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Original Article

The characteristics of private plastic surgery practice in developing country: An epidemiological study

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ABSTRACT

Background: With the rise in working-age population, there has been notable economic growth in Indonesia. Along with it, there is an increase in expenditure for non-food items such as health-care service, without exception to plastic surgery practice. Aesthetic plastic surgery practice has gained its popularity in several other developing countries such as Brazil, Russia, India and China. Epidemiology report of private plastic surgery practice in Jakarta, the capital of Indonesia, will provide the evidence of increasing need for aesthetic plastic surgery practices as the basis for further improvement. **Methods:** This is a single-centre descriptive cross-sectional study with a total sampling method which included all patients registered at a private plastic surgery clinic between January 2008 and December 2016. **Results:** There were 1457 medical procedures. The majority (93.4%) of patients were female. More than 80% were surgical procedures, the most common ones were breast implant and blepharoplasty with the latter being similarly popular in both gender. The majority of the patients fell into 20–45-year-old group. Patients <20-year-old had undergone a more minor surgical procedure such as skin tumour and nevus excision or scar treatment while patients >45-year-old had more procedures with rejuvenation purpose. **Conclusion:** The epidemiology of private plastic surgery practice in an urban area of developing country resembles those in either developed or developing countries with a similar socio-demographic profile. This data can be further utilised for a more focused private plastic surgery practice improvement. The limitation however is that, the study is based on a single centre data.

KEY WORDS:

Aesthetic surgery; epidemiology; private plastic surgery

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INTRODUCTION

Indonesia's economy has markedly recovered since the Asian financial crisis through 1997 and 1998. Even more, the global economic downturn in 2008–2009 did not cause significant effect, marking the steadier Indonesia's economy. This remarkable growth has been chaperoned by inflation rate not exceeding its expected range.[1,2] The rise in working-age population partly explains this finding. The higher proportion of working-age citizens results in solid domestic demand, especially in household consumption expenditure and consumption of non-food items. One of the most important expenditures and a non-food item is health-care expenses. Along with increasing percentage of citizens living in urban areas, from 17% in 1969 to 53% earlier this decade, the sectors providing health-care services in a big city such as Jakarta face a great challenge.[1]

The demand for reachable specialised health-care services of high quality is surging including plastic surgery practice. Earlier medical reports showed that plastic surgery practices in developing countries were still focussing on the unmet-need for reconstructive purposes in severe trauma, advanced malignancies, burn contractures and congenital deformities cases.[3,4] However, research in International Studies found evidence for globalisation of aesthetic plastic surgery that caused its increasing demand in several other developing countries such as Brazil, Russia, India and China. The reasons behind this normalisation and cultural habituation were Western world's interest in the global market, which led to its higher than ever influences to third-world countries; booming capitalist economy; a new trend of hyper-consumerism; emerging beauty industry and pageants and the dominance of youth culture, which is focusing on achieving modernity.[5] These are the phenomenon which could also be observed in an urban area of Indonesia, especially its capital city, Jakarta.

The shifting paradigm in aesthetic surgery and higher per capita income are two pivotal factors behind the increasing number of private plastic surgery clinics in Jakarta. However, there has neither been patients' demographic nor epidemiologic report. This is important to collect as it will help in providing the evidence of increasing need for aesthetic plastic surgery practices and in establishing room for its improvement. Hereby, this current report aims to depict descriptive statistical data in one private plastic surgery clinic located in South Jakarta, Indonesia.

METHODS

This is a descriptive cross-sectional study in patients seeking plastic surgery service.

Subjects and sample size

All patients at a private plastic surgery clinic who were registered between January 2008 and December 2016 were included in the study (total sampling method).

Based on national centre for statistics institute (Badan Pusat Statistik) report in 2014, the district was one of the most populated ones in DKI Jakarta Province with the total number of birth in 1 year exceeded its death rate by over 2000.[6] However, the registered specialist doctors who owned private clinic were only 27.[7]

Research flow

All patients' medical records were collected in February 2017. There were three researchers retrieving the data from medical records. The data were coded into a spread sheet with a predetermined standardised template which had been approved by the leading researcher. After data collection was completed, we proceeded to data processing and analysis conducted by one researcher.

