Illness Beliefs and Its Relationship with Diabetes Self-Care Practice in Patients with Type 2 Diabetes Mellitus in Indonesia

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ABSTRACT

Diabetic patients in Indonesia have poor self-care practices. Illness belief might affect diabetes self-care practice in Indonesia. However, up to date, the illness belief of Indonesian diabetic patients toward self-care is still unclear, and whether illness belief and its domains are the predictors of diabetes self-care practice in Indonesia is still unknown. Therefore, this study aimed to assess the illness belief and to assess whether illness belief and its domains are the predictors of diabetes self-care in the Indonesian context. A cross-sectional study was conducted on 625 T2DM patients from public health centers in Purwokerto City, Indonesia. A Brief Illness Perception Questionnaire (BIPQ) and Summary Diabetes Self-Care activities (SDSCA) were used to assess illness beliefs and diabetes self-care behaviors respectively. A hierarchical multiple regression analysis was conducted to identify the predictors of diabetes self-care behaviors. The scores of IBPQ domains (i.e., consequences, timeline, personal control, treatment control, identity, concern, understanding, and emotional response) were 5.00 ± 2.65, 4.84 ± 2.59, 6.16 ± 1.92, 7.21 ± 1.97, 5.00 ± 2.07, 4.91 ± 2.61, 5.31 ± 2.01, and 4.64 ± 2.51, respectively. The regression analysis showed the predictors of diabetes self-care behaviors to be consequences ($p < .05$), personal controls ($p < .05$), and duration of DM ($p < .05$). This study provides evidence that two domains of illness beliefs are predictors of diabetes self-care behaviors in Indonesia. The domains are consequences and personal control. There is a need to design educational programs focusing on illness beliefs to improve diabetes self-care behaviors in Indonesia.

1. Introduction

Diabetes mellitus (DM) is one of the most serious health conditions in the world [1]. There were 422 million patients globally with DM in 2014 and in 2012, 1.6 million people died from the disease [2]. DM has become a huge problem in Indonesia, which had the 7th highest number of DM patients in the world in 2019 [3]. In 2011, there were 8.5 million people living with DM in Indonesia, but this raised to 10.7 million

by 2019 [2], [4]. Studies have shown that mortality due to DM-related complications is high in Indonesia [2]. Based on this data, clinicians in Indonesia should design programs to reduce complications and mortality rate in their DM patients.

In order to avoid complications, diabetic patients should perform various self-care activities, including monitoring blood glucose levels, regulating diet, engaging in physical exercise, adhering to medication, adopting a healthy lifestyle, developing good coping skills, and carrying out risk-reducing behaviors [5]. Successful diabetes self-care practices will result in reduced complications and improved quality of life [6-8]. Previous studies showed that 63.8% of patients with DM in Indonesia have poor diabetes self-care behaviors [9].

Several factors have been reported to affect diabetes self-care behaviors [9- 11]. One previous study showed that factors related to diabetes self-care behaviors included age, level of education, and self-efficacy [11]. Another study showed that factors affecting diabetes self-care behaviors were self-efficacy, communication, motivation, attitude, and knowledge [12]. A recent study showed the factors related with diabetes self-care behaviors were treatment, perceived self-efficacy, and situational influences [9]. These factors account for 20.8 % variance in diabetes self-care behaviors. Since a previous study showed the predictors of diabetes self-care behaviors could only explain of 20.8 % of the variance, we therefore hypothesize that another factor affecting diabetes self-care behaviors in patients with DM in Indonesia could exist.

Illness beliefs can be conceptualized in the Common-Sense Model of Self-regulation [13]. Based on this theory, people's beliefs about their disease determine their behaviors. Illness beliefs can be broken into five categories: beliefs about disease symptoms (identity), beliefs about the progress and duration of the disease (timeline), beliefs about the effects of the disease (consequences), beliefs about the cause of the disease (cause), and belief about how behaviors can influence the diseases (cure/control) [14]. Previous studies showed that illness beliefs can influence medication adherence and management of diabetes [15], and that illness belief is strongly affected by cultural contexts [16].

However, it is still unclear whether domains of illness beliefs are related to diabetes self-care behaviors in an Indonesian context since studies in Indonesia are still very limited. To our knowledge, no study has investigated whether domains of illness beliefs are predictors of diabetes self-care behaviors in Indonesia. It is important to investigate how such beliefs influence diabetes self-care behaviors since findings can guide nurses in Indonesia to develop specific interventions in order to improve diabetes self-care practices in their patients. Therefore, the purpose of this study was two-fold. We first investigated the illness beliefs of diabetic patients in Indonesia, and then investigated whether the domains of illness beliefs are predictors of diabetes self-care behaviors in such patients.

2. Methodology

2.1 Study design
A cross-sectional study was carried out to assess the illness belief and to investigate whether domains of illness belief are predictors of diabetes self-care practice.

