



Self-regulating blood sugar control in women with uncontrolled diabetes mellitus

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Article Info

Article history:

Received 2 December 2016

Revised 24 September 2017

Accepted 16 December 2017

Available online 30 March 2018

Keywords:

governmentality,
narrative analysis,
self-regulation,
uncontrolled diabetes mellitus women

Abstract

The purpose of this study was to examine self-regulation of blood sugar control using the governmentality concept. Key informants were eight diabetic women with uncontrolled blood sugar levels in a community hospital. Semi-structured in-depth interviews and participatory observation techniques were used. Narrative analysis using Foucault's governmentality concept was applied for data analysis.

The findings showed that the power of medical knowledge dominated the diabetic women's thoughts and directed their health practices. This had become the diabetic women's power for self-regulation. There were four patterns of self-regulation. 1) Surrendering and accepting: they accepted medical knowledge to manage their lives intensively, they surrendered their thoughts, and their bodies became docile; 2) Negotiation: disciplinary power was exercised more to control their bodies when the diabetes treatments were uncertain. They would be fearful, nervous and vague. Their health seeking process became a negotiation for managing their bodies without medical technology, for example, selecting alternative treatment. 3) Resistance: they sometimes resisted the diabetes regulations because of their lifestyles and their cultural limitations in the role of housewives. They had to go through a process of trial and error until attaining a desirable blood sugar level that harmonized with their life-styles. 4) A conduct of conduct: the diabetic women were learning and sharing amongst themselves ways to control their blood sugar level and live their usual lives. The methods were experimental and applied without disclosure to the medical experts. Lay knowledge was created and transferred to others.

Recommendations are that health care services should implement collaborative treatment which balances the power of medical knowledge and the power of the patient's self. Understanding self-regulation would enhance the patient's ability to control the blood sugar level and attain effective treatment.

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Introduction

Diabetes mellitus (DM) is one of the burdensome chronic diseases and its prevalence has increased rapidly. The World Health Organization (WHO) estimates that there were 171 million patients with diabetes in 2000 and the numbers will increase to 366 million worldwide by 2030.

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Peer review under responsibility of Kasetsart University.

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Moreover, DM represents 5 percent of the causes of death, while 80 percent of middle aged (45–64 years old) people in low-medium income countries suffer from the disease (WHO, 2010). In Thailand, the number of people admitted as in-patients increased from 795.04 per 100,000 population to 1,032.50 per 100,000 during 2007–2014 (Bureau of Non Communicable Disease, 2015). At present, the sequelae of the disease are still a global burden in public health, especially in SouthEast Asia. DM has become a social responsibility for long term care (Jaikrit & Sukriti, 2014).

DM is a group of metabolic diseases characterized by hyperglycemia resulting from the alteration of insulin secretion and action. The complications of chronic hyperglycemia affect the eyes, kidneys, nerves, heart, and blood vessels (American Diabetes Association, 2008). The goal of diabetes management is to maintain safe blood sugar levels and to prevent diabetic complications. Diabetes patients must take responsibility for their day-to-day care. This includes monitoring blood glucose levels, dietary management, maintaining physical activity, keeping weight and stress under control, monitoring oral medications, and/or insulin therapy. Appropriate treatment and lifestyle modification can potentially prevent or delay the onset of complications (Institute of Community Based Health Care Research and Development, 2009). Poorly controlled DM is certainly a strong contributor to death from ischemic heart disease, cerebrovascular disease, and chronic kidney disease (Jaikrit & Sukriti, 2014). Therefore, self-regulation to achieve the desirable blood sugar level is crucial. The literature also supports the fact of sex differences in terms of morbidity and mortality. More women are diagnosed with DM and uncontrolled blood sugar level than men (Jaikrit & Sukriti, 2014; WHO, 2016). Moreover, high rates of sequelae from DM, such as cerebral vascular disease, ischemic heart disease and depressive symptoms among women have been reported (Ministry of Public Health, 2014).