Data processing and analysis

There was not any previously designated hypothesis because it is a descriptive study. The software programs used for data recording, processing and analysis were SPSS 20.0 for Windows by IBM Corp., Armonk (N.Y., USA). The categorical data would be presented in percentage while numeric data would be measured for its mean and standard deviation or median and minimum-maximum value. The tenth most commonly performed procedure in each year would be shown as bar graphs.

RESULTS

In February 2017, all available medical records from 2008 to 2016 were collected. During this 9 years-period, there were 985 new patients registered. The patients' socio-demographic characteristics are presented in Table 1. The total number of medical intervention reached 1457 procedures. Accordingly, one patient had one to two procedures on an average. However, there were 153 medical records the diagnosis information in which was incomplete.

In general, there are two kinds of procedure done in plastic surgery clinic: surgical and non-surgical procedures. Out of the 19 most frequent procedures in 9 years' time, 15 were surgical procedures, and the rest are non-surgical [Table 2]. Among the surgical procedures, only nevus and skin tumour excision and liposuction were possible to carry out in an outpatient setting under local anaesthesia.

Table 2 stated that among all procedures, breast implant had been the most frequently performed procedure in nine consecutive years [Figure 1]. The majority of procedures in the top ten lists were surgical.

As shown in Table 3, the female group has shown more interest in taking various invasive procedures compared to the male. The most common invasive procedure in the male group was skin tumour/hypertrophic scar excision. Meanwhile, the majority of the female group chose breast implant procedure.

Preference for non-surgical procedures was evident in the under 20 age group [Table 3]. This trend shifts abruptly in 20–45-year-old age group with breast implant leading in numbers. However, in patients older than 45-year-old, procedures for rejuvenation purpose were more prominent.

Reasons for visitation to a plastic surgery private clinic may vary, but generally it could be divided into two groups as follows: either seeking for 1) consultation only, neither going further with the prescribed treatment nor undergoing procedure, or 2) treatment/procedure. Most of the patients (71.74%) fell into the second group. However, not all patients who had the intended treatment or procedure at the first visit came up for follow-up. Some of the patients (6.67%) came for follow-up visitation(s) because of complications related to previous procedures. The only complications found were related to implant rejection reaction [Table 4].

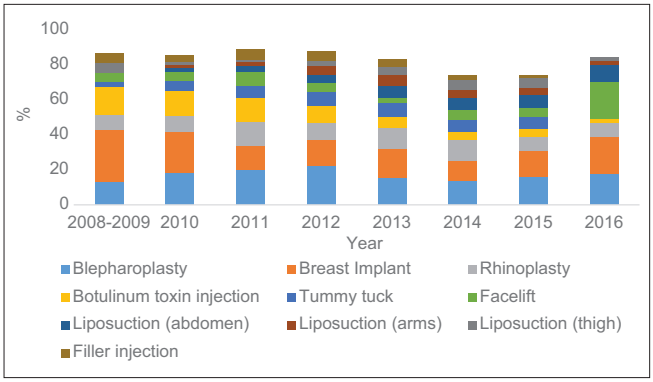

Figure 1: Most popular procedures each year from 2008 to 2009 combined (a) to 2016 (h)

DISCUSSION

Most of the patients were in economically productive age, with the median age of 39-year-old. Expectedly, the vast

Table 1: Sociodemographic characteristics of patients from 2008-2017

Characteristics	*Median or n*
Age (years), median	39 (7-83)
Sex, *n* (%)	
Male	65 (6.6)
Female	920 (93.4)
Occupation, *n* (%)	
Housewife	278 (41.06)
Employee (private sector)	127 (18.76)
Entrepreneur	126 (18.61)
Student	58 (8.57)
Doctor	15 (2.22)
Entertainer	14 (2.07)
Dentist	9 (1.33)
Civil servant	7 (1.03)
Others	43 (6.35)
History of illness, *n* (%)	
Hypertension	21 (5.53)
Hypotension	62 (16.32)
Diabetes	4 (1.05)
Asthma	16 (4.21)
Drug allergy	44 (11.61)

