

Postcolonial Knowledge from Empires: The Beginnings of Menstrual Education in Taiwan, 1950s–1980s

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On 12 September 1963 an article titled “Menstrual Education” appeared in the newspaper *Zhengxin xinwen bao* (徵信新聞報).¹ The article advocated teaching children developmental physiology as a “natural phenomenon.” It praised the notion of ridding people of the confusion and ignorance supposedly rooted in their old ways:

In the United States, menstruation education consists of showing Disney cartoon films. In a science museum in Chicago, every *physiological phenomenon* from fertilization to birth is exhibited in detail in the Miracle of Development Room using plastic and plaster models and charts. Adults who walk into the room are reportedly always shocked, while the millions of elementary school children who visit yearly are unperturbed, encountering it with ordinary curiosity. Indeed, their reactions indicate the benefits [of such education]. For example, 11-year-old Johnny was happy to now understand the principles of how he was born and impressed by the wonders of life. A fourteen-year-old girl named Meili was having her period, and she was so afflicted and lonely. After entering the room, everything became clear to her, and she was rid of confusion and bewilderment. She was very happy. Children are taking in [the display] as a kind of *natural phenomenon*, and they are learning from it with a humble heart. (Ishigaki Junji 1963)

The article introduces this US method of countering nonscientific views by way of a Chinese translation of the writings of a Japanese public health educator, Ishigaki Junji (石垣純二, 1912–76). Featured alongside it was another essay, translated by Lin Xincheng (林信成) and also originally in Japanese, titled “Cuowu de jiankang guannian” 錯誤的健康觀念 (Mistaken Health Concepts). The latter article asserted

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¹ In this article, existing English translations of Chinese names and book and article titles are used; if no English version exists, the translation is the author’s.

that superstition and tradition were sources of incorrect knowledge that will “not stand the trial of medical researchers’ thorough investigations” (Lin 1963).²

As early forays into menstruation education in Taiwan, these two articles possess two striking features: the postcolonial configuration of knowledge transfer and the rhetoric of science as a liberatory force. The first article presents a model of science-based social progress from the new empire (United States) conveyed in translation via a piece of writing from the former empire (Japan), and the other was a translation from a Japanese magazine. Learning science from the empire(s) was presented as a form of enlightenment, and in freeing the mind from the shackles of tradition, it could even be comforting—as in the case of the young girl learning about menstruation in a scientific light.

Previously, menstruation had rarely been a subject of science or education in Taiwan. A few studies on menstruation were carried out by colonial obstetrician gynecologists during the early colonial period (Fu 2005: 108–14). The colonial physician Wei-shui Chiang (蔣渭水) had written a few newspaper essays in the 1920s advising parents to prepare their daughters for the arrival of menarche, but until the 1960s, menstrual knowledge had largely been limited to the domestic sphere and primarily circulated informally among married women and, albeit more awkwardly, by their mothers, grandmothers, and other womenfolk in their social networks (Wang 2016). In 1968 and 1971, however, health education became a distinct subject in the elementary and junior high school curriculums, respectively, heralding the beginning of menstruation education outside of the domestic sphere.

Only by following the lead of Japan and the United States did postcolonial leaders in Taiwan make menstruation a subject of education aimed at reforming the nature and sources of health knowledge in the name of an anticommunist US regime of scientific progress and economic growth.³ This article examines the emergence of Taiwanese discourses on menstrual education in the public sphere, which were an important means of creating a new, large-scale social order designed to mitigate the supposed inadequacy of the local knowledge conveyed by mothers and other women to young girls within the domestic sphere. I focus on the postcolonial geopolitical framing and universal knowledge claims (in the rhetoric of “correct” and scientific knowledge) of menstruation education in the context of Taiwan’s ambiguous political economic status (Marks 1997: 210). Exploring the emergence of menstruation education in postcolonial Taiwan, I analyze three intersecting historical trends: school health education originating in the context of Cold War politics, surveys of menarche grounded in putatively empirical scientific methods, and popular discourse found in newspapers and health manuals.

² While it did not indicate who the original Japanese author was in this case, it indicated it is excerpted and translated from a Japanese magazine called *Riben* (日本).

³ A note on terminology: In Taiwan, menstruation education can be found under either *weisheng jiaoyu* (衛生教育 hygiene education) or *jiankang jiaoyu* (健康教育 health education); despite their different connotations, they were both translations of “health education.” Weisheng Jiaoyu was the name of the first educational institution for health education at the National Normal University in 1959, and in 2007 it was changed to Jiankang Cujin yu Weisheng Jiaoyu (Health Promotion and Health Education). It is intriguing and sometimes confusing that both *jiankang* and *weisheng* are translated as health. For a discussion on cleanliness (清潔), *weisheng* (衛生), and maintaining health (保健) in colonial Taiwan, see Liu (2001).

Science was at the core of these three domains, and such terms as *natural facts*, *natural phenomenon*, *physiology*, and *correct knowledge* were commonly used in the educational, survey, and popular literature. The emergence of health education was a continuation of the state's attempts to modernize Taiwan, defined as improving health conditions through scientific progress intended to combat its rhetorical counterpoint, "ignorance." Targeting young girls (and, to a lesser degree, women), menstruation education grew out of this modernist civilizing project that employed this contrastive discourse of ignorance (or superstition) versus modern progress. This emergent universal knowledge claim in health education was also contemporaneously evident in surveys of menarche; much like the facts of life about flora and fauna, menarche was treated as a natural phenomenon that responded to its environment. In this way, surveys were also a measure of the nation's progress, and the West and Japan were the points of reference. In addition, surveys were a powerful justification for implementing menstruation-centered health education. Finally, popular literature, often translated from Japanese and US texts, carried this education project further by providing biomedical knowledge that would be accessible to the masses.

In postcolonial Taiwan, the universal knowledge claim in the beginnings of menstruation education took the form of *natural phenomenon* and promised to liberate young girls from ignorance or superstition. Young girls' bodies became the embodiment of scientific, technological, and economic progress. Their rapidly maturing bodies were equated with the rapid economic growth of the nation-state, both in need of scientific management of the technologies that make it possible: scientific minds and educational infrastructure, as well as laboring bodies and factory machines under centralized political control of the technoscientific postcolonial state.

Postcolonial studies in the history of medicine have pointed out the critical importance of science and Western medicine in "universalizing claims of European ideology" in colonial medicine (Marks 1997: 210). Moreover, as Warwick Anderson (2002: 643) points out, the significance of these universalist claims endures in postcolonial relationships. Anderson also suggests that more attention needs to be paid to postcolonial technoscience and critical modes of analysis that might identify new configurations of technoscience.

This article is also an examination of the efficacy of science and its gender politics. In taking the position of being universal, science promised to liberate women and to rescue them from tradition and superstition. In the case of menstruation, understanding it as a natural phenomenon according to science was meant to bring relief. In this examination, I follow many scholars' efforts to challenge the notion of science as universal and demonstrate the situatedness of Western science in different localities.⁴

Despite the fact that the literature on the history of medicine in Taiwan has acknowledged the critical importance of the transition from Japanese colonial medi-

⁴ Charlotte Furth and Ch'en Shu-Yueh's (2004) study shows that women in Taiwan appropriated three frameworks—biomedicine, Chinese medicine, and Buddhist teachings—in their understanding of menstruation. Although not directly focusing on biomedicine, Yu-ling Huang's (2016) research on population politics and fertility studies in early Cold War Taiwan has also shed much light on the gender politics of the production of biopolitical knowledge. She points out that data produced by fertility studies helped shift the focus of population control to the reproductive behavior of women. Several studies on menstruation and Chinese women were published over three decades ago (Ahern 1975; Chu 1980).

cine to US-dominated postwar medicine in Taiwan (Kuo 1998; Yang 2008; Kuo 2010; Chang 2010), little attention has been given to the hybrid and mediated ways in which the scientific knowledge of empires was articulated in the local context. Indeed, knowledge transfer often involved processes of decontextualization and recontextualization.⁵ In this article, I also pay attention to the ways in which knowledge was selected and reframed by local concerns. As shown in the opening quotation, discourses of science grew out of Taiwanese elites' negotiation and strategic translation of the popular medical science propaganda of overlapping postcolonial political forces.

Through menstruation education and other forces for social change, young girls' experiences of menarche and menstruation went through a profound historical transformation. Up to the 1960s, young girls' experiences with menarche had often been filled with fear and surprise; at most, some young girls were told about it after they had started their first period, and still others merely overheard the subject being discussed by older women. Beginning in the 1960s, in contrast, menstruation became a subject of education, moving out of the private sphere of women and into the public sphere as an ordinary topic in schools and daily conversation. Increasingly, young girls anticipated its arrival and experienced it as a hygiene issue, as the issue of sexuality was hidden, if not altogether omitted.⁶ Nevertheless, they still experienced menstruation (and blood) as something embarrassing and awkward (Wang 2016). In this article, I examine how the universalizing claims of US and Japanese knowledge and policy prescriptions were reconfigured in the context of scientific menstruation education in Taiwan.

