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Faculty of Health Sciences

Knowledge brings health and development

Book of Abstracts

International Scientific Conference »Research and Education in Nursing«

Editors:

Majda PAJNKIHAR, PhD, Associate Professor
Klavdija ČUČEK TRIFKOVIČ, Ph.D., Senior Lecturer
Sonja ŠOSTAR TURK, Ph.D., Full Professor
Gregor ŠTIGLIC, Ph.D., Associate Professor

June 15th 2017, Maribor, Slovenia



University of Maribor Press





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International Scientific Conference »Research and Education in Nursing«

(June 15, 2017, Maribor, Slovenia)

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June 2017

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- Naslov:** Zbornik povzetkov Mednarodna znanstvena konferenca »**Raziskovanje in izobraževanje v zdravstveni negi**« (15. junij, Maribor, Slovenija)
- Editors:** **Majda PAJNKIHAR**, PhD, Associate Professor, (University of Maribor, Faculty of Health Sciences), **Klavdija ČUČEK TRIFKOVIČ**, Ph.D., Senior Lecturer, (University of Maribor, Faculty of Health Sciences), **Sonja ŠOSTAR TURK**, Ph.D., Full Professor, (University of Maribor, Faculty of Health Sciences), **Gregor ŠTIGLIC**, Ph.D., Associate Professor, (University of Maribor, Faculty of Health Sciences).
- Review:** Dr **Margaret DENNY**, (Waterford Institute of Technology), **Sabina FIJAN**, Ph.D., Associate Professor (University of Maribor, Faculty of Health Sciences), **David HALOŽAN**, Ph.D., Assistant Professor, (University of Maribor, Faculty of Health Sciences), **Petra KLANJŠEK**, Ph.D., Assistant (University of Maribor, Faculty of Health Sciences), **Mateja LORBER**, Ph.D., Assistant Professor (University of Maribor, Faculty of Health Sciences), **Hugh McKENNA**, Ph.D., Full Professor, (Ulster University, Medical School) **Nataša MLINAR RELJIČ**, M.S., Lecturer (University of Maribor, Faculty of Health Sciences), **Jasmina NERAT**, Lecturer (University of Maribor, Faculty of Health Sciences), **Petra POVALEJ BRŽAN**, Ph.D., Assistant Professor, (University of Maribor, Faculty of Health Sciences), **Urška ROZMAN**, Ph.D., Assistant, (University of Maribor, Faculty of Health Sciences), **Pam SMITH**, Ph.D., Full Professor (The University of Edinburgh, School of Health in Social Science), **Rosie STENHOUSE**, Ph.D., Full Professor, (The University of Edinburgh, School of Health in Social Science), **Maja STRAUSS**, M.S., Lecturer (University of Maribor, Faculty of Health Sciences), **Jadranka STRIČEVIČ**, Ph.D., Assistant Professor (University of Maribor, Faculty of Health Sciences).
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ABSTRACT / POVZETEK

Abstract

University of Maribor Faculty of Health Sciences is organizing an International Scientific Conference »Research and Education in Nursing«. It will be held on June 15th 2017 at the faculty and will include most recent findings of domestic and foreign researchers and students in nursing and health sciences. All abstracts are included in the International Scientific Conference Proceedings.

The conference aims to explore advances in nursing research and education and it is intended for knowledge and experience exchange of participants about the impact of research on health care in Slovenian and international arena. It will provide an opportunity to promote the development, dissemination and use of knowledge in the field of nursing and health sciences for nursing practitioners and educators, furthermore they can exchange research evidence, models of best practice and innovative ideas.

Keywords: Research, Education, Nursing; Health Sciences; conference

Povzetek

15. junija 2017 Univerza v Mariboru Fakulteta za zdravstvene vede organizira Mednarodno znanstveno konferenco z naslovom »Raziskovanje in izobraževanje v zdravstveni negi«. Ob tej priložnosti je izdan e-zbornik izvlečkov mednarodno priznanih in domačih strokovnjakov ter študentov s področja zdravstvene nege in zdravstvenih ved.

Namen konference je raziskati napredek na področju raziskovanja in izobraževanja v zdravstveni negi ter izmenjavi znanja in izkušenj udeležencev o vplivu raziskovanja na prakso v zdravstvu v slovenskem in mednarodnem prostoru. Predstavlja tako priložnost za spodbujanje razvoja, širjenja in uporabe znanja s področja zdravstvene nege in zdravstvenih ved kot tudi odlično priložnost za zdravstvene delavce in visokošolske učitelje da izmenjajo raziskovalne dokaze, modele dobrih praks in inovativne ideje.

Ključne besede: Raziskovanje, izobraževanje
Zdravstvena nega, Zdravstvene vede; konferenca

INDEX

Index.....	5
Programme	7
International Scientific Conference University of Maribor Faculty of Health Sciences “Research and Education in Nursing”	9
International integration in the frame of the first Nursing PhD programme in Slovenia.....	12
Strategies in Building Successful Impact for Your Research.....	13
Living to be a hundred – it’s just luck!.....	14
The Process of Adaptation of Advanced Practice Nursing in Hungary.....	15
Emotional carescapes: Managing emotion in the National Health Service, UK	16
Early Lessons from the European Junior Leadership Academy for Student Nurses and Midwives.....	17
Should we be selecting nursing students on the basis of their emotional intelligence?: findings from a prospective longitudinal study	18
Exploring attitudes of nursing students' towards learning communication skills	19
Theory of Social Support: Analysis and Evaluation for Nursing in Croatia	20
The Newman`s Theory Usefulness in Nursing Care of Elderly with Dementia	21
The impact of stress on incidence of back pain	23
Attitudes of patients with chronic disease to their health	26
Elderly-centered care in emergency department	28
Comparison of back pain among physiotherapists and nurses in the Maribor region (Slovenia)	30
A Longitudinal Study on the Impact of Dragon Boating on Wellbeing	33
Effects of problem-based learning on clinical decision making ability among undergraduate nursing students at University J.J.Strossmayer Osijek	34
Qualitative analysis of the Gibbs structured reflection as a teaching method at the elective course Breastfeeding and lactation	35
Slovenia declared as a country, free from rabies: a new approach to rabies prevention	37
Peer assessment between students of nursing care by using check list	39
Results of the survey among students on their knowledge of caffeine.....	40
Description, Analysis and Evaluation of Quality Caring Model	42
Biological disposal of selected antibiotics in hospital wastewater	44

PROGRAMME

08:30 – 09:00 Registracija / Registration

PLENARNI DEL / PLENARY SESSION

(Predavalnica 2 / Lecture Room 2)

Moderatorji / Session Chairs: Sonja ŠOSTAR TURK & Klavdija ČUČEK TRIFKOVIČ

09:00 – 09:10	Otvoritev mednarodne konference / Opening of the International conference
09:10 – 09:30	International Integration in the Frame of First Nursing PhD Programme in Slovenia Majda PAJNKIHAR, Sonja ŠOSTAR TURK, Gregor ŠTIGLIC, University of Maribor, Faculty of Health Sciences, SI
09:30 – 09:50	Strategies in Building Successful Impact for Your Research Hugh McKENNA, Ulster University, Medical School, UK
09:50 – 10:10	“Living to be a hundred – it’s just luck!” Pam SMITH, The University of Edinburgh, School of Health in Social Science, UK
10:10 – 10:30	The Process of Adaptation of Advanced Practice Nursing in Hungary Jozsef BETLEHEM, University of Pecs, Faculty of Health Sciences, HU
10:30 – 10:50	Emotional Carescapes: Managing Emotion in the National Health Service, UK Emma ROWLAND, King's College London, Florence Nightingale Faculty of Nursing & Midwifery, UK
10:50 – 11:10	Should We be Selecting Nursing Students on the Basis of Their Emotional Intelligence?: Findings From a Prospective Longitudinal Study Rosie STENHOUSE, Austyn SNOWDEN ² , Lorraine DUERS ³ , The University of Edinburgh, School of Health in Social Science, ² Edinburgh Napier University, ³ University of the West of Scotland UK
11:10 – 11:30	<i>Odmor za kavo/Coffee break</i>

Sekcija 1/ Session 1

(Predavalnica 1 / Lecture Room 1)

Moderatorki / Session Chairs: Barbara KEGL & Mateja LORBER

11:30 – 11:45	Early Lessons from the European Junior Leadership Academy for Student Nurses and Midwives Stacy JOHNSON, University of Nottingham, School of Health Sciences, UK
11:45 – 12:00	The Newman's Theory Usefulness in Nursing Care of Elderly with Dementia Nataša MLINAR RELJIČ, Majda PAJNKIHAR, University of Maribor, Faculty of Health Sciences, SI
12:00 – 12:15	Theory of Social Support: Analysis and Evaluation for Nursing in Croatia Gordana BAGIĆ, Ivana UKIĆ, Toni GRČIĆ, Ivana JELINČIĆ, Dominika VRBNJAK ² , Majda PAJNKIHAR ² , Josip Juraj Strossmayer University of Osijek, Faculty of Medicine, HR, ² University of Maribor, Faculty of Health Sciences, SI
12:15 – 12:30	Description, Analysis and Evaluation of Quality Caring Model Tina HOHLER, Maša SILOVŠEK, Petra KLANJŠEK, Sonja ŠOSTAR TURK, Majda PAJNKIHAR, University of Maribor, Faculty of Health Sciences, SI
12:30 – 12:45	Effects of Problem-Based Learning on Clinical Decision Making Ability Among Undergraduate Nursing Students at University J. J. Strossmayer Osijek Ivana BARAĆ, Jadranka PLUŽARIĆ, Radivoje RADIĆ, Josip Juraj Strossmayer University of Osijek, Faculty of Medicine, HR
12:45 – 13:00	Peer Assessment Between Students of Nursing Care by Using Check List Zvonka FEKONJA, Nino FIJAČKO, Nataša MLINAR RELJIČ, University of Maribor, Faculty of Health Sciences, SI
13:00 – 13:15	Attitudes of Patients with Chronic Disease to Their Health Barbara KEGL, Mateja LORBER, University of Maribor, Faculty of Health Sciences, SI

13:15 – 13:30	Elderly-Centered Care in Emergency Department Zvonka FEKONJA, Zalika KLEMENC – KETIŠ ² , Matej STRNAD ² , Majda PAJNKIHAR, University of Maribor, Faculty of Health Sciences, ² Faculty of Medicine, SI
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Sekcija 2/ Session 2

(Predavalnica 3 / Lecture Room 3)

Moderatorki / Session Chairs: Vida GÖNC & Sabina FIJAN

11:30 – 11:45	A Longitudinal Study on the Impact of Dragon Boating on Wellbeing Suzanne DENIEFFE, Majda PAJNKIHAR ² , Margaret DENNY, Constantino FIUZA-CASTINEIRA ³ , Waterford Institute of Technology, Department of Nursing, IE, ² University of Maribor, Faculty of Health Sciences, SI, ³ University of Limerick, IE
11:45 – 12:00	Exploring Attitudes of Nursing Students' Towards Learning Communication Skills Klavdija ČUČEK TRIFKOVIČ, Mateja LORBER, Margaret DENNY ² , Suzanne DENIEFFE ² , Vida GÖNC, University of Maribor, Faculty of Health Sciences, SI, ² Waterford Institute of Technology, Department of Nursing, IE
12:00 – 12:15	Qualitative Analysis of the Gibbs Structured Reflection as a Teaching Method at the Elective Course Breastfeeding and Lactation Tita STANEK ZIDARIČ, Renata VETTORAZZI, University of Ljubljana, Faculty of Health Sciences, SI
12:15 – 12:30	Slovenia Declared as a Country, Free from Rabies: A New Approach to Rabies Prevention Špela VIDOVIČ, Zoran SIMONOVIC, Karl TURK, Sanja VUZEM, National Institute for Public Health, SI
12:30 – 12:45	Results of the Survey Among Students on Their Knowledge of Caffeine Sabina FIJAN, Anja HRASTNIK, Maja STRAUSS, University of Maribor, Faculty of Health Sciences, SI
12:45 – 13:00	The Impact of Stress on Incidence of Back Pain Marcel DUH, David HALOŽAN ² , University Clinical Centre Maribor, ² University of Maribor, Faculty of Health Sciences, SI
13:00 – 13:15	Biological Disposal of Selected Antibiotics in Hospital Wastewater Severina STAVBAR, Andreja GORŠEK ² , Katarina PREMŽL ³ , Mitja KOLAR ⁴ , Sonja ŠOSTAR TURK, University of Maribor, Faculty of Health Sciences, ² Faculty of Chemistry and Chemical Engineering, ³ The National Laboratory of Health, Environment and Food Maribor, ⁴ University of Ljubljana, Faculty of Chemistry and Chemical Technology, SI
13:15 – 13:30	Comparison of Back Pain Among Physiotherapists and Nurses in the Maribor Region (Slovenia) Marcel DUH, David HALOŽAN ² , Jadranka STRIČEVIČ ² , University Clinical Centre Maribor, ² University of Maribor, Faculty of Health Sciences, SI

INTERNATIONAL SCIENTIFIC CONFERENCE UNIVERSITY OF MARIBOR FACULTY OF HEALTH SCIENCES "RESEARCH AND EDUCATION IN NURSING" -

MEDNARODNA ZNANSTVENA KONFERENCA UNIVERZE V MARIBORU FAKULTETE ZA ZDRAVSTVENE VEDE "RAZISKOVANJE IN IZOBRAŽEVANJE V ZDRAVSTVENI NEGI"



Ob obeležanju 24-letnice od ustanovitve fakultete, 20-letnice od ustanovitve Inštituta za zdravstveno nego ter 10-letnice preoblikovanja v fakulteto, Univerza v Mariboru Fakulteta za zdravstvene vede organizira mednarodno znanstveno konferenco z naslovom »Raziskovanje in izobraževanje v zdravstveni negi«.