Table 2: Most frequent procedures from 2008-2016

Procedure	*n (%)*
Blepharoplasty	258 (17.69)
Breast implant	241 (16.53)
Rhinoplasty	160 (10.98)
Botulinum toxin injection*	132 (9.05)
Tummy tuck	106 (7.27)
Facelift*	92 (6.31)
Liposuction (abdomen)	81 (5.56)
Liposuction (arms)	64 (4.39)
Liposuction (thigh)	59 (4.05)
Filler injection*	57 (3.91)
Liposuction (chin)	37 (2.54)
PRP*	33 (2.26)
Scar treatment	31 (2.13)
Fat transfer	29 (1.99)
Skin tumour/nevus excision	23 (1.58)
Silliconoma	18 (1.23)
Chin implant	14 (0.96)
Mastopexy	11 (0.75)
Vaginoplasty	11 (0.75)
Total	1457 (100)

*Non-surgical procedures. PRP: Platelet rich plasma

Table 3: Five most common plastic surgery procedure based on gender and age

Procedure	*Male, n (%)*	*Female, n (%)*	*<20, n (%)*	*20-45, n (%)*	*>45, n (%)*
Minimally invasive					
Filler	-	-	-	-	18 (4.56)
PRP	-	-	3 (8.12)	-	-
Botulinum toxin	13 (16.25)	108 (8.07)	-	69 (7.1)	46 (11.65)
Invasive					
Skin tumour/nevus excision	-	-	9 (24.3)	-	-
Scar treatment	11 (13.75)	-	9 (24.3)	-	-
Liposuction (abdomen)	9 (11.25)	-	-	-	-
Liposuction (chin)	-	-	-	-	16 (4.04)
Blepharoplasty	15 (18.75)	241 (18)	3 (8.12)	66 (6.79)	124 (31.39)
Breast implant	-	214 (15.98)	-	201 (20.68)	-
Tummy tuck	-	101 (7.54)	-	78 (8.02)	-
Rhinoplasty	6 (7.5)	130 (9.71)	7 (18.93)	77 (7.92)	-
Facelift	-	-	-	-	53 (13.42)
Others[a]	28 (35)	675 (50.41)	9 (24.3)	481 (49.49)	155 (39.07)
Total	80 (100)	1339 (100)	37 (100)	972 (100)	396 (100)

[a]All procedures other than five most common procedures. PRP: Platelet rich plasma

Table 4: Reason for visitation, follow-up rate, and complication rate

Parameters	*n (%)*
Reason for visitation[a]	
Consultation only (without treatment/procedure)	167 (28.26)
Treatment or procedure	424 (71.74)
Follow-up[b]	
Yes	259 (61.08)
No	165 (38.92)
Complication[c]	
Yes	11 (6.67)
No	154 (93.33)

[a]Total number of patient from 2013-2016, [b]Patients undergoing treatment or procedure, [c]Patients doing follow-up visitation(s)

majority of the patients were female (93.4%). A study by Nellis, *et al*. in facial plastic surgery clinic found that the randomised patients included in the control group had a mean age of 47.5 years, which is not far more different than finding in the current study. The same study also discovered that female were still exceeded in number, although its percentage was only 67.4%.[8] Meanwhile, Dey *et al*. did a cross-sectional study in 3 months period at Facial Plastic and Reconstructive Surgery Clinic and revealed that more than half of the patients were looking for cosmetic surgery service. The mean age of the cosmetic surgery patient was 48-year-old and 79.5% of them were female. As a further comparison, in reconstructive surgery patients, the percentage of female and male patients was similar (53.6% and 46.4%, respectively).[9] These results implied that plastic aesthetic surgery was more popular among female patients.