Governmentality is a concept first developed by the French philosopher, Michel Foucault, in 1977. Foucault often defines governmentality as the “art of government” that is not limited to state politics alone. It includes a wide range of control techniques, from one’s control of the self to the “biopolitical” control of populations (Foucault, 2000). It also refers to technologies of power as being closely related to political rationality in shaping, guiding, and directing the conduct of others. Governmentality also means the practices of the state, which govern through the various institutions of public health, such as the Ministry of Public Health, hospitals, and health care clinics. This practice is considered as reasonable and acceptable and is governed through medical experts who have power over people’s lives through regulations and rules, which intensively monitor patients’ practices in everyday life.

The problems of uncontrolled DM are still a major consideration. Most DM studies have focused on the bio-medical field, such as medical care, nursing, and public health. Some social science studies have found the causes of uncontrolled DM to be limitations of patients’ knowledge, their lifestyles, and cultural context. Anthropological approaches in some studies have applied cultural explanatory models to explain the illness experiences of

diabetes patients (Muttiko et al., 2010; Weaver, Worthman, DeCaro, & Madhu, 2015). Health seeking behavior to control blood sugar has also included use of alternative treatments combined with medical treatment (Chacko, 2003; Paisantuntiwong, 1997; Pornsripongse, 2007). Health illiteracy and the cost of care are important barriers to seeking care. Females have struggled more to receive appropriate care for their diabetes due to social and cultural factors (Sachdeva et al., 2015). Studies using cultural belief models found that cultural factors influenced the patients’ diabetes self-management. Afro-Caribbean women struggled to modify their traditional Caribbean diet and believed in the efficacy of traditional Caribbean medicine (Smith, 2011). One study applied Foucauldian concepts in terms of biopower, governmentality, and subjectification, but explained the social effects of gestational diabetes in “high-risk ethnic groups” (Iwase, 2014). There has been a dearth of literature about the problems of uncontrolled DM through life experiences of diabetic women in terms of governmentality, and investigation into how the power of medical knowledge has influenced their self-regulation and consequently their health practices. The main purpose of this study was therefore to examine self-regulation in the blood sugar control of uncontrolled diabetes mellitus women under the governmentality concept.

Methods

This qualitative study was approved by the Human Research Ethics Committee of Mahidol University. Key informants were eight diabetic women who had been undergoing DM treatment for more than 3 years, with uncontrolled blood sugar levels (blood sugar >180 mg/dl within three appointments before joining the study). Data collection was done by in-depth interview and participant observation. The topics for interview focused on how the participants managed and self-regulated their lives after becoming the recipients of mainstream medical knowledge. The accuracy and trustworthiness of the data were based on the Denzin and Lincoln concept (Denzin & Lincoln, 1994), including methodological triangulation checking, data triangulation checking, and reflexivity. The data were analyzed using narrative analysis under the governmentality concept to explain their self-regulation for control of blood sugar.

Results

Two key informants were single and six were married. The average age was 46 years. The mean duration of diabetes was four years. Two of them were government workers, six were agriculturists and employees.

Governmentality for the Women With Diabetes

Foucault’s concept was applied in terms of power-knowledge. This power was not only in terms of the hierarchical, top-down power of the state, but also in the form of social control in disciplinary institutions (Ministry of Public Health, hospitals, medical clinic). Medical knowledge power extended through health policy by

setting the diabetes treatment regimen. The power also meant the forms of knowledge governing the diabetic women through subsequent self-regulation.