1 Making Menstruation Part of Health Education, 1950s–1970s

Menstrual education developed in part out of broader efforts to reform the school health education curriculum. Therefore, first I outline the historical circumstances surrounding the development of health education in Taiwan. The consolidation of health education from various neighboring subjects coincided with the establishment of a US-like educational institution (Department of Health Education), knowledge production through translating US texts, the trumpeting of science-based social and economic progress, and individual elites in key positions of control over the content of health education. In short, health education was deemed essential for the improvement of public health conditions and an integral part of nation building.⁷ In the post-WWII era, it was also one of the areas that the World Health Organization promoted, which extended to the implementation of programs such as adolescent health education that encompassed menstrual cycle education (Burton 1966).

Despite these favorable conditions, health education as a field, as one of its US practitioners pointed out, was so interconnected with other subjects—such as biology,

⁵ In this regard, the Taiwanese translation of the US feminist classic *Our Bodies, Ourselves*, was retitled *Nide shenti han nizhiji 你的身體和你自己 (Your Body and Yourself)*, a result of a process of recontextualization in which the politics of *Our Bodies, Ourselves* was very much tamed by several changes made for the local Taiwanese version (Wang 2012).

⁶ For more on this transformation, see Wang 2016.

⁷ School health education during the 1950s and 1960s centered on health teaching, morning inspection, tuberculosis, trachoma, and head lice control (Chang 2010).

sociology, and psychology—that its boundaries were difficult to define (Wolfram 1968). Locally, an independent curriculum for health education did not exist for elementary schools prior to 1968 (Li and Lai 2000); topics relating to physiology and hygiene were previously scattered across subjects like common sense, nature, and civil and moral teachings. In practice, health education was covered unevenly in junior high schools (Yu 2004).⁸ Similarly, menstruation education was a boundary subject caught between several fields; it belonged variously to physiology (*shengli* 生理) education, sex (*xing* 性) education, hygiene (*weisheng* 衛生) education, or psychology (adolescent development), depending on the context.⁹ As an ill-defined subject, the discursive work of health education, whether at the institutional level or in popular literature, produced a haphazard postcolonial amalgamation of *Ou-Mei* (歐美 European and US), *weisheng* (hygiene), and physiology.

The US influence mainly came in two forms: material resources and knowledge production. In 1950, funded by the American Bureau for Medical Aid to China (ABMAC), a team of three experts—public health physician Chang Zikang (張智康), public health nurse Lu Yun-e (陸雲娥), and hygiene engineer Ni Shi-huai (倪世槐)—inspected the state of school health in Taiwan by visiting eight schools that were affiliated with normal colleges. They reported that conditions were poor, which resulted in the forming of an executive team on school health focusing on normal schools and including Li Shu-pei (李叔佩) and the director inspector of Taiwan Provincial Department of Education, Jin Yan-sheng (金延生) (Chang 1989).

The knowledge production took the form of the team's task of editing health textbooks to be used for training of normal college students, the future schoolteachers. The writing, editing, and translating of textbooks were based on three main elements: the former Nanking (China) government's plan for elementary school education, reports on past experiences of school health education in Taiwan, and classic textbooks published in Britain and the United States. Clair E. Turner's (1890–1971) *School Health and Health Education* (1947) was the first of the latter to be translated, as *Xuexiao weisheng yu jiankang jiaoyu* (學校衛生與健康教育), which was published in 1953. The translation of US health education texts continued into the 1980s. For example, Carl L. Anderson's *School Health Practice* (1968) was translated and edited by Li Shu-pei and his students and associates in 1988. Another example is *Weisheng jiaoyu* (衛生教育 *Health Education* [or *Hygiene Education*]), a collection in which five of its thirteen essays were translations from the United States (Tan 1985).

When it came to knowledge production, the United States was the main source as well as the target of emulation. From Li's writings, one gains a sense of the politics of knowledge appropriation. Li appealed to such authorities as Ruth E. Grout's definition of *health education*, and he juxtaposed the use of the term by the American Association for Children's Health in 1919 with the use in China in 1920. He argued that there were two major faults of the Chinese people (*zhongguo ren* 中國人, a term commonly used to refer to ethnic Chinese in Taiwan): being too ignorant of modern health knowledge (愚昧無知) and, as a consequence, incapable of adapting to modern ways of life;

⁸ The 1968 compulsory education law mandated that all children receive a junior high school education, which meant that more girls would enter junior high school and experience menarche at school rather than at home. The education rate for junior high school was 59.04 percent in 1966 (Ministry of Education 2010).

⁹ For a historical analysis of the content of physiology textbooks, see Lee (2013).

and knowing but not engaging in healthy behaviors. Therefore, he argued, thoroughly implementing health education was the way to solve these problems (Li 1971). This pattern of reasoning extended to menstruation education, as manifested in the work of one of Li's advisees, Kuo Hui-mei, in her survey of junior high school girl students' health conditions and her book on young girls' health issues, which extensively appropriated US sources (Kuo 1970, 1972).

Portrayals of what was happening in the United States by referring to Grout's and others' work appear to have formed a horizon of understanding and powerful justification for local action in Taiwan. The founding of the first Department of Health Education at Taiwan Normal University in 1959, which soon served as the main institution for health education, was a case in point. Li Shu-pei, the first chair, described the obstacles he experienced in founding the new department. Among them were three challenging questions posed by Pu Xue-fong (浦薛鳳), the political deputy minister of the Ministry of Education: Why, instead of placing it in a medical college, would the department be placed in the normal university? What were the graduates' job prospects?¹⁰ Did this kind of department exist in the United States? To the last question, Li simply answered, "You studied in the U.S. for many years, and you should know better than I" (Li 1983: 4). From its conception to its establishment, the new department either was modeled on its US counterparts or followed the US experience. For example, it avoided establishing a joint department of health and physical education, as the combination had not worked out in the United States. At the individual level, Li's career well illustrates the postcolonial politics of health education. His educational background allowed him to be part of the political elites' social network, which in turn enabled him to have access to resources and opportunities offered by the government and US funding agencies. Before coming with General Chiang's army to Taiwan in 1949, Li had graduated from Manzhou Yike Daxue (Manchukuo Medical University 滿州醫科大學), and he had been the personal physician for Gui Yong-qing (桂永清), former commander general of the navy and chief of general staff (Yeh 2016). In 1951, losing interest in serving in the military, he became the director of the Center for Physical and Hygiene Education of the Normal College (now Taiwan Normal University). On the advice of Ira V. Hiscock (1892–1986), the chair of the Department of Public Health at Yale University, who visited Taiwan in 1953, Li went to Yale University to study school health in 1954 with financial support from ABMAC (Li 1983). In short, he was in the "mainlander" intellectual elite circle that dominated higher education in the postwar era (Lu 2007).

Li's views on science and medicine were not unlike those of the colonial elites: he saw his role in health education as being that of an agent of science. He writes in his memoir after a career spanning thirty years: "I discovered from my experience of practicing medicine that there were many mistakes in the ways of people's health-seeking behaviors and hygiene concepts. Not only did they go to the wrong healers, they also went to both traditional Chinese and Western-trained physicians, prayed to gods, burned incense, took medicine recklessly, and had no idea about prevention and preservation of health" (Li 1983).

¹⁰ The graduates often became school health teachers who participated in textbook writing; for example, the aforementioned Kuo Hui-mei was a teacher as well as a health education researcher and writer.

In Li's view, the promotion of health education based on science and hygiene was critical to nation building, and Western health education formed the framework. In his preface to the Chinese translation of Carl L. Anderson's *School Health Practice*, Li states that the promotion of students' physical and mental health is one of the main goals of education for every nation (Li 1988). The book offered a model for the practice of school health education in Taiwan. The second chapter, titled "Healthy Children," which used research from the US National Institutes of Health, London Children's Hospital, and Harvard's Public Health College, laid out a conceptual framework. The comparative approach he outlined included measuring Taiwanese children's growth against that of Western children; their body height, weight, and age of menarche, among several other features, were to be assessed by school health teachers.

It is no surprise that, during the heyday of population control efforts worldwide, health education also extended to population education. Li and his students began to include population education in school health education by the end of the 1960s (Li 1983).¹¹ Li also participated in the Population Education Conference organized by the United Nations and held in Bangkok in 1970. Moreover, as surveys on menarche indicated (Fan 1961), knowledge regarding health conditions, including menstruation patterns, could be easily employed for the purpose of population control.¹²

As mentioned in the opening of this article, keywords for menstruation/sex education included *natural facts*, *natural phenomenon*, *physiology*, and *correct knowledge*. In 1972, Li, along with National Taiwan University professor Liao Rong-li (廖榮利) and several other authorities, attended a conference on family life where they advocated sex education in school and family education. They argued that sex was a "natural phenomenon" (Weiwei 1994 [1975]: 424). Again, in 1975, he was one of the experts in a meeting organized by *Zhongguo shibao* 中國時報 (*China Times*), *Jiuguo tuan* 救國團 (*China Youth Corps*), and *Zhongguo Xingli Xehui* 中國心理協會 (currently Mental Health Association Taiwan) on family and adolescents, and he urged parents and teachers, in order to ease adolescents' anxiety, fear, and confusion, to emphasize "correct scientific knowledge" (*Zhongguo shibao* 1975: 3).¹³

In this way, Li and others sought to realize the vision proffered in the opening quote of this article, in which science from the United States provided the framing of sex/menstruation education and was supposed to ease the disturbed adolescent girl. The discourse on "a normal physiological phenomenon" was articulated by Han-wen Yan, a US-trained faculty member of the Department of Health Education whose influence continues up to today. Yan described an anecdote in which he relieved girl students' uneasiness by using the notion of "menstruation as normal female physiology." When he was a college student (around the late 1960s), he taught a class of first-year junior high girl students. One day, when he mentioned the word *menstruation*, everyone in the class put down their heads immediately. Feeling nervous, he explained that men-

¹¹ In Japan, Ishigaki Junji was also active in both health/sex education and family planning.