Namen in cilj konference je predstavitev rezultatov raziskovanja za podporo prakse in izobraževanja, interdisciplinarnega in interprofesionalnega pristopa v zdravstveni negi in zdravstvu v slovenskem in mednarodnem prostoru ter prispevek k doprinosu razvoja jedra znanja. Dodana vrednost konference je povezovanje visokošolskih učiteljev, visokošolskih sodelavcev ter študentov.

Visokošolski učitelji in študenti iz uglednih univerz bodo predstavili 22 prispevkov iz aktualnih znanstvenoraziskovalnih projektov za učinkovito, varno, humano in k pacientu ter družini usmerjeno zdravstveno obravnavo. Prispevki se nanašajo na aktualna in kompleksna področja zdravstvene nege in zdravstva, kjer medicinske sestre potrebujejo na znanstvenih dokazih utemeljeno znanje za razvoj izobraževanja in prakse. Predstavljeni bodo temeljni koncepti in teoretični modeli ter aktualne teme interdisciplinarnih ter interprofesionalnih področij zdravstvene nege.

Mednarodno sodelovanje, povezovanje, izmenjava izkušenj, znanja in aktualnih znanstvenoraziskovalnih dokazov za aplikacijo v prakso in izobraževanje so ena izmed temeljnih nalog fakultete ter odlična priložnost za razpravo udeležencev konference o možnostih oblikovanja skupnih raziskovalnih projektov.

Predavatelji na konferenci so ugledni in priznani visokošolski učitelji in raziskovalci iz fakultete ter tujih univerz:

- The University of Edinburgh, School of Health in Social Science, UK;
- King's College London, Florence Nightingale Faculty of Nursing & Midwifery, UK;
- University of Nottingham, School of Health in Social Science, UK;
- J. J. Strossmayer University of Osijek, Faculty of Medicine, HR;

- University of Pécs, Faculty of Health Sciences, HU;
- Ulster University, Medical School, UK;
- Waterford Institute of Technology, Department of Nursing, IE.

Intenziviranje mednarodne znanstvenoraziskovalne in izobraževalne dejavnosti je osrednji fokus v razvoju fakultete. Razvoj znanstvenoraziskovalnega jedra znanja za podporo izobraževanja in prakse je intenziven glede na spreminjajoče se potrebe v Zdravstveni negi in zdravstvu.

Udeležencem konference, vsem zaposlenim in študentom na fakulteti želim uspešno, profesionalno, znanstvenoraziskovalno in izobraževalno utrjevanje medsebojnih profesionalnih, osebnih in nenazadnje prijateljskih vezi, ki so temelj razvoja in prepoznavnosti fakultete.

Izr. prof. Dr (Združeno kraljestvo Velike Britanije in Severne Irske)
Majda Pajnkihar

INVITED LECTURES / VABLJENA PREDAVANJA

International Integration in the Frame of First Nursing PhD Programme in Slovenia

Majda PAJNKIHAR, Sonja ŠOSTAR TURK, Gregor ŠTIGLIC, University of Maribor, Faculty of Health Sciences, SI

Strategies in Building Successful Impact for Your Research

Hugh McKENNA, Ulster University, Medical School, UK

“Living to be a hundred – it’s just luck!”

Pam SMITH, The University of Edinburgh, School of Health in Social Science, UK

The Process of Adaptation of Advanced Practice Nursing in Hungary

Jozsef BETLEHEM, University of Pecs, Faculty of Health Sciences, HU

Emotional Carescapes: Managing Emotion in the National Health Service, UK

Emma ROWLAND, King's College London, Florence Nightingale Faculty of Nursing & Midwifery, UK

Should We be Selecting Nursing Students on the Basis of Their Emotional Intelligence?: Findings From a Prospective Longitudinal Study

Rosie STENHOUSE, Austyn SNOWDEN², Lorraine DUERS³, The University of Edinburgh, School of Health in Social Science, ²Edinburgh Napier University, ³University of the West of Scotland UK

Early Lessons from the European Junior Leadership Academy for Student Nurses and Midwives

Stacy JOHNSON, University of Nottingham, School of Health Sciences, UK

A Longitudinal Study on the Impact of Dragon Boating on Wellbeing

Suzanne DENIEFFE, Majda PAJNKIHAR², Margaret DENNY, Constantino FIUZA-CASTINEIRA³, Waterford Institute of Technology, Department of Nursing, IE, ²University of Maribor, Faculty of Health Sciences, SI, ³University of Limerick, IE

INTERNATIONAL INTEGRATION IN THE FRAME OF THE FIRST NURSING PHD PROGRAMME IN SLOVENIA

MAJDA PAJNKIHAR, SONJA ŠOSTAR TURK, GREGOR ŠTIGLIC

The University of Maribor, Faculty of Health Sciences is the first faculty in Slovenia that started to carry out the PhD study programme Nursing Care in academic year 2016/2017. The enrolment of first candidates to the PhD study programme Nursing Care enabled a more intense development of scientific-research work and core knowledge of nursing care. The study programme is contemporary, consists of 3 years and 180 ECTS. Within the elective courses, the field of nursing care is interdisciplinary and in an interprofessional way linked to other fields. Under higher education mentors the student engage into scientific-research work within scientific-research projects. In latter study years they prepare for individual work and doctoral dissertation. Experienced and renowned domestic and foreign higher education teachers from universities of Finland, Ireland, Iceland, Italy, Great Britain and the United States collaborate in the study programme, which makes it comparable to other PhD study programmes around the world. It also enables students to collaborate in international scientific-research project and, work at foreign universities. They will gain experiences that will enable them to enter an international academic and scientific-research environment and the field of publishing, which will represent core knowledge for science and discipline development of nursing care and health care.

Keywords: PhD study programme, Nursing Care, students, core knowledge, scientific-research

Univerza v Mariboru Fakulteta za zdravstvene vede je prva v slovenskem prostoru v študijskem letu 2016/2017 pričela izvajati doktorski študijski program 3. stopnje Zdravstvena nega. Z vpisom prvih kandidatov na doktorski študijski program 3. stopnje je omogočen intenzivnejši razvoj znanstvenoraziskovalnega dela in jedra znanja zdravstvene nege. Program je sodobno naravnan, traja 3 leta in obsega 180 ECTS točk. V okviru izbirnih predmetov se področje zdravstvene nege interdisciplinarno in interprofesionalno povezuje z ostalimi področji. Študenti se pod mentorstvom visokošolskih učiteljev vključujejo v znanstvenoraziskovalno delo v okviru znanstvenoraziskovalnih projektov, v višjih letnikih pa se pripravljajo na samostojno delo in pripravo doktorske disertacije. V programu sodelujejo izkušeni in priznani domači in tuji visokošolski učitelji iz univerz Finske, Irske, Islandije, Italije, Velike Britanije in Združenih držav Amerike, kar daje programu primerljivost z ostalimi doktorskimi študijskimi programi v svetu. Prav tako omogoča vključevanje doktorskih študentov v mednarodne znanstvenoraziskovalne projekte in delo na tujih univerzah, za pridobivanje izkušenj za vstop v mednarodni akademski in znanstveni raziskovalni prostor ter publiciranje, ki bo jedro znanja za razvoj znanosti in discipline Zdravstvene nege in zdravstva.

Ključne besede: doktorski študijski program, zdravstvena nega, študenti, jedro znanja, znanstvenoraziskovalno delo

CORRESPONDENCE ADDRESS:

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STRATEGIES IN BUILDING SUCCESSFUL IMPACT FOR YOUR RESEARCH

HUGH MCKENNA

Increasingly, countries around the world are asking what benefits are gained from publically funded research in Universities. For example, the UK introduced Research Impact into its Research Excellence Framework (REF) in 2014 to gauge how UK research held benefits for society, the economy, culture, and health and wellbeing. Professor Hugh McKenna chaired one of the REF panels and was involved in drawing up the assessment criteria to judge whether a university's

research was being impactful. In this presentation he will discuss what research impact is and how researchers can ensure that their work has national as well as international benefits.

Keywords: REF, assessment criteria, research, international benefits, impact

CORRESPONDENCE ADDRESS:

Hugh McKENNA, Ph.D., Full Professor, Ulster University, Medical School, Jordanstown campus, Shore Road Newtownabbey Co. Antrim BT37 0QB, United Kingdom, e-mail: hp.mckenna@ulster.ac.uk.

LIVING TO BE A HUNDRED – IT’S JUST LUCK!

PAM SMITH

In this paper I draw on images and imagination to describe the experience of older age. I discuss the meaning of “transitions” in older age in different societies and the demographic influences on ageing. I present a Case Study of 16 UK Centenarians: “Living to be a 100: It’s just luck”. I describe our participatory action research and storytelling methods. Our findings show that health and independence were ‘normal’ for the majority of the centenarians; they enjoyed strong relationships with their families and communities and

were ‘stress shedders’ with the ability to move on from distress and loss. Our research concludes that there is a need to give voice to older people in order to redefine the meaning of older age and identify the global priorities for research, education and practice.

Keywords: older age, demographic, society, centenarian, health

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THE PROCESS OF ADAPTATION OF ADVANCED PRACTICE NURSING IN HUNGARY

JOZSEF BETLEHEM

Introduction

Health care delivery system faces a lot of challenges in the developed countries concerning health care workforce. In many countries the introduction of new medical technologies was not followed by appropriate allocation of new tasks in the system. Although nurses are trained at university level in 60% of European Higher Education Area countries their work is not recognized and used in the health care system accordingly. Based on the experience of many western countries, the health sciences higher education universities in Hungary have decided to renew the curriculum of bachelor and master nursing education according to the European Qualification Framework.

The above mentioned changes should be followed by the establishing new roles for nurses in the Hungarian Health care system. The aim of this paper is to present the current findings of extended nursing roles internationally and to show up the implementation possibilities in Hungary.

Methods

An international and national scientific literature research (PubMed, Science Direct, Hungarian Medical Bibliography) was conducted in English and Hungarian language. As keywords, in the focus of the review was the learning outcome on nursing education, job description, task shifting and extended nursing roles. A qualitative appraisal was applied by using experts from International Council of Nurses Nurse Practitioner/

Advanced Practice Nursing Network and Organisation for Economic Co-operation and Development.

Results

27 relevant papers were selected and scanned. In the nursing profession a new role has been introduced in the 70's. The right skill-mix is a basis for better quality care. The evolution in the health care system established an extended role for MSc nurses in many OECD countries. This is a unique role for those who would like to work more independently. In the past years Hungary paid a great attention to strengthen the health care system and enhance the quality and safety of patient care. A lot of meaningful actions were taken to remain nurses in the system and diminish the turnover of nurses. As first step, a new ministerial decree was issued on bachelor and masters education in nursing with a renewed modern content and learning outcome. The preparation process has been launched in the health care governance to find the proper role of nurses educated at master level and to shape the regulation of health care system accordingly allowing advanced practice for nurses

Discussion and Conclusions

This new advanced practice nursing position is one promising development to help the access to the health care system and to better quality of care.

Keywords: nursing education, advanced practice, health care, development, literature research

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EMOTIONAL CARESCAPES: MANAGING EMOTION IN THE NATIONAL HEALTH SERVICE, UK

EMMA ROWLAND

Introduction

The National Health Service (NHS), is a highly complex emotional landscape that engenders intense feelings in all health care professionals working within it and their patients. Patients maybe worried that they have been admitted to hospital, scared that they won't be discharged, fearful of their surgery or treatment they will receive or concerned about how their loved ones are coping at home without them. Health professionals may feel guilty about the limited time they have to spend with patients, concerned about the decisions they need to make on behalf of the patient or frustrated by the system in which they are working. Carescapes, the spaces and places in which informal and formal care takes place, are therefore saturated with emotions. Health professionals, must learn to become skilled emotion managers, carefully managing not only their emotions, but those of their colleagues and patients, to deliver care. Focusing on care work through an emotional geographies lens, this research questions how the emotional labour and emotion work of health professionals in the NHS is influenced by the different places and spaces in which care is delivered.

Method

Ethnographic static observations, shadowing and informal interviews and semi-structured storytelling interviews were conducted across four NHS Trusts in the south of England between 2007-2009 to explore the emotional care experiences and practices of health professionals. Ethnographic and interview data were analysed using thematic analysis and produced five themes: i) geographies of emotional attachment ii) geographies of emotional detachment iii) spatialities of care logistics iv) workplace relationships and v) affective qualities of care work.

