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QUESTIONNAIRE STUDY OF HERBS USAGE AND ITS EFFECTS ON MENSTRUATION IN FEMALE PRE-UNIVERSITY STUDENTS

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(Penggunaan Herba dan kesannya terhadap Haid Pelajar Perempuan Pra Universiti)

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Abstrak

Kitaran haid dan haid boleh diberikan definisi kerana kedua-duanya dikaji secara biologi, menyebabkan penghasilan banyak literatur sepanjang tahun. Baru-baru ini, ubat herba digunakan sebagai alternatif kepada pil kontraseptif oral (OCPs) untuk merawat kesuburan wanita secara umum dan beberapa literatur boleh ditemui untuk membuktikan keberkesanan ubat herba terhadap haid. Objektif kertas ini adalah untuk mengkaji kesan ubat herba terhadap kitaran haid berdasarkan amalan pelajar perempuan pra-universiti sepanjang tempoh kitaran haid mereka dan kesan sampingan yang dialami. Kajian soal selidik ini dijalankan dengan saiz sampel seramai 108 pelajar perempuan pra-universiti dengan mengedarkan soal selidik berasaskan web melalui pautan yang dipendekkan. Ujian Cronbach alpha dilakukan selepas memindahkan data ke dalam IBM SPSS Statistics ver.25 untuk mengukur konsistensi dalaman ujian atau skala. Hasil kajian menunjukkan bahawa hanya 7.41% yang menggunakan rawatan herba. Kajian lanjut dengan kriteria kemasukan yang lebih terperinci akan lebih sesuai untuk menetapkan keberkesanan rawatan herba terhadap kitaran haid dengan lebih tepat.

Kata kunci: herba, kitaran haid, haid

Abstract

Menstrual cycle and menstruation can be given definitions as both are studied biologically hence the production of many literatures throughout the years. Recently, herbal medications are used as an alternative to oral contraceptive pills (OCPs) to treat women fertility in general and several literatures can be found to prove the effectiveness of herbal medicines on menstruation. The objective of the paper is to study the effects of herbal medicine on menstrual cycles based on female pre-university students' practices throughout dealing their menstrual cycle period and their accompanying side effects. This questionnaire study is conducted within a sample size of 108 female pre-university students by distributing a web-based questionnaire through a shortened link. Cronbach alpha test is done after transferring data in the IBM SPSS Statistics ver.25 to measure the internal consistency of a test or a scale. The result shows that only 7.41% have used herbal treatments. Further studies with narrowed inclusion criteria would be appropriate to properly establish the efficacy of herbal treatments on menstrual cycle.

***Keywords**: herbs, menstrual cycle, menstruation*

1.0 INTRODUCTION

The usage of herbal in industry are growing rapidly. An increased demand for herbal supplements, healthy functional foods, herbal energy drinks and skin care products are derived by a consumer desire for natural products, made from plants that are perceived as being safer and more natural (Ahmad et al., 2015). Menstruation, or

commonly known as period can be understood easily with the concept of females coming of age experiencing bleeding. Simply explained, once a female reaches puberty, the body starts to produce a new set of hormones. These hormones will send out signals to her body, and some of them will tell the body to start to prepare for pregnancy every month. The menstrual cycle is the recurrent approximately monthly menstruation and provides hormones, to keep one healthy (Begum, Das, & Sci, 2016). It also prepares the female body for pregnancy each month. To aid with the biological nature of women, inventions such as sanitary pads and tampons were made. The inventions play an important in women's lives due to the different acceptance of the community towards the biological occurrence of the monthly bleeding.

Herbal medicines are also incorporated to help the menstrual cycle of women. Herbal medicines became an importance to treat menstruation which comes along with either heavy bleeding or period pain or both when people began to consider on the chemical content of painkillers that may leave an effect to the body in the long run thus, they take a natural approach instead. The usage of herbal medicines as treatment is not recent as there exists traditional herbs approved by qualified doctors and specialists that could help women to relieve their menstruation effects. However, it has been noted that the herbal medicines used are to treat specific effects in menstruation such as primary dysmenorrhea instead of the menstrual cycle (Ferries-Rowe et al., 2020; Meng Hsien & Che Hamzah, 2020; Radi & Hasni, 2014; Soelaiman et al., 2013). People are also willing to take the natural approach for the sake of avoiding the accumulation of chemicals in the body that they did not consider the factors affecting the naturally occurred menstrual cycle (Ali et al., 2019; Farrukh et al., 2021).

Almost all menstrual disorders could be treated through medication. Undoubtedly that before the 21st century and any sort of globalization that rely on plants and herbs to treat pain. World Health Organization produced a statistic saying that 60% of the world's population depends on traditional medicine and 80% of the population in developing countries depends almost entirely on traditional medicine practices and herbal medicines for their primary health care needs (Chikezie & Ojiako, 2015). Researchers and professionals are constantly working on studying about herbal medicines on menstrual cycle.