¹² However, partly due to the fact that health education was interconnected with several subjects, the extension of health education to population eventually forced Li to publicly exclude sex education from population education by making a distinction between the two (*Lianhe Bao* 1984).

¹³ Perhaps to avoid ceding the territory of health education to sex education, Li later publicly drew the line between population education and sex education, saying that population education is not sex education (*Zhongguo shibao* 1975).

struation was a normal female physiological phenomenon and that human reproductive organs were no different from circulatory or respiratory organs; only after such reassurance did the students raise their heads (Yan 1984).

In the case of sex education, too, knowledge imported from the United States was utilized to set the framework. In a lecture addressed to a group of junior high school health education teachers in 1977, Yan framed his speech “What Health Education Teachers Ought to Know about Sex Education” in terms of what had been developed in the United States (Yan 1977). After defining the scope and content of sex education, he spent one-third of the lecture describing the five stages of sex education in the United States. He reasoned that the US case would enlighten (*chi-dii*) Taiwan regarding sex education. In this way, the United States was a benchmark for Taiwan. Similarly, in research articles, such sentences as “This study . . . compared the data with Japan and *Ou-Mei* (Europe and U.S.)” are customarily used (Lin and Li 1987: 150).

However, knowledge imported from the United States did not remain intact and unmodified; rather, it often went through some modifications or even omissions. In translating an essay published in 1968 by Bonnie R. Wolfram, Yan-Hua Tsai, also a graduate of the Department of Health Education, acknowledged that the essay was to promote the status of health education and to encourage practitioners, but he also indicated that he had omitted the part on sex education without offering an explanation.¹⁴

When health education was extended to family planning, its framing of teaching menstruation as merely a natural phenomenon for young girls was somewhat undermined. As discussed early, menstruation was framed as a physiological phenomenon without sex (education), and even though menstruation and sex education were highly relevant to population control, sex education in the form of birth control was reserved mainly for married women. In the context of family planning, knowledge about menstruation (especially physiological mechanism, ovulation, and “safety” period), along with birth control devices, was taught in order to educate women on how to avoid pregnancy.¹⁵ It was not uncommon at the time for women to learn about the mechanism of the menstrual cycle only after they had given birth to their first child; that is, only when trying to control further births, usually through conversations at the local obstetrics and gynecology office (Wang 2016). Young and presumably unmarried girls were not supposed to learn about menstruation and reproduction, as that would risk “damaging their purity.”¹⁶

As the work of family planning continued, however, by the late 1970s family planning practitioners extended sex education to unmarried young senior high school students. De-xiong Sun (孫得雄), the head of the Research Institute of Family Planning, warned that 8 percent of newborns were born to women under twenty who were either students or factory workers. Sun observed that even though physiology was taught in high schools, many teachers shied away from teaching sex education; as a consequence, many curious young girls and boys could not get answers. Sun suggested

¹⁴ Menstruation was listed under sex education in Wolfram’s original essay (Wolfram 1968). Coincidentally, the 1975 Taiwanese translation of *Our Bodies, Ourselves* also omitted some sex-related content (Wang 2012).

¹⁵ Other studies on family planning include Kuo 1998.

¹⁶ To be sure, the elite had already been practicing birth control by the 1930s. By the 1950s, as the physician Wu Xinrong saw it, the modern way to be human was to use science to limit births. “We have decided to utilize the highest science [surgery] to regulate our natural human life” (Wu 2008 [1950]).

that schools and factories contact local family planning centers for the needed help (*Lianhe Bao* 1977: 3).

Compared to health education experts whose primary concern was to claim the supremacy of scientific enlightenment on broad issues of health, family planning practitioners had a clear and focused practical agenda. Whereas Han-wen Yan's discourse of "normal physiology" was often accompanied by a discourse of marriage (Yu 2004), family planning practitioners were concerned with young girls who had no knowledge of physiology (in relation to birth control), which would compromise the overall accomplishment of the family planning project. To investigate the situation, surveys sponsored by the National Science Council of Taiwan were given to high school, vocational high school, and junior college students as well as male and female factory workers. The surveys concluded, "Still one-fifth of the students indicated that their school did not teach male and female reproductive systems or reproductive physiology." A survey by Taiwan provincial Family Planning Research Institute also showed that 80 percent of the unmarried young mothers were under twenty, and another by Taipei Family Planning Promotion Center indicated that 90 percent of young mothers under twenty became pregnant before they were married (*Jiating Jihua Yanjiu Suo* 1985). Together these served as a powerful tool to press schools to implement sex education (*physiology* often served as a euphemism) (*Jiating Jihua Yanjiu Suo* 1984).

Nothing buttressed correct knowledge and facts more effectively than research such as surveys. Surveys, as sources of empirical sociodemographic and biological facts, were versatile; they made comparison with the West and Japan possible; they could also provide the basis for policy; and they helped legitimize and define a field. The US health education advocates Donald Gross and Thomas W. O'Rourke knew well the importance of research, arguing that research could promote the status of health education and produce concepts, principles, and patterns. They advocated the method of science, quoting Charles Peirce that a method "should be found by which our beliefs may be determined by nothing human. . . . The method must be such that the ultimate conclusion of every man shall be the same" (quoted in Gross and O'Rourke 1975: 30). Tong Lam has demonstrated a case of the politics of social surveys in his groundbreaking 2011 book, *A Passion for Facts: Social Surveys and the Construction of the Chinese Nation-State, 1900–1949*. He analyzes how information generated by a range of research practices was used to remake the nation of China. The health education experts in Taiwan also took to employing health surveys as powerful tools. I now turn to a discussion of surveys done on menarche.

2 Creating Science of Taiwanese Menarche, 1960s–1980s

In modern times, menstruation patterns have commonly been seen as one of the key indicators of a population's productivity, and knowledge of menstruation has been central to body politics.¹⁷ In the context of population control, the extent to which a

¹⁷ In general, studies on menstruation included tropical medicine, particularly concerning the debate over whether the age of menarche in the tropics was relatively early or not (Ellis 1950). The discipline of human biology had also paid attention to the effects of economy, social changes, and improvements in nutrition on

woman knew about menstruation was considered highly relevant to population control. In the post-WWII era, the UN Population Council's research projects included surveys on women's menstrual knowledge at the personal level ([World Health Organization 1981](#)).

In the second half of the twentieth century in Taiwan, surveys on the age of menarche and menstruation reflected the entangled politics of national development, productivity, population control, economic development (labor force), and social management.¹⁸ Since the studies were done on young school girls, they also helped create a sense of urgency for implementing menstrual education. A number of large-scale academic surveys on menarche took place in the 1960s ([Meng 1961](#); [Fan 1961](#); [Wu, Wu, and Lin 1966](#); [Chiu, Su, and Huang 1967, 1968](#); [Kuo 1970](#); [Kao 1978](#); [Chen and Hung 1986](#); [Lin and Li 1987](#); [Zhou 1988](#); [Liu 1985](#); [Lan, Xu, and Chiang 1989](#)).

For instance, the study by Xian-jie Meng ([孟憲傑](#)) (1961), a statistical report of a survey on 4,674 girl students, was concerned primarily with the age of menarche, and he compared the age of menarche of girls in Taiwan with previous studies on menarche from several areas in the world, including Scotland, Russia, Italy, Norway, Holland, Germany, Austria, Poland, India, Brazil, Korea, China, and Japan. Age of menarche was seen as a result of a combination of various factors, including race, genetics, environment, climate, and developmental condition. The age of menarche was reported to be fourteen to seventeen years. The Taiwanese age of menarche, when compared to the figures for other countries, suggested a lower state of national development, as the age of menarche was decreasing in developed countries relative to Taiwan.

Other surveys showed a close tie with population control. For example, [Kuang-Yu Fan's 1961](#) study, "Studies of Maternal Activity and Agricultural Work of the Hakka Women in Rural Taiwan," was based on a survey of 2,032 Hakka women. Menarche was situated in the context of agriculture labor, and it drew from population studies such as [George W. Barclay's \(1954\)](#) well-known report on the population of Taiwan and [Chow and Hsu's unpublished 1959](#) paper, "Population Problem of Taiwan Today" ([Fan 1961](#)). Fan's survey was concerned with how women's involvement with labor might delay the age of menarche, which had profound implications for maternal activity and population control.

The gendered politics of enlightenment is clear in the surveys. For example, [Chiu, Su, and Huang's 1967](#) survey was based on 2,246 elementary, junior high, and high girl students, and it aimed at laying out adolescent girls' biosocial development. In addition to the usual comparisons with Western countries (*xi fang guojia* 西方國家), it interpreted the observation that 44.81 percent of girls received menstrual knowledge from their mothers as "not the most reasonable [situation]." They argued that "mothers, despite having experience, often do not have a clear understanding of the physiological changes involved in menstruation, especially those who are not well-educated and,

body height, weight, age of menarche, and infant mortality ([Huang and Malina 1995](#)). Obstetricians in early colonial Taiwan had carried out surveys on women's ovarian tumors, on pregnant and nonpregnant women, and, later, on the age of menarche, which were showcased at the time as achievements of the Japanese civilizing mission ([Fu 2005: 108–14](#)).