In this study, almost half (41.06%) of the patients were housewives, followed by employees in the private sector and entrepreneur which constituted 18.76% and 18.61%, respectively. Fathololoomi *et al*. conducted a study in rhinoplasty candidates and found a different demographic characteristic in occupation: 53.1% of the patients were students, 23.8% were unemployed, and 23.1% were employed. The majority of patients in 'unemployed' group were housewives.[10] A study by Kalus and Cregan revealed an association between aesthetic plastic surgery procedure and job, in a term of satisfaction and burnout frequency. Plastic surgery practice was significantly associated with increased job satisfaction and fewer burnout episodes at work afterward.[11,12]

Indonesian's constitution entirely lies on an ideology that praised God in the first place which requires all citizens to have one of the registered religious beliefs. Therefore, formally speaking, in any patient submission form, the religious view of a patient is required. More importantly, patients' beliefs may affect their willingness to do certain medical treatment or procedure, including aesthetic plastic surgery. A study by Furnham and Levitas found an increasing willingness to undergo cosmetic surgery in groups of people who were nonreligious, low self-esteem and high media consumption.[13] This might be caused by the presence of a certain religious law that had been perceived as a prohibition to change natural look given by the creator. Nevertheless, some experts in both plastic surgery and theology suggested that there had not been an absolute opposition to cosmetic surgery in Islamic, Protestant, Catholic and Jewish laws.[14,15] Because Islam is the vast majority in Indonesia, it was expected to have the greatest percentage of patients in this study (58%)

even if it was less than the percentage in the general population.

Based on the International Survey on Aesthetic/Cosmetic Procedures Performed in 2015 by the International Society of Aesthetic Plastic Surgery (ISAPS), the most commonly performed surgical procedure worldwide are breast augmentation (15.4%), liposuction (14.5%), eyelid surgery or blepharoplasty (13.1%), abdominoplasty or tummy tuck (7.9%) and rhinoplasty (7.6%).[16] This result was very similar with our finding-blepharoplasty (both superior and inferior) in the first place (17.69%), followed by breast implant/augmentation (16.53%), liposuction (14%) and tummy tuck (7.27%). In Asia, including Indonesia, superior blepharoplasty mainly consisted of 'Asian blepharoplasty,' a creation of upper eyelid crease in Asian surgically and only a small number of procedures were done to correct dermatochalasis or steatoblepharon.[17] Meanwhile, an inferior blepharoplasty was more universal worldwide, that is an attempt to eliminate a redundant skin and orbital fat pseudoherniation on the eyelid-cheek complex.[18] Among the nine countries reported by ISAPS, Brazil, USA and South Korea are the ones in which blepharoplasty was most frequently done.[16] In 2008–2016, the ten most popular procedures done in each year were quite similar from one to another, especially breast implant, blepharoplasty, facelift, tummy tuck and liposuction which have managed to stay on the top of the list.

There is a significant difference in plastic aesthetic surgery practice in developing countries. Studies in Eastern Nepal and Zambia found that only 0,1%–10% of plastic surgery procedure was done for a solely cosmetic purpose.[4,19] However, the studies did not further specify the type of procedure. This finding is in contrast with data from other developing nations such as Brazil and Colombia. There was a total of 4500 aesthetic surgery procedures done per one million inhabitants in each country each year. Liposuction, breast augmentation, abdominoplasty and blepharoplasty were the most popular procedures. The gap in the number of aesthetic surgery performed among developing nations was partly explained by the intense cultural element impregnated in economic exchange, through music, film and other mass media.[1,20] Similarly, in developed countries such as the United States of America (USA), Australia and Norway those procedures (breast augmentation, liposuction, blepharoplasty and abdominoplasty were also on the top list along with facelift and rhinoplasty.[21]

Out of non-surgical procedures performed by plastic surgeons in an aesthetic clinic, botulinum toxin (Botox) injection was the most common one worldwide (38.4%), followed by hyaluronic acid injection or filler (23.8%).[16] In the USA, botox injection, soft-tissue filler, chemical peel, laser hair removal and microdermabrasion were the most frequently done non-surgical procedures.[22] Meanwhile, there were a scarcity of data on non-surgical[1,2,22,23] procedures in developing countries. Our study also discovered botox and filler injection as the most frequently non-surgical procedures done. Other non-surgical procedures such as hair removal, photo rejuvenation and chemical peel that also predominated worldwide, especially the developed countries were usually carried out by a trained-general physician and therefore not included in this study.