Jang and co-workers in 2014 made a review on the effects of herbal medicine for premenstrual syndrome/premenstrual dysphoric disorder (PMS/PMDD) which included randomized controlled clinical trials (RCTs) (Jang et al., 2014). As the intervention of their study included herbal medicines, despite the limiting evidence to support the efficiency of herbal medicines in controlling PMS and PMDD, the herbs showed a 50% or better reduction of symptoms compared to the initial stage hence proving the safety of the intervention simultaneously providing 50% relief of associated symptoms.

Another study, aimed to compile the pharmacological reports on amenorrhea from the standpoints of early Persian scholars could strongly prove that Traditional Persian Medicine (TPM) have been used for centuries to treat a wide range of health issues such as amenorrhea. The authors have extracted critical points by filtering the exact keywords from the pharmaceutical manuscripts from 9th to 18th centuries A.D. such as Avicenna's Canon of Medicine and concerning the herbal therapies of amenorrhea in TPM, 71 medicinal plants were found studied in the compiled manuscripts (Elahi et al., 2016).

A controlled study with Sesamum indicum L. (sesame) used as a herbal treatment to treat women with oligomenorrhea done by Yavari and team showed positive results as well (except for their less-than-significant difference in their numerical value between sesame and progesterone groups for their volume of menstrual flow and pain) as the response rate is high enough to suggest more

assessments (Yavari et al., 2016). The positivity coming from the participants could be an indicator that women are willing to try herbal medication to treat their health problems.

However, it is yet to be found herbal treatments that help to improve menstrual cycle entirely. Herbal products are mainly produced to treat a specific problem, but it can be assumed that they still function to boost women's well-being. The aim of this review is to study the effects of herbal medicine on menstrual cycles, through the identification of practices done by female pre-university students in order to dampen the side effects of menstruation.

2.0 METHODOLOGY

2.1 Research Design

A quantitative cross-sectional study had been conducted on female pre-university students. The independent variables for this study are the age of sample when they have their first menstrual cycle, the menstrual cycle days of sample, the knowledge of sample on basic menstrual cycle, the menstrual disorders experienced by the sample, method of handling the disorders, the knowledge on herbs and its application on menstrual cycle and the perceptions of sample on the methods of handling menstruation. The dependent variables are the knowledge of sample on menstrual cycles, the correlation between their knowledge and procedure with their methods of handling their menstruation, the level of effectiveness of their methods on their menstruation, the knowledge of sample regarding the instruments used for their menstruation and the relationship between their knowledge of menstrual cycle and herbs. Generally, for the purpose of this study, sample is required to admit their level of knowledge on their menstrual cycles, the instruments used for treatment, their knowledge on methods of handling their menstruation and the effectiveness of their current methods. The variables meet the objectives of identifying the effectiveness of herbs on menstrual cycle through the knowledge of sample with their provided answers on distributed questionnaire.

2.1 Population and Sampling

The population for this study is the female pre-university students in Malaysia. There are approximately 500,000 pre-university students in Malaysia at the time of study. Based on the Malaysian pre-university count, it is ideal to at least recruit large sample size such as 1000 samples to highlight proper presentation of a large population. However, the only appropriate criteria to achieve the objective of this study is female pre-university students were eligible to participate in answering the questionnaire. Despite outlining a specified criterion for this study, the number of female pre-university students in Malaysia remained a large population out of the 500,000 students. Thus, the intended minimum sample size of 384 female pre-university students in Malaysia was used in this study to achieve the 95% confidence interval and 5% margin of error in a population more than 75,000 upper limit based on Krejcie and Morgan table (N=500 000, S=384) (Krejcie & Morgan, 1970). It is understood that an increasing number of female pre-university students within the period of study would indicate that an increase of sample size is required but with the KMT sample calculation formula, the increment happens at a diminishing rate and eventually remains constant at nothing more beyond 380 cases (Memon & Mumtaz, 2020). The following is the KMT sample calculation formula.

$$S = X^2NP\ (1-P) \div\ d^2(N-]) +\ X^2P(1-P)$$

where,

s = required sample size.

X2= the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = the population size.

P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as proportion (0.05).

However, the questionnaire respondents' turnout within the timeframe informed is 108 students (28.13%) out of the intended 384 minimum sample size for this study. The participation of the 108 female pre-university students are individuals of the population who provided consent in answering the questionnaire and the form had been designed to only allow the respondents to submit if they had completed each of the question.