¹⁸ According to [Changhui Chen and Chi-hsiu Hung](#), the first survey on menarche was carried out at National Taiwan University Hospital on 827 girls in 1954, and the average age of menarche was 14.11 years ([Chen and Hung 1986](#)). A group of obstetricians at the National Taiwan University Hospital also did a survey on menstruation of 3,079 school girls in Taipei ([Wu, Wu, and Lin 1966](#)).

therefore, might possess incorrect knowledge and mystical concepts” (Chiu, Su, and Huang 1967: 15). The survey also lamented the fact that, of the students who answered the question, “Did you know about menstruation beforehand?,” 78 percent answered in the negative (Chiu, Su, and Huang 1967: 15).

In addition to academic surveys, some translated reports from the United States were published as a source of comparison. For example, one translated newspaper report ran as follows: “Regarding the length of menstruation period, please see the table for the relationship between age of menarche and the age of menopause. . . . According to medical statistics, those who have their menarche early will also reach menopause later. . . . This is [based on] a research report done by the American Urban Life Insurance company” (Ho 1957). And another one: “Until today, according to the Meikuo Jiaoting Funu Hsiehui’s (American Housewives’ Association) statistics, thousands of young girls are having their menarche at ten, one in four has her menarche at eleven, and over one-half of them are having their menarche at twelve” (Ai-Ling 1965).

Some of these research reports were used to justify menstruation education in schools (Chiu, Su, and Huang 1968; Kuo 1970; Kao 1978; Chen 1982). The increasing number of girls in schools and in the public sphere (factories) was considered a new and problematic social phenomenon. Indeed, the first government-funded large-scale research on young girls was carried out in 1966 on the eve of compulsory education in 1968. The report recommended that menstruation education be institutionalized for elementary, junior high, and high schools (Chiu, Su, and Huang 1967).

The research, together with the newspaper reports, conveyed a sense of urgency regarding the need for young girls’ menstruation education. It is this sense of urgency that provided the justification for educating junior high school girls about menstruation and physiology. Compared to the family planning program, which targeted only married women and was tied solely to reproduction, it advocated educating girls on physiology.

By the late 1970s and early 1980s, the researchers took notice of the fact that the age of menarche had been decreasing, an alarming fact that gained much attention. The age of menarche in 1954 was 14.11, 14.07 in 1964, and 13.37 in 1968, and by 1987 it had gone down to 12.86 years (Meng 1961; Wu, Wu, and Lin 1966; Lin and Li 1987). The early arrival of menarche meant that menstruation education had to start earlier, at the elementary school level, so girls would be prepared for it (Lianhe Bao 1983, Mingsheng Bao 1983). In addition, menstruation education was not limited to the prevention of young girls’ panic from seeing the menstrual blood at menarche. It also encompassed issues of etiquette, natural facts, and getting rid of the old ways (including mother’s advice).

Despite the fact that the increasingly lower age of menarche had caused some anxiety among parents and school teachers, by the late 1980s, as touched on above, it was seen as a sign of progress. For example, a newspaper report titled “(Domestic) Young Girls’ Physiological Maturity Is on Track with Their Counterparts in Europe and America,” runs: “According to a survey (done by the family physician Lin Xinhua), the average age of menarche for girl students in the north is 12.6, and 13.1 for those in the south. It’s worth noting that girls are gradually becoming precocious, keeping pace with their US and European counterparts” (Mingsheng Bao 1989b).

Survey results were presented as hard scientific facts that would make a strong case against the supposedly traditional ways of dealing with menstruation. The women's popular health manuals that became common in the 1970s also demonstrated a similar pattern, which I discuss further below.

The surveys on menarche also functioned as a tool for standardizing and biologizing the adolescent body. For example, here is a description from a newspaper article that frames the contemporary understanding of the issue well: "Adolescence is a period when the reproductive system begins to mature, including the secretion of hormones and the consequent developments of the primary and secondary sexual characteristics. The entire process takes about 3 years. . . . In our country, young girls' average age of menarche is 13.4. . . . In the West, girls' average age of menarche is 12.5, ranging between 10.5 and 15. There is a tendency for the average age to decline" (*Mingsheng Bao* 1989a).

The idea that menarche was a natural fact was not just proposed by the surveys; it was also advocated in popular health literature and health education text books, and girls were oriented by these texts to frame it in the same way. For example, a survey done in 1986 on junior high school girls in Kaohsiung indicated that 35.29 percent of the girls could confirm that menstruation was "a natural phenomenon and proof of the normality of their physiology," but 75.59 percent experienced it as having feelings of "fear, shame, shock, and anger" (*Chen and Hung* 1986).

The West was a source of knowledge. In fact, most of the menstrual knowledge in Taiwan came from the United States, or from the United States by way of Japan. Menarche-related surveys were often a part of the general surveys on school children's height and weight and reflected the concerns of studies conducted in the United States (*Lianhe Bao* 1973). Essays by Taiwanese on girls' attitudes toward menstruation and whether mothers prepared their daughters also drew on comparative survey data from the United States.

3 Spreading Health and Hygiene in Popular Media and Health Manuals, 1970s–1980s

In addition to institutional health education and surveys on menarche and menstruation, popular literature, including health manuals, newspapers, and magazines, also produced discourse on menstrual education. Like health education and surveys, popular health literature aimed at breaking the tradition of what was deemed to be superstition and ignorance (*po-chu chuangtong mixing wuzhi* 破除傳統迷信無知), and the United States and Japan were the main sources of knowledge. Despite the fact that beginning in the 1970s a substantial number of local physicians also wrote health manuals, most popular health manuals were translations from Western and Japanese texts (*Wang* 2009).¹⁹ Wen-long Chen's 1975 book for young girls, titled *Shao-nu Yixue* 少女醫學 (*Medicine for Young Girls*), opened with an introduction on how young girls' problems were taken seriously in the United States and how a special

¹⁹ Among the popular health manuals published in the period between 1952 and 1990, forty out of seventy-eight were translated works from the United States and Japan (*Wang* 2009). In addition, the ones that were written by local physicians employed knowledge from the United States and Japan.

clinic for young girls had been operating at Boston Children's Hospital since 1951. Like many other health manuals, this book began with the issue of menarche (Chen 1975).

Popular health manuals served as one of the tools for medical enlightenment efforts and medicalization (Wang 2009). These popular health manuals often featured menstruation in the opening chapter, with menarche presented as the foremost and first natural phenomenon that would occur in any healthy young girl's body (followed by pregnancy and childbirth). The following advice adorned the back of Dr. Tao-Ming Wu's popular health manual, *Nide Shenglixue (Your Physiology)*: "So you can be a good husband with classical tenderness and a scientific mind" (Wu 1971). The configuration of modern science of hygiene against ignorant tradition is best articulated in the following paragraph from a health manual:

Even though menstruation was only a kind of physiological phenomenon, it is one of the important conditions that a normal woman is mature. Due to their lack of knowledge, women of last generation thought menstruation was a dirty thing. When they had their period they dared not to see people and thought their own bodies as unclean. Some even did not dare to bathe or wash hair, or walk under the sun. . . . This kind of ignorant and antiscience attitude not only hinders menstrual hygiene but also may cause physiological lesions. As a modern woman, [one] should at least have some basic understanding. (Lai 1980: 111)

In articulating the idea that menstruation was a physiological phenomenon, health manuals offered a number of recurring, concrete examples. A manual translated from Japan on sexual medicine made the analogy between flower blossoming and menstruation: "There is a certain time that flowers blossom. . . . In Tokyo, cherry flowers blossom during January 3rd and 4th and wither by the 12th and 13th. . . . This is incredible. One of the signs that the young girl's body is mature is menstruation" (Li 1964 [1954]: 1).

Han-wen Yan's popular writing serves as another example of this natural phenomenon framing. He called menstruation a normal physiological phenomenon, and he suggested that if young girls were educated by their mothers or teachers on the cause, meanings, and methods of taking care of it, young girls would not be frightened.

The occurrence of menstruation . . . the pituitary gland in the human body starts to secrete hormones, which makes the follicles in the ovaries mature. Approximately every 28 days (it varies according to the individual), there is a mature egg being delivered from the ovaries, and it reaches the uterus by the movement of the fallopian tubes. In the meantime, the uterine membrane thickens to prepare for the implantation of a fertilized egg. If the sperm does not enter to fertilize the egg, the uterine membrane will peel off, and the unfertilized egg along with the peeling fragments and blood will be discharged from the vaginal opening. (Yan 1984)

This bears a striking resemblance to standard biology or medical textbooks at that time, and one is reminded of Emily Martin's (1991) analysis of the sperm and egg. The emphasis on the physiological mechanism, names of particular body parts, and the meaning of menstruation as the result of failed fertilization is apparent. In short, Yan was advocating menstruation education that was based on modern biomedical knowl-

edge and at the same time a naturalized view of menstruation. In addition, he thought that such biomedical knowledge would prepare young girls to avoid being frightened by the arrival of menarche. Other essays appeared in popular health magazines that followed a very similar pattern of science coming to the rescue. For example:

Currently Chinese [*Zhongguo*] society is in a transition from agricultural to industrial society. Speaking about issues of sex is still considered degrading and indecent, even though, due to the recent cultural exchange between China and the West, Euro-American customs are invading [the society]. School hygiene has not been effective . . . rarely do they advise young girls in detail on preserving their health. Menstruation is indeed a mysterious and unthinkable thing; if a young girl is ignorant, the psychological nervousness and shock are very severe. (Juede and Hanzhong 1960: 102)

College students carried out a similar version of enlightenment aimed at providing correct knowledge for the ignorant. In the 1970s, prompted by the Diaoyutai (Senkaku) Islands incident (a territorial dispute between Japan, the People's Republic of China, and Taiwan), students at National Taiwan University organized a Million Hour Contribution Movement (百萬小時奉獻運動), which included a variety of social activities, such as sending medical service teams to rural areas, street cleanup, helping in educating aborigine children about hygiene, and hygiene education in schools and factories. The Bo-Huei Working Team (or Spreading Sunlight Working Team, 播暉工作團) was another part of this movement, consisting of medical students from National Taiwan University and other universities. These up-and-coming, well-educated youth sought to educate the “ignorant” high school students and men and women in the factories of the Kaohsiung Export Processing Zone.