Results

Drawing on examples from a range of different carescapes; such as care of the elderly, the emergency department, obstetrics and gynaecology, general

medicine and ambulance, the research illustrates that space, place and temporality affects the way in which health professionals manage their emotions during the delivery of care. It demonstrates that carescapes that are characterised by slow patient turnover and limited clinical intervention encourage emotionally attached care behaviours, as health professionals are able to engage in care practices that encourage proximity and tactile care behaviours. On the contrary, carescapes that are characterised by rapid patient turnover, intensive clinical intervention and / or death may result in health professionals exhibiting more emotionally detached care behaviours as they try and protect themselves from the emotional challenges of their work.

Discussion and Conclusions

Health professionals' emotion management techniques and coping mechanisms are influenced by the spatial and temporal characteristics of the carescape. Understanding the emotional landscape of the NHS may support health professionals to more effectively manage their emotions. Emotion management training, tailored to the spatial and temporal characteristics of carescape could lead to better emotional and psychological well-being for health professionals working within different care environments in the NHS. The research is limited by the subjective nature of ethnographic research, which poses challenges for interpreting the emotional experiences health professionals. The research focuses on the emotional experiences of health professionals, with limited engagement with the emotional experiences of the patients receiving care, which could have strengthened the understanding of the impact of health professionals' emotion management on care delivery.

Keywords: Emotion management, care work, Carescapes, emotional attachment, emotional detachment, Ethnography

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EARLY LESSONS FROM THE EUROPEAN JUNIOR LEADERSHIP ACADEMY FOR STUDENT NURSES AND MIDWIVES

STACY JOHNSON

Introduction

This paper presents the methods and rationale for the European Junior Leadership Academy project. The three-year project aims to develop, implement and evaluate a European Junior Leadership Academy (EJLA) for Student Nurses. The project is funded by the European Commission under the Erasmus Plus, Key Action Area 2, Strategic Partnerships. Through this project we seek a better understanding of how to develop leadership identity in student nurses and midwives.

Methods

The EJLA programme will identify 40 high performing nursing students from four Higher Education Institutions in the United Kingdom, Poland, Slovenia and Portugal who demonstrate leadership aptitude and leadership potential.

The programme will develop their leadership identity, knowledge, attitudes and skills by creating opportunities for them to observe leaders in action and leaders' impact on the individuals and organisations they lead. Through leadership retreats, internships, mentoring and peer network projects, the EJLA will support participants to develop their leadership signature early in their career journey. The project will evaluate students' and educators' experiences of the Academy through both qualitative and quantitative methods.

Results

This paper focuses on presenting insights that emerged from one of the early collaborative events in the project, a Leadership Festival in Lisbon. As a result of the Leadership Festival, nurses, nurse academics, patients, and students generated a shared conception of nurse leadership, explored why European nursing needs different and new form of leadership now and identified the distinctive features of junior leadership and student leadership.

Discussion and conclusion

Nurses across Europe face the common challenge of delivering more nursing care with less resources. The rising demand for healthcare has been fuelled by an ageing European population, the global epidemic of non communicable illnesses and the information revolution which has resulted in highly informed patients. At the same time, health systems across Europe are under increasing pressure to contain costs. Delivering high quality care under these conditions requires innovative, collaborative nursing practice and a cadre of leaders able to operate in different professional situations and cultures. The EJLA seeks to contribute to Pervasive leadership development aimed at all levels including student nurses. It is thought that this approach can ensure that the nursing profession can meet these challenges.

Keywords: EJLA, leadership, students, nursing, project

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SHOULD WE BE SELECTING NURSING STUDENTS ON THE BASIS OF THEIR EMOTIONAL INTELLIGENCE?: FINDINGS FROM A PROSPECTIVE LONGITUDINAL STUDY

ROSIE STENHOUSE, AUSTYN SNOWDEN, LORRAINE DUERS

Introduction

Selection and retention of student nurses is a global concern. Findings of UK inquiries into poor care led to a call for 'Values based selection'. Emotional intelligence (EI) has been proposed as a necessary attribute consistent with the requisite values for nursing. EI is well theorised with valid measures. This paper presents findings from a longitudinal study exploring whether EI might be a useful criterion for 'values based selection'. The aim was to understand the relationship between EI, performance and retention in pre-registration nursing students.

Methods

Prospective longitudinal design. 869 student nurses from two Scottish universities completed Trait Emotional Intelligence Questionnaire (Short Form) (TEIQue-SF) and Schutte's Emotional Intelligence Scale beginning of year 1 (Sept 2013), year 2 (Sept 2014) and year 3 (May-July 2016). Demographics included previous caring experience, highest previous qualification and deprivation category. Performance was calculated: Scale variable: mean score of first attempts at all year 3 modules. Retention was calculated as: Binary variable: timely completion of the

course or not (July 2016). Relationships between EI and performance scores were calculated using Spearman's rho. Differences in group means between completers and non-completers were calculated using independent samples t-tests.

Results

Mean (SD) TEIQue-SF scores were 5.31 (0.6) year 1, 5.19 (0.6) year 2 and 5.21 (0.7) year 3. SEIS scores were 127.8 (13.8), 125.5 (13.9) and 127 (13.8). 666 (76.6%) nurses successfully completed, with mean performance 64.6% (18%). Neither baseline EI measure was associated with performance or retention.

Discussion and Conclusions

Baseline EI scores were not associated with performance. However, students scoring higher on 'social connection', a factor within the TEIQue-SF, were statistically more likely to complete training. EI was not predictive of performance, but social connection was. This is consistent with a more nuanced view of 'values based selection', to be outlined in the presentation.

Keywords: student nurses, student selection, student completion, retention, pre-registration nursing

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EXPLORING ATTITUDES OF NURSING STUDENTS' TOWARDS LEARNING COMMUNICATION SKILLS

KLAVDIJA ČUČEK TRIFKOVIČ, MATEJA LORBER, MARGARET DENNY, SUZANNE DENIEFFE, VIDA GÖNC

Introduction

Effective communication is just one of many skills that nursing students need to be effective in nursing. Attitudes of nursing students, according to nurse-patient communication have been a concern of lecturers, planners and policy makers for a long time. The aim of the study was to explore the attitudes of nursing students toward learning communication skills at one of the Slovenian faculties. In the study methods of quantitative non-experimental research and a survey data collection were used. Attitudes of nursing students towards learning communication skills were assessed by the communication skills attitudes scale (CSAS). For testing the reliability of subscales of the questionnaire Cronbach's alpha was used. Positive attitude scale (PAS) was found to be 0.826, and negative attitude scale (NAS) was found to be 0.619. The data obtained were analysed using the descriptive statistics and One-way ANOVA by use of SPSS version 20. The statistical significance was tested at a 5% risk level.

Results

The sample size included 143 nursing students. The mean scores for PAS was 52.8 (SD=6.7) out of 65, and

the mean scores for NAS was 32.7 (SD=6.3) out of 65. There were no statistically significant differences identified when examining the positive attitude scale results to previous education ($t=1.434$; $p=0.155$) and mode of the study ($t=1.566$; $p=0.120$), but we found statistically significant differences ($F=10.950$; $p<0.001$) according to the year of the study. Likewise, the negative attitude scale did not find any difference according to the previous education ($t=0.799$; $p=0.426$), mode of the study ($t=1.540$; $p=0.126$) or study year ($F=0.165$; $p=0.848$). Principal component analysis identified three factors which explained 74% of the variance in the results.

Discussion and conclusion

Our findings indicate that CSAS measurement may be helpful for monitoring the effect of different teaching strategies on students' attitudes about communication skills during nursing education. It is recommended that communication skills training programs designed and incorporated into all nursing curriculum.

Keywords: education, nursing, students, communication skills, CSAS measurement

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THEORY OF SOCIAL SUPPORT: ANALYSIS AND EVALUATION FOR NURSING IN CROATIA

GORDANA BAGIĆ, IVANA UKIĆ, TONI GRČIĆ, IVANA JELINČIĆ, DOMINIKA VRBNJAK, MAJDA PAJNKIHAR

Introduction

Adequate social support results in improved patient's health status, health behavior and use of health care. There are many theories addressing social support, however, before using it in Croatian nursing practice, they need to be analysed and evaluated. As Theory of Social Support by Miriam J. Stewart can help nurses to plan nursing interventions for improving health outcomes. Our aim was to analysis and evaluate it.

Methods

Theory was analysed and evaluated based criteria proposed by McKenna, Pajnkihar and Murphy. Medline, CINAHL and Internet available articles and books were searched of relevant literature using English terms from MeSH and key words: social support, nursing, theory, evaluation and analysis.

Results

35 articles and three books were analysed. Theory of Social Support is a middle range nursing theory that captures the structure and interaction relationships.

Interactions and relationships with members of social networks can be supportive or non-supportive and effecting physical, psychological, and spiritual health and well-being. Social support is important concept for nursing, because of the impact on health and health behavior, suitable for developing empathy and response to the patients' needs. Stewart proposed 5 main interventions addressing individuals, dyads, groups, communities and social system. Three reliable and valid instruments to measure social support were developed.

Discussion and Conclusion

Described theory has great potential to improve nursing practice, however first it should be implemented in Croatian nursing education as nurses need knowledge about nursing theories. Theory propositions have to be tested in clinical practice.

Keywords: social support, nursing, theory, evaluation, analysis, Croatian nursing

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THE NEWMAN'S THEORY USEFULNESS IN NURSING CARE OF ELDERLY WITH DEMENTIA UPORABNOST TEORIJE M.A. NEWMAN V ZDRAVSTVENI NEGI STAROSTNIKA Z DEMENCO

NATAŠA MLINAR RELJIĆ, MAJDA PAJNKIHAR

Introduction

For the appropriate selection and adequacy of the application of the theory in a clinical setting, the knowledge, analysis and evaluation of the theories is essential. The theory must be tested and adapted before application into nursing practice. In the paper The Newman's nursing theory is described, analyzed and evaluated. The benefits and the usefulness of the theory in nursing practice of elderly people with dementia in the institutional care are presented.

Methods

The narrative literature review was used. We carried out Web of Science, PubMed, Science Direct, ProQuest databases for searching relevant literature, using key words: "consciousness", "time and presence", "resonating with the whole", "pattern", "insights occurring" "concept analysis", "evaluation". For the selection of relevant theories six criteria were used: a clinical environment, the origin of the theory, paradigm as the basis for the selection theory, simplicity, needs of the patient and intelligibility. Four theories which would

be suitable for use in elderly patients with dementia in institutional care were classified.

Results

The results show the applicability of the Newman's nursing theory. The theory is clear, supported by diagrams, concepts are understandable, proposition between them are clear, well-defined. It is necessary to understand the theory as a whole, not just partial elements.

Discussion and conclusion

We focused on theories that are derived from the discipline of nursing, derived from science, usefulness, experiences in the geriatric nursing care with dementia people and the compliance of nursing theory in socio – cultural environment in Slovenia. The nursing theory of M.A. Newman is scientifically substantiated and useful in nursing care of elderlies with dementia.

Keywords: nursing theory analysis; geriatric field; nursing homes, dementia, institutional care

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Uvod

Za ustrezen izbor in primernost uporabe teorije v kliničnem okolju je ključno dobro poznavanje teorij, analiza in evalvacija posamezne teorije. Pred aplikacijo teorije v prakso, mora biti teorija testirana in adaptirana. V prispevku je opisana, analizirana in predstavljena evalvacija teorija M. A. Newman. Predstavljene so prednosti in uporabnost teorije v praksi zdravstvene nege starostnikov z demenco v institucionalnem varstvu.

Metode

Uporabljen je bil narativni pregled literature. Iskanje je potekalo po podatkovnih bazah: Web of Science, PubMed, Science Direct, ProQuest s ključnimi besedami v angleškem jeziku: "consciousness", "time and presence", "resonating with the whole", "pattern", "insights occurring", "concept analysis", "evaluation". Za izbor ustrezne teorije smo uporabili pregled teorij po šestih kriterijih: klinično okolje, izvor teorije, paradigmo, enostavnost, potrebe pacienta in razumljivost. V analizo teorij, primernih za uporabo pri starostnikih z demenco v domski oskrbi, smo uvrstili štiri teorije.

Rezultati

Rezultati kažejo uporabnost teorije M. A. Newman. Rezultati kažejo, da je teorija Newmanove jasna, podprta z diagrami, koncepti so razumljivi, propozicije med njimi so jasno, natančno opredeljene. Potrebno je razumevanje teorije kot celote, ne le njenih posameznih elementov.

Diskusija in zaključek

Pri izboru teorije zdravstvene nege smo se osredotočili na teorije, ki so izpeljane iz discipline zdravstvene nege, upoštevali smo znanstveni izbor, uporabnost, izkušnje z uporabo teorije na področju zdravstvene nege in oskrbe starostnika z demenco v institucionalnem varstvu in skladnost teorije z družbeno-kulturnim okoljem v Republiki Sloveniji. Teorija Newmanove je znanstveno utemeljena in uporabna v zdravstveni negi starostnikov z demenco.