Compared with discoveries from previous studies which were similar to the current study, it can be concluded that plastic aesthetic surgery private practice in urban region of Indonesia resembles the one in developed countries than in developing countries.

Two demographic characteristics age and gender prominently influence the type of plastic surgery procedure taken. Salehahmadi and Rafie conducted a study intended to find factors affecting patients undergoing cosmetic surgery in Southern Iran. One of these factors was age-group: The majority of patients (57.42%) fell into 30–45-year-old age group, while those in <30 and >45-year-old age-group were constituted of 37.62% and 3.96% of the total number of patients, respectively. However, the study did not evaluate the most performed procedures based on age-group.[24] Another study found that the 40–59-year-old patients were the predominating group of patients undergoing both surgical and non-surgical aesthetic facial procedures. This age-group reflected the 'baby-boomer' generation who has the highest average income for 5 years ahead and therefore willing to spend money for luxurious plastic surgery service. Meanwhile, the 60–79-year-old preferred surgical procedure, with special intention to look more youthful. In contrast, the younger group consisting of the 20–39-year-old patients more keen on a less invasive procedure.[23] Our finding was somewhat different, which might have been resulted from the different age-group cut-off. Younger patients were usually brought to Casa Lovina clinic by their parents who were worried about skin tumour, enlarging scar and nevus. The five most performed procedures in 20–45-year-old were all surgical

while in >45-year-old, three of them were non-surgical procedures.

Male patients are getting more aware of aesthetic procedures. According to the American Society of Plastic Surgeon, rhinoplasty, hair transplantation, eyelid surgery, scar revision, rhytidectomy and liposuction were the most commonly performed surgical procedures in male patients. However, male preferred non-surgical procedures such as botox injection, filler injection, chemical peels, microdermabrasion and fat injections.[25] This was similar to our finding. Jagdeo *et al*. conducted an online-based cross-sectional study in 600 men aged 30–65 years and found that 70% of the patients were willing to do a facial injectable for facial lines and wrinkles to 'look good for my age' lines.[26] Even more detailed, based on the experience of one plastic surgeon in Texas, USA, there were unique characteristics of male Asian-descendant patients. Asian blepharoplasty, otoplasty, lip reduction and dimple fabrication were procedures characteristics for them.[27] Till date, there has not been any study from developing countries which described and analyse the relationship between gender and type of plastic aesthetic surgery chosen.

In the current study, we found that not all patients admitted to the clinic truly intended to have a treatment or procedure. This is commonly encountered in plastic surgery practice as up to 46% of plastic surgery patients were concerned about safety/side effects, cost and/or dissatisfying outcome.[26] Out of all patients who had undergone a surgical procedure and came up for follow-up, 6.67% were found to suffer a complication. In this study, the sole cause of complication was implant rejection. The overall incidence of breast implant complications was 27.6%, from the mild-to-severe ones. Major complications of aesthetic breast surgery were haematoma and infection which occurred in 0.99% and 0.25% of cases, respectively.[28] The rate of complications found in this study is much lower, and no major complication ever occurred.

This is a descriptive cross-sectional study and consequently, it carries the inherent disadvantages of both descriptive and cross-sectional study, such as the limited capability to only capture data from certain period, the absence of dimension of time thus no causal relationship can be concluded, and the need for careful interpretation when the results are deduced to population. In addition, the demand and popularity of procedures which are not provided at the clinic would be impossible to assess, such as hair transplantation for male pattern baldness.

CONCLUSION

The demographic characteristic patients of private plastic surgery clinic in the urban area of developing country resemble those in either developed or developing countries with a similar socio-demographic profile. Data regarding the most frequent procedures can be further utilised for a more focussed private plastic surgery practice improvement. The trend of procedure based on age and gender are potentially used for patients' education purpose and marketing strategy while the complication rate of each procedure conducted will be needed for evaluation of performance. The reasons for visitation and loss-to-follow-up need to be elaborated further. In the end, collecting this data is crucial to create diagnostic or prognostic models, especially the output of each plastic aesthetic surgery procedure.[29] The limitation however is that, the study is based on a single centre data, from an urban area.

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Conflicts of interest
There are no conflicts of interest.

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