2.3 Data Collection and Analysis Procedure

The data from the 108 female pre-university students were collected using the Google Form platform. The reach of this questionnaire to female pre-university students were via social media such as *WhatsApp* and *Telegram* through a combination of both targeted and convenient sampling. Both sampling methods were employed for maximum efficacy in finding volunteer female pre-university students from variety background to answer the questionnaire. The questionnaire released had been a questionnaire that was self-developed, from thorough reviewing of literatures and developed to accommodate the study purpose. The questionnaire was subjected to two sections that corresponded to respondent's menstrual cycle and herbal medication usage section. However, the latter section can only be answered by respondents who have had experience in using herbal medication during their menstruation period as this section identifies the reasoning behind the usage. The questionnaire had been validated for content validity by few experts inclusive of a psychometrician, a biochemist and a gynecologist. The test of its reliability had been done through the assessment of Cronbach's alpha using data collected during the pilot test period. The questionnaire was then revised after the pilot testing. The responses were organized and summarised with Microsoft Excel for easier tabulation into the IBM SPSS Statistics ver.25. Further analysis on the data obtained is done using IBM SPSS Statistics ver.25 to generate accurate numerical data.

3.0 RESULTS AND DISCUSSION

3.1 TREATMENT OR/AND MEDICATIONS USED FOR MENSTRUATION SIDE EFFECTS

The structure of the questionnaire was developed to allow the pre-university students to recall their practices and habits during their menstrual cycle, started with age of menarche in the menstrual cycle section and gradual development towards treatments or medications they used to reduce menstruation side effects. Respective female pre-university students have their own unique experiences during their menstrual cycle hence prompting a recollection of methods that had been done to dampen menstruation side effects (if any) is appropriate to identifying individuals

using herbal medicine in this cohort. Table 1 shows two nominal variables (Menstruation Side Effects and Treatments/Medications) in the questionnaire which identifies if a female student who experiences the side effects of menstruation uses any sort of treatment or medications to reduce their side effects. 95.40% (103) of the female students responded to have experience menstruation side effects however only 32.04% (33) of them who did not act in reducing their own menstruation side effects. As this question allowed multiple answers, it can be observed that there are students who have used more than 1 method in treating menstruation side effects; 14.00% in this cohort (n = 14) had the common use of heating pads and balm or ointment to aid in menstruation side effects. Both treatments are non-oral and applied on the body. Heating pads have been advocated in the community for years to the point of being known as home remedy (Begum, Das, & Sharma, 2016). The efficacy of the heating pads was noted based on the small group tested that the women experienced a greater elevation of pain as time increases with 79.00% relief at the end of the fourth hour of their experiment. However, the inclusion of herbal medicine as part of the relieving menstruation side effects method had only been presented by 3 female pre-university students.

Table 1: Two nominal variables (Menstruation Side Effects and Treatments/Medications)

		Do you experience any menstruation side effects? (e.g. period cramps)		
		Yes	No	Total
If YES, please tick the treatment/medication(s) used.	Irrelevant	33	5	38
	Panadol, Heating pads	3	0	3
	Panadol, Heating Pads, Balm/Ointment	5	0	5
	Heating Pads, Balm/Ointment	14	0	14
	Panadol, Painkillers, Balm/Ointment	3	0	3
	Heating Pads	8	0	8
	Panadol, Heating pads, Balm/Ointment, Hormone booster	1	0	1
	Panadol, Balm/Ointment	4	0	4
	Panadol	6	0	6
	Panadol, Painkillers	3	0	3
	Hormone Booster	1	0	1
	Balm/Ointment	10	0	10
	Balm/Ointment, Traditional medicine	1	0	1
	Heating pads, Balm/Ointment, Traditional medicine	1	0	1
	Painkillers, Heating pads, Balm/Ointment	1	0	1
	Traditional medicine	1	0	1
	Panadol, Traditional medicine	1	0	1
	Painkillers	2	0	2
	Heating pads, Balm/Ointment, Hormone Booster	2	0	2
	Panadol, Painkillers, Heating pads, Balm/Ointment	2	0	2
	Painkillers, Heating pads	1	0	1
Total		103	5	108

3.2 The Effects of Herbal Medicine on Menstrual Cycles

The specification of the herbal treatments used based on the answers provided by the respondents resulted a coincidental equal balance in the types of herbal treatments used in which half of the items stated are oral treatments and the remaining are instruments used. The answers provided are based on the experience of the respondents as they were questioned if they have heard and used any herbal treatments before. Their ability to provide the name of the herbal treatments they have used before does not necessarily indicate that the same individuals include the use of herbal treatments into their strategy of treating their menstruation side effects. All associated respondents continue the usage of the herbal treatments they use due to family recommendations. The inferences "easy to purchase" and "cheap" imply that the respondent(s) have access in purchasing their herbal treatments demographically and respondent is financially capable in making their purchase for their related treatment.

