PHARMACEUTICAL SCIENCES RESEARCH REPORTS

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Contributing Factors of Mental Health Status among Malaysian University Students

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Introduction: Today, the awareness on mental health is increasing and according to the latest National Health and Morbidity Survey (NHMS), every three in 10 adults aged 16 years old and above in Malaysia suffer from some form of mental health issues. According to NHMS, the age group of people with the highest prevalence is between 16 and 39 years old. An increase from one in 10 individuals in 2011 to one in five individuals in 2016 of reported cases involving Malaysian students, is a serious concern. Mental health is associated with anxiety, stress and depression, therefore, determining factors contributing to them is crucial in curbing the increasing trend. Although previous studies have shed a light on the matter, the contributing factors of this increase in mental health disorders among students have not been well established.

Objective(s): To identify the contributing factors of mental health disorders among Malaysian university students, aged between 19 and 38 years.

Methodology: A cross-sectional survey, using an online questionnaire was conducted. The questionnaire was a well-known validated and standardised questionnaire, named Depression, Anxiety and Stress Scale 21 (DASS-21) to measure the mental status (stress, anxiety, depression) and to determine the factors contributing to it (self-evaluation, parents, living style, health, peers, lecturers, learning environment, academic factors, financial factors, lost). The collected data were analysed using frequency, percentage, mean and Mann–Whitney U test.

Results: A total of 303 students participated in the survey. Our findings indicated that 46.9% of the students showed stress scores at different levels. 36.3% had different levels of depression, and 65% of the students had anxiety. The main contributing factor was the financial reasons with a mean score of 0.58, followed by self-evaluation (0.48), living style (0.44), learning environment (0.41) and feeling of lost (0.40).

Conclusion: The mental health situation of Malaysian students seems to be deteriorating. Nearly half of the students are stressed and more than one-third of them are suffering from depression. The main concern of this situation is the financial situation apart from other factors of the academic life of the students.

Knowledge and Attitudes towards Antibiotic Usage: A Cross-Sectional Study among General Public in Malaysia

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Introduction: The public knowledge and attitudes towards antibiotics play a pivotal role in the success of the treatment process and preventing the continuation of the emergence of resistance to antibiotics. Five years after the introduction of One Health by the Ministry of Health (MOH) Malaysia in 2015 that focuses on public awareness and education about infection prevention and control, as well as the appropriate use of antimicrobial, we targeted to assess publics' knowledge and attitudes towards antibiotic usage.

Objective(s): To investigate the public's knowledge and attitudes towards antibiotic usage.

Methodology: A cross-sectional survey, using a validated online self-administered questionnaire was conducted from March to April 2020. A convenient sampling method was adopted in selecting the participants. The eligibility criteria included age above 18 years old, the ability to read and write in English and the awareness of the term "antibiotics".

Results: A total of 225 respondents participated in the survey, and 57% of the respondents possess a good level of knowledge. 88% of the respondents were aware that antibiotics are used for the treatment of bacterial infections, whereas 31.6% incorrectly thought that antibiotics are also used for viral infections. With regards to attitudes, 31.6% expected that antibiotics are prescribed for common cold symptoms, and 20.4% believed that keeping antibiotics at home for emergency purposes is appropriate. The main determinants of knowledge and attitudes towards antibiotic used were the age and ethnicity of the respondents.

Conclusion: We assumed that the level of knowledge and attitudes towards antibiotics among the entire population is lower than what we observed since the respondents in this survey were all those with good command in English and have internet access. More efforts by policymakers, media, academic institutions and health systems are still needed to correct the wrong beliefs and behaviours about antibiotics.

Knowledge and Attitudes of UCSI University Students towards First Aid: A Cross-Sectional Study

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Introduction: The morbidity and mortality can be largely lowered by providing proper and adequate training and education of first aid (FA) to university students. Previous studies have shown that the first aid knowledge and attitudes among university students were poor. It has been reported that a tremendous number of deadly cases and severe injuries in Malaysia could be prevented if present persons are aware of the principles of first aid.

