future surgical planning and distribution of healthcare resources.

© 2017 IJS Publishing Group Ltd. Published by Elsevier Ltd. All rights reserved.

1. Introduction

Since the worldwide economic downturn of 2008, there has been a growing interest in evaluating the impact of macro-economic events on population health. Several studies have indicated that economic downturn may affect health metrics such as physician visits, diagnostic rates, medication use, and even disease incidence [1–4]. Moreover, in studies of surgical volume, economic

* Corresponding author. Section of Plastic Surgery, University of Michigan Health System, 2130 Taubman Center, SPC 5340, 1500 E. Medical Center Drive, Ann Arbor, MI, 48109-5340, United States.

E-mail address: Kecchung@med.umich.edu (K.C. Chung).

downturn has been shown to affect the utilization of specific surgical procedures, such as cosmetic surgeries or total joint replacement [5–9].

With the continual expansion of global healthcare expenditure, the appropriate distribution of financial resources is an important issue. This issue is intensified in the field of Surgery, which accounts for a large fraction of healthcare expenditure [10–12]. The substantial financial burden of surgery has been shown to encompass not only direct expenses, but also expenses related to complications, hospital stay, rehabilitation, and even the risk of job loss [13,14]. In managing limited financial resources during periods of downturn, estimation of future surgical capacity is an international priority [9]. Knowledge of poor economic climates and their effects on surgical volume is integral for efficient healthcare budgeting in preparation for future economic downturn. However, a study synthesizing the evidence regarding the effect of economic downturn on surgical volumes does not exist.

In this study, we aimed to systematically review studies describing the effect of economic downturn on specific surgical volumes to identify potential trends. We also examined and described studies that reported the effect of economic downturn at an individual level, for both patients and clinicians. We hypothesized that cosmetic procedures are more affected by the economy than other procedures because of their selectivity and high out-of-pocket costs. Knowledge of surgical trends during economic crises can be helpful in preparing for future health care expenditure and resource allocation in periods of economic downturn. Additionally, describing these trends is useful for the decision-making processes of both physicians and patients in periods of economic uncertainty.

2. Methods

2.1. Literature search and selection criteria

A literature search following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines was conducted in June 2016 using MEDLINE, Embase, and ABI/INFORMS. The MEDLINE search used two MeSH terms, “economic recession” and “surgical procedures, operative” (Table 1). All studies examining the relationship between economic downturn and surgical volumes were included. The following specific criteria were used for inclusion: 1) Full-length articles demonstrating the effect of economic downturn on the volume of surgical procedures. 2) Articles using economic indicators 3) Articles with a statement of the source of data, and the method of data analysis, if analysis was done. Our exclusion criteria included: 1) overlapping authors and/or data, 2) review articles, 3) abstract-only studies, and 4) studies using more than one country. We did not limit our review to any specific date or language.

2.2. Study selection

Two independent authors (N.F. and M.L.) evaluated the eligibility of all identified studies using the criteria above. After the title and abstract screening, all full-length articles were carefully reviewed to determine study inclusion or exclusion. If a

disagreement occurred between two authors, the discussion included a third author. The quality of studies was assessed using the STROBE checklist [15]. This list includes 22 items, and studies implementing 7 items or less were deemed as high risk of biases, 8 to 15 as moderate, and 16 or more at low risk [16].

2.3. Data extraction and statistical analysis

Data were extracted from each study and the following variables were recorded: country, subject, time frame, surgical procedure(s), methods of analysis, measures used to define economic downturn, and summary findings. Among the studies using Pearson's correlation statistics, statistical differences were determined using Welch's *t*-test. We also extracted descriptions of the effect of economic downturn on patients and clinicians to see if there are considerable factors for decision-making.

We did not categorize financial and stress-induced effects of economic downturn separately in this study. Instead, we classified studies into groups based on whether the procedure studied was an elective or non-elective procedure. We defined elective surgery as procedures that do not involve emergency operations and could be delayed, such as cosmetic or joint replacement surgeries, whereas non-elective procedures were defined as surgery resulting from emergency injuries or conditions. Additionally, we descriptively reviewed the effect of economic downturn at an individual level for both patients and clinicians.

3. Results

3.1. Characteristics of included studies

A schematic flow of our sample is represented in Fig. 1. Initially, 508 studies were identified. After title and abstract screening, 40 studies were reviewed by two authors. Finally, 12 studies were included in this systematic review.

Nine studies described the effect of economic downturn(s) on elective surgical procedures, whereas the remaining four examined non-elective procedures (Table 2). The most common subject was cosmetic ($n = 5$), followed by orthopedic ($n = 2$) and cardiology procedures ($n = 2$). Because a large amount of included studies evaluated cosmetic procedures, we categorized studies in the following three groups: cosmetic surgeries ($n = 5$) [17–21], elective non-cosmetic surgeries ($n = 3$) [22–24], and non-elective surgeries ($n = 4$) [25–28] to compare differences between these groups descriptively. Nine studies were carried out in the United States and two were conducted in the United Kingdom and Germany. Argentina was the only developing country included in this study. Although we did not limit the study time period, all studies were published after 2000 (2004–2015), which indicates that they reflect at least one of the two major worldwide economic downturns of the early 21st century (the early 2000s recession, the Great Recession of 2008). Eight studies used national data, whereas the remaining studies used single or multiple institution data. Most studies focused on the financial aspects of surgery ($n = 11$), whereas only one study focused on the stress hypothesis [26].

Table 1

Search terms for MEDLINE.

Search term for MEDLINE (1 and 2)

1. Exp economic recession/or ((economic* or financial*) adj10 (recession* or depression* or downturn* or crisis or crises)).tw.
2. Exp surgical procedures, operative/or surgery.fs. or (surger* or surgical* or surgeon* or operativ*).tw.

Download English Version:

<https://daneshyari.com/en/article/5731637>

Download Persian Version:

<https://daneshyari.com/article/5731637>

[Daneshyari.com](https://daneshyari.com)