2.2 Study population
A total of 625 patients with type 2 diabetes mellitus (T2DM) attending the outpatient clinics in 14 public health centers, Purwokerto City, Indonesia, between 12 August 2020 to 5 February 2021 were recruited using a simple random sampling method. Inclusion criteria were patients aged 18 years or older with a

diagnosis of T2DM from their physician. Exclusion criteria were patients unable to perform diabetes self-care practices without assistance and patients with cognitive dysfunction or dementia. Patients' clinical data were obtained from their medical records. Using a 95% confidence level, an absolute precision of 3%, a proportion of 13.4 %, and the response rate of 80 %, the total sample size was estimated to be 625 patients.

2.3 Data collection

We conducted face-to-face questionnaire-based interviews in the outpatient clinics of 14 public health centers in Purwokerto City, Banyumas Regency, Indonesia. Each participant was approached by researchers while awaiting a consultation. Since the time in clinic is short, the researchers and patients made appointment to interview at their home. The data collected were socio-demographic details including age, gender, marital status, level of education, employment status, and clinical characteristics including duration of DM, and data regarding patients' illness beliefs and diabetes self-care practice.

Illness beliefs were assessed using a brief illness perceptions questionnaire (BIPQ) that was developed by [14]. This questionnaire has been widely used among patients with chronic diseases such as cancer, heart disease, DM, and rheumatoid arthritis [14]. It consists of nine questions. Five of the questions assess cognitive illness (consequences, timeline, personal control, treatment control, identity) and two assess emotional representations (concern and emotions). One question assesses illness comprehensibility and one assesses causal representation. All of the items except item 9 (the causal representation question) are rated on a 10-point scale. Assessment of the causal representation is by an open ended response item. The consequences domain refers to patients' beliefs about the outcome of their illness. The timeline domain refers to patients' beliefs about the duration of their disease. The personal control domain refers to the patients' beliefs about how they can influence or control the disease. The treatment control domain refers to patients' beliefs about the effectiveness of the treatment, which in this study is self-care. The identity domain refers to patients' beliefs about the symptoms they experience. The concern domain refers to patients' understanding of their illness. The emotional domain refers to the emotional impact of the disease on patients. Finally, the causal domain refers to patients' beliefs about what caused their disease. This questionnaire has been validated in Indonesia. Cronbach's alpha of the Indonesian version of the IBPQ is 0.75 [17].

The level of diabetes self-care already carried out by participants was assessed using the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire developed by [18]. The questionnaire includes 11 items which measure patients' diet management, physical exercise, blood glucose monitoring, foot care, and smoking. Respondents answer by marking the number of days (0-7) in the past week they performed certain practices. A higher score means better diabetes self-care behaviors. This questionnaire has been used in many countries and has a good Cronbach's alpha [18- 21], being 0.72 in the Indonesian version [9].

2.4 Data Analysis

Descriptive statistics were calculated to describe the univariate data of the demographic and clinical characteristics data. In order to investigate the predictors of diabetes self-care behaviors, a hierarchical multiple regression analysis was performed. SPSS version 23 was used to conduct all analyses. A statistical significance was defined as a p-value of $<.05$ A tolerance of < 0.2 and variance inflation factor >5 indicated multicollinearity [22].

2.5 Ethical consideration

Prior to the administration of the questionnaire, the participants were informed of the details of the study, including the study aims, benefits they may experience, and their freedom to withdraw from the study at

any time without penalty. Written informed consent forms were gathered from each participant. The study was carried out in compliance with the Declaration of Helsinki and was approved by the institutional ethical committee of the Faculty of Health Sciences at Universitas Jenderal Soedirman, Purwokerto, Indonesia.

3. Results

Table 1 shows the characteristic of the participants. There were 625 participants, most of whom were in the age range of 55-64 (40.80 %), female (77.12 %), married (80.16%), educated to primary school level (58.72%), had an income below 120 USD, were not employed (56.96%), and had had diabetes for less than five years (61.44 %).

Table 1. Demographic and clinical data of respondents.

Variable	N	%
Age		
<45	28	4.48
45-54	141	22.56
55-64	255	40.80
≥65	201	32.16
Gender		
Female	482	77.12
Male	143	22.88
Marital status		
Married	501	80.16
Not married	10	1.60
Divorced/widow	114	18.24
Formal education		
No formal education	39	6.24
Primary	367	58.72
Secondary school	97	15.52
High school	76	12.16
University	46	7.36
Income		
Below 120 USD	540	86.40
120-200 USD	52	8.32
Higher than 200 USD	33	5.28
Occupation		
Active employment	211	33.76
Retired	58	9.28
No employment	356	56.96
Diabetes duration		
Less than 5 years	384	61.44
5-9 years	143	22.88
≥10 years	98	15.68

Table 2 showed the IBPQ scores for each domain. The results show that most patients perceived DM not to

be a serious condition (consequence) and that it would not last forever (timeline). Participants tended to believe themselves to be in control of their DM (personal control) and that DM can be controlled with good management or treatment (treatment control). Participants reported not experiencing many DM- related symptoms (identity). They had a good understanding of DM (understanding) and were not severely concerned about it (concern). Having DM did not deeply affect their emotional responses (emotional response).