A news report on Bo-Huei reads:

There was a middle school girl who, one day when she had her period, suffered severe abdominal pain for two to three days, until she had cold sweats and rolled over on the floor. She was sent to the Health Office of the school. When the school notified her mother, she hurried to school and claimed that her daughter never mentioned menstrual pain to her. Still one other girl student was walking around as her menstrual blood ran down her legs, and she was not even aware of it. (*Lianhe bao* 1977)

In short, factory and school girls, as well as mothers, were depicted as ignorant, and the young college students assumed the position of progressive patriots who were bringing science to the ignorant (Wang and Lin 1966).

Both the university students and health care professionals took educating the ignorant as their responsibility to the nation, and they were eager to expose the extent of the problem. Obstetrician-gynecologist Chien-dai Chiang, recalling her early days in practice, lamented “women’s lack of understanding of their own bodies,” especially when she asked her patients the question, “When was your last menstruation?” or “When did you start having abnormal bleeding?” “Some even turned to their husband for the answer” (*Health for All Magazine* 2001).

The role of sanitary napkin companies also deserves attention; they also elaborated on the theme of knowledge and liberation. As space is limited, I give only a brief summary here. Taking advantage of the now widely recognized state of affairs—the

urgent need for young girls to learn about their physiology and how to take care of menstruation—they quickly liaised with health care professionals and cultural elites in advocating menstrual education.²⁰ In addition to the natural/normal phenomenon as indicated in the Chinese name for sanitary napkins, *weisheng mian* (hygienic cotton), the sanitary napkin industry also elaborated on the liberation theme. The naming of one of Proctor and Gamble–Taiwan’s products Hao-zi-zai 好自在 (feeling at ease, feeling comfortable) intended to answer the problem many working women had, which was the need to feel comfortable during menstruation (Wang 2016).

In the newspapers, the rhetoric of science and natural facts in the emerging discourse on menstruation avoided sexual implications—omitting, for instance, any explanation of how a woman becomes a mother. Popular essays with titles such as “What to Do When Your Daughter Has Her Period” (Ai-ling 1965) and “The Physical Exam for Growing Young Girls” (He 1965) advised that “mothers may explain a girl’s physiological developments systematically” (He 1965; for “correct knowledge,” see Deng 1967; for emphasis on physiology, see Kao 1967). The middle-class sensibility, manifested in naturalizing menstruation and, at the same time, omitting the unmentionable, was implicated in the beginning of menstruation education for the public in Taiwan in the 1960s and 1970s.

Euro-American industrial countries and the former empire of Japan were used as constant points of reference in both constructing surveys on menarche and in analyzing their results. The issue of the age of menarche was not limited to research and surveys. When it was found that the age of menarche in the early 1960s in Taiwan was later than that of the West, in the news media it was seen as a reflection of Taiwan’s delayed development in relation to Western civilization. By the late 1970s, as the age of menarche approached the Western average, it was seen as a sign of progress. However, by the 1980s, as the average age went down to ten, some people finally took it as a warning sign that Taiwan had become too Westernized.

4 The Coming Together of Institutionalization, Research, and Popularization

Menstruation education in postcolonial Taiwan grew out of a mixture of health education, studies of menarche, and popular medicine in the historical context of large numbers of girls staying in school for more years and more women entering the job market. The key promulgators were medical and intellectual elites who had ties with the empires and emerged from postwar networks, including physicians, nursing professionals, health education experts, and, to a lesser degree, college student activists.

²⁰ Ma-li Mien (Mary Cotton), a Japanese sanitary pad, was imported and available in 1969. Presumably, since Ma-li Mien was imported from Japan, its distribution would have been limited. The company Kang-naxiang (康那香) was founded in 1969 and claimed to be the first company in Taiwan to work in the nonwoven cloth industry. Kotex arrived in 1976, and, together with a local manufacturer, the company began to produce sanitary pads locally. By the 1980s, sanitary napkin companies were offering menstrual education by sending sales agents to elementary schools, yet television advertising for menstrual products remained limited. It was not until 1984 that the government allowed limited late-night (after 9:30 p.m.) television advertising for sanitary napkins. For advertisements on printed media, they were not to carry “obscene and morally offensive” content, according to Law for the Control of Cosmetic Hygiene (化粧品衛生管理條例) no. 24, established in 1972.

They functioned in ways very similar to colonial elites. They perceived the nation to be in need of improvement, and they took it as their duty to educate the public. By assuming the position of agents of science and progress and transferring knowledge from the empires, health care and education professionals ushered in new ways of doing menstruation education. A few of them established new institutions that produced teachers for health and hygiene education; others conducted menarche research that produced knowledge in support of menstruation education and for the management of the state; and many produced literature that popularized the science of hygiene.

Common in all three efforts but to different degrees was the key idea that menstruation was a natural phenomenon. By employing physiological descriptions, they avoided the sensitive issues of sex and modesty and made menstruation a topic that could be taught in schools. The new ways aimed at offering “correct” knowledge and replacing mothers’ “old-fashioned” local ways. At the same time, this discourse served to naturalize women’s social status as wife and mother by asserting that motherhood was locked within women’s biology by such phenomena as the mechanism of menstruation.

What were the results of these postcolonial efforts on the target population? Did menstruation education bring any changes in terms of girls’ experiences with menarche and menstruation? I have dealt with the changing experiences of women’s menstruation elsewhere (Wang 2016), and it might be helpful to highlight a few points here. After almost two decades of menstruation education, menstruation went from something that was communicated mostly through nonverbal means to a topic of daily conversation, and the participants were not limited to women and girls; fathers and boys (siblings and boyfriends) were recruited as well. In addition, as opposed to older generations of young girls who were shocked by the first sight of menarche blood and thought they were ill or dying, by the late 1980s junior high school girls were able to identify menstruation as a sign of “natural phenomenon,” “normal physiology,” “growing up and mature,” as indicated in surveys done by health care professionals. However, their experiences with menarche were still fear, shame, fright, and anger (Chen and Hung 1986).

Did science bring empowerment to women by liberating them from tradition? Even though Taiwanese science elites’ rhetoric of science, nature, and progress helped bring menstruation education into the education system and public sphere, the promise of female empowerment was not delivered. Ishigaki Junji and Han-wen Yan, like numerous others, promised that correct scientific knowledge would bring relief to young girls. Girls might have learned to identify menstruation as a natural fact, but they nonetheless still thought menstruation was embarrassing (Wang 2016). This is certainly not a straightforward history of science that conquered superstition and tradition in the colony; rather, previous cultural values continued to be firmly held despite the various efforts to promote scientific knowledge about menarche and menstruation. Biomedicine, as Charlotte Furth and Ch’*en* Shu-Yueh (1992) have pointed out, was not an unproblematic force for women’s liberation. Likewise, many feminist scholars, including Iris M. Young (2005) and Emily Martin (1987), have challenged the assumption that “correct” physiological knowledge was best or in some way liberating for women.

In promoting science, as well as in other matters, postcolonial Taiwan was caught between empires. The West—mainly the United States—and Japan were taken to be the key sources of purportedly correct scientific and natural knowledge, and they also served as a horizon of understanding and standard against which to measure Taiwan's scientific progress and young girls' physiological maturity. However, the empires did not exert their power in the same channels, nor did their power have the same currency. While US dominance was apparent at the institutional level, such as the founding of the Department of Health Education of the National Normal University and the making of the scientific elite, the Japanese colonial legacy was more apparent in the popular literature, as in the case of newspaper articles mentioned at the beginning of this article (as former elites became translators of Japanese). Furthermore, in many cases, knowledge was transferred from the United States through Japan or was produced through a hybridization of knowledges from the two empires. For example, in the surveys on menarche we can see both US and Japanese influences in the ways measurements were employed and in the references. The case of Ishigaki Junji is also revealing: his presence was not limited to menstruation education; instead, his work also appeared in family planning popular literature, where he was represented as a Japanese authority who provided knowledge from the United States.²¹

Furthermore, knowledge from the former empires was not simply reproduced without transformation; translated texts often went through decontextualization and recontextualization, as in the case of the omission or altering of sex education content. Sex education, as a possible extension of menstruation education, posed thorny problems because it could not be easily contained within the discourse of the natural, and even more important, it was shaped by local concerns. In this regard, there were tensions in the pursuit of progress, resulting from the contradictory need to fashion institutions and practices that match and communicate with those so-called Euro-American nations, while simultaneously maintaining a unique national identity.