An observable pattern can be seen based on the answers of the respondents: the students who maintains the use of herbal treatment in their routine for their menstrual cycle does so because they find the treatment effective and accessible with strong family recommendation becoming the underlying factor for their continuous use. To the students who stopped using herbal treatment, a pattern can be observed that their discontinuation was a choice they opted with an assumption that the treatment is not worth the amount to spend on. However, these patterns are solely based on personal experiences of respondents without any professional input. The respondents are then questioned if they consulted any doctors or specialists before or after the usage of their herbal treatments and exactly 50.00% of the respondents went for a consultation while the rest did not. Hypothetically, through a consultation the student could gain knowledge in identifying what treatment is best for oneself and a professional input could boost one's confidence in using a certain treatment as the expert can suggest the guarantee of its effectiveness.

In identifying the effectiveness of the herbal products on menstrual cycle, the products used by the students are identified and further studied. The identification of the product contents above is insufficient to prove the effectiveness of herbal treatments on menstrual cycle and the lack of respondents who have used herbal treatments could possibly be the contributing factor. The result shows that only 7.41% have used herbal treatments.

4.0 Limitations

In a sample of test items, the concept of reliability assumes that unidimensionality exists (Tavakol & Dennick, 2011). Thus, with a Cronbach alpha test, other than identifying the reliability of the items in the questionnaire and its interrelatedness, it could be a confirmatory test whether a sample of items is unidimensional. Cronbach alpha test is done after transferring data in the IBM SPSS Statistics ver.25 to measure the internal consistency of a test or a scale, expressed as number between 0 and 1 (Tavakol & Dennick, 2011). The internal consistency of a questionnaire must be known to ensure its reliability hence to run a Cronbach alpha test is a necessary step after keying in the data. Tavakol explained that reliability value shows the amount of measurement error in a test by squaring the value and subtracting from 1.00 (2011).

Based on our result, the questionnaire has a reliability of 0.448. The error variance would be $0.799 \approx 0.8$ (1-0.4482 = 0.799). This shows that when the items in a test are highly correlated, the Cronbach alpha or its reliability would be high as its error variance would decrease in value. However, a high alpha does not guarantee a high

degree of internal consistency as consistency and item correlations are different and the length of the test affects alpha. Different reports about acceptable values of alpha exist, and it ranges from 0.70 to 0.95 (Tavakol & Dennick, 2011).

Table 2 displayed shows a different reliability estimate based on a questionnaire used for pilot testing, which was done before distributing the official questionnaire. The questionnaire distributed was revised based on the answers obtained by the respondents and several improvements were made: reduction of items (23) from its initial. Hence, the large reduction of items is possibly the contributing factor that dragged down the reliability estimate. The association between two items in a questionnaire can be done through the generation of cross-tabulations or cross-tabs analysis using the IBM SPSS. This statistical method is used to compare two nominal variables or a nominal and an ordinal variable for as long as they do not have too many different categories in a questionnaire (Muijs, 2011). The essence of this method is simple as it provides us with contingency tables that is used to test hypotheses about how some variables are contingent upon others. Referring to the objectives of the research is to identify the effectiveness of herbs on menstrual cycle. The questionnaire distributed tackled the objectives by gaining data based on the knowledge of the respondents.

Table 2: Different reliability estimate based on a questionnaire used for pilot testing

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.705	0.809	47

The questionnaire of this study requires improvement to increase the Cronbach alpha value. This can be done by increasing the number of items in the questionnaire and maintain the pattern of questions for higher unidimensionality. Questions to gain demographic information can be added into the questionnaire as these details can be utilized to create detailed assumptions. The results for this study did not meet the objective of identifying the effectiveness of herbal treatments on menstrual cycle based on the knowledge and experiences of the respondents. The difficulty of obtaining results as hypothesized is because of the lack of respondents who have used herbal treatments. To change this, the distribution of the questionnaire can be specifically given to herbal treatment users only as this could guarantee a variety of answers to work on. With more respondents answering the Herbal Section of the questionnaire, this would allow more observable patterns and assumptions to be made simultaneously allowing researchers to make a deduction on the effectiveness of herbal treatments towards the female pre-university students in Malaysia.

5.0 CONCLUSION

Only 7.41% of the respondents have used herbal treatments, and the patterns that can be observed are very minimal to deduce an assumption that the stated herbal treatments leave an effect on the users. To further study the effectiveness of the herbal treatments, an efficient method to meet the objective can be done by allowing the respondents to rate the effectiveness of the products used on herself as the ratings done would allow researchers to produce a measurable numerical value.

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