Table 2. IBPQ scores for each domain

Item	Mean ± SD
Consequences	5.00 ± 2.65
Timeline	4.84 ± 2.59
Personal control	6.16 ± 1.92
Treatment control	7.21 ± 1.97
Identity	5.00 ± 2.07
Concern	4.91 ± 2.61
Understanding	5.31 ± 2.01
Emotional response	4.64 ± 2.51

Table 3 shows that when the domains of illness belief were entered into a regression model (model 1), only personal control, treatment control, and understanding were predictors of diabetes self-care. These variables accounted for 17.30 % of the variances. When the demographical variables and duration of DM were included in the analysis (model 2), consequences, personal control, and duration of DM were significant predictors of diabetes self-care behaviors. These three factors accounted for 29.10 % of the variances.

Table 3. Predictors diabetes self-care behaviors

Model	Variables	B	β
Model 1	Constant	3.324	
	Consequences	.092	.019
	Timeline	.325	.067
	Personal control	.582*	.089*
	Treatment control	1.374**	.216**
	Identity	-.396	-.065
	Concern	-.291	-.061
	Understanding	1.488**	.238**
	Emotional responses	.186	.037
	F = 16.15; R²= 17.3, $p < .001$		
Model 2	Constant	28,644	
	Consequences	1.750*	.277*
	Timeline	-.365	-.058
	Personal control	1.929*	.246*
	Treatment control	1.804	.197
	Identity	-1.107	-.165
	Concern	-.689	-.117
	Understanding	.020	.003
	Emotional response	.896	.162
	Age	.049	.038
	Gender	2.570	.095
	Marital status	-.852	-.028
	Education	.466	.057

Income	.245	.038
Occupation	-.240	-.021
Duration of DM	-12.048*	-.230*
F = 2,137 R²= 29.1, p = .016		

4. Discussion

This study was the first study carried out to investigate whether domains of illness belief is predictors of diabetes self-care practice in Indonesia. Based on our findings, we found that most patients perceived DM not to be a serious condition and that it would not last forever, and believe DM can be controlled with good management or treatment. They also had a good understanding of DM (understanding) and were not severely concerned about it, and having DM did not deeply affect their emotional responses. Our study also showed that that consequences, personal control, and duration of DM are predictors of diabetes self-care practices in an Indonesian context.

According to our findings, the majority of diabetes patients believe that the disease can be cured. Our finding is in accordance with previous study in other countries [23], [24], Although such a mindset can increase a patient's drive to engage in diabetic self-care practice, the patient must recognize that diabetes is incurable. Patients must be educated by health care practitioners in order for them to comprehend the nature of diabetes.

One of the predictors of diabetes self-care practice in this study was domain of consequences. The domains of consequences refer to the effects which patients expect to experience because of DM. In our study, the perception that DM would severely affect patients was associated with better diabetes self-care behaviors. Having an understanding of DM's possible complications might cause patients to want to perform diabetic self-care properly. Patients appear to realize that the complications of DM might occur as a result of inappropriate diabetes self-care practices. However, our results did not correspond with those from a previous study which showed that perceived severe consequences of DM were linked to less diabetes self-care practices [16]. It might in the previous study, the fear of severe consequences might cause distress to patients that resulted in them performing less diabetes self-care practices. In our study, such psychological factors might not have become barriers to the performance of diabetes self-care practices.

Another predictor of diabetes self-care behaviors was found to be personal control, which refers to the perception that patients themselves have the ability to control their disease. Participants with high personal control perceived they could manage the disease properly. Our findings showed the higher level of personal control a participant had, the higher their diabetes self-care behaviors were. These findings correspond with a previous study that showed patients who have high personal control have better diabetes self-care practices [25]. The good levels of personal control seen in this study might be due to participants' high self-efficacy toward the treatment and management of DM, giving them the confidence to perform diabetes self-care practices.

In this study, disease duration was also seen to be a predictor of diabetes self-care behaviors. Patients who had had DM for a short time performed better diabetes self-care practices, while patients who had had DM for longer performed lower diabetes self-care practices. There are two possibilities for such results. It could be that new DM patients have more knowledge related to diabetes self-care practices than those who have had DM for longer. Newer patients might be more proactive in finding new information about DM, while longer-term DM patients may consider diabetes self-care practices to be a common or usual activity that does not need any specific knowledge.

Our study has several limitations. Because it was a cross-sectional study, we are not able to draw any causal inferences between variables. Furthermore, because we only investigated illness beliefs and clinical characteristics as a predictors of self-care practices, we can't conclude on other factors that might contribute to self-care DM practices in an Indonesian context. Finally, since this study was carried out in Indonesia, its findings cannot be extrapolated to other countries. Despite its limitations, our study also has strengths. It is the first study to investigate whether domains of illness beliefs could be predictors of DM self-care behaviors in an Indonesian context. Secondly, by including a significant number of DM patients, we increased the generalizability of our study population. Finally, our study provides critical evidence that nurses can utilize to develop educational programs in Indonesia to enhance DM self-care practices.