Ključne besede: analiza teorije; geriatrično področje, domovi za starostnike, demenca, institucionalno varstvo

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THE IMPACT OF STRESS ON INCIDENCE OF BACK PAIN VPLIV STRESA NA POJAVNOST BOLEČIN V HRBTENICI

MARCEL DUH, DAVID HALOŽAN

Introduction

Back pain is not only the result of structural or biomechanical abnormalities of the spine, but is also associated with cognitive and behavioral aspects of pain and thus represents biopsychosocial problem. Stressors are not only interpersonal conflicts, negative life events and dangerous situations but also a noise. More than 50% of Slovenians are exposed to excessive noise (65 dB) and approximately 20% of employees are exposed to excessive noise at the workplace. Effects of noise on human beings are psychological (excitement, stress), sensory, and physiological. The harmful effects of noise can be seen in the 40-65 dB range and are manifested as fatigue, irritability, poor sleep and psychological discomfort of the worker. Within 65-90 dB range body metabolism increases, oxygen consumption is higher, tachycardia and hypertension appears, and tone of skeletal muscles increases. The purpose of the study was to determine whether the stress caused by noise at the work place increases the incidence of back pain.

Methods

Measurements of noise levels were carried out in three different wards of social care institution. Two of the selected wards were nursing care wards (clients are immobile and dependent on health care workers in tasks of daily activities), the third ward was regular ward with clients who are independent in tasks of daily activities. Noise level was measured with sound-level meter Tecpel 331 and associated computer software. The measurement on each ward was repeated 3 times (total of 9 measurements) for 8 hours during morning shift. The device was set up in the room where clients spent most of the day. The staff on the ward replied to the questionnaire consisting of closed type questions about basic demographic information and information about back pain. The study involved 24 health care workers, who were in daily contact with residents of the institution. 8 (33.3%) of them were assistant nurses, 14 (58.3 %) were carers and 2 (8.3%) of them were registered nurses. The average age of all persons

involved in the study was 36.04 ± 11.60 years. The average length of service in the institution of the respondents was 11.29 ± 11.76 years. The survey results were analyzed with IBM SPSS version 21, for the statistical analysis of results, we used Mann Whitney U test and Fisher's Exact test.

Results

The average measured noise level of the ward 1 was 64.12 ± 7.8 dB, the average measured noise level of ward 2 was 62.49 ± 6.59 dB, the average noise level of ward 3 was 65.99 ± 5.6 dB. The average measured noise level of all three wards was 64.05 ± 1.44 dB. 17 health care workers (70.8%) reported back pain in the last year and 7 health care workers (29.2%) reported no back pain. Among the workers, who had back ($n=17$), 7 (41.2%) were employed in the ward 2, 4 (23.5%) were employed ward 1 and 6 health care workers (35.3%) were employed in the ward 3. Among the workers who had no back pain ($n = 7$), 2 (28.6%) were employed in ward 2, 4 (57.5%) were employed in ward 1 and 1 (35.3%) was employed in the ward with an average volume 3. Statistical analysis with the Mann Whitney U-test does not show a statistically significant difference between the noise level of the working environment and the occurrence of the back pain ($U= 57000$; $p = 0.90$). Among health care workers who had back pain, 12 (70.6%) rated their job as stressful and 5 (29.4%) rated their job as unstressful. Among health care workers who had no back pain, 5 (71.4%) rated their job as stressful and 2 (28.6%) rated their job as not stressful. Statistical analysis with Fisher's Exact Test, reveals a non-significant correlation between the perception of stress at work, and the occurrence of back pain ($p = 0.682$).

Discussion and conclusion

Based on the results, we find that noise levels as measured in our study, had no statistically significant effect on the incidence of back pain ($p = 0.90$). We also find that health care workers who perceive their work

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as stressful, have more back pain than those who perceive their job as unstressful, but correlation is statistically insignificant ($p = 0.682$). With our study, we have proven findings of other authors, that noise level below 65 dB does not have a significant influence on the incidence of back pain. We would like to prompt health institutions to selectively check working environments for excessive noise levels (above 65 dB) and take protective measures to lower it. This way we could potentially lower sick leave among health care workers due to back pain. For a better understanding of the problem of working in loud environment and the impact thereof on the incidence of back pain, study should be repeated in a larger study sample and in work environments where noise levels are higher. To determine the more accurate and realistic levels of noise to which the individual healthcare workers are exposed, it would be prudent to carry out measurements with a portable sound level meter, that person carries with him.

Keywords: sick leave, noise, musculoskeletal disorder, health care workers, pain

Uvod

Bolečina v hrbtenici ni samo posledica strukturne, oziroma biomehanske nepravilnosti hrbtenice, ampak je povezana tudi s kognitivnimi in vedenjskimi aspekti bolečine in tako predstavlja biopsihosocialni problem. Med stresorje poleg medosebnih sporov, negativnih življenjskih dogodkov in nevarnih situacij spada tudi hrup. Več kot 50 % Slovencev bi naj bilo izpostavljenih prekomernemu hrupu (65 dB). Prekomernemu hrupu na delovnem mestu je izpostavljenih 20 % zaposlenih. Učinki hrupa na človeka so psihološki (vznemirjenje, stres), zaznavni in fiziološki. Škodljive posledice hrupa lahko opazimo že pri 40-65 dB, ki se kažejo kot utrujenost, razdražljivost, slabši spanec in psihično nelagodje delavca. Pri 65-90 dB se pojavi povečana telesna presnova, poraba kisika, tahikardija, hipertenzija in poveča se tonus skeletnih mišic. Namen raziskave je bil ugotoviti, ali stres na delovnem mestu povzročen s hrupom vpliva na povečano pojavnost bolečin v hrbtenici.

Metode

Meritve jakosti zvoka so bile opravljene v treh različnih enotah socialno varstvenega zavoda. Dve izbrani enoti sta bili negovalni enoti (varovanci so nepokretni ali zelo slabo pokretni in nesamostojni pri skrbi zase ter izvajanju dnevnih aktivnosti), tretja enota pa je bila ne negovalna (varovanci so pretežno dobro pokretni in lahko samostojno hodijo). Za merjenje jakosti zvoka je bil uporabljen merilnik jakosti zvoka Tecpel 331 s pripadajočo programsko opremo. Merjenje na vsaki enoti je bilo izvedeno 3 krat (skupno 9 meritev) po 8 ur v dopoldanski izmeni (700-1500 ure). Naprava je bila na vseh enotah nameščena v prostoru, kjer se stanovanjci čez dan največ zadržujejo. Osebe na enoti je izpolnilo vprašalnik, s katerimi smo pridobili osnovne demografske podatke in podatke o bolečini v hrbtenici.

V raziskavi je sodelovalo 24 zdravstvenih delavcev, ki so vsakodnevno v stiku s stanovanjci zavoda. 8 vključenih delavcev (33,3 %), je opravljalo poklic tehnika zdravstvene nege, 8 delavcev (33,3 %) je opravljalo poklic bolničarja, 6 delavcev je opravljalo (25 %) poklic varuha negovalca, 2 delavca (8,3 %) sta opravljala poklic diplomirane medicinske sestre. Povprečna starost vseh vključenih oseb v raziskavo je bila $36,04 \pm 11,60$ let. Povprečna dolžina delovne dobe anketiranih je bila

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11,29 ± 11,76 let. Rezultati raziskave so bili analizirani s programom IBM SPSS, verzija 21. Za statistično analizo rezultatov sta bila uporabljena Mann Whitney U test in Fisherjev Exact test.

Rezultati

Povprečna izmerjena glasnost na enoti 1 je bila 64,12±7,8 dB, povprečna izmerjena glasnost na enoti 2 je bila 62,49±6,59 dB, povprečna glasnost na enoti 3 je bila 65,99±5,6 dB. Povprečna izmerjena glasnost vseh treh enot je bila 64,05±1,44 dB. 17 zdravstvenih delavcev (70,8 %) navaja, da so v zadnjem letu imeli bolečino v hrbtenici, 7 delavcev (29,2 %) bolečin v hrbtenici ni občutilo. Med delavci, ki so imeli bolečino v hrbtenici (n=17) je bilo 7 (41,2 %) tistih, ki so bili zaposleni na enoti s povprečno glasnostjo 62,49 dB, 4 (23,5 %) so bili zaposleni na enoti s povprečno glasnostjo 64,12 dB, 6 (35,3 %) je bilo zaposlenih na enoti s povprečno glasnostjo 65,99 dB. Med delavci, ki so niso imeli bolečine v hrbtenici (n=7) sta bila 2 (28,6 %), ki sta bila zaposlena na enoti s povprečno glasnostjo 62,49 dB, 4 (57,5 %) so bili zaposleni na enoti s povprečno glasnostjo 64,12 dB, 1 (35,3 %) je bil zaposlen na enoti s povprečno glasnostjo 65,99 dB. Statistična analiza z Mann Whitney U testom ne pokaže signifikantne razlike med glasnostjo delovnega okolja in pojavnostjo bolečine v hrbtenici (U=57000; p=0,90). Med tistimi zdravstvenimi delavci, ki so imeli v zadnjem letu bolečino v hrbtenici, je bilo 12 (70,6 %) takšnih, ki svoje delo ocenjujejo kot stresno in 5 (29,4 %), ki svoje delo ocenjujejo kot ne stresno. Med tistimi zdravstvenimi delavci, ki v zadnjem letu niso imeli bolečin v hrbtenici, je bilo 5 (71,4 %) takšnih, ki svoje delo ocenjujejo kot

stresno in 2 (28,6 %), ki svoje delo ocenjujeta kot ne stresno. Statistična analiza s Fisherjevim Exact testom kaže na ne signifikantno povezavo med dojemanjem stresnosti dela in pojavnostjo bolečine v hrbtenici (p=0,682).

Diskusija in zaključek

Na podlagi rezultatov ugotavljamo, da hrup v takšnih nivojih, kot smo ga izmerili v naši raziskavi, nima statistično značilnega vpliva na pojavnost bolečine v hrbtenici (p=0,90). Ugotavljamo tudi, da imajo osebe, ki svoje delo doživljajo kot stres, sicer več bolečin v hrbtenici, ampak je povezava statistično neznačilna (p=0,682). S študijo smo potrdili navedbe drugih avtorjev, da hrup pod 65 dB nima večjega vpliva na pojavnost bolečin v hrbtenici. S tem bi lahko zdravstvene ustanove spodbudili k selektivnemu preverjanju glasnosti v posameznih delovnih okoljih in izvajanju ukrepov za znižanje hrupa, kje je ta previsok (nad 65 dB). Na tak način bi lahko potencialno vplivali na zmanjšanje bolniških staležev, ki so posledica bolečin v hrbtenici. Za boljše razumevanje problematike dela v hrupu in vplivu le tega na pojavnost bolečin v hrbtenici, bi seveda bilo potrebno ponoviti raziskavo na večjem vzorcu in v delovnih okoljih, kjer je nivo hrupa višji. Za določitev bolj natančnega in realnega nivoja hrupa, kateremu je posamezen zdravstveni delavec v prostoru izpostavljen, bi bilo smotno izvesti meritve s prenosnim merilnikom jakosti zvoka, ki ga oseba nosi s seboj.

Ključne besede: bolniški stalež; hrup; mišično skeletno obolenje; zdravstveni delavci, bolečine

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ATTITUDES OF PATIENTS WITH CHRONIC DISEASE TO THEIR HEALTH ODNOS PACIENTOV S KRONIČNO BOLEZNIJO DO LASTNEGA ZDRAVJA

BARBARA KEGL, MATEJA LORBER

Introduction

The patients who have a chronic disease must be empowered to have a healthy lifestyle, thereby taking responsibility for their personal health. Health is the most valuable asset in modern society. The aim of the study was to determine the lifestyle of patients with chronic disease.

Methods

Research was based on a quantitative research method. The research was conducted in the northeast part of Slovenia. We included patients with one or more chronic diseases ($n=200$) and used the available sample. In the period from September to December 2016, we distributed 200 questionnaires, 162 were returned and correctly completed, that representing a 55% response. Questionnaires were distributed to patients who were at the time of the research at the Health Centre. Cronbach Alpha of the questionnaire was 0.770. Each questionnaire included a cover letter and envelope with the address of the researcher and a code to ensure confidentiality. Written permission from the participating health centers was obtained prior to carrying out the study. Statistical analysis was performed using the statistical program SPSS 20.0. Descriptive statistics were used to analyze the measured variables.

Results

The study results found that 78% of respondents had breakfast daily and 3-5 meals per day. One third of participants eat fruit and vegetables once a day, while fish was only eaten once a week. Only 13% were engaged with moderate physical activity for at least 150 minutes per week and 10% of these participants engaged with intensive physical activity for at least 75 minutes per week. Survey results showed that 20% of the respondents are smokers; 4% presented with a risk quantity of alcohol daily at the last 12 months; and 8% had a risk quantity of alcohol by consuming alcohol 1-3 times a week. Given the calculation of BMI is only 31% with the normal weight; 74% of respondents assessed their health as good, very good or excellent.

Discussion and conclusion

Individuals take personal responsibility for a healthy lifestyle. It is necessary to recognize the risk factors because of the increasing number of chronic diseases in society. Findings suggest that patients who already have chronic disease also present with many other risk factors. The promotion of healthy lifestyle is necessary for empowering patients with chronic disease to take care of their own health.

Keywords: Health promotion, active population, lifestyle, patients, healthy lifestyle, research

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Uvod

Pacient, ki ima kronično bolezen mora biti opolnomočen o zdravem življenjskem slogu, da lahko sam skrbi za lastno zdravje. Zdravje je namreč največja vrednota v sodobni družbi. Namen raziskave je bil ugotoviti življenjski slog pri pacientih s kronično boleznijo.

