

# Unity in Diversity and the Standardisation of Clinical Pharmacy Services

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Charles D. Sands III and Timothy E. Welty

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## Unity in Diversity and the Standardisation of Clinical Pharmacy Services

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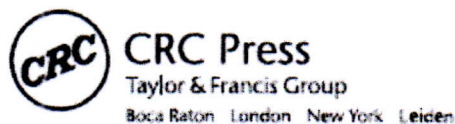
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## Preface

The original idea of ACCP came from Asian pharmacists who were looking for a practical conference at which they could exchange and share ideas on the concept of clinical pharmacy. In 1996, representatives from China, Korea, Japan, and USA met in Seoul, Korea to plan for the first conference. As a result, the first East Asia Conference on Developing Clinical Pharmacy Practice and Clinical Pharmacy Education (EACDCPPE) was held in America in 1997. Only 36 representatives attended and pioneers planned it as bi-annual meeting.

In 1999, the second EACDCPPE was successively held in Shanghai. This conference enabled more representatives in Asian countries to realize the differences between Asian and Western countries in the development of clinical pharmacy. When the third conference was held in Japan in 2003, the title of the conference was changed to Asian Conference on Clinical Pharmacy (ACCP). This opened the conference to more Asian countries; also the subject of clinical pharmacy was more strengthened. With a series of other Asian countries such as Philippines, Indonesia, Singapore, and so on attending ACCP, as well as with the rapid development of clinical pharmacy in Asia, every country was enthusiastic about attending and holding this conference. At the 5th conference in Malaysia in 2005, the decision was made among the representatives of the member countries to hold the conference annually instead of biannually for efficiency and convenience in regard to communicating and sharing about clinical pharmacy.

During the past 20 years, ACCP has been a major event in the clinical pharmacy scope in Asia and has been conducted in various countries especially in Asia. Clinical pharmacists have attended this prestigious meeting to share their experience in the fields of practice, research, and education on clinical pharmacy. Clinical pharmacist experts from USA, Canada, Australia, and UK have continuously come to transfer their knowledge and shared advance clinical pharmacy practice experiences. This conference supports rapid knowledge and experience transfer and enhances the emergence of clinical pharmacy practice in Asia.

Indonesia hosted the 8th ACCP in Surabaya in 2008, and again this year Indonesia has successfully hosted the 17th ACCP in Yogyakarta from 28th to 30th July 2017. This year's conference was also a celebration of 20 years of ACCP with the theme "Unity in Diversity and the Standardisation of Clinical Pharmacy Services." At ACCP 2017, there were 6 preconference workshops, poster sessions consisted of 199 posters, 21 oral presentation sessions consisted of a total of 142 oral presentations, and there were symposiums with 47 speakers, 2 plenary sessions with 4 speakers and 4 keynote speeches regarding various current issues in clinical pharmacy. About 1,133 participants attended the conference from 16 different countries.

This ACCP 2017 proceeding provides an opportunity for readers to engage with selected papers presented at the 17th ACCP 2017. This book is also a valuable contribution to gaining a better understanding about the development of clinical pharmacy particularly in Asian countries and the future global challenges. Readers will find a broad range of research reports on topics of clinical pharmacy, social and administrative pharmacy, pharmacy education, pharmacoeconomics, pharmacoepidemiology and other topics in pharmacy. The readers will also discover both common challenges and creative solutions emerging from diverse settings in developing clinical pharmacy services.

The editors would like to thank all those who have contributed to submit full papers for this 17th ACCP conference. We received 119 papers from the conference and after a rigorous peer-review, 68 papers were accepted for publication in this proceeding of which 56 are from Indonesia and 12 from Australia, Malaysia, the Philippines, and Thailand. We would like to express our special appreciation and sincere thanks to the scientific committee and the reviewers who have selected and reviewed the papers, and also the technical editor's team (Ms Arie Sulistyarini and Ms Muffarihah) who helped carry out the page layout and check the consistency of the papers with the publisher's template. It is a great honour to publish selected papers in this proceeding by CRC Press/Balkema (Taylor & Francis Group). Our special gratitude goes to the steering committee, the chairman of the conference and the members of the organizing committee involved in preparing and organizing the conference. Finally, we would like to thank Universitas Airlangga, Indonesian Pharmacist Association, Universitas Gadjah Mada, Universitas Ahmad Dahlan,

**Universitas Islam Indonesia, Universitas Muhammadiyah Yogyakarta and Universitas Sanata Dharma for their endless support during the conference. Last, but not least, we also place on record our sense of gratitude to one and all who, directly or indirectly, have lent a helping hand to this conference.**

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## Keynote speakers



**Prof. Nila Djuwita F. Moeloek**—*Minister of Health, Republic of Indonesia*

**Prof. Nila Djuwita F. Moeloek** is a professor at the Faculty of Medicine, Universitas Indonesia (FMUI) since 1980. She graduated as Medical Doctor from FMUI in 1968. She then started her specialty in the field of ophthalmology in Rumah Sakit Cipto Mangunkusumo (RSCM) in 1979–1988. At the same time, she also became the Coordinator of Research in Department of Ophthalmology, FMUI—RSCM. In 2008–2009, she was chosen as the head of Medical Research Unit FMUI—RSCM. She is also well-known in the international world, as a member as well as an editor of *Orbita International Magazine* since 1985 to present. Currently she is the Minister of Health of Indonesia in President Joko Widodo's Cabinet.