5. Conclusions

This is the first study to investigate whether domains of illness belief could be a predictor of diabetes self-care behaviors in Indonesia. Our results show that consequences, personal control, and duration of DM are predictors of diabetes self-care behaviors in Indonesian patients. The results can be used as guidance for nurses creating programs to improve diabetes self-care practices in patients with DM.

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Illness Beliefs and Its Relationship with Diabetes Self-Care Practice in Patients with Type 2 Diabetes Mellitus in Indonesia

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Abstract : Diabetic patients in Indonesia have poor self-care practices. Illness belief might affect diabetes self-care practice in Indonesia. However, up to date, the illness belief of Indonesian diabetic patients toward self-care is still unclear, and whether illness belief and its domains are the predictors of diabetes self-care practice in Indonesia is still unknown. Therefore, this study aimed to assess the illness belief and to assess whether illness belief and its domains are the predictors of diabetes self-care in the Indonesian context. A cross-sectional study was conducted on 625 T2DM patients from public health centers in Purwokerto City, Indonesia. A Brief Illness Perception Questionnaire (BIPQ) and Summary Diabetes Self-Care activities (SDSCA) were used to assess illness beliefs and diabetes self-care behaviors respectively. A hierarchical multiple regression analysis was conducted to identify the predictors of diabetes self-care behaviors. The scores of IBPQ domains (i.e., consequences, timeline, personal control, treatment control, identity, concern, understanding, and emotional response) were 5.00 ± 2.65, 4.84 ± 2.59, 6.16 ± 1.92, 7.21 ± 1.97, 5.00 ± 2.07, 4.91 ± 2.61, 5.31 ± 2.01, and 4.64 ± 2.51, respectively. The regression analysis showed the predictors of diabetes self-care behaviors to be consequences ($p < .05$), personal controls ($p < .05$), and duration of DM ($p < .05$). This study provides evidence that two domains of illness beliefs are predictors of diabetes self-care behaviors in Indonesia. The domains are consequences and personal control. There is a need to design educational programs focusing on illness beliefs to improve diabetes self-care behaviors in Indonesia.

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Effect of ZrO2 nanoparticles on liver tissue of infected mice of visceral leishmaniasis

Journal ID : AMJ-17-09-2022-10548; Author : Mohammed H. Mohammed, Hadeel A. Majeed, Nadheer J. Mohammed,

Abstract : Visceral leishmaniasis consider a great health problem in Iraq, the traditional antileishmanial therapies are toxic and most are costly. For this reason, new approaches in the treatment of leishmaniasis are requested, zirconia nanoparticles ZrO2NPs, is a nano-sized and hollow colloidal metal oxide, it was recorded as anticancer agent, the approach was to prepare 17.4 µg/ml of ZrO2NPs by pulsed laser ablation. These nanoparticles are described to confirm the shape, size and other physical properties of the crystal using the following techniques: X-Ray Diffraction (XRD), results were indicated diffraction peaks at (28.2°, 31.5°, 38.5°, 50°, and 59.8°) were correspond to the (111, 111, 120,022 and 131), respectively. The Transmission Electron Microscopy (TEM) shown confirms the formation of nanostructures with granular size by 50 pulses of laser. The histological study included preparation of cross-sections of liver tissue of infected mice and dosed with ZrO2NPs, the results exhibited mild central venous congestion and mild sinusoidal dilation after 7th day of administration and normal appearance with a few infiltration of hepatocytes and small necrosis, hydropic degeneration after 21th day compared with control positive group which exhibited moderate central venous congestion, mild infiltration and the magnified sections revealed moderate cellular swelling and necrosis of hepatocytes after 7th day and became sever damage with multiple focal necrosis, sinusoidal dilation, and infiltration of inflammatory cells with disarrangement of hepatic cords and increased kupffer cell after 21th.

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SOME IMMUNE ASPECTS IN PATIENTS WITH CUTANEOUS LEISHMANIASIS IN AL-KIFIL DISTRICT/BABYLON PROVINCE

Journal ID : AMJ-17-09-2022-10546; Author : Aseel Zuhair Sherba, Salah Yousif Mohsin, Rana Talib Naser, Haitham M.H.Al-Awadi, Qayssar Joudah Fadheel,