Metode

Uporabljena je bila kvantitativna metodologija raziskovanja. Raziskava je bila izvedena na SV delu Slovenije. V raziskavi je sodelovalo 200 aktivnih pacientov z eno ali več kroničnimi boleznimi. Uporabili smo namenski vzorec. V času od septembra do decembra 2016 smo razdelili 200 vprašalnikov, vrnjenih je bilo 162 pravilno izpolnjenih, kar predstavlja 55 % odziv. Vprašalnike smo razdelili pacientom, ki so v predvidenem času raziskave obiskali osebnega zdravnika. Vsakemu vprašalniku je bilo priloženo spremno pismo z namenom raziskave ter kuverta z naslovom raziskovalca ter znamka z namenom vrnitve izpolnjenih vprašalnikov po pošti, s čemer smo zagotovili anonimnost. Pred izvedbo raziskave smo si pridobili pisno soglasje sodelujočega zdravstvenega doma. Za obdelavo podatkov smo uporabili računalniški program SPSS 20,0. Z uporabo opisne statistike smo ugotavljali posamezne deleže ter ocene merjenih spremenljivk. Stopnja zanesljivosti (Crobach Alpha) uporabljenega vprašalnika je znašala 0,770.

Rezultati

Ugotovljeno je bilo, da 78 % anketiranih pacientov s kronično boleznijo vsakodnevno uživa zajtrk in ima 3-5 obrokov dnevno. Dobra tretjina jih uživa sadje in zelenjavo enkrat dnevno, medtem ko rib nihče ne uživa vsaj enkrat na teden. Le 13 % se jih ukvarja z zmerno telesno dejavnostjo vsaj 150 minut tedensko in 10 % z intenzivno telesno dejavnostjo vsaj 75 minut na teden. 20 % anketiranih je kadilcev, 4 % jih je v zadnjih 12 mesecih popilo tvegano količino alkohola vsak dan in 8 % jih je popilo tvegano količino alkohola 1-3 krat tedensko. Glede na izračun ITM je le 31 % anketiranih normalno prehranjenih. Kar 74 % anketiranih je svoje zdravje ocenilo kot dobro, zelo dobro ali odlično.

Diskusija in zaključek

Za življenjski slog se odloči posameznik sam. Potrebna je pravočasna prepoznava dejavnikov tveganja, ki povečujejo razvoj kronično nenalezljivih bolezni, saj ugotovitve kažejo, da so pri pacientih, ki že imajo kronično bolezen še vedno prisotni številni dejavniki tveganja. Z promocijo zdravega življenjskega sloga je potrebno opolnomočiti paciente s kronično boleznijo v skrbi za lastno zdravje.

Ključne besede: promocija zdravja, aktivna populacija, življenjski slog, pacient, zdrav življenjski slog, raziskave

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ELDERLY-CENTERED CARE IN EMERGENCY DEPARTMENT K STAROSTNIKU OSREDOTOČENA ZDRAVSTVENA OBRAVNAVA NA URGENCI

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Introduction

Increasing emergency department visit rates among elderly means that these are becoming a major part of the population seeking emergency health care. From the perspective of older people and their relatives, the experience of the visit emergency is challenging. Improving the experience of all of these, includes not only good medical care, but also care for the elderly with kindness, compassion and respect. The elderly-centered health care defined such a standard of care that puts the elderly at the center of care and recognize the importance of the patient's knowledge and experience. The purpose of the article is to explore and analyze published literature in the English language about the key elements of elderly-centered care in the emergency department.

Methods

For a systematic review we used databases PubMed/MEDLINE, SAGE, CINAHL and ScienceDirect. In the literature review. Articles that were related to the topic of experience of patients older than 65 years in the emergency department were included in the literature review.

Results

The three main categories have been identified: (1) medical - technical interventions, (2) information, (3) stressful environment, (4) experience of care and (5) needs of elderly.

Discussion and conclusions

Elderly population usually has high expectations of health care in the emergency and expectations are quite similar as with other patients. Elderly centered care consist from several different concept that interact with each other and determine the care experience for both patient and staff. Analysis of the literature has showed that identification of the needs of the elderly in the emergency service provide an opportunity for the development of such a strategy of care that will meet the needs of the patients and at the same time have a positive impact on the medical staff. Emergency care for the elderly patient should reflect inter and intra-professional health care, evidence-based nursing care focusing on the needs of the patient, his family and the wider local community.

Keywords: person centeredness, emergency, experience of the elderly, satisfaction of elderly, elderly population

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Uvod

V urgentnih centrih narašča število obravnav starostnikov, ki postajajo velik del populacije, ki išče nujno zdravstveno oskrbo. Z vidika starejših ljudi in njihovih svojcev je izkušnja obiska urgence zahtevna. Izboljšanje izkušnje le teh ne vključuje le dobro zdravstveno oskrbo, ampak tudi skrb za starostnika s prijaznostjo, sočutjem in spoštovanjem. K pacientu osredotočena zdravstvena oskrba opisuje takšen standard zdravstvene oskrbe, ki postavlja starostnika v središče dogajanja in prepozna pomen njegovega znanja ter izkušenj. Namen prispevka je raziskati in analizirati literature v angleškem jeziku o značilnostih k starostniku osredotočene zdravstvene oskrbe v urgentni ambulanti.

Metode

Za sistematičen pregled literature smo uporabili zbirke podatkov PubMed/MEDLINE, SAGE, CINAHL in ScienceDirect. V pregled literature so bili vključeni članki, ki so se nanašali na temo izkušenj starejših pacientov starih več kot 65 let z zdravstveno oskrbo v urgentni ambulanti.

Rezultati

Pri pregledu literature so bili ugotovljeni naslednji elementi, ki vplivajo k starostniku osredotočeno

zdravstveno obravnavo v urgentni ambulanti: medicinsko tehnične intervencije, informiranost, stresno okolje, izkušnja skrbi, potrebe starostnika.

Diskusija in zaključek

Starejša populacija ima po navadi velika pričakovanja glede zdravstvene oskrbe na urgenci in pričakovanja so podobna tistim, ki jih ima vsak pacient. K starostniku osredotočena oskrba je sestavljena iz več različnih konceptov, ki so v medsebojni interakciji in poudarjajo zadovoljno, učinkovito, varno in humano izkušnjo oskrbe za pacienta, družino in zdravstveno osebje. Analiza literature služi prepoznavi potreb starostnikov na urgenci in nudi priložnost za razvoj sodobne strategije oskrbe, ki bo ustrezala potrebam starostnikov in hkrati pozitivno vplivala na njihove izkušnje ter znanje zdravstvenega osebja. Urgentna oskrba starostnikov mora odražati inter in intraprofesionalno zdravstveno oskrbo in na dokazih utemeljeno zdravstveno nego, ki bo osredotočena k starostniku, njegovi družini, svojcem in širši lokalni skupnosti.

Ključne besede: pacient v središču zdravstvene obravnave, urgencia, izkušnja starostnika, zadovoljstvo starostnika, starejša populacija

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COMPARISON OF BACK PAIN AMONG PHYSIOTHERAPISTS AND NURSES IN THE MARIBOR REGION (SLOVENIA) PRIMERJAVA POJAVNOSTI BOLEČINE V HRBTENICI MED FIZIOTERAPEVTI IN MEDICINSKIMI SESTRAMI V MARIBORSKI REGIJI

MARCEL DUH, DAVID HALOŽAN, JADRANKA STRIČEVIĆ

Introduction

Prevalence of musculoskeletal disorders and long-term absence from work is common among professions such as physiotherapists and nurses due to handling high loads. Manual transfer of patients is dangerous because of different factors and not only high weight of the patient. Purpose of study was to determine which profession is more prone to back pain and whether the length of service and place of employment has an impact on the incidence of back pain.

Methods

We used a questionnaire consisting of open- and closed-type questions with one or more possible answers, based on the Likert scale. Questionnaires were distributed to physiotherapists and nurses. The study included 90 health professionals (45 physiotherapists and 45 nurses) employed in different wards of the University Clinical Centre Maribor, the Dr. Adolf Drolc Health Centre in Maribor, the Danica Vogrinec Home for the elderly and the Hrastovec social care institution. The survey was conducted in June 2016. The average age of physiotherapists was 41.40 ± 9.48 years, they were in direct contact with the patient (direct labour) on average 7.02 ± 1.16 hours per shift and had on average 17.43 ± 10.22 years of service. The average age of nurses was 40.80 ± 10.10 years, they were in direct contact with a patient on average 6.97 ± 1.37 hours per shift and had on average 20.10 ± 11.21 years of service. For statistical analysis, we used the computer program IBM SPSS, version 21. Results were tested with Chi square test, Mann-Whitney U Test and Fisher's Exact Test.

Results

33 physiotherapists (73.3 %) had back in the last year and 12 (26.7 %) had no back pain. 33 nurses (73.3 %) had back in the last year and 12 (26.7 %) had no back pain. Based on the statistical test we found that there is no statistically significant difference in the occurrence of back pain between the two professions in the last year ($\chi^2 (3) = 2.277$; $p = 0.517$). The group of health workers, who had back pain ($n = 66$) had an average rank of 49.89 in comparison to the length of service. The group of health workers, who had no back pain ($n = 24$) had an average rank of 33.42 in comparison to the length of service. Based on the Mann Whitney U test, we find that health care workers with more years of service have statistically significant more back pain than health care workers with less years of service ($U = 502.00$, $p = 0.008$). Among the health care workers, who had back ($n = 66$) there were 50 (75.8%) who worked with immobile patients and 16 (24.2%), who worked with mobile patients. Among the health care workers who had no back pain ($n = 24$), there were 19 (79.2%) who worked with immobile patients and 5 (20.8%), who worked with the mobile patients. Based on the Fisher's Exact test, we find that there is a statistically significant relationship between back pain and place of employment ($p = 0.03$).

Discussion and conclusions

Based on the results of our study we find that nurses and physiotherapists are at the risk of developing a back pain. We can conclude that the profession of physiotherapist or nurse is a risk factor for the development of back pain. We find that length of service has a significant impact on the incidence of back

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pain. Physiotherapists and nurses with more years of service have more back pain than those with less years of service. Furthermore, we find that physiotherapists and nurses who work predominantly with immobile patients have more back pain than those who work with mobile patients. Considering the high handling loads physiotherapists and nurses are daily faced with, the use of ergonomic assistive devices is inevitable if we are to reduce the incidence of back pain among health care workers. An important role have the educational institutions to teach students on how to safely operate these devices and medical institutions to equip healthcare workers with ergonomic assistive devices.

Keywords: ergonomics, back pain, healthcare workers, physiotherapy, nurse, manual transfer, patient

Uvod

Prevalenca mišično-skeletnih poškodb in dalj časa trajajoča odsotnost z dela je visoka med poklici, ki vključujejo manipuliranje z visokimi obremenitvami, med katere spadata tudi poklica fizioterapevta in medicinske sestre. Nevarnosti pri dvigovanju in premeščanju pacientov ne predstavlja samo teža pacienta, ampak je ta posledica več dejavnikov. Namen raziskave je bil ugotoviti, pri katerem profilu zdravstvenih delavcev se zaradi velikih obremenitev, ki nastajajo med rokovanjem s pacientom (transfer, premikanje po postelji, ...) pogosteje pojavlja bolečina v hrbtenici in ali so dolžina delovne dobe ter mesto zaposlitve vzrok za bolečine v hrbtenici.

Metode

V raziskavi smo uporabili anketni vprašalnik, ki je sestavljen iz vprašanj odprtega in zaprtega tipa z enim ali več možnimi odgovori, in z vprašanj, ki temeljijo na Likertovi lestvici. Za statistično analizo rezultatov smo uporabili Mann-Whitney-jev U-test, Fischerjev Exact test, in Hi- kvadrat test ter računalniški program IBM SPSS, verzijo 21. V raziskavo je bilo vključenih 90 zdravstvenih delavcev (45 fizioterapevtov in 45 medicinskih sester), ki so bili zaposleni na različnih oddelkih Univerzitetnega kliničnega centra Maribor, v Zdravstvenem domu dr. Adolfa Drolca Maribor, Domu Danice Vogrinec Maribor in Socialno varstvenemu zavodu Hrastovec. Raziskava je bila opravljena v juniju 2016. Pred izvedbo raziskave smo pridobili potrebna soglasja ustanov za izvedbo anketiranja. Povprečna starost fizioterapevtov je bila $41,40 \pm 9,48$ let, povprečna dolžina delovne dobe je bila $17,43 \pm 10,22$ let, v neposrednem stiku s pacientom (neposredno delo) so bili povprečno $7,02 \pm 1,16$ ur. Povprečna starost medicinskih sester je bila $40,80 \pm 10,10$ let, povprečna dolžina delovne dobe je bila $20,10 \pm 11,21$ let, v neposrednem stiku s pacientom (neposredno delo) so bile povprečno $6,97 \pm 1,37$ ur.

Rezultati

33 fizioterapevtov (73,3 %) je imelo v zadnjem letu bolečine v hrbtenici, 12 (26,7 %) pa jih bolečin v hrbtenici ni imelo. Tudi 33 medicinskih sester (73,3 %) je

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imelo v zadnjem letu bolečine v hrbtenici, 12 (26,7 %) pa jih bolečin v hrbtenici ni imelo.