Objective(s): This study aimed to investigate and evaluate the current knowledge and attitude towards the first aid process amongst UCSI University students. Besides, it aimed to quantify the degree of participation of UCSI University students in the first aid courses and the willingness to offer first aid measures for those in need.

Methodology: A cross-sectional survey was conducted among the students of UCSI University, Kuala Lumpur, Malaysia from March to May 2020. The questionnaire was pretested, standardised and sample tested before it was distributed to the participants via Google Forms. All UCSI University students regardless of their course of study were eligible for this study.

Results: Participants aged between 23-25 years old has the highest knowledge (38.77%) in first aid. The level of knowledge showed an association with the age of the participants, level of education, and prior participation in first aid courses. When dealing with life-threatening situations, 44 (51.2%) out of 86 respondents knew how to deal with choking and 75 (87.2%) respondents knew how to deal with bleeding emergencies, whereas 64 (74.4%) and 53 (61.6%) respondents knew how to handle nose bleeding and implement, respectively. 60 (69.8%) out of 86 respondents (69.8%) knew how to deal with electric shock burns whereas only 21 (24.4%) respondents knew how to deal with the loss of consciousness. When asked if they are willing to help in real-life situations, 43 (50%) of them were willing to help.

Conclusion: The UCSI University students' knowledge in first aid is moderate. First aid courses can be made more accessible for students at frequent intervals. The University may also encourage the students to take part in real-life situations by running relevant campaigns related to first aid.

Complementary Medicine Use among Malaysians: A Cross-Sectional Survey

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Introduction: Complementary and alternative medicine (CAM) is a diverse group of health-related therapies and disciplines which are not considered to be a part of mainstream medical care. Examples include osteopathy, chiropractic, acupuncture, herbal medicine, and homeopathy. Some issues related to the safety and efficacy of some therapies are still unknown since not all CAM therapies had undergone scientific evaluations for its safety and effectiveness. It was estimated in 2005 that 29.25% of Malaysians had a history of complementary and alternative medicine usage with a consultation.

Objective(s): This study was conducted to obtain current data on the prevalence of practitioner-led CAM, and factors that lead to or affect the choice of those therapies.

Methodology: The authors created an online survey, using a questionnaire that was shared with participants through Google Forms. The questionnaire consisted of two sections with 10 questions each. The target population was all Malaysian citizens with the age of 18 years old and above.

Results: A total of 293 Malaysians participated, of which 64.8% (190) were female and 35.2% (103) were male. The majority of participants were from Chinese ethnic (91.5%) followed by Malay (6.1%) and Indian (1.4%). Students are the majority group who participated in the survey (63%) while the least participated groups are from the retired population (3.1%). From the survey result obtained, only 83 participants (28.3%) had seen a CAM practitioner (from the list) in the previous 12 months. The type of CAM practitioners that most of the CAM users visited in the past 12 months were Chinese herbal medicine practitioner and chiropractor. Most of CAM users visited CAM practitioners only once a year. Besides, 15.3% of CAM users visited CAM practitioners due to the problem of back pain while 12.4% of CAM users seek help for other musculoskeletal pain such as neck pain, shoulder pain, knee pain.

Conclusion: Low percentage of CAM users in this study may not necessarily reflect the prevalence of practitioner-led CAM usage among Malaysians, as most of the participants of the current study are youngsters. However, the findings can be interpreted as a lower tendency towards CAM in the general public. Chinese herbal medicine, chiropractic and acupuncture seem to be the most popular types of CAM in Malaysia. No association between gender, age, employment status, marital status, educational level, and personal monthly income was observed with the usage of CAM.