Abstract : The study was performed to evaluate the Epidemiological status of cutaneous leishmaniasis in the Al-Kifil district /Babylon province during the period 1/9/2017 to 1/3/2018, 106 cases visited the Al-kifil general hospital and some private clinics in this district were studied. The infestation was diagnosed by dermatologist physician, The study was performed to evaluate the Epidemiological status of cutaneous leishmaniasis and evaluation some hematological parameter changes of infected persons with cutaneous leishmaniasis in the Al-Kifil city /Babylon governorate during the period 1/9/2017 to 1/3/2018 500 cases visited the Al-kifil general hospital and some private clinics in this city were studied. The infection was diagnosed by dermatologist physician, all similar cases to cutaneous leishmaniasis were excluded. 106 positive case with cutaneous leishmaniasis were examined from patient with the disease referring to Al-kifil general hospital and private clinics. The study revealed that the percentage of infection with cutaneous leishmaniasis was 21%. The percentage of infection with the CL was 40% with the age 1-14 year and 10% with age 15-40. Male were more infected with the disease (65%) than female (35%). Rural area were more epidemic with this disease (55%) in comparing with area near Al-kifel city (25%) and inside Al-kifil city (20%) respectively. Arms and legs were more exposed to infection (60%) with ulcer than head (40%). Multiple ulcer represent more prevalence in the body (60%) comparing with the single (40%). Wet ulcer were more prevalent in incidence of infection (83%) in the Al-kifil community in comparing with dry ulcer (17%). Venous blood was drawn patient with cutaneous leishmaniasis for determination of some blood parameter (hemoglobin, pact cell volume, platelet, white blood cells, eosinophil cells, lymphocytes, neutrophil cells, and neutrophil/ lymphocyte ratio) and IgM, IgG, and IgA. The mean level of Hb and PCV was significantly decrease in patient with cutaneous leishmaniasis (Hb=12.05), (PCV=23.68) in comparison with the control group, while there was an

increase in (platelet=269000, WBC=6500, eosinophil=0.26 k/l, lymphocyte=0.35 k/l, neutrophil=5.71 k/l, and neutrophil/lymphocyte ratio=2.23). The result also revealed a significant decrease in (IgG,=0.3 g/l, IgM=0.25 g/l) respectively but no change in IgA value was notice.

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Anatomical and Histological changes of anal canal in patients with fistula in ano: A Study in Mosul

Journal ID : AMJ-17-09-2022-10545; Author : Omar Al-Jalili, Muna AlHamdany, Mohammed Hayawi, Taha AlSaig,

Abstract : Anal fistula is a common harmful and irritating anorectal condition. It is a chronic abnormal narrow tunnel communicating between the epithelial surface of the anal canal and the perianal skin. This study aimed to determine the anatomical and histological findings of the resected fistulous tract following fistulectomy in Mosul city. Fifty fistulectomy specimens following fistulectomy operation were collected from the Department of General Surgery in Al-Salaam Teaching Hospital. The work was conducted in the Department of Anatomy, College of Medicine, University of Mosul. The included cases are both adult male and female in the age group of 15-60 years. The biopsies will be fixed for more than 24 hour in 10% neutral buffered formalin then tissue processing, sectioning as well as staining with hematoxylin and eosin for histological analysis. Half (50%) of patients were in the age group between thirty and forty years and male were predominantly affected more than female. Chronic nonspecific inflammation with neutrophils infiltration was the predominant histological finding. Foreign body type of giant cells lining the fistulous tract was observed in 6% of cases, the fistulous tract was surrounded by non caseating granuloma in 12% while 10% of cases showed fistulous tract lined by stratified squamous epithelium surrounded by granulation tissue. The blood vessels appeared congested and dilated in 10% of cases while inflammatory cells infiltration and interstitial hemorrhage were observed in 6% of patients. Fistula in ano affects male than female with more incidence in the middle aged individuals, histopathological evaluation is obligatory to determine the underlying pathogenesis and the plan of management.

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THE EFFECT OF HEALTH EDUCATION AND THERAPEUTIC GROUP THERAPY TO PREVENT SMARTPHONE ADDICTION IN SCHOOL-AGE CHILDREN

Journal ID : AMJ-17-09-2022-10544; Author : Reza Fajar Amalia, Achir Yani S. Hamid, Ice Yulia Wardani,

Abstract : One of the products of telecommunication technology development is the smartphone. Smartphone using during the Covid-19 pandemic was increased not only in adult users but also in school-age users. Higher user's smartphone in school-age children at risk of causing the addiction. Smartphone addiction does not only cause physical problems but also social, behavioral, and affective aspects. Smartphone addiction can cause depression, neuroticism, and obsessive-compulsive behavior disorders and affect academic achievement. This study is aimed to determine the effect of health education and therapeutic group therapy to prevent smartphone addiction in school-age children. A quasi-experimental research pre-post test with a control group design was used. A total of 69 children were divided into 2 groups. Group intervention 1 consisted of 34 children receiving health education and therapeutic group therapy, assigned to 7 subgroups, whereas group intervention 2 consisted of 35 children receiving only health education and assigned to 7 subgroups. Respondent characteristic data were analyzed using descriptive statistics. The homogeneity of the two groups was tested using Chi-square, a test of the normality of the data using Kolmogorov Smirnov test and data normally distributed, the bivariate analysis using repeated ANOVA. This study found that the decrease in smartphone addiction was greater and significant in the group who received health education and therapeutic group therapy (p-value <0.05). Health education combined with therapeutic group therapy was recommended as an effective nursing intervention to prevent smartphone addiction in school-age children.
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Adsorption of Hormones FSH and LH on the Chitosan-Graphene Oxide -Molybdenum Oxide Nanocomposites