**Prof. Lilian M. Azzopardi**—*Head, Department of Pharmacy, Faculty of Medicine and Surgery, University of Malta, Malta*

**Prof. Lilian M. Azzopardi** studied pharmacy at the University of Malta, Faculty of Medicine and Surgery and in 1994 she took up a position at the Department of Pharmacy, University of Malta. Prof. Azzopardi is the Head of School of Pharmacy at the University of Malta and co-ordinates the teaching of pharmacy practice. She has spearheaded major developments in pharmacy education within the University of Malta including the development of a post-graduate doctorate in pharmacy offered by the University of Malta in collaboration with the University of Illinois at Chicago. She has been invited as an external examiner for postgraduate degrees in different schools of pharmacy internationally. Her research portfolio is in the area of pharmacy quality systems and pharmacist interventions in clinical settings. She has published several papers and has been invited to give lectures and short courses in several universities. She has received

## Plenary speakers



**Prof. Michael D. Katz**—*Professor at Department of Pharmacy Practice & Science, The University of Arizona College of Pharmacy, USA*

**Prof. Michael D. Katz** is Professor at the University of Arizona College of Pharmacy Department of Pharmacy Practice & Science. He practices at the University of Arizona Medical Center within the Department of Internal Medicine. His practice interests include general internal medicine, endocrinology, HIV/AIDS, infectious diseases, and evidence-based practice. Dr. Katz teaches pharmacy and medical students in both the classroom and experiential settings. He was selected in 2001 as a Dean's Teaching Scholar by the Arizona Health Sciences Center and has received numerous teaching awards. He is a Past-Chair of the American Society of Health-System Pharmacists (ASHP) Commission on Therapeutics. Dr. Katz has numerous publications and including *Pharmacotherapy Principles and Practices Study Guide: A Case-Based Care Plan Approach*, now in its fourth edition. Dr. Katz is the Internal Medicine PGY2 Residency Program Director and directs all residency-related activities for the College of Pharmacy. He has been involved in international education and practice for even 15 years and he serves as the College of Pharmacy's Director of International Programs. In 2010 he received the University of Arizona's prestigious Excellence in International Education Award. He has consulted and lectured extensively in Japan and many other countries regarding pharmacy education and clinical pharmacy practice and he serves as the Co-Chair of the Board of Directors of the U.S.—Thai Pharmacy Consortium. Dr. Katz directs the largest program of its kind to train clinical pharmacy faculty members from Saudi Arabia.



**Dr. Umi Athiyah**—*A/Prof of Department of Pharmacy Practice and Dean of Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia*

## Socioeconomic status and obesity in an adult rural population in Indonesia

A. Widayati, Fenty, D.M. Virginia & P. Hendra

*Faculty of Pharmacy, Universitas Sanata Dharma, Yogyakarta, Indonesia*

**ABSTRACT:** The rich people group is no longer the only burden of obesity in developing countries. The aim of this study was to explore the association between socioeconomic status (SES) and obesity among Indonesian rural people. Respondents were 50 females and 50 males aged 40 to 60 years who were randomly selected. Data on SES were collected using interviews, and the Body Mass Index (BMI) was calculated using body weight and height. Data were analyzed descriptively. The percentage of obese people was 47%, most of whom were women. There was no significant association between obesity and gender. The lowest SES was 74%. There was a significant association between SES and obesity. People with lower SES were 2.770 times more likely to be obese than those with higher SES [ $p = 0.029$ ; 95% CI (1.091–7.034)]. In this study, we found a negative significant association between SES and obesity.