Na podlagi Hi- kvadrat testa ugotovimo, da ni statistično pomembne povezave med pojavnostjo bolečine v hrbtenici in obema poklicema v zadnjem letu ($\chi^2(3)=2,277$, $p=0,517$). Skupina zdravstvenih delavcev, ki je v zadnjem letu imela bolečino v hrbtenici ($n=66$) ima glede na dolžino delovne dobe povprečen rang 49,89. Skupina zdravstvenih delavcev, ki bolečin v hrbtenici v zadnjem letu ni imela ($n=24$), ima povprečen rang glede na dolžino delovne dobe 33,42. Na podlagi Mann Whitney U testa ugotavljamo, da imajo zdravstveni delavci z daljšo delovno dobo statistično značilno več bolečin v hrbtenici kot zdravstveni delavci s krajšo delovno dobo ($U=502,00$, $p=0,008$). Med zdravstvenimi delavci, ki so imeli bolečino v hrbtenici ($n=66$) jih 50 (75,8 %) dela s slabo pomičnimi pacienti, 16 (24,2 %) pa s pomičnimi pacienti. Med zdravstvenimi delavci, ki niso imeli bolečine v hrbtenici ($n=24$) jih 19 (79,2 %) dela s slabo pomičnimi pacienti, 5 (20,8 %) pa s pomičnimi pacienti. Na podlagi Fisherjevega Exact testa ugotavljamo, da med bolečino v hrbtenici in mestom zaposlitve obstaja statistično značilna povezava ($p=0,03$).

Diskusija in zaključek

Na podlagi opravljene študije ugotavljamo, da so tako medicinske sestre, kot tudi fizioterapevti izpostavljeni tveganju za nastanek bolečin v hrbtenici. Iz tega sklepamo, da je opravljanje poklica fizioterapevta, oziroma medicinske sestre dejavnik tveganja za razvoj bolečine v hrbtenici. Ugotavljamo, da dolžina delovne dobe pomembno vpliva na razvoj bolečin v hrbtenici. Fizioterapevti in medicinske sestre z daljšo delovno dobo imajo več bolečin v hrbtenici kot tisti s krajšo delovno dobo. Ugotavljamo še, da imajo zdravstveni delavci, ki vsakodnevno delajo s slabo pomičnimi pacienti več bolečin v hrbtenici kot tisti, ki delajo z bolj pomičnimi pacienti. Glede na obremenitve s katerimi se vsakodnevno srečujejo fizioterapevti in medicinske sestre pri premeščanju pacientov je (pravilna) uporaba ergonomsko-tehničnih pripomočkov neizogibna, če želimo zmanjšati pojavnost bolečine v hrbtenici. Pomembno vlogo pri tem imajo izobraževalne ustanove, ki bi bodoče zdravstvene delavce naučile rokovati s temi pripomočki in zdravstvene ustanove, ki bi ergonomsko-tehnične pripomočke zagotovile.

Ključne besede: ergonomija, bolečina v hrbtenici; zdravstveni delavci, fizioterapija, medicinska sestra, ročno premeščanje, pacient

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A LONGITUDINAL STUDY ON THE IMPACT OF DRAGON BOATING ON WELLBEING

SUZANNE DENIEFFE, MAJDA PAJNKIHAR, MARGARET DENNY

Introduction

Fatigue following treatment for breast cancer is a significant problem for many women and has a profound impact on their quality of life, physical, emotional and mental functioning. Exercise is known to be beneficial for both physical and psychological health. It has been shown that group exercise programmes for breast cancer survivors is successful because of the networking and social function of such groups. Dragon boat racing is one such contemporary group based rehabilitation exercise form. Studies on women who participated in dragon boat racing showed positive psychological benefits since it led to feelings of camaraderie, a sense of renewed fitness and health, enhanced self-confidence and control of one's life. Nonetheless, the effects of participating in dragon boat racing and its influence on fatigue levels and psychological health related benefits is less well known. The aim of the study was to explore the effects of dragon boat racing on fatigue and health related quality of life.

Methods

The study used was a longitudinal cohort design. Data were collected from breast cancer survivors (n=49) to measure fatigue (Functional Assessment of Cancer Therapy-Fatigue Scale), quality of life and functioning (EORTC QLQ C30) and upper arm functioning (Quick Disabilities of the Arm, Shoulder and Hand Questionnaire). Time points for data collection were at the beginning of the racing season (time-point 1: T1), midway through the programme (time-point 2: T2) and at the end of the dragon boat season (time-point 3: T3). Statistical differences between those women who provided completed data (questionnaires for all three

time points) were compared with those women who provided data at only 1 or 2 time points using independent two tailed t tests for the continuous variables of age, fatigue and Quick Dash scores. The presence of fatigue, at the 3 time points, early in racing season (T1), midway through season (T2) and at end of racing season (T3) was examined using the FACT- F, with a cut-off score of 9 indicating the presence of fatigue. Mean fatigue scores were analysed using repeated measures analysis of variance (rANOVA). Post-hoc tests used Bonferroni correction. Spearman's correlation coefficient was used to examine the relationships between fatigue level, age and time since completion of treatment. Upper Limb Functioning and Global Quality of Life was statistically analysed using rANOVA.

Results

Fatigue levels fell significantly between T1&T2 ($p<0.033$) and from T2 to T3 ($p<0.048$). Similarly, upper limb functioning improved from T1 to T2 ($p<0.002$), but showed no significant change between T2&T3 ($p<0.58$). Fatigue was significantly related to quality of life at each time point.

Discussion and Conclusion

In conclusion, while this was a small-scale study, the longitudinal design used suggested that dragon boat racing, as an exercise mode, appears to have beneficial effects on psychological well-being including reduction of fatigue, which impacts on health-related quality of life for women post breast cancer.

Keywords: Cancer related fatigue, wellbeing, dragon boat racing, longitudinal cohort design, breast cancer

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EFFECTS OF PROBLEM-BASED LEARNING ON CLINICAL DECISION MAKING ABILITY AMONG UNDERGRADUATE NURSING STUDENTS AT UNIVERSITY J.J.STROSSMAYER OSIJEK

IVANA BARAĆ, JADRANKA PLUŽARIĆ, RADIVOJE RADIĆ

Introduction

Nursing students need to develop critical thinking ability, as well as an understanding of how judgements and decisions are reached in complex healthcare environments. The use of techniques such as problem-based learning, simulation and feedback has been hypothesised to help with the development of critical thinking skills. A curriculum that incorporates teaching on different ways in which judgements and decisions are reached can potentially help students identify how to avoid errors and mistakes in their clinical practice. The aim of this study was to determine the perception of clinical decision making ability among nursing students before and after problem based learning.

Methods

A descriptive cross-sectional study was conducted in two measuring points and problem-based learning with case report was used as an independent variable. A total of 61 nursing students were recruited using a clinical decision making in nursing scale.

Results

The average values for the overall and subscales of clinical decision making leaned slightly in the positive direction. There is a difference in the assessment of decision-making in the areas of searching for information and evaluation and re-evaluation of consequences.

Discussion

The ability to exhibit decision-making skills is a fundamental requirement of undergraduate nursing curricula. The nursing students possessed adequate clinical decision making ability.

Conclusion

Problem-based learning contributes to decision-making skills. Problem-based learning have been shown to be a tool to help with developing decision-making skills.

Keywords: clinical decision making, nursing students, problem based learning, critical thinking ability, clinical decision

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QUALITATIVE ANALYSIS OF THE GIBBS STRUCTURED REFLECTION AS A TEACHING METHOD AT THE ELECTIVE COURSE BREASTFEEDING AND LACTATION KVALITATIVNA ANALIZA METODE POUČEVANJA STRUKTURIRANE REFLEKSIJE PO GIBBSU PRI IZBIRNEM PREDMETU DOJENJE IN LAKTACIJA

TITA STANEK ZIDARIČ, RENATA VETTORAZZI

Introduction

Adequate knowledge regarding breastfeeding and lactation should be obtained during education, because it is expected that after graduation health care professionals had already formed leadership skills for breastfeeding and lactation. In the academic year 2010/11, an elective interdisciplinary course Breastfeeding and Lactation was presented to nursing, midwifery and occupational therapy students. The course includes lectures, laboratory work and clinical practice. One of the planned study achievements is the ability to advise and to use the acquired knowledge in real life situations. In order to successfully complete the course every student needs to advise a woman or lactating pair in a real clinical setting, using a pre-prepared document. This also includes compulsory written reflection on the counseling process / event using Gibb's model for reflective analyses. The purpose of the study is to determine whether Gibb's reflective model can be used as a learning method to verify the achievement of a competence; counseling a breastfeeding couple.

Methods

A qualitative methodology approach was used to analyze the text of 37 students who were enrolled in elective course Breastfeeding and Lactation in academic years 2015/2016 and 2016/2017. The students responded to the question: what sense did you make, find in this situation? Using Graneheim and Lundman (2004) content analysis first of all the meaning unit was determined, which was in this case the fourth step of Gibbs reflective cycle. Followed the condensation and

coding. Codes were then classified into categories, and the last step was made to identify the main theme. Each author has conducted an independent analysis and the final consensus was reached after discussion.

Results

Through the interpretation of the analyzed text the following main theme emerged Confident knowledge transfers from theory to practice. Students feel responsible for the entire advisory process which is very motivating for the in-depth study. Self-reflection allows them to systematically and critically look at their own skills, both theoretical and practical. They mention self-esteem, self-confidence and personal satisfaction. The analysis confirmed that the Gibbs structured reflection can verify the achievement of the competence of counseling to a breastfeeding couple.

Discussion and Conclusion

In most breastfeeding and lactation courses the content is delivered by lectures and study literature. To achieve the degree of independent counseling it is vital that the students have contact with clinical practice. According to the findings, the introduction of active teaching and learning methods ie. Reflection of the counseling process / event contributed significantly to an in-depth study and with his help, reached out to the students to achieve the objectives and subject-specific competences.

Keywords: breastfeeding, active learning techniques, students, adequate knowledge, lactation

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Uvod

Ustrezno znanje glede dojenja je potrebno dobiti že v času izobraževanja, saj se v praksi pričakuje, da bodo diplomati zdravstvenih strok že imeli izoblikovane kompetence vodenja dojenja in laktacije. S tem v mislih se je v študijskem letu 2010/11 pričela izvedba izbirnega interdisciplinarnega predmeta dojenje in laktacija za študente zdravstvene nege, babištva in delovne terapije. Predmet Dojenje in laktacija vključuje tako predavanja, laboratorijske vaje kot tudi klinične vaje. Eden izmed predvidenih študijskih dosežkov je sposobnost svetovanja oziroma uporabe pridobljenega znanja v konkretni življenjski situaciji. Vsak študent za zaključek kliničnih vaj v kliničnem okolju svetuje ženski oziroma doječemu paru, pri čemer uporabi vnaprej pripravljeno dokumentacijo. Le ta vsebuje tudi obvezno pisno refleksijo svetovalnega procesa/dogodka po Gibbsu. Namen raziskave je ugotoviti ali z učno metodo strukturirane refleksije po Gibbsu lahko preverimo dosežene kompetence svetovanja doječemu paru.

Metode

Uporabljena je bila kvalitativna metodologija in sicer analiza besedila, kjer je 37 študentov, ki so predmet Dojenje in laktacija poslušali v študijskih letih 2015/2016 in 2016/2017 odgovarjalo na vprašanje: kakšen smisel so našli v tem dogodku. Narejena je bila kvalitativna vsebinska analiza po Graneheim in Lundman (2004). V prvem koraku smo določili enote kodiranja, kar je bilo v tem primeru četrti korak po Gibbsu. V naslednjem koraku je bilo opravljeno zgoščevanje in nato kodiranje.

Kode s podobnim pomenom so bile nato razvrščene v kategorije in v zadnjem koraku je bila narejena glavna tema. Vsaka avtorica je opravila samostojno analizo, nato pa sta z diskusijo dosegli končni konsenz.

Rezultati

S pomočjo interpretacije analiziranega besedila je bila oblikovana naslednja glavna tema: Samozavesten prenos znanja iz teorije v prakso. Študentje se čutijo odgovorni za celoten svetovalni proces, kar jih zelo motivira za poglobljen študij. Samorefleksija jim omogoča sistematičen in kritičen pogled na lastno znanje, tako teoretično kot praktično. Navajajo samozavest, zaupanje vase in osebno zadovoljstvo. Z analizo je bilo potrjeno, da se s strukturirano refleksijo po Gibbsu lahko preveri dosežene kompetence svetovanja doječemu paru.

Diskusija in zaključek

Vsebine o dojenju in laktaciji so v večini študijskih programov podane s predavanji ter študijem literature. Za doseganje stopnje samostojnega izvajanja svetovanja pa je nujno potreben tudi stik s klinično prakso. Glede na ugotovitve raziskave je uvedba aktivne metode poučevanja in učenja tj. refleksije svetovalnega procesa/dogodka pomembno pripomogla k poglobljenemu študiju in tudi z njegovo pomočjo dosegla, da so študentje dosegli cilje in predmetno specifične kompetence predmeta.