Journal ID : AMJ-16-09-2022-10543; Author : Assel A. Hadi, Hussein K. Al-Hakeim, Nada Y. Fairooz,

Abstract : Molybdenum oxides nanomaterials are gaining mounting popularity with potential applications in various fields due to their unique physicochemical properties. Making a nanocomposite is amended the properties of the original nanoparticles (NPs). In the present study, molybdenum dioxide/Graphene oxide /Chitosan nanocomposites (CS/GO-MoO2-NPs) were prepared using a chemical method and used for the extraction of precious proteins from human serum. CS/GO-MoO2-NPs were used as a surface to extract follicular-stimulating hormones (FSH) and luteinizing hormone (LH) from the human serum. The newly synthesized nanocomposite was characterized using routinely used techniques, including SEM, FTIR, and XRD measurements. Different concentrations of the hormone solutions were incubated with a fixed amount of NPs, and quantities of hormone absorbed were calculated. The studies were carried out at different temperatures to calculate the thermodynamic parameters. Furthermore, the composites were incubated with the human serum to extract the FSH and LH hormones and eluted the desorbed hormone. The results revealed the formation of stable slabs of CS/GO-MoO2-NPs with an average size of 23.5 nm. The nanocomposite can adsorb significant amounts of the FSH and LH hormones (7.07ug/g) from human serum. Freundlich's adsorption isotherm was obeyed during the adsorption process, showing that the nanocomposite surface was heterogeneous. Exothermic and spontaneous adsorption processes were revealed by thermodynamic research. FSH and LH hormones can be adsorbed spontaneously on the surface of CS/GO-MoO2-NPs as a tool for extracting hormones from serum and as a supporting media for FSH and LH in analytical kits such as ELISA and protein microarrays.
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Separation of Follicular - Stimulating Hormone from Serum by Chitosan-Graphene Oxide-Selenium Oxide Nanocomposites

Journal ID : AMJ-16-09-2022-10542; Author : Assel A Hadi, Nada Y Fairooz, Hussein K Al-Hakeim,

Abstract : Selenium oxide nanoparticles (SeO2-NPs) have gotten much attention because of their favourable in addition to unique bioactivities. The use of nanocomposites for the extraction of precious proteins is an important field of study. The present work has introduced a new technique for synthesizing selenium oxide nanoparticles (SeO2-NPs) coated with chitosan and graphene oxide nanocomposites (CS/GO-SeO2-NPs). CS/GO-SeO2-NPs were used as a surface to extract follicular-stimulating hormone (FSH) from the human serum. The newly synthesized nanocomposite was characterized using routine techniques, including scanning electron microscopy (SEM), Fourier transition infrared spectrum (FTIR), and X-ray diffractometer (XRD) measurements. Different concentrations of the hormone solutions were with incubation a fixed the amount of NPs and the amount of hormone absorbed was computed using these numbers. To calculate the thermodynamic parameters, the experiments were carried out at various temperatures. Furthermore, the composites were incubated with the human serum to extract the FSH hormone and eluted the desorbed hormone. The results reveal the presence of stable flakes of CS/GO-SeO2-NPs with a 14.7 nm average size. The nanocomposite can adsorb significant amounts of the FSH hormone (7.07ug/g) from human serum. Freundlich's adsorption isotherm was followed during the adsorption phase, showing that the nanocomposite surface was heterogeneous. Exothermic and spontaneous adsorption processes were revealed by thermodynamic research. FSH hormone can be adsorbed on the surface of CS/GO-SeO2-NPs spontaneously as a tool for extracting hormones from serum and as a supporting media for FSH in the analytical kits.
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Determination the antimicrobial activity of Subtilosin A enhance by sonication on the pathogenic bacteria

Journal ID : AMJ-16-09-2022-10541; Author : Marwah M. Kareem, Amna Al Hashimi,

Abstract : Bacillus spp. has a diverse set of properties that allow them to thrive in a variety of natural settings. Ultrasound illustrated a