Modern Medicine and the Women With Diabetes

Modern knowledge of diabetes was produced by experts and became the mainstream treatment. Diabetic women have to incorporate this knowledge into their health practices in order to maintain a desirable blood sugar level. Knowledge regulated through medical institutions exercises power over diabetic women's thoughts and daily lives. The power of this knowledge set is exercised by 1) Gaze—diabetes patients would be gazed at through the digital numbers which were the level of blood sugar, body weight, numbers of medications. These digital numbers would be recorded for checking diabetes patients from time to time. 2) Surveillance—diabetic women would be reviewed with regard to the history of their blood sugar level and whether patients exercised regular control or not. Every time they were monitored, the fasting blood sugar and progress were confirmed with HbA1C. 3) Normalization—the desirable blood sugar level of diabetes patients is normal. Practices to attain the desirable blood sugar level included controlling the calories set for each meal, exercise guidelines, and stress testing. The discursive practices of medical knowledge were reproduced and surveillance carried out through individuals and groups in the community, such as family members, village volunteers, community leaders, religion leader (temple), and self-help groups.

"At the Village Head's office, the doctor teaches patients with diabetes and hypertension every month. He was worried that we did not follow his suggestions. He checked our blood pressure, demonstrated how to cook, and told our spouses also. However sometimes I did not follow his orders."

(Sompong, personal communication, July 10, 2013)

Alternative Medicine and Women With Diabetes

Alternative medical knowledge is knowledge derived from Thai culture. Alternative medicine knowledge has been produced by experts and capitalism, in an attempt to differ from modern medical knowledge. This knowledge also influenced diabetic women's thinking and practices. Alternative medicine fits with the diabetic women's daily lives and culture. The products have become commercial and are persuasive as answers for diabetic consumers' problems. Examples of alternative products are mango-steen peel juice, bitter melon, moringa or drumstick tree, heart-leaved moonseed, green chiretta, and other herbal medicines. Diabetic women believed in the efficacy of alternative medicines in reducing their sugar blood level. If alternative treatments were not effective and too expensive, the women decided to stop using them. Practices of blood sugar control combined both modern medicine knowledge and alternative medicine knowledge. Each set of knowledge was practiced through the diabetic women's bodies. The knowledge governed their self-regulation for management to attain a normal blood sugar level.

Self-regulation of the Women With Diabetes

Diabetic women practiced four patterns of self-regulation.

Surrendering and Accepting

Diabetic women changed their status to be patients according to the definition of medical knowledge. Even though they recognized themselves early as being "patients" following lay knowledge, the lay knowledge was reproduced from the medical experts. For example, diabetes symptoms include frequent urination, weight loss, drinking a lot of water, thickening of saliva, and thirst. When they got such symptoms, they asked, shared, and cross-checked their knowledge with their relatives, neighbors, and/or diabetes caregivers. After diabetes diagnosis, the diabetic women's bodies become docile. That meant they followed the doctors' orders and suggestions strictly. Their bodies were gazed. Their blood sugar level was monitored through records of patients' notebooks for any unusual symptoms.

The group of diabetic women lived under stressful circumstances. They had set up their self-regulation, adjusted their lifestyle, and paid attention continuously to their sugar controlling diet. They followed the medical guidelines without question. This situation is called bio-power. Everyone had different ways of adjusting themselves to live normally within the modern medical knowledge that governed their thoughts and enveloped their life context. Moreover, they lived within social rules and women's caretaking roles for their family members.

"In the beginning, when I first found out that I had diabetes, the doctors told me not to eat many things. I was scared, but I had to be patient because I believed the doctors. But I could not work; I had no energy because I ate until I was full. When I worked in the rice fields there were many people who worked together and I had to eat with them, so I could not control my food. Also, at home I cooked food for everyone in the family and I ate with them, I did not separate the food."

(Nuch, personal communication, July 15, 2013)

The diabetic women's bodies became docile in two ways. First, they agreed to practice according to the advice given during the early stage of onset their symptoms when the cause was not known. The practice followed the application of medical knowledge to intensively manage their lives. Second, their thoughts were surrendered when their blood sugar could not be controlled, the women's bodies were directed more and more by the power of medical knowledge, such as by increasing the dosage of medicine. There were explanatory sets for understanding the importance of blood sugar level, complicated symptoms, and other concerns, until the diabetic women felt afraid and suppressed their thoughts. Finally, they acted as if they accepted the significance of the medical practices, for example, by nodding their heads, looking at the floor without eye-contact and keeping silent.