Ključne besede: dojenje; aktivne metode učenja; študenti, ustrezno znanje, laktacija

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SLOVENIA DECLARED AS A COUNTRY, FREE FROM RABIES:

A NEW APPROACH TO RABIES PREVENTION

SLOVENIJA KOT DRŽAVA, PROSTA STEKLIN: NOV PRISTOP K ANTIRABIČNI OBRAVNAVI

ŠPELA VIDOVIČ, KARL TURK, ZORAN SIMONOVIC, SANJA VUZEM

Introduction

Recommendations for rabies immunization have changed over the last number of years. Since the self-declaration of Slovenia being free of rabies, there have been some minor changes in the recommendations for treatment of animal bite victims. A critical review of current recommendations regarding rabies prevention was undertaken to identify the need for adjustment of these recommendations and regulations, thereby taking account of the World Health Organisation (WHO) directives and policies. The present review provides an update on the rabies situation in Slovenia and puts attention to the changes in rabies risk assessment for the animal bite victims.

Methods

Empirically published data on rabies occurrence in Slovenia was reviewed and it included epidemiological and epizootic situation of rabies. A review of WHO recommendations and current pre- and post-exposure prophylaxis against rabies in Slovenia was performed. Comparisons were made between Slovenian recommendations and those in other European countries and exemplars of the pros and cons of different prevention programs and evidence-based good practices approaches are cited.

Results

WHO recommends the use of modern cell culture rabies vaccines, which have been proven to be safe and very effective in preventing rabies. There are different recommended schemes for pre- and post-exposure

vaccination and they vary in vaccination schedule and the route of vaccine administration. In the case of re-exposure, WHO recommends two booster doses. Three doses of vaccine are recommended for those, who have an increased risk of exposure due to their occupation. Antibody monitoring is recommended every 6 months for the personnel working at the rabies laboratory and every 2 years for those, who are at risk of exposure through their activities, such as certain categories of veterinarians and animal health officers. Booster injection is necessary only if the rabies virus neutralizing antibody titres fall to <0.5 IU/ml. The Slovenian recommendations are in accordance with WHO recommendations.

Discussion and Conclusions

Since the declaration of Slovenia being free of rabies, the numbers of post-exposure vaccination doses against rabies have decreased. The decrease in vaccine application is expected and in accordance with decreased risk of contracting rabies in Slovenia. Besides implementing changes in the national guidelines for preventing rabies, there is also a need to review laws and regulations and adjust them to the new epizootic situation of rabies in Slovenia. Despite the favourable epizootic situation, it is vital to continue with the effective veterinarian measures, as this is the only way, Slovenia will retain the free-of-rabies status.

Keywords: rabies, vaccination, recommendations, data, WHO

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Uvod

Priporočila za cepljenje proti steklini so se v preteklih letih spreminjala. Odkar se je v letu 2016 Slovenija razglasila kot država, prosta stekline, je ponovno prišlo do manjših sprememb v obravnavi posameznikov, ki so bile poškodovane s strani živali. Opravili smo kritični pregled trenutno veljavnih priporočil za preprečevanje stekline v Sloveniji z namenom, da bi ugotovili potrebo po prilagoditvi teh priporočil in predpisov, pri čemer smo upoštevali smernice in priporočila Svetovne zdravstvene organizacije (SZO). S pregledom smo opisali spremenjeno epidemiološko situacijo stekline v Sloveniji in izpostavili spremembe v obravnavi žrtev ugriza.

Metode

Pregledali smo objavljene empirične podatke o pojavljanju stekline v Sloveniji ter podatke o epidemiološki in epizootiološki situaciji. Opravili smo pregled priporočil SZO ter trenutno veljavnih priporočil za pred- ali poekspozicijsko cepljenje proti steklini v Sloveniji. Primerjali smo slovenska priporočila s tistimi v drugih evropskih državah in identificirali prednosti in slabosti različnih programov preprečevanja stekline ter poiskali primere na dokazih temelječih dobrih praks iz tujine.

Rezultati

Trenutno veljavna priporočila SZO predvidevajo uporabo novejših, dokazano učinkovitih cepiv,

proizvedenih na celičnih kulturah. SZO priporoča pred- in poekspozicijsko cepljenje po različnih shemah z aplikacijo cepiva intramuskularno ali intradermalno ter poživitveno cepljenje z dvema odmerkoma v primeru ponovne izpostavljenosti. Za poklicno izpostavljene je priporočeno cepljenje s tremi odmerki cepiva po shemi za predekspozicijsko cepljenje. Po osnovnem cepljenju je priporočeno preverjanje titra protiteles vsakih 6 mesecev pri tistih, ki delajo v laboratoriju za stekline, pri ostalih izpostavljenih pa vsaki 2 leti. Revakcinacijo se opravlja z enim odmerkom le pri tistih, pri katerih titer protiteles pade pod 0,5 I.E./ml. Slovenska priporočila so v skladu s priporočili SZO.

Diskusija in zaključek

Od razglasitve Slovenije kot države, proste stekline, se je število apliciranih odmerkov poekspozicijskega cepljenja proti steklini zmanjšalo. Takšno zmanjšanje apliciranih odmerkov je pričakovano in v skladu z zmanjšanjem tveganja za okužbo s stekline pri nas. Poleg nacionalnih strokovnih smernic za preprečevanje stekline pri ljudeh s cepljenjem, bo v prihodnje potrebno posodobiti tudi zakonske predpise, ki bodo prilagojeni novi epizootiološki situaciji stekline v Sloveniji. Kljub temu je potrebno še naprej izvajati učinkovite veterinarske ukrepe, saj bo le tako Slovenija obdržala status države proste stekline.

Ključne besede: steklina; cepljenje; priporočila, podatki, WHO

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PEER ASSESSMENT BETWEEN STUDENTS OF NURSING CARE BY USING CHECK LIST VRSTNIŠKO VREDNOTENJE Z UPORABO OCENJEVALNIH LISTOV PRI ŠTUDENTIH ZDRAVSTVENE NEGE

ZVONKA FEKONJA, NINO FIJAČKO, NATAŠA MLINAR RELJIĆ

Introduction

Peer assessment is one of the alternative forms of student's evaluation in which the student has an active role as an evaluator of peer. It represent agreement among peers to actively monitor achievement of other and give feedback information about it. The purpose of paper is to present the peer evaluation of performed intervention of first year students in the clinical skills laboratory for nursing care based on a checklist.

Methods

The qualitative approach with content analysis of texts was used. Dedicated sample consisted of 9 students. Data were obtained through written self-reflection for description the experience of student using peer assessment in clinical skills laboratory. The Gibbs reflective circle have been used, which helped the student writing structured self-reflection.

Results

The three main categories have been identified: (1) Importance and benefits of peer assessment, (2) Learning from mistakes and (3) Emotional responses.

Discussion and conclusions

Students become active participants in the learning process and evaluation while the checklist were used. The results show that the students learn about providing information and feedback to others and thereby develop the ability of critical thinking and argumentation. For effective peer evaluation, the creation of trust and support atmosphere is needed. During the evaluation of each other, the student feel positive emotions and feeling of importance. Peer evaluation allows students the ability for learning from experience and making constructive critical assessment of its achievements and the achievements of others.

Keywords: evaluation, coeval, nursing care, checklist

Uvod

Vrstniško ocenjevanje predstavlja eno izmed alternativnih oblik ocenjevanja, pri katerem v vlogi ocenjevalca nastopajo študenti. Predstavlja dogovor med vrstniki, da aktivno spremljajo dosežke drugih in si nato posredujejo povratno informacijo. Namen prispevka je predstaviti vrstniško vrednotenje izvedenih intervencij študentov prvega letnika v učilnici zdravstvene nege s pomočjo ček list.

Metode

Uporabljen je bil kvalitativen pristop z uporabo vsebinske analize besedila. Namenski vzorec je zajemal 9 študentov. Podatki so bili pridobljeni s pomočjo pisnih samorefleksij z opisom študentovih izkušenj o uporabi vrstniškega ocenjevanja v učilnici zdravstvene nege. Uporabljen je bil Gibbsov refleksivni krog, ki je študentu pomagal strukturirati pisanje samorefleksije.

Rezultati

Pri analizi samorefleksij so bile identificirane tri glavne tematske kategorije: (1) Pomen in koristi vrstniškega ocenjevanja, (2) Učenje iz napak in (3) Čustveni odzivi.

Diskusija in zaključek

Študenti so z uporabo ček list postali aktivni udeleženci v procesu učenja in ocenjevanja ter niso bili samo pasivni opazovalci učiteljevega ocenjevanja. Ugotovitve kažejo, da so se študentje naučili posredovati informativne in povratne informacije drugim ter ob tem razvili zmožnost kritičnega mišljenja in argumentiranja. Za učinkovito vrstniško vrednotenje je potrebno v učilnici ustvariti ozračje zaupanja in podpore. Med ocenjevanjem drug drugega so študenti občutili pozitivne emocije in občutke pomembnosti. Vrstniško vrednotenje omogoča študentom zmožnost razvoja učenja iz izkušenj in konstruktivne kritične presoje svojih dosežkov in dosežkov drugih.

Gljučne besede: ocenjevanje, vrstniki, zdravstvena nega, ček lista

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RESULTS OF THE SURVEY AMONG STUDENTS ON THEIR KNOWLEDGE OF CAFFEINE IZSLEDKI ANKETIRANJA DIJAKOV O POZNAVANJU KOFEINA

SABINA FIJAN, ANJA HRASTNIK, MAJA STRAUSS

Introduction

Caffeine is a naturally occurring alkaloid that has stimulating properties on the central nervous system. It is naturally found in the seeds, nuts, or leaves of a number of plants and protects plants against predator insects and prevents germination of nearby seeds. Caffeine consumption is very common in many age groups. In this paper we investigated the caffeine consumption habits and the positive and negative effects of caffeine intake among students of two different high schools in Slovenia.

Methods

A literature review of Slovenian and English expert and scientific literature using PubMed/Medline and ScienceDirect on caffeine and consumption of caffeine among students was conducted. The quantitative descriptive research method was used to collect data with a questionnaire. In 2015 we conducted a purposeful sampling and questioned 40 students from two high schools in the northern area of Styria Slovenia. The questionnaire contained 22 questions of closed- and open-ended type. The data is presented in percentage shares of the total sample using Microsoft Excel. In this research we were mainly interested in the extent of knowledge of students on caffeine and its negative effects, and whether they consume caffeine.

Results

55 % of the surveyed students were 17 years, 40 % were 18 years and 5 % of the surveyed students were 16 years old. 45 % of the surveyed students were females 55 % were males. The results showed that all the students (100 %) know what caffeine is and in 80 % in which beverages it can be found. We found that most students (79 %) started with the consumption of the caffeine containing beverages at an age of 15 years. In most cases, they drink those beverages three times per week (36 %) or even on a daily basis (34 %). The most common beverages consumed are coffee (27 %), cappuccino (23

%) and Coca-Cola (21 %). The least consumed beverage is green or black tea (12 %).

They are aware of the positive and negative effects of caffeine. 82.5 % of the students stated that a positive effect of caffeine is an increase in energy, 70 % stated that a positive effect is reduced fatigue. As a negative effect 67.5 % of the students reported a rapid heart rate, and 35 % headache. 91% of the surveyed students felt that they were not dependent on caffeine and 82% felt that they can renounce drinking caffeinated beverages at any time.

Discussion and Conclusion

Caffeine is the world's most widely consumed psychoactive drug that is legal and unregulated in many parts of the world and generally recognised as safe (GRAS) according to the Food and Drug Administration (FDA). The toxic dose is 10 g per day and can be reached by consuming pure powdered caffeine available as a dietary supplement. On the other hand, a typical cup of coffee with positive stimulating effects contains between 80 and 175 mg of caffeine depending on type of used bean and preparation method. Although the students are aware that it is not recommended to consume caffeine in excess amounts, they continue with regular caffeine consumption out of habit. More and more students enjoy caffeinated beverages regularly and in large quantities. The age when adolescents start with the consumption of these drinks is decreasing. These products are available on the market, so adolescents can overuse them, especially energy drinks. Although the surveyed students are aware that it is not recommended to consume caffeine in excessive amounts, they regularly consume caffeine out of habit. More than half of the students tried caffeine for the first time out of curiosity. Moderation in caffeine among students is crucial. They need to know the side effects and the consequences of excessive consumption of caffeine.

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Keywords: caffeine effects, youth/students, foods containing caffeine, drinks containing caffeine

Uvod

Kofein je naravni alkaloid, ki ima stimulirajoči učinek na centralni živčni sistem. Najdemo ga v semenih, oreščkih, ali listih številnih rastlin in varuje rastline pred plenilskimi žuželkami; preprečuje tudi kalitev bližnjih semen. Poraba kofeina je zelo pogosta v mnogih starostnih skupinah. V tem prispevku smo raziskovali navade porabe kofeina ter pozitivne in negativne učinke vnosa kofeina med dijaki dveh srednjih šol v Sloveniji.