significant effect on the viability of bacterial form wounds swabs. One hundred soil samples were collected from Baghdad in order to isolate B. subtitles. Also, forty clinical samples were collected from wounds swabs collected from different hospitals in Baghdad, Bacterial isolates were identified used standard techniques and diagnosed using VITEK® 2 system. Ammonium sulfate salt method were employed to extracted the crude Subtilosin in a saturation rate ranging from 40-80 %, then the mixture concentrated using cooled centrifugation at speed of 6000 rpm for 30 minutes at a temperature 4°C and the sediment was collected. Gel electrophoresis using Sephadex G-150 was prepared/ Sample obtained from the previous step was applied onto the column. Elution was achieved at a flow rate of 30 mL/hr and the same buffer was used for equilibration. Absorbance of each fraction was measured at 280 nm. Enzyme activity was also determined in each fraction and protein concentration was determined according to standard techniques. Congo red and micro-titter method employed to detect the bacterial ability to produce the biofilm. Assessment of the effect of subtilosin A on the biofilm activity was detected via one ml of synthesized subtilosin of different concentration (100, 50, 25 and 12.5 mg/ml) was added to 9 ml of Congo agar medium then left to dry at room temperature, plates were inoculated with pathogenic isolates and incubated at 37°C for 24 to 48 h. The micro-titer plate anti-biofilm assay estimates the percentage of bacterial biofilm reduction in relation to the control wells, which were set at 100% to indicate the absence of subtilosin. Bacterial suspensions (200 ml) were placed in a reaction vessel (250ml beaker) and sonicated by placing the reaction vessel containing the bacterial suspension (beaker) into the water of a 40 kHz ultrasonic cleaning bath (Langford Sonomatic 3757T Sonomatic Ltd. Birmingham, England). The temperature was maintained at 25 oC by employing ice bags. Sonication was performed at Power setting 100% intensity). Initial experiments analyzed using colony forming units (CFU/ ml) and colormtic effect. Enumeration of bacteria following experiments analyzed using Serial dilution and standard plate counts Results were converted into CFU/ml. Combined effect of ultrasound (40kHz, intensity 100%) and subtilosin (100, 50, 25 and 12.5%) together on the biofilm of different bacterial isolates. Samples of 200ml of Bacterial suspensions treated with ultrasound (40kHz, intensity 100%) for 30 minutes. Samples were taken after 0,5,10,15 and 30 minutes, then treated bacterial samples incubated with subtilosin (100, 50, 25 and 12.5%) incubated at 37°C for 24 to 48 h, Samples were analysed using spectrophotometry to measure the OD. Forty swab were collected from wounds taken from different Baghdad's hospitals, bacterial isolates showed that highest incidence of bacteria were Pseudomonas (35%) followed by 17.5% K. pneumoniae, 15 % E. coli, 10 % each of S. aureus and A. baumannii, Proteus 7.5 % and Morganella 5%. Effect of subtilosin 100% on the biofilm production alone were detected using well diffusion methods to measure the Inhibition zone (IZ) for the subtilosin on bacterial isolates, result revealed that Acinetobacter baumannii significant inhibition 6 mm, followed by E.coli with 5mm, then Pseudomonas aeruginosa with only 3 mm I.Z. On the other hand, Staph. auras demonstrated a highly resistance for subtilosin with only 2 mm of I.Z. combined treatment of ultrasound 40 KHz bath and subtilosin (100%) causing a notably increase in the efficiency of Subtilosin while exposing the bacterial isolates to an ultrasound bath for 30 minutes only. The aims of current research is isolation and purification of subtilosin from B. subtilis bacteria and evaluation of subtilosin anti biofilm activities separately, as well as, assessment the effect of sonication (40 kHz) bath as combination treatment to identify a synergistic effect on the biofilm.

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Posttraumatic stress reactions among school children in Iraq

Journal ID : AMJ-16-09-2022-10540; Author : Jasim Al-Musawy, Mahir Mohammed Husian, Hassan Sayid Hussein, Saad Badai Nashtar, Abdul Amir H. kadhum,

Abstract : Children 6 years old and older exposure to actual or threatened death, serious injury, or sexual violence are directly experiencing the traumatic event reflects a posttraumatic stress. There are behavioral & emotional effects of trauma on the students' life & on their school performance. These effects have a long lasting when they occur before adulthood, and early recognition and