*Keywords:* Obesity, SES, rural, developing countries, Indonesia

### 1 INTRODUCTION

Obesity is a global burden. Overweight and obesity have, respectively, affected 2.16 and 1.12 billion adults worldwide (Kelly et al. 2008). The interest in the association between socioeconomic status and obesity phenomenon increases because of a comprehensive review of a number of studies in both developed and developing countries published in 1989 (Sobal & Stunkard 1989). This review, which included results of studies conducted from the 1960s to the 1980s, presents a strong positive correlation between SES and obesity among women, men, and children in developing countries. This situation was contrary to that in developed countries (Sobal & Stunkard 1989, McMurray et al. 2000). Subsequent thorough reviews have provided a new insight into obesity that it was no longer entirely an issue for rich people in the developing world (McLaren 2007, Monteiro et al. 2004). They found a tendency of shifting an obesity burden from the rich toward the poor, particularly among women. A recent review on the links between SES and obesity, which covered studies from 2004 to 2010 in developing countries, concluded that in low-income countries the association appears positive among men and women (Dinsa 2012). However, there was mainly a negative association among women in lower-middle income countries; however, a mixed profile appeared among men. The shifting of the obesity burden from rich to poor was found among women at a GNI (gross national income) of approximately US \$1,000 (atlas method), which is the cut-off point of the World Bank for the low—and middle-income countries. Continuous pictures by the influential reviews summarized above create a magnitude especially on the underlying factors of the obesity burden shifting in the developing countries.

Indonesia is one of the lower-middle income countries with GNI per capita of US \$3,630 in 2014 compared to US \$560 in 2000 based on the atlas method (The World Bank 2015). This figure describes approximately the increase of SES of the population. On the contrary, obesity has developed among the Indonesian population. A national survey called the Basic Health Research (local language: Riset Kesehatan Dasar) held in 2010 covered all the provinces of Indonesia and found that the prevalence of obesity was 21.7% (The Ministry of Health of Indonesia 2010). The prevalence of obesity among Indonesians was higher in women than men (Dewi et al. 2010, Vaezghasemi 2014). A limited number of Indonesian studies show a positive association between SES and obesity (Sugianti et al. 2009, Susilowati 2011). In terms of geographical habitation, there was mixed associations between obesity among adults in urban and rural areas (Ng et al. 2006, Fuke et al. 2007, Koyama et al. 1998), even in children when comparing between poor urban and rural (Julia et al. 2004). The mixed association is supported by the findings of a review involving studies from 42 developing countries, although rural women quickly followed the urban situation (Popkin et al. 2012). Further, considering the GDP (Gross Domestic Product) per capita of the 42 countries, they concluded that urban women in low-income countries have higher proportion of obesity than those in rural areas (Popkin et al. 2012). Yet, a large study involving 13 provinces of Indonesia

found that underweight was common in rural areas (Vaezghasemi 2014). Moreover, it seems that urban sprawl is one key issue of the obesity phenomenon (Ewing et al. 2003).

The links between SES and obesity considering gender and urbanization issue in the developing world are complex. Indonesia as the fourth densely populated country in the world with increasing GNI and the development of obesity coupled with the issue of urbanization and technology invasion is crucial in this subject. Furthermore, the role of Indonesian women in the society is unique and driven by the social environment and cultural beliefs (Vaezghasemi 2014). On the contrary, the fact shows that women obesity is prevalent (Dewi et al. 2010). It is interesting when all such issues are associated with the burden of obesity. However, current study on obesity and SES in the Indonesian context is infrequent. Therefore, the aim of this study was to determine the association between SES and obesity among Indonesian adults, especially in rural areas.

## 2 METHODS

This study was a cross-sectional survey conducted in a rural area, Cangkringan Sleman District of Yogyakarta Special Province. The main outcome of the study was the association between obesity and SES. Ethical clearance was obtained from the Ethic Committee of the UniversitasGadjah Mada, Indonesia (No.: KF/FK/502/EC).

The study population was adult people aging 40–60 years from a rural area in Yogyakarta Province, Indonesia. The study participants were selected using a nonrandom accidental sampling method (deVaus 2002). The sample size was assigned 100. The participants were volunteers selected using an informed written consent.

Data were collected using a self-developed validated questionnaire and direct measurement of body weight and height. Four trained hired undergraduate students collected the data during May to July 2015. The second and the first authors were the trainer and the supervisor of the data collectors, respectively. Data on SES were collected by face-to-face interviews using the questionnaire. Measurement on SES used the following eight components: 1) education level; 2) monthly household income; 3) occupation; 4) number of family members; and 5) four variables of principal component analysis (PCA), including household's ownership, type of floor material, source of water supply, and ownership of durable assets (Vyas & Kumaranayake 2006). Each of the SES components was scored and then summed. The SES was classified into two categories, namely lower and higher. The summation of scores up to 17 was categorized as lower SES. Body weight and height were measured in kilogram (kg) and centimeter (cm), respectively. Data of overweight are represented by BMI (Body Mass Index) calculated from body weight and height of the participants using the formula proposed by the World Health Organization (WHO). The cut-offs of BMI are  $< 18.5 \text{ kg/m}^2$  and  $\geq 25 \text{ kg/m}^2$  to classify participants as underweight, normal, and overweight/ obese (World Health Organization 2000). Data were analyzed using descriptive statistics involving percentage and median. Associations were examined using Chi-square test as appropriate to the variables. A two-sided test was conducted for the reported p values; the significant level was set at 0.05, and the confidence interval (CI) was 95% (Pallant 2011). Data were analyzed using SPSS software (Statistical Package for the Social Sciences) version 22.