5 Conclusion

Colonial science/medicine studies address such issues as the roles of the state, the elites, the regulatory power of medicine, and the politics of knowledge production,²² and this study has built on this prior work with the aim of contributing to the growing body of knowledge on East Asian contexts. Menstruation education was part of the health education that grew out of the postcolonial condition of Taiwan, in which elites'

²¹ For instance, Junji Ishigaki was featured as the leading authority in an article about a family planning event in Japan, in which a survey was carried out comparing Japan and the United States (Su 1968).

²² Many have examined the relationships between colonial power and the introduction of Western medicine. Ruth Rogaski's groundbreaking 2004 book, *Hygienic Modernity: Meanings of Health and Disease in Treaty Port China*, has illustrated how the notion of *weisheng* went through a profound transformation from the personal regimen to state public health in treaty port China. The edited volume *Health and Hygiene in Chinese East Asia* (Furth 2010) has also provided some illustrative examples, particularly the essays by Ruth Rogaski, Shang-Jen Li, and Xinzhong Yu. Works on colonial medicine in Taiwan include disciplinary aspects of colonial medicine, revising George Basalla's (1967) thesis on the "spread of Western science" and colonial knowledge production. Yan-chiou Fann's (2005) scholarship has provided rich details regarding the role of medicine and epidemics in the working of the colonial state.

eager pursuit of status in the Cold War politics of the time provided fertile ground for the rhetoric of science and progress.

Inspired by postcolonial theories, I have identified the scientific discourse of universal knowledge claims, through which menstruation education came under the umbrella of science-based health education following a US model. However, this discourse did not exist only in rhetorical form. Menstruation education also gradually became an integral part of family planning, a biopolitically charged project that generated a variety of practices in the period between the 1960s and 1980s. In addition, surveys on menarche were not merely a measure of civilization but served as solid foundation for education policy as well.

Yet, postcolonial knowledge from the empires was sometimes lost in translation, as in the case when menstrual education was perceived as indistinguishable from sex education. This carries the postcolonial theoretical issue of universal claims further by demonstrating both “the universalism of modernizing claims for the scientific transformation of medicine and the embeddedness of actual practices in diverse local conditions,” as Furth (2010: 3–4) has suggested.

Hygienic science would penetrate what used to be a domestic matter: how to make sense of the female body, and how to care for it. As Warwick Anderson reiterates in his epilogue to *Health and Hygiene in Chinese East Asia*, we need to be especially sensitive in such global and local comparisons to “the sensuous and emotional register of bodily reform and personal hygiene . . . to the more intimate and private parts of public health” (Anderson 2011: 276). It is striking that this history demonstrates yet another case of how gendered biopolitics at the national level was embedded in international geopolitics but revolved around and, most significant, impacted individual women—mothers and daughters—whose bodily reform came to embody and symbolize the possibility of the success or failure of the modern state of Taiwan itself.

References

- Ahern, Emily (1975). “The Power and Pollution of Chinese Woman.” In *Women in Chinese Society*, edited by Margery Wolf and Roxane Witke, 193–214. Stanford, CA: Stanford University Press.
- Ai-Ling 愛凌, trans. (1965). “What to Do When Your Daughter Has Her Period.” *Lianhe bao* 聯合報 (*United Daily*) 27 May.
- Anderson, C. L. (1988 [1968]). *School Health Practice*. Translated and edited by Shu-pei Li 李叔佩. *Xuexiao jiankang jiaoyu* 學校健康教育. Taipei: Wunan 五南圖書出版社.
- Anderson, Warwick (2002). “Postcolonial Technoscience.” *Social Studies of Science* 32, nos. 5–6: 643–58.
- Anderson, Warwick (2011). “Afterword: Biomedicine in Chinese East Asia: From Semicolonial to Postcolonial?” In *Health and Hygiene in Chinese East Asia: Policies and Publics in the Long Twentieth Century*, edited by Angela Ki Che Leung and Charlotte Furth, 273–78. Durham, NC: Duke University Press.
- Barclay, George W. (1954). *Colonial Development and Population in Taiwan*. Princeton, NJ: Princeton University Press.
- Basalla, George (1967). “The Spread of Western Science.” *Science* 156, no. 3775: 611–22.
- Burton, John (1966). “Health Education and the Adolescent.” *Clinical Pediatrics* 5, no. 7: 415–18.
- Chang, Shu-ching 張淑卿 (2010). “Guojia yu ertong jiankang: 1950–1960 niandai Taiwan guoming xuexiao de weisheng jiaoyu” 國家與兒童健康: 1950–60 年代台灣國民學校的衛生教育 (State and Children’s Health: Primary School Health Education in Taiwan in the 1950s and 1960s). *Guoshi guankan* 國史館刊 24: 89–138.
- Chang, Zi-kang 張智康 (1989). “Meiguoyi yao yuanhua hui zai tai xiezhu fazhan xuexiao weisheng ji weisheng jiaoyu zhi jingguo” 美國醫藥援華會在臺協助發展學校衛生及衛生教育之經過 (The History of ABMAC’s Aid to the Development of School Hygiene and Hygiene Education in Taiwan).

- In Liu Re-heng boshi yu zhongguo yiyao ji weisheng shiye 劉瑞恆博士與中國醫藥及衛生事業 (*Dr. J. Heng Liu and Medical and Health Development in China*), edited by Irene Ssu-chin Hou Liu 劉似錦, 138–43. Taipei: Commercial Press.
- Chen, Changhui 陳彰惠, and Chi-hsiu Hung 洪志秀 (1986). “A Survey on the Menarche Experiences of Junior High School Girl Students in Kaohsiung.” *Kongkong weisheng zazhi* 公共衛生雜誌 (*Public Health*) 13, no. 3: 347–53.
- Chen, Li-mei 陳麗美 (1982). “Guting guoxiao liu nianji xuesheng youguan yuejing shengli zhishi yu jiaoxue qianhou zhi bijiao” 古亭國小六年級學生有關月經生理知識於教學前後之比較 (Comparing Sixth Grade Students’ Physiological Knowledge before and after Teaching at Guting Elementary School). *Xuexiao weisheng* 學校衛生 (*School Hygiene*) 8: 34–42.
- Chen, Wen-long 陳文龍 (1975). *Shaonu yixue* 少女醫學 (*Medicine for Young Girls*). Taipei: Commercial Press.
- Chiu, Wen-cheng 邱維城, Chien-wen Su 蘇建文, and Chien-Ho Huang 黃堅厚 (1967). “Taipei diqu nuxing xuesheng qingnian qi shengxin fazhan diaocha yanjiu” 臺北地區女性學生青年期身心發展調查研究 (A Survey on the Physical and Psychological Developments of Adolescent Female Students in the Taipei Area). *Xinli yu jiaoyu* 心理與教育 (*Psychology and Education*) 1: 1–18.
- Chiu, Wen-cheng 邱維城, Chien-wen Su 蘇建文, and Chien-Ho Huang 黃堅厚 (1968). “Taiwan sheng nuxing xuesheng qingnian qi shengxin fazhan diaocha” 台灣省女性學生青年期身心發展調查研究 (The Physical and Psychological Development in Relation to Menarcheal Age in Schoolgirls in Taiwan). *Xinli yu jiaoyu* 心理與教育 (*Psychology and Education*) 2: 1–21.
- Chu, Cordia Ming-Yeuk (1980). “Menstrual Beliefs and Practices of Chinese Women.” *Journal of the Folklore Institute* 17, no. 1: 38–55.
- Deng, Wei (1967). “Dui yuejing yingyou de renshi” 對月經應有的認識 (What One Should Know about Menstruation). *Lianhe bao* 聯合報 (*United Daily*) 9 September.
- Ellis, Richard W. B. (1950). “Age of Puberty in the Tropics.” *British Medical Journal* 14 January: 85–89.
- Fan, Kuang-Yu 范光宇 (1961). “Taiwan nongchun Kejia funu zhi muxing shenghuo yu Nongyelaodong zhi yanjiu” 臺灣農村客家婦女之母性生活與農業勞動之研究 (Studies on Maternal Activity and Agricultural Work of the Hakka Women in Rural Taiwan). *臺灣醫學會雜誌* (*Journal of Formosa Medical Association*) 60, no. 1: 1–12.
- Fann, Yan-chiou 范燕秋 (2005). *Yibing yixue yu zhiming xiandaixing* 疫病、醫學與殖民現代性 (*Epidemics, Medicine, and Colonial Modernity*). Taipei: Daoxiang 稻鄉.
- Fu, Daiwie 傅大為 (2005). *Yaxiya de xinshengti* 亞細亞的新身體 (*Assembling the New Body: Gender/Sexuality, Medicine, and Modern Taiwan*). Taipei: Sociopublishing.
- Furth, Charlotte (2010). “Introduction: Hygienic Modernity in Chinese East Asia.” In *Health and Hygiene in Chinese East Asia: Policies and Publics in the Long Twentieth Century*, edited by Angela Ki Che Leung and Charlotte Furth, 1–21. Durham, NC: Duke University Press.
- Furth, Charlotte, and Ch’ en Shu-Yueh (1992). “Chinese Medicine and the Anthropology of Menstruation in Contemporary Taiwan.” *Medical Anthropology Quarterly* 6, no. 1: 27–48.
- Gross, Donald, and Thomas W. O’Rourke (1975). “Research and the Future of Health Education.” *Journal of School Health* 45, no. 1: 30–32.
- He Kuo Bing, trans. (1965). “Shaonu chengzhang shi de shengli jiancha” 少女成長時的生理檢查 (The Physical Exam for Growing Young Girls). *Lianhe bao* 聯合報 (*United Daily*) 7 October.
- Health for All Magazine* (2001). “Chiang chien-dai: Chuanli yifu, rensheng de meike jieduan dou meihao” 江千代: 全力以赴, 人生的每個階段都美好 (Doing Her Best: Every Stage of Her Life Is Wonderful), September (<http://www.jtf.org.tw/health/Show.asp?This=422>, accessed 15 December 2015).
- Ho Ying (1957). “Jiehun yu nianling” 結婚與年齡 (Marriage and Age). *Lianhe bao* 聯合報 (*United Daily*) 4 November.
- Huang, Yi-Ching, and Robert M. Malina (1995). “Secular Changes in the Stature and Weight of Taiwanese Children, 1964–1988.” *American Journal of Human Biology* 7: 485–96.
- Huang, Yu-ling (2016). “Biopolitical Knowledge in the Making: Population Politics and Fertility Studies in Early Cold War Taiwan.” *East Asian Science, Technology and Society* 10: 377–99.
- Ishigaki Junji 石垣純二 いしがきじゅんじ (1963). “Yuehjin de jiaoyu” 月經的教育 (Menstrual Education). Translated by Zhou Yi-rong 周以容. *Zhengxin xinwen bao* 徵信新聞報, 12 September, 6.
- Jiating Jihua Yanjiu Suo 家庭計畫研究所 (1984). *Taiwan sheng tuixin jiating jihua 73 niandu konzuo gaikuan* 台灣省推行家庭計畫73年度工作概況報告 (*Annual Report of the Work of the Taiwan Family Planning of 1984*). Taichung: Jiating Jihua Yanjiu Suo.
- Jiating Jihua Yanjiu Suo 家庭計畫研究所 (1985). *Taiwan sheng tuixin jiating jihua 73 niandu konzuo gaikuan* 台灣省推行家庭計畫74年度工作概況報告 (*Annual Report of the Work of the Taiwan Family Planning of 1985*). Taichung: Jiating Jihua Yanjiu Suo.