treatment are vital. A 300 students of both sexes in intermediate class from two schools were studied. The Students exposed to traumatic events were 233(74.33%). Those not exposed were 67 (22.33%). A 12 students (4%) were exposed to 7 or more traumatic events, while 151 students (50.33%) were exposed to 1 or 2 traumatic events, during the last 11 years (2003-2013). The rate of PTSD among the sample were 57 (37.66%) students (29 boys) (19%) and 28 girls (18.66%). The depression among the sample were 85 (56.66%) students (35boys) (23.33%) and (50girls) (33.33%). The rate of anxiety disorder among 300 students was 114(76%): 36 boys (24%) and 78(52%) girls. Majority of children were exposed to traumatic events during the last eleven years., The boys had higher number of trauma and higher rate of exposure, in compared to girls. The rate of PTSD, and PTSD co-morbid with depression among students was higher among boys than girls. The depression among students were higher among girls than boys. The rate of anxiety disorder higher among girl than boys. The rate of PTSD, depression, anxiety and PTSD comorbid disorders also increased. The anxiety disorder among childhood student was higher among girl than boys. The rate of PTSD, depression, anxiety and PTSD co-morbid with depression and anxiety increased with increment of the number of traumatic events.
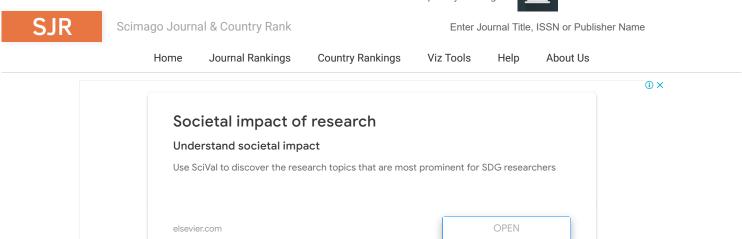
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Aerobic bacteriological profile and their antibiotic sensitivity pattern of burn wounds from burns patients at a tertiary care hospital in North Karnataka.
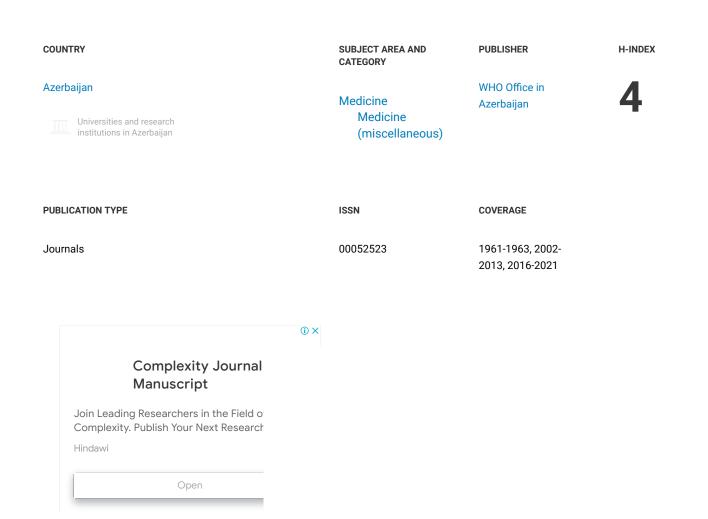
Journal ID : AMJ-15-09-2022-10539; Author : Parmeshwari Patil, Chandrashekhar Kadganchi, Srikanth, Praveen Kumar Doddamani,

Abstract : Infection in burn wounds is a major issue globally and more so in developing countries leading to post-operative illness, infection of burn wounds is one of the most common cause of mortality in burn patients and accounts for significant number of nosocomial infections. The bacteriological profile can change over a time period in the individual patient. Thus, there is a need for periodic surveillance of anti-biogram of bacteria, hence the present study was conducted. This was a retrospective study conducted in department of Microbiology at a tertiary care hospital in North Karnataka region. Burn wound cultures and anti-biogram was done a time of admission. Under strict aseptic conditions samples were collected from burn wounds and were sent immediately to microbiology laboratory for inoculation on agar plates. Blood and McConkey agar were used for cultures. The isolated organisms were

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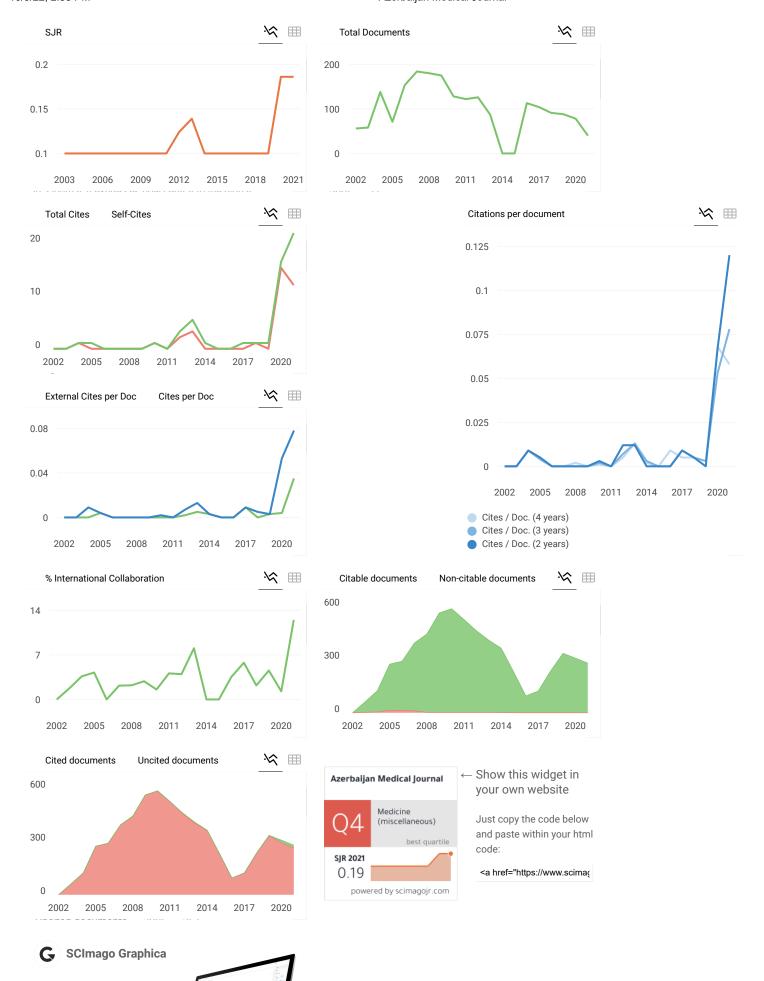
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