Negotiation

Negotiation occurred when the diabetes treatments were uncertain. The diabetic women tried to reduce their

blood sugar levels by adjusting their lifestyles and following medical advice. The treatments were still ineffective, and there were questions about whether there had been a mistake. More disciplinary power was exercised to control their bodies, for example, advanced checking the blood sugar level (HbA1C) to find the mistake, increasing frequency of doctor's appointments, increasing dosages of medicines, and/or forcing women to change from oral medications to injections. If the diabetic women could not follow these practices, they would become fearful and nervous. There was no opportunity for questioning and venting their feelings with the experts. A negotiation took place in their minds.

Two levels of negotiation were found: 1) creating normalization by searching for the solutions to their health problems. They attempted to find more information from their friends and self-help groups who had diabetes experience. This information would be concealed from the medical experts. The health seeking process became a negotiation for managing their bodies without medical technology; and 2) selecting between applying the diabetes knowledge of the modern medical system and the knowledge from outside the modern medical system. The diabetic women tried to prevent their bodies from being threatened by the power of medical knowledge. This meant selection of alternative healing, resisting taking insulin, food/diet control, and control of the physical body before the doctor's appointments, such as by reducing or skipping food, blood checks for estimating blood sugar level, and/or forced hard exercise. These selected methods reflect negotiation practices in managing their bodies and feelings. None of the women had fixed patterns of practices; sometimes, they practiced as a docile body under the power of medical knowledge. The body sometimes created self-development to be in harmony with their feelings and thoughts. This was the power of self-regulation, to not be tied at all to the power of medical knowledge.

The articulation between the power of medical knowledge and power of self-regulation were two domains which interplayed at a subconscious level in the diabetic women, which the women could select and apply depending on the individual reasons and needs of each person. Both knowledge domains pressed upon each other, struggled, negotiated, and articulated in managing the diabetic women's lives.

Resistance

In several cases, the patients could not control their blood sugar level. This caused them to be even more worried, unhappy, and to miss their doctors appointments. They felt ashamed, feared being blamed, and changes in their treatment. In the long-term, they lived their lives normally, as if they were without diabetes.

"Besides the doctor's medicines, I drank herbal preparations once or twice, but I did not get better. I wanted to reduce my blood sugar, so when someone said certain herbs could help, no matter how bitter they were, I tried them."

(Nuch, personal communication, July 20, 2013)

The diabetic women negotiated and resisted the power of medical knowledge. They reconsidered the medical

power which was threatening, forceful, and regulated their behavior. There was a change from the surrendered/docile body to one of negotiation and resistance. First, at the level of thought resistance, the diabetic women previously had faith in the blood sugar values and other medical numbers, following the medical experts. Then they received more threatening treatments, from oral medication to insulin injection. They felt disappointed and increasing difficulty in managing their lives and their families. These were not things they needed to achieve, but most of them maintained silent resistance. Second, at the level of practical resistance, the diabetic women started to be non-compliant with treatment. For example, in relation to the knowledge set about diet, in Thai culture, especially for laborers, rice is seen as an energy food. In order to work in the rice fields, the diabetic women ignored the diabetes diet and ate rice as the main dish. They also adjusted their medication by themselves. Some practical resistance was stronger in the family. For example,

"I let her eat what she wanted. I saw her take a lot of medicine without any effect. If she wanted to eat, I just let her eat. It did not cost much. Eat while we're still alive!"