Health Literacy Level among UCSI University Students: A Cross-Sectional Survey

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Introduction: Despite being an emerging concept, health and literacy are critical resources for day-to-day living. While many definitions of health literacy exist, the American Medical Association's Health Literacy Manual for Clinicians defines health literacy as the ability to read, understand, and use health information to make appropriate healthcare decisions and follow instructions for treatment. While there are many reasons why patients do not understand what primary practitioners tell them, one of the main reasons is inadequate health literacy. The notion of health literacy varies from that of general literacy. Similarly, the World Health Organisation (WHO) defines health literacy as the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions.

Objective(s): The purpose of this study was to assess health literacy (HL) level among students of UCSI University, Kuala Lumpur, Malaysia. It is also to investigate the association between the field and year of study with HL level.

Methodology: Health Literacy Survey European Questionnaire 47 (HLS-EU-Q47) was administered and made into Google Forms before it is distributed to UCSI University students through digital platforms and social media such as CourseNetworking (CN). HLS-EU-Q47 contained 47 items. Each item was rated on a 4-point Likert scale (1 = very difficult, 2 = difficult, 3 = easy, and 4 = very easy) whereby the perceived difficulty has a possible lowest mean score of 1 and a possible highest mean score of 4. The mean score varied from 1 to 4, and the range of the mean score was 3. (4-1=3)

Results: Respondents comprised of 45.2 % (n = 100) from medical related majors and 54.8 % (n = 121) from non-medical related majors. Reported year of study included 9% (n=20) from foundation, A-Level or diploma; from baccalaureate: 18.1 % (n=40) year 1, 24.2% (n=54) year 2, 20.8% (n =46) year 3, 25.3 % (n=56) year 4; and 2.3 % (n=5) masters or PhD students. The overall mean HL index was 31.58 out of 50, situating the participants within the "problematic" category. Using the HL categorisation, 36 students (16 %) have inadequate HL, 64 (29 %) fell into sufficient health literacy level, 15 (7%) with excellent health literacy and the remaining are found to have problematic health literacy level (48 %, n=106).

Conclusion: The overall health literacy of the UCSI University students falls in the category of problematic HL. This suggests that, especially during the COVID-19 pandemic, the students' response and behaviour towards health problems should be improved by running pertinent health awareness campaigns.

Evaluation on the Anti-Inflammatory Activity of Virgin Coconut Oil on DNCB-Induced Atopic Dermatitis in BALB/c Mice

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Introduction: Virgin coconut oil (VCO) is a natural product which had been reported to inhibit the growth of pathogens and prevent further skin inflammation in atopic dermatitis (AD). The chemical composition in VCO could function as an emollient which could help in the skin recovery and maintain the skin hydration.

Objective(s): The objectives of the research are to assess the anti-inflammatory activity associated with atopic dermatitis using VCO and to evaluate the SCORing Atopic Dermatitis (SCORAD) index and Transepidermal water loss (TEWL) using the animal model.

Methodology: 25 four weeks old BALB/c mice were allocated into five groups: normal, vehicle, control (positive and negative) and treatment. AD was induced in the mice dorsal skin using dinitrochlorobenzene (DNCB) dissolved in vehicle which consisted of acetone:olive oil (3:1) for two weeks, followed by treatment to each group for four weeks. SCORAD index was evaluated based on the AD-like skin lesions using dermatitis score. The severity of dermatitis was evaluated based on four criteria: (1) Scratching number, (2) Character of lesion, (3) Length of lesion, and (4) Regions affected. TEWL was measured in each dorsal skin of the BALB/c mice using Tewameter before DNCB induction, two weeks after DNCB sensitisation and after four weeks of treatment. Skin samples were collected from the dorsal skin of BALB/c mice for histological analysis. All experiment results were compared by using one-way ANOVA and paired t-test.

Results: SCORAD index between treatment and negative control groups were statistically significant different (P< 0.001). The SCORAD index of the treatment group was lower than the negative group which indicated that VCO had reduce the severity of AD in sensitised animal model. Treatment group also had lower TEWL reading compared to the control groups. Skin lesion in treatment group were improved after the VCO treatment, with lower mast cell number in the tissue samples. Scratching behaviour of the AD mice model showed significant reduction.