Metode

Izveden je bil pregled slovenske in angleške strokovne in znanstvene literature z uporabo PubMed/Medline ter ScienceDirect o tematiki kofeina ter porabi kofeina med dijaki. Zbiranje podatkov smo izvedli s kvantitativno deskriptivno raziskovalno metodo s pomočjo anketnega vprašalnika. V letu 2015 smo izvedli namensko vzorčenje in tako anketirali 40 dijakov dveh srednjih šol v severnem delu štajerske v Sloveniji. Vprašalnik je vseboval 22 vprašanj zaprtega in odprtega tipa. Podatki smo predstavili v odstotnih deležih glede na celotni vzorec z uporabo programa Microsoft Excel. Zanimalo nas je predvsem v kolikšni meri dijaki poznajo kofein, njegove in negativne učinke in ali ga uživajo.

Rezultati

55 % anketiranih je bilo starih 17 let, 40 % jih je bilo starih 18 let in 5 % jih je bilo starih 16 let. 45 % anketiranih je bilo ženskega spola in 55 % je bilo moškega spola. Rezultati so pokazali, da vsi dijaki (100 %) vedo kaj je kofein in v 90 % tudi vedo v katerih napitkih ga najdemo. Ugotovili smo, da je večina anketiranih dijakov (79 %) pričela z uživanjem kofeinskih napitkov že pri 15 letih. Največ uživajo te napitke trikrat na teden (36 %) ali celo vsakodnevno (34 %). Največkrat uživajo kavo (27 %), kapučino (23 %) ter coca-colo (21 %), najmanj pravi čaj (12 %). Poznajo tudi pozitivne in negativne učinke kofeina. 82,5 % dijakov je kot pozitiven

učinek kofeina pravilno navedlo povečanje energije, 70 % pa je kot pozitiven učinek navedlo zmanjšano utrujenost. Kot je negativen učinek je 67,5 % navedlo pospešeno bitje srca in 35 % glavobol. 91 % anketiranih dijakov je menilo, da niso odvisni od kofeina in 82 % je menilo, da se lahko kadarkoli odpovedo pitju kofeinskih napitkov.

Diskusija in zaključek

Kofein navadno uživamo v pijačah, uporablja pa se tudi v nekaterih zdravilih za lajšanje bolečine in zmanjšanje telesne temperature. Je najbolj porabljena psihoaktivna droga v svetu, njena uporaba je zakonita in ni regulirana v mnogih delih sveta. Poleg tega je splošno priznana kot varna (GRAS – generally regarded as safe) v skladu z Zveznim uradom za hrano in zdravila (FDA – Food and Drug Administration). Toksičen odmerek kofeina je 10 g na dan, kar je mogoče doseči z uporabo čistega kofeina v prahu, ki je na voljo kot prehransko dopolnilo. Po drugi strani, tipična skodelica kave s pozitivnim stimulativnim učinkom vsebuje med 80 in 175 mg kofeina, odvisno od tipa porabljenih semen in metodo priprave. Vedno več dijakov uživa kofeinske pijače redno in v velikih količinah. Niža pa se tudi starostno obdobje, ko mladostniki začnejo z uživanjem teh napitkov. Ti izdelki so na trgu dostopni vsem, zato lahko mladostniki z njihovo uporabo pretiravajo, največ z energijskimi pijačami. Čeprav se anketirani dijaki zavedajo, da ni priporočljivo uživanje kofeina v prevelikih količinah, vseeno vztrajajo pri rednem uživanju kofeina iz navade. Več kot polovica dijakov so kofein poskusili prvič iz radovednosti. Zmernost pri uživanju kofeina med dijaki je ključnega pomena. Poznati morajo stranske učinke in posledice prekomernega uživanja kofeina.

Ključne besede: delovanje kofeina; mladostniki/dijaki; živila s kofeinom; pijače s kofeinom

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DESCRIPTION, ANALYSIS AND EVALUATION OF QUALITY CARING MODEL OPIS, ANALIZA IN VREDNOTENJE MODELA KAKOVOSTI SKRBI

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Introduction

The Quality caring model exposes caring as hidden value of nursing, guides practice of nursing and provides a foundation for research. The model describes relationships, particularly the patient-nurse relationship, as basis of the therapeutic process. The purpose of this article is to describe, analyze and evaluate the Quality caring model that has been identified by a theoretician, Joanne R. Duffy.

Methods

We have analyzed two books and 12 articles from databases: PubMed, ScienceDirect, Sage Journals, MEDLINE, CINAHL, all from the field of the Quality caring model. Additional literature was searched in Google Scholar, where we have acquired eight hits. The analysis included qualitative, quantitative, studies with mixed methods and books. The search was performed by using keywords and Boolean operators "AND" and "OR". A literature review was conducted in November 2016. In review of the literature were included articles and books related to the topic of Quality caring model. We restricted access to the full text in English. Description, analysis and evaluation of the theory was carried out by using the model of the authors McKenna, Murphy and Pajnkihar (2014).

Results

Quality caring model is a middle range theory. It has clearly stated nine assumptions and health care systems; patient/family; nursing personnel, connects into four concepts: people in relationships; on relationships focused professional meetings; a feeling that someone care for you and self-advancing systems. The model has 12 propositions. The main proposition is on the relationship-based care and contributes to a positive outcome and results for patients, families, health professionals and the healthcare system. The model is based on a comprehensive framework that defends and includes four relationship concerns: myself, patients and families, relationships and health.

Discussion and conclusions

Quality caring model can be used in different environments and cultures. Integration of the theory in education of Slovenian nurses would contribute to a new dimension and view of health care as a whole. The model should be tested and adjusted prior to application in practice. Use of the model contributes to a positive relationship between people and positive outcome of the treatment.

Keywords: health care, model, quality, patient care, Joanne R. Duffy

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Uvod

Model kakovosti skrbi izpostavlja skrb kot skrito vrednoto v zdravstveni negi, vodi prakso zdravstvene nege ter zagotavlja temelje za raziskovanje. Model opisuje odnose, še posebej odnos medicinska sestra-pacient, kot bistvo terapevtskega procesa. Namen prispevka je opisati, analizirati in ovrednotiti Model kakovosti skrbi, katerega je opredelila teoretičarka Joanne R. Duffy.

Metode

Analizirani sta bili dve knjigi in 12 člankov iz podatkovnih baz: PubMed, ScienceDirect, Sage Journals, MEDLINE, CINAHL, s področja tematike teorije Modela kakovosti skrbi. Dodatno literaturo smo poiskali v Google Učenjaku, kjer smo pridobili osem zadetkov. V analizo teorije so bile vključene kvalitativne, kvantitativne in raziskave mešanih metod ter knjige. Iskanje je bilo izvedeno po ključnih besedah ter z Boolovim operaterjem »AND« in »OR«. Pregled literature je potekal v mesecu novembru 2016. V pregled literature so bili vključeni članki in knjige, ki so se nanašali na temo Modela kakovosti skrbi. Omejili smo se na polno dostopna besedila v angleškem jeziku. Časovne omejitve nismo podali. Opis, analiza in vrednotenje modela je potekalo po modelu avtorjev McKenna, Murphy in Pajnkihar (2014).

Rezultati

Model kakovosti skrbi je teorija srednjega obsega. Ima jasno navedenih devet predpostavk in sisteme zdravstvene nege; pacient/družina; izvajalce zdravstvene nege povezuje v štiri koncepte: ljudi v odnosih; na odnose osredotočena profesionalna srečanja; občutek, da nekdo zate skrbi in samonapredujoči sistemi. Model ima 12 propozicij. Glavna propozicija je odnos, ki temelji na skrbi in prispeva k pozitivnim izidom in rezultatom za paciente, družine, zdravstvene delavce in zdravstvenega sistema. Model temelji na celovitem okvirju, ki zagovarja in vključuje štiri odnose skrbi: jaz, pacienti in družine, medsebojni odnosi ter zdravstveno varstvo.

Diskusija in zaključek

Model kakovosti skrbi je uporaben v različnih okoljih in kulturah. Vključitev teorije v izobraževanje slovenskih medicinskih sester bi prispevala novo razsežnost in pogled na zdravstveno nego kot celoto. Model je potrebno testirati in prilagoditi pred aplikacijo v prakso. Uporaba modela prispeva k pozitivnim odnosom med ljudmi ter pozitivnemu rezultatu zdravljenja.

Ključne besede: zdravstvena nega, model, kakovost, skrb pacienta, Joanne R. Duffy.

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BIOLOGICAL DISPOSAL OF SELECTED ANTIBIOTICS IN HOSPITAL WASTEWATER BIOLOŠKO ODSTRANJEVANJE IZBRANIH ANTIBIOTIKOV IZ BOLNIŠNIČNE ODPADNE VODE

SEVERINA STAVBAR, ANDREJA GORŠEK, KATARINA PREMŽL, MITJA KOLAR, SONJA ŠOSTAR TURK

Introduction

Antibiotics are an important group of aquatic pollutants, due to its diversity and high consumption in recent years, as well as because of its persistence in the environment. Amoxicillin and ciprofloxacin are the most commonly prescribed antibiotics in Slovenia, as well as in other countries in Europe. They both enter the environment mainly through the hospital and municipal wastewater or after cleaning the production plants in the pharmaceutical industry, as well as with human urine or as a result of improper disposal of unused medicines. Despite the relatively low levels of concentrations (from ng/L to µg/L) in the environment, both, because of its biological effectiveness and continuous presence, can be detrimental to the human health and aquatic life.

Methods

The aim of our study was to establish a system for wastewater treatment with activated sludge of existing water treatment plant in a laboratory aerobic flow reactor with a maximum volume of 12,5 L. The flow rate was set to 2,0 L/d, which corresponds to the time off living 4 days; flow velocity was 0,165 cm/s and the temperature of solution 23,8 °C. As a measure of cleaning efficiency, we used the standard method for determining the chemical oxygen demand (COD). The concentrations of antibiotics in the sample at the inflow

and outflow was determined using liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS).

Results

The results showed that we achieved a high cleaning efficiency after 24 h and has been increasing with each additional day. After the transfer in aerobic laboratory flow reactor, microorganisms have adapted to the new environment, very quickly. After 49 h, the effect of cleaning was around 99 % and after that did not significantly change. The concentration of ciprofloxacin in the given conditions, reduced by 80 %, while the concentration of amoxicillin decreased by 95 %.

Discussion and conclusion

The removal of amoxicillin and ciprofloxacin in wastewater treatment plants constitutes a real challenge because most studies have confirmed that conventional treatments are not sufficiently efficient to completely remove them from waters. Aerobic flow reactor has proved to be effective in treating wastewater, containing our selected antibiotics.

Keywords: Amoxiciliin, ciprofloxacin, activated sludge, aerobic reactor, liquid chromatography, mass spectrometry

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Uvod

Antibiotiki predstavljajo pomembno skupino vodnih onesnaževal, zaradi svoje raznovrstnosti in visoke porabe v zadnjih letih, kakor tudi zaradi svoje obstojnosti v okolju. Amoksisilin in ciprofloksacin sta najpogostejše predpisana antibiotika, tako pri nas kot tudi drugje v Evropi.

V okolje vstopata predvsem preko bolnišničnih in komunalnih odpadnih vod, po čiščenju proizvodnih obratov v farmacevtski industriji, lahko tudi s človeškim urinom ali kot posledica nepravilnega odstranjevanja neporabljenih zdravil. Kljub relativno nizkim koncentracijam (od ng/L do µg/L) v okolju pa so zaradi svoje biološke učinkovitosti in stalne prisotnosti lahko škodljivi za zdravje ljudi in vodne organizme.

Metode

Namen raziskave je bil v laboratorijskem aerobnem reaktorju z aktivnim blatom iz komercialne čistilne naprave vzpostaviti sistem čiščenja z antibiotiki onesnažene odpadne vode. Raziskave so potekale v laboratorijskem aerobnem reaktorju proizvajalca Armfield, s skupno prostornino 12,5 L. Volumski pretok smo nastavili na 2,0 L/d, kar ustreza bivalnemu času 4 d. Hitrost pretakanja skozi vhodno cevko je bila 0,165 cm/s. S pomočjo termostata smo vzdrževali temperaturo raztopine, $T = 23,8$ °C. Učinek biološkega čiščenja odpadne vode, smo merili s standardno

metodo za določanje kemijske potrebe po kisiku (KPK). Koncentracije antibiotikov v vzorcih na vtoku in iztoku smo vrednotili s pomočjo tekočinske kromatografije skopljene z masno spektrometrijo (LC/MS/MS).

Rezultati

Rezultati so pokazali, da smo že po 24 h dosegli visoko učinkovitost čiščenja, ki se je z vsakim dodanim dnevom stopnjevala. Po prenosu v laboratorijski aerobni pretočni reaktor so se mikroorganizmi zelo hitro prilagodili novemu okolju. Po 49 h je bil učinek čiščenja okoli vrednosti 99 % in se ni več bistveno spreminjal. Koncentracija ciprofloksacina se je v danih pogojih zmanjšala za 80 %, medtem ko se je koncentracija amoksicilina zmanjšala za 95 %.

Diskusija in zaključek

Odstranitev amoksicilina in ciprofloksacina, predstavlja velik izziv, saj je večina študij potrdila, da trenutne čistilne naprave niso dovolj učinkovite, da bi jih popolnoma odstranile. Aerobni pretočni reaktor se je pokazal kot učinkovit, pri čiščenju odpadne vode, ki vsebuje naše izbrane antibiotike.

Ključne besede: Amoksisilin, ciprofloksacin, aktivno blato, aerobni reaktor, tekočinska kromatografija, masna spektrometrija

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