- Juede (厥德) and Hanzhong (漢忠), trans. (1960). "Tan shaonu qingchun qi de baojian" 談少女青春期的保健 (On Young Girls' Health Preservation during Puberty). *Dazhong yixue* 大眾醫學 11: 102–3.
- Kao, Jihui 高紀惠 (1978). "Dui guoxiao wuliu nianji nusheng jingqi weisheng jiaoyu zhi yanjiu" 對國小五六年級女生經期衛生教育之研究 (A Study on the Menstrual Hygiene Education of Fifth- and Sixth-Grade Elementary School Girls). *Kexue fazhan yuekan* 科學發展月刊 (*Science Development*) 6, no. 6: 619–27.
- Kao, Yu-Dang 高鈺鏞 (1967). "Shaonu de Sshengli Cchaoyu" 少女的生理教育 (Physiology Education for Young Girls). *Dazhong yixue* 大眾醫學 17: 262–63.
- Kuo, Hui-mei 郭惠美 (1970). "Taipei shi guozhong nusheng jiankang zhuangkuang diaocha yanjiu" 台北市國中女生健康狀況調查研究 (A Survey on Junior High School Girl Students' Health Condition). *Jiankang jiaoyu tungxun* 26: 39–47.
- Kuo, Hui-mei 郭惠美 (1972). *Qingchun shaonu de jiankang wenti* 青春少女的健康問題 (*Young Girls' Health Issues*). Taichung: Shuiniu Chubanshe.
- Kuo, Wen-Hua 郭文華 (1998). "Meiyuan xia de weisheng zhengce: 1960 niendai Taiwan jiating jihua de tantao" 美援下的衛生政策: 一九六〇年代臺灣家庭計畫的探討 (Politicizing Family Planning and Medicalizing Reproductive Bodies: US-Backed Population Control in 1960s Taiwan). *Taiwan shehui yanjiu jikan* 台灣社會研究季刊 32: 39–82.
- Kuo, Wen-hua 郭文華 (2010). "Ruhe kandai Meiyuan xia de weisheng? Yige lishi shuxie de fanxing yu zhanwang" 如何看待美援下的衛生? 一個歷史書寫的反省與展望 (How to Write a History of Public Health under US Aid in Taiwan: A Critical Review). *Taiwan shi yanjiu* 臺灣史研究 (*Taiwan Historical Research*) 17, no. 1: 175–210.
- Lai, De-kun 賴德崑, ed. (1980). *Xiandai Nuxing Yixue* 現代女性醫學全集 (*Complete Medicine for Modern Women*). Taipei: Xiangcun Chubanshe.
- Lam, Tong (2011). *A Passion for Facts: Social Surveys and the Construction of the Chinese Nation-State, 1900–1949*. Berkeley: University of California Press.
- Lan, Ling 藍玲, Su-zhen Xu 徐素珍, and Chien-dai Chiang 江千代 (1989). "Taipei shi guoxiao liu nianji nusheng jingqi weijiao diaocha yanjiu" 台北市國小六年級女生經期衛教調查研究 (A Survey on the Hygiene Education of Sixth-Grade Elementary School Girls in Taipei). *Gonggong Weisheng* 公共衛生 (*Public Health*) 15: 37.
- Lee, Jen-Der 李貞德 (2013). "Taiwan shengli weisheng jiaoyu zhong de xing, shengzhi yu jiankang, 1948–1968" 台灣生理衛生教育中的性、生殖與健康, 1948–1968 (Sex and Reproduction in Physiology and Hygiene Textbooks of Postwar Taiwan). *Jindai Zhongguo funu shi yanjiu* 近代中國婦女史研究 22: 65–125.
- Li, Fuhui 李復惠, and Xiang-ru Lai 賴香如 (2000). "Woguo guomin xiaoxue jiankan kecheng zi yanbian" 我國國民小學健康課程之演變 (The Changes of Elementary School Health Curriculum in Our Country). *Xuexiao weisheng* 學校衛生 36: 44–69.
- Li, Nankuang 李南光, trans. (1964 [1954]). *Jiehun yu xing yixue shidian* 結婚與性醫學事典 (*A Manual for Marriage and Sexual Medicine*). Tainan City: Zonghe Chubanshe.
- Li, Shu-pei 李叔佩 (1971). "Mantan weisheng chiaoyu" 漫談衛生教育 (Talking about Health Education). *Chongyang Yuekan* 中央月刊 3, no. 9: 181–183.
- Li, Shu-pei 李叔佩 (1983). "Gengyun weijiao sanshi nien" 耕耘衛教三十年 (Thirty Years of Working in Health Education). *Zhongdeng jiaoyu* 中等教育 (*Middle Education*) 34, no. 1: 4–5.
- Li, Shu-pei 李叔佩, ed. and trans. (1988). *Xuexiao jiankang jiaoyu* 學校健康教育 (School Health Education). Taipei: Wunan 五南圖書出版社.
- Lianhe Bao* 聯合報 (*United Daily*) (1973). "Ertong de shengao biaoqun" 兒童的身高標準 (Children's Standard Height). 14 March.
- Lianhe Bao* 聯合報 (*United Daily*) (1977). "Yuxie mama buman ershi sui jiaji zhongxin ying yiwei yo kongchang li de shao nu shengli zishi buzhu" 有些媽媽不滿二十歲 家計機構引以為憂 工廠裡的少女生理知識不足 家計中心願意提供協助 (Some Mothers Are under Twenty, Family Planning Institutions Are Worried; Young Factory Girls Do Not Have Sufficient Knowledge about Physiology). 29 September.
- Lianhe Bao* 聯合報 (*United Daily*) (1983). "Guoxiao jiankang jiaoyu yi xiang jieshao yuejin zhishi" 國小健康教育課程介紹月經知識 (Health Education Curriculum for Elementary Schools Should Introduce Menstruation Knowledge). 13 September.
- Lianhe Bao* 聯合報 (*United Daily*) (1984). "Renkou jiaoyu bushi xing jiaoyu, Lee Shu-pei zhi liangzhe buneng hun wei yitan" 人口教育不是性教育 李叔佩指兩者不能混為一談 (Population Education Is Not Sex Education, Lee Shu-pei Says That One Should Not Confuse the Two). 13 December.