(Buawon's husband, personal communication, July 20, 2013)

A Conduct of Conduct

The diabetic women tried to maintain their usual lifestyle. With the uncertainty of symptoms, the modern medical treatment sometimes did not resolve their problems. They decided to manage their blood sugar level by themselves, based on basic knowledge, health beliefs, and advice from others. They concealed the trial process from the medical experts, until they found the knowledge set of practices. This lay knowledge was transferred to others as "a conduct of conduct". This is the breaking point where a change occurs, from the knowledge set of modern medicine to the lay knowledge set.

Conclusion and Discussion

Self-regulation of diabetic women in this study was analyzed using Foucault's concept of bio-power and governmentality. The power of knowledge about the diabetes dominated the women's thoughts and directed their medical practices from several social dimensions, for example, state government sectors, family, community, and self-help groups. This power became the diabetic women's power for self-regulating their condition. Four patterns of self-regulation were found: 1) surrendering and accepting: they were docile bodies following the medical guidelines without any questions; 2) negotiation: the diabetic women negotiated when they couldn't control their blood sugar to normal level, even though they had surrendered to modern medicine and then, they sought alternative choices, such as herbs, and shared their experiences and learned from other diabetic women; 3) resistance: this happened when they were uncertain if treatments were effective and they were blamed by physicians and medical personnel for not controlling their blood sugar level. They sometimes felt oppressed, depressed, and hopeless. Then, they decided to

adopt their own practices. The diabetic women sometimes accepted and performed their practices following medical guidelines, but sometimes they resisted, depending on their blood sugar level and health status. Moreover, they could not completely follow the diabetes regulations because of their life-styles and their cultural limitations in the role of housewives. They had to go through a process of trial and error until their health status was normal with or without medical treatment; and 4) a conduct of conduct: this consisted of transferring lay knowledge to others. The diabetic women were learning and sharing their knowledge on how to control blood sugar level and living their usual lives. The methods were experimental and applied without disclosure to medical experts. The lay knowledge was created and transferred.

Self-regulation of diabetic women was leaning towards experimental experiences and learning the pros and cons from others regarding the desirable outcomes of blood sugar control. For example, they adjusted modern medication, used herbs, followed the diabetes diet and healthy diets, and did more activities. This was similar to Baumeister, Schmeichel, and Vohs (2017) who said that self-regulation means people attempt to change their responses, or practices of self-control that lead to desirable outcomes. Diabetic women attempted to control their condition by any means to attain a normal blood sugar level, especially finding new knowledge among group members. As Tanabe (2008) explained, in “a conduct of conduct” they were learning and sharing their experiences to control blood sugar in order to attain effective treatment. There was rich information and new alternatives for diabetic women, rather than dealing with their lives alone.

The “self” of the diabetic women was elaborated into two sides. First, there was “the constructed self” referring to diabetic women who were governed and directed their health practices, following medical regulations. Second, there was “a new self” referring to diabetic women who negotiated and resisted medical practices with or without medical knowledge. They struggled to apply their own knowledge to health practices according to their life circumstances. These two sides of self were articulation between “self-technology” and “medical technology” as described in Foucault's concept of governmentality. The self-technology meant that individuals were struggling enthusiastically to resist and negotiate medical treatment which was interplayed as dominant power of knowledge. As Tanabe (2008) explained, this negotiation pattern reflected the personal identities of diabetic women to control blood sugar; they were adapting themselves in order to normalize.

Recommendations

Health care services for women with uncontrolled DM should balance the power of medical knowledge and the power of the patient's self. Health care providers should understand diabetic women's practices regarding self-regulation: surrendering to and accepting DM treatment; negotiation to adopt the alternative treatment; resistance to modern medicine; and conduct of conduct for learning

and sharing their experiences through lay knowledge. The application of self-regulation would be individual/group participation, which harmonizes their life context. The “motivation interview” technique is recommended in individual/group processes in order to approach their psychological conflicts and socio-economic and cultural limitations. Understanding self-regulation would enhance their ability to control their blood sugar levels and attain effective treatment.

Conflict of interest

This study has no conflict of interest.