## 3 RESULTS AND DISCUSSION

The number of participants of this study was 100, with 50 females and 50 males. Most of them (78%) were aged between 40 and 50 years (median: 46; 95% CI; p: 0.082). Percentage of obese patients found in this study was 47% (median of BMI  $24.7 \text{ kg/m}^2$ ; 95% CI; p = 0.009). Obese study participants were less than the non-obese ones. Obesity is more common among women. Unsurprisingly, most of the respondents were in the lower level of SES (74%). Chi-square test for independence described that the proportion of obese males was not significantly different from that of obese females. The test (with Yates's continuity correction) indicated no significant association between gender and obesity ( $X^2(1, n = 100) = 0.16, p = 0.689$ ). The proportion of lower SES with obesity was significantly different from the proportion of higher SES with obesity.

Table 1. Obesity pattern, socioeconomic status, and gender.

Percentage (n = 100)

The test indicated a significant association between SES and obesity. Those with lower SES were 2.770 times more likely to have obesity than those with higher SES [ $p = 0.029$ ; 95% CI (1.091–7.034)].

The aim of this study was to explore the association between SES and obesity among adult rural people in Indonesia. Among the randomly selected rural study participants, 47% ( $n = 100$ ) were found to be obese. A previous study conducted in the same province showed that both urban and rural areas had 15% obese people ( $n = 526$ ) (Vaezghasemi 2014); whereas the national prevalence in 2010 showed a higher proportion, that is, 21.7% (The Ministry of Health of Indonesia 2010). Findings of the current and the previous studies show that the obesity phenomenon could not be ignored in the Indonesian context. The rate found in this study seems smaller than that of other developing countries (Dinsa 2012). However, considering the Indonesian features, especially demographic, topographic, culture, beliefs, and other socioeconomic–ecological–environmental factors, the obesity phenomenon among Indonesians is complex (Zhang et al. 2013, Dewi et al. 2010, Vaezghasemi 2014). At present, Indonesia is growing in terms of economic situation, as shown by the GNI and HDI values (The World Bank 2015). People in this country become a targeted market by new and advanced technologies. The growing use of information and communication technology tends to create a group of sedentary people. The various modes of transportation also generate less active people. Urban sprawl triggers less active persons. These complex factors are associated with the daily life of the Indonesians. When it is linked to the obesity phenomenon, it projects one of the potential public health problems among Indonesians. On the basis of the findings of this study, low-SES people tend to be more obese than high-SES people. “Bourdieu” concept perhaps works, yet among rural women, where socioeconomic status is represented by body performance (i.e., thinness). Furthermore, given that the study location has the second highest HDI among the provinces in Indonesia, factors such as education, occupation, literacy, and lifestyle should be considered as potential resistor points of the obesity phenomenon, as found among less educated Chinese women who have a greater risk of obesity (Xiao et al. 2013). This finding enriches the existing evidence that the higher-SES population is not solely a burden of obesity phenomenon.

As in some other developing countries (Popkin 2012), food shortage is no longer an issue for the lower-SES population in this study. However, inequity to healthy and high-quality foods remains a crucial issue among rural people in developing countries (Drewnowski & Specter 2004), including people with lower SES in this study. The pattern of eating habit among rural people in Indonesia seems to have changed since the last decade. Local agricultural products are no longer their main daily food. As in other developing countries, it is slowly substituted by high-fat food as an impact of globalization and urbanization (Angkurawaranon et al. 2014). On the contrary, those in the higher-SES population would have more chance to have a better lifestyle, which makes balance energy expenditure, such as going to a gym and eating healthy and high-quality foods, especially among women (Wardle et al. 2002). It is noticed that obesity was more challenging in lower-SES people in this context. Therefore, interventions should be addressed to this group, especially in increasing their awareness on healthier lifestyle, taking into account environmental factors.

#### 4 CONCLUSIONS

This study found a negative significant association between SES and obesity among people in a rural area in Yogyakarta Province, Indonesia. Therefore, interventions should be addressed to people in lower SES. Future study should investigate the underlying factors that prevent lower-SES people from achieving healthier lifestyles.

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#### AUTHOR CONTRIBUTIONS

All authors contributed equally to the study, including data collection, data analysis, and data interpretation. AW drafted the manuscript. All the authors contributed to revising the draft of the manuscript. All the authors read and approved the final manuscript.

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