Conclusion: VCO exhibited the anti-inflammatory in AD mice model. It showed that it functioned as emollient, retained the moisture content in the skin, suppressed the production of inflammatory cells and hence it could be used as an alternative treatment in management of AD.

Formulation Optimisation of Cocoa Butter Based Fast Melt Tablets

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Introduction: Conventional oral tablets do have limitations like difficulty in swallowing (dysphagia) of large tablets in all age groups especially in geriatrics and pediatrics when the dose is too large, resulting in reduced patient compliance. Therefore, to overcome this limitation, fast melting tablets (FMTs) were developed. British Pharmacopoeia (BP) defines FMTs as uncoated tablets intended to be placed in the mouth where they disperse readily within three mins before swallowing accordingly. FMTs are usually developed with multiple superdisintegrants and fillers.

Objective(s): The purpose of this study is to investigate the suitability of cocoa butter as the base for FMTs with other functional excipients.

Methodology: Cocoa butter based FMTs with non- direct compression fillers such as starch, lactose, direct compression filler such as microcrystalline cellulose (MCC) and combination of both (Starlac® and Combilac®) were prepared using a simple freezing method. The fillers were incorporated at 20, 30 and 40% each. Stable form V cocoa butter is obtained by the process of tempering. Other excipients mixed evenly with stable form V. The cocoa butter mixture is then poured into a mould and froze in the refrigerator freezer for 2 hrs.

Results: The physical properties of cocoa butter FMTs were evaluated for the standard quality attributes in BP. FT-IR analysis showed no incompatibility between cocoa butter and other excipients used for FMTs. Formulations with hardness >20N are chosen to incorporate with a superdisintegrant (Kollidon® CL) at 5% and 10% of concentration to further improve its physical properties. The optimised formulation has then proceeded to palatability studies to check the mouth feel and acceptability.

Conclusion: The formulation FS10 (MCC20% with Kollidon 10%) was optimised based on the lowest disintegration time (DT), highest hardness and tensile strength. Palatability scores for the taste of cocoa butter FMTs were interpreted as "bland but acceptable" to "good", the mouth feel was "slightly gritty" to "smooth"; and acceptability has the highest score "good". Cocoa butter should be used as the base of fast melt tablets (FMTs) with the combination of filler and superdisintegrant.

Development of Nateglinide Nanocrystals by Ultrasonic Probe Technique

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Introduction: Nateglinide is an oral antidiabetic drug under the Biopharmaceutical Classification System (BCS) Class II which is low solubility and high permeability. To overcome the problem of solubility, one of the approaches is to use nanotechnology to make Nateglinide into nanocrystal form.

Objective(s): This study aims to formulate Nateglinide nanocrystals by using different variables and optimise the process parameters using the ultrasonic probe method.

Methodology: Nateglinide nanocrystals were formulated together with five different surfactants at different concentrations and different sonication times by using ultrasonic probe. The prepared nanocrystal formulations were characterised by Coulter Counter, Differential Scanning Calorimetry (DSC), Fourier Transformed Infrared (FT-IR) spectroscopy, Malvern Zeta Sizer, and Zeta Potential.

Results: Based on the coulter counter analysis, best formulation from each surfactant is chosen for zeta sizer and zeta potential analysis. The zeta sizer shows all formulation is < 200 nm except for formulation A4. Zeta potential of C4 and E2 have good stability. Differential scanning calorimetry of the formulation exhibits that the melting point of a formulation is lower than pure Nateglinide.

Conclusion: Among the five formulations, formulation E2 has been determined as the most optimised formulation, it has particle size <200nm and good stability. Therefore, the surfactant polyethyleneimine (PEI) at 0.5% concentration and 15 minutes probe ultrasonication could be a promising avenue for the preparation of Nateglinide nanocrystal.

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