References

- American Diabetes Association. (2008). Diagnosis and classification of diabetes mellitus. *Diabetes Care*, 31(Suppl. 1), 55–60.
- Baumeister, R. F., Schmeichel, B. J., & Vohs, K. D. (2017). Self-regulation and the executive function: The self as controlling agent. In E. T. Higgins, & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (2nd ed.). New York, NY: Guilford.
- Bureau of Non Communicable Disease. (2015). *Annual report 2015*. Bangkok, Thailand: The War Veterans Organization for Printing. [in Thai]
- Chacko, E. (2003). Culture and therapy: Complementary strategies for the treatment of type 2 diabetes in an urban setting in Kerala, India. *Social Science & Medicine*, 56(5), 1087–1098.
- Denzin, N. K., & Lincoln, Y. S. (1994). Introduction: Entering the field of qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 1–17). London, UK: Sage.
- Foucault, M. (2000). Governmentality. In J. Faubion (Ed.), *The essential works of Michel Foucault vol. 3: Power*. New York, NY: The New Press.
- Institute of Community Based Health Care Research and Development. (2009). *Handbook for primary health care unit: Integrated management for diabetes*. Bangkok, Thailand: Author
- Iwase, M. (2014). *The social effects of gestational diabetes in “high-risk ethnic groups”* (Unpublished doctoral dissertation). Retrieved from https://tspace.library.utoronto.ca/bitstream/1807/68205/1/Iwase_Maki_201411_PhD_thesis.pdf.
- Jaikrit, B., & Sukriti, B. (2014). Worldwide of burden diabetes. *Indian Journal of Endocrinology and Metabolism*, 18(6), 868–870. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4192997/>.
- Ministry of Public Health. (2014). *Strategy indicators and guideline for data collection in fiscal year 2014*. Nonthaburi, Thailand: Author. [in Thai]
- Muttiko, M., Sherer, P., Ponkert, J., Visutyothin, Y., Naranon, S., & Sindhvananda, W. (2010). *Primary health care system and chronic illness: Knowledge status and research direction*. Nakhon Pathom, Thailand: Institute of Community Based Health Care Research and Development. [in Thai]
- Paisantuntiwong, S. (1997). *A study on health service seeking process of women with diabetes in the western region* (Unpublished master's thesis). Mahidol University, Bangkok.
- Pornsiripongse, S. (2007). *Holistic care for diabetes by community* (Unpublished doctoral dissertation). Khon Kaen University, Khon Kaen. [in Thai]
- Sachdeva, S., Khaliq, N., Ansari, M. A., Khan, Z., Mishra, S. K., & Sharma, G. (2015). Cultural determinants: Addressing barriers to holistic diabetes care. *Journal of Social Health and Diabetes*, 3(1), 33–38. Retrieved from <http://www.joshd.net/article.asp?issn=2321-0656;year=2015;volume=3;issue=1;page=33;epage=38;aulast=Sachdeva>.
- Smith, C. A. S. (2011). Living with sugar: Influence of cultural beliefs on type 2 diabetes self-management of English-speaking Afro-Caribbean women. *Journal of Immigrant and Minority Health*, 1–8. Retrieved from http://casmith5.myweb.usf.edu/Smith_Living%20with%20Sugar.pdf.
- Tanabe, S. (2008). *Community and governmentality: HIV/AIDS self-help groups in Northern Thailand*. Bangkok, Thailand: Princess Maha Chakri Sirindhorn Anthropology Centre.
- Weaver, L. J., Worthman, C. M., DeCaro, J. A., & Madhu, S. V. (2015). The signs of stress: Embodiments of biosocial stress among type 2 diabetic women in New Delhi, India. *Social Science & Medicine*, 131, 122–130.
- WHO. (2010). *Global status report on non communicable diseases*. Geneva, Switzerland: Author.
- WHO. (2016). *Global report on diabetes*. Geneva, Switzerland: Author.