- Lin, Chun-hung 林俊宏, and Li Chao-Nan 李昭男 (1987). "Taiwan nanbu qingchunqi shaonu yuejing wenti de tantao" 臺灣南部青春期少女月經問題的探討 (An Exploration of Adolescent Young Girls' Menstruation and Its Problems in Southern Taiwan). *高雄醫誌 Kaohsiung Medical Journal* 3: 150–54.
- Lin, Xincheng 林信成 (1963). "Cuowu de jiangkang guannian" 錯誤的健康觀念 (Mistaken Health Concepts). *Zhengxin xinwen bao* 徵信新聞報. September 12.
- Liu, Qiongyu 劉瓊宇 (1985). *Taipei shi guozhong er nianji xuesheng jiankan wenti, xuyao, taidu, xingwei yu yiliao liyong zi diaocha yanjiu* 台北市國中二年級學生健康問題、需要、態度、行為與醫療利用之調查研究 (A Survey on Second-Year Junior High School Students' Health Issues, Needs, Attitudes, Behaviors, and Health Service Utilization in Taipei), edited by Wen-hai Tan. Taipei: Taiwan Public Health Research Institute.
- Liu, Shi-yung 劉士永 (2001). "Qingjie, weisheng yu baojian: Rizi shiqi Taiwan shehui gonggong weisheng guannian zi zhuanbian" "清潔", "衛生"與"保健"一日治時期臺灣社會公共衛生觀念之轉變 (Sanitation, Hygiene, and Public Health: Changing Thoughts of Public Health in Colonial Taiwan). *Taiwan shi yanjiu* 臺灣史研究 (Taiwan Historical Research) 8, no. 1: 41–88.
- Lu, Yi-chun 盧毅君 (2007). *Lanji jianhu yi jiazhi* 浪跡江湖一甲子 (Sixty Years of Wandering about the World). Taipei: Showwe.
- Marks, Shula (1997). "What Is Colonial about Colonial Medicine? And What Has Happened to Imperialism and Health?" *Social History of Medicine* 10, no. 2: 205–19.
- Martin, Emily (1987). *The Woman in the Body: A Cultural Analysis of Reproduction*. Boston: Beacon.
- Martin, Emily (1991). "The Egg and the Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles." *Signs* 16, no. 3: 485–501.
- Meng, H. C. (1961). "Taipei kongsi li nuizi zhongxue niusheng yuejing diaocha tongji baogao" 台北市公私立女子中學女生月經調查統計報告 (Menstrual Conditions of Middle School Girl Students in Taipei, Taiwan). *Zhonghua yixue hui chazi* 中華醫學會雜誌 (Chinese Medical Journal) 8: 90–92.
- Mingsheng Bao* 民生報 (1983). "Guofang yixueyuan yanjiu zhichu: Guoxiao nutong chujing nianling tiqian, youguan zhishi yi lieru kecheng zhong" 國防醫學院研究指出: 國小女童初經年齡提前, 有關知識宜列入課程中 (According to a Study by National Defense Medical Center, the Age of Elementary School Girls' Menarche Has Gone Down and Curriculum Should Include Relevant Knowledge). 22 January.
- Mingsheng Bao* 民生報 (1989a). "Ling zhi bashi sui funu wenti: Shiyi zhi ershi, churu qingchun qi shaonu qinghuai mingan" 〇至八十歲婦女問題——11至20歲, 初入青春期少女情懷敏感 (Women's Problems from 0 to 80: 11 to 20, When Entering Adolescence They Are Sensitive). 29 March.
- Mingsheng Bao* 民生報 (1989b). "Shaonu shengli chengshoudu ganshang oumei, pixie zhi fang jiaohou chuchao lai de zao" 少女生理成熟度趕上歐美 皮下脂肪較厚 初潮來得早 (Young Girls' Physiological Maturity Is Keeping Path with Their Counterparts in Europe and America: The Subcutaneous Fat Is Thicker and Menarche Arrives Earlier). 31 October.
- Ministry of Education (2010). *Zhonghua minguo jiaoyu tongji* 中華民國教育統計 (Taiwan Education Statistics). Taipei: Ministry of Education.
- Rogaski, Ruth (2004). *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China*. Cambridge, MA: Harvard University Press.
- Su, Guang (1968). "Jige haizi zui lixiang" 幾個孩子最理想? (What Is the Ideal Number of Children?). *Fengnian* 豐年 (Harvest) 18, no. 16: 54.
- Tan, Wen-hai 譚文海, ed. (1985). *Weisheng jiaoyu* 衛生教育 (Hygiene Education, vol. 3). Xinzhuang: Taiwan Sheng Gonggong Weisheng Yanjiu Suo.
- Turner, C. E. (1947). *School Health and Health Education*. St. Louis, MO: Mosby.
- Wang, Hsiu-yun (2009). "Taitai yixue: Taiwan funu yixue baojian chutan" 太太醫學: 台灣婦女醫學寶鑑 1950s–2000s 初探 (Medical Knowledge for the Wife: Popular Health Manuals in Taiwan, 1950s–2000s). *Taiwan shehui yanjiu jikan* 台灣社會研究季刊 76: 91–149.
- Wang, Hsiu-yun (2012). "How Did Our Bodies Become Your Body? *Our Bodies, Ourselves* in Taiwan." Paper presented at the Annual Meeting of the Taiwanese Sociological Association, Tunghai University, 24–25 November.
- Wang, Hsiu-yun 王秀雲 (2016). "Cong yiwai dao dengdai" 從意外到等待: 台灣女性的初經經驗 (Women and Menarche in Taiwan, 1950s–2000s). *Nuxue xuezhi* 女學學誌 (Journal of Women's and Gender Studies) 39: 1–53.
- Wang, Yao-tung 王耀東, and Si-yi Lin 林思儀 (1966). "Yanchang nugong zhi fuyou weisheng xue de diaocha" 菸廠女工之婦幼衛生學的調查 (A Survey on the Female Workers of Tobacco Plants from the Point of View of Maternal and Child Health). *Taiwan kexue* 台灣科學 (Taiwan Science) 20: 131–38.
- Weiwei, Furen 薇薇夫人 (1994 [1975]). *Qinggan yu rensheng* 情感與人生 (Your Emotions and Your Life). Taipei: Yuanliu Chubanshe.

- Wolfram, Bonnie R. (1968). "Health Education: Evolution or Revolution?" In *Curriculum: Cognition and Content*, edited by Harriet Green Kopp, 139–46. Washington, DC: Alexander Bell Association for the Deaf.
- World Health Organization, Task Force on Psychosocial Research in Family Planning, Special Programme of Research, Development and Research Training in Human Reproduction (1981). "Women's Bleeding Patterns: Ability to Recall and Predict Menstrual Events." *Studies in Family Planning* 12, no. 1: 17–27.
- Wu, Chia-Chu 吳家鑄, Chin-San Wu 吳金山, and Liu-Hsin Lin 林柳新 (1966). "Zhonghua mingguo fuchanke yixuehui huikan" 中華民國婦產科醫學會會刊 (A Study on Menstruation of Schoolgirls in Taiwan). *Obstetrics Gynecology ROC* 5, no. 1: 49–55.
- Wu, Tao-Ming (1971). *Nide Shengli Xue 你的生理學 (Your Physiology)*. Taipei: Taiwan Linchuang zazhi she.
- Wu, Xinrong 吳新榮 (2008 [1950]). *Wu Xinrong ri ji quan ji 吳新榮日記 (Diary of Wu Xinrong)*, 17 June. Tai nan shi: Tai wan wen xue guan.
- Yan, Han-wen (1977). "Jiankang jiaoyu jiaoshi dui xingjiaoyu yiyou de renshi" 健康教育教師對性教育應有的認識 (What Health Education Teachers Ought to Know about Sex Education). *Jiankang jiaoyu (Health Education)* 40: 50–52.
- Yan, Han-wen 晏涵文 (1984). "Kuaile de yijie chujing" 快樂的迎接「初經」(To Meet Menarche with Happiness). *Zhongguo shibao 中國時報 (China Times)* 11 February.
- Yang, Tsui-hua 楊翠華 (2008). "Meiyuan dui Taiwan de weisheng jihua yu yiliao tizhi zhi xingsu" 美援對台灣的衛生計畫與醫療體制之形塑 (US Aid in the Formation of Health Planning and the Medical System in Taiwan). *Jindai shi yanjiu suo jikan 近代史研究所集刊* 62: 91–139.
- Yeh, Xu-yuan 葉纘源 (2016). "Xue yi zi yung" 學以致用 (To Put into Practice What Has Been Learned). *Dallas Chinese News* (<http://dallaschinesenews.com/detail.php?id=837>).
- Young, Iris M. (2005). *On Female Body Experience*. New York: Oxford University Press.
- Yu, Hsiao-lan 余曉嵐 (2004). "Xiandai xing de zhuiqiu: Taiwan xingjiaoyu lunshu de lishi kaocha" 現代「性」的追求:台灣性教育論述的歷史考察 (In Search of Modern Sexuality: A Historical Survey of Sex Education in Taiwan). Master's thesis, National Tsing Hua University.
- Zhongguo Shibao 中國時報 (China Times)* (1975). "Zinu xing jiaoyu yu zhengque de renshi, Li Shu-pei jiaoshou jieshi liangxing chengzhang de guocheng, qiangdiao shengli xianxiang buke xiuwu yingyu kaidao" 子女性教育與正確的認識, 李叔佩教授解釋兩性成長的過程, 強調生理現象不可羞惡應予開導 (Children's Sex Education and Correct Understanding. Professor Li Shu-pei Explains the Process of the Development of the Two Sexes and Emphasizes That It Is a Physiological Phenomenon. [Parents] Should Not Feel Disgusted or Embarrassed and Should Guide [Their Children]). 24 November.
- Zhou, Wuchou 周無愁 (1988). "Taipei shi Hualian shi zhongxue nusheng de chujing zhuangkuang" 台北市、花蓮市中學女生的初經狀況 (High School Girl Students' Menarche in Taipei and Hualian). *Gonggong weisheng 公共衛生 (Public Health)* 15, no. 1: 72–77.

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