

**ALL-IRELAND
CONFERENCE
OF UNDERGRADUATE
RESEARCH (AICUR)**



**UNIVERSITY OF
LIMERICK
OLLSCOIL LUIMNIGH**

Centre for Transformative Learning

Booklet of Abstracts 2021

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Welcome to the 8th All-Ireland Conference for Undergraduate Research (AICUR)

Limerick, 2021

The conference is hosted by the Centre for Transformative Learning (CTL) in collaboration with internal and external stakeholders.

What is AICUR?

AICUR is the same as other academic conferences but what makes it special is that research contributions are delivered by undergraduate students showcasing their research output as part of their undergraduate studies.

The main aim of AICUR is to promote and applaud the fascinating and worthwhile research that is produced at undergraduate level. In multi-faceted ways, AICUR supports and recognises the development of UL's Graduate Attributes: articulate, proactive, responsible, collaborative, knowledgeable, and creative.

The conference is designed to give undergraduate students (from first to final year) from Higher Education Institutions (HEIs) across Ireland the opportunity to present their research and discuss their creative accomplishments through posters, performances, and oral presentations. The goal is to give undergraduate students from across the country the opportunity to present their research work at an academic conference. This year's participants are paving the way for all future AICUR events and should feel themselves pioneers, exploring the parameters of what undergraduate research in higher education can achieve.

The AICUR programme is structured to create interdisciplinary and cross disciplinary themes so that papers from different fields of study can come together allowing for, and encouraging students, and attendees alike, to interact with and learn from their peers across the academy. Apart from creating academic opportunities, we want to provide opportunities for a dynamic exchange of ideas as this is really at the core of AICUR. This, in turn, will provide an insight into how other disciplines approach research problems.

'By heightening awareness and creating dialogue, it is hoped research can lead to better understanding of the way things appear to someone else and through this insight lead to improvements in practice.'

Barritt (1986: 20)

A note from the AICUR Chair 2021

The 8th All-Ireland Conference for Undergraduate Research (AICUR) is being hosted as an online conference by the University of Limerick in March 2021. It was important to the AICUR organising committee, in the context of public health limitations, that students would be given the opportunity to showcase their undergraduate research.

Students from Higher Education Institutions (HEIs) in Ireland were given the option to participate in an online AICUR offering. They responded to this format with an enthusiasm clearly reflected in this 'Book of Abstracts'. As a result of student commitment and resilience, in addition to the live conference, there will also be a repository of conference contributions hosted on this year's AICUR [webpage](#).

'Student engagement' and 'student success' are terms used across the Higher Education sector, but how these broad terms apply to an individual student is multifaceted. The creation and annual hosting of AICUR provides a platform for students to share their undergraduate research and experience the setting of an academic conference. The feedback from students about the developmental opportunity AICUR affords them makes this conference continually worthwhile. Being a delegate of AICUR facilitates a feeling of success for each student who is dedicated and brave enough to put themselves forward. This sense of success is one all students should experience throughout their undergraduate programmes.

“Enabling student success is critical to our national ambitions at an economic, societal and sectoral level...it is fundamental to maximising the transformative impact of higher education for our students.”

(Understanding and Enabling Student Success in Irish Higher Education, National Forum, 2019, p.1)

Many people make a conference happen, and to organise and host a conference online required the assistance of great colleagues. Special thanks to Professor Stephen Kinsella who kindly agreed to deliver the conference keynote address; the AICUR Organising Committee who contribute to the planning and recruiting for the conference; the ongoing support from the Head of CTL, Dr Mary Fitzpatrick, and the CTL administrative team, particularly Rosaleen Archbold.

Without the support of our student and staff advocates within UL, and extended networks in other HEIs beyond UL, we wouldn't have such successful conferences.

Final recognition goes to all the students who took the time, and made the effort, in difficult circumstances to present their work, a very well done to you all.

We hope to be back 'in-person' in 2022!

Sarah Gibbons, Centre for Transformative Learning

AICUR Chair, 2021

AICUR Organising Committee 2021

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Special Thank You to the Faculties at the University of Limerick who contributed in many ways to the AICUR event. The AICUR Organising Committee would also like to thank our sponsors who have generously supported the AICUR awards.



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Exhibitor



Garret Maher, Undergraduate Awards

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<https://undergraduateawards.com/>

Keynote Speaker - Professor Stephen Kinsella



'The art of doing research that might one day matter'.

I am Associate Professor of Economics at the University of Limerick, Ireland, Senior Fellow at the Melbourne School of Government, University of Melbourne, Australia, and Research Associate at the Rhodes Centre for International Finance at Brown University.

My research uses national accounting data to make better models. I am also interested in the economics of small open economies like Ireland, and health systems research. My research is archived at [Orcid](#) and citations, etc., at [Google Scholar](#). My academic CV is [here](#).

I am Chief Economics Writer for [The Currency.news](#), and was for 4 years a columnist with the *Sunday Business Post*. I have written for the *Guardian*, the *New York Times*, and the *Irish Independent*. I have twice won Economic Commentator of the Year for my columns.

Student Contributions

Oral Presentations

(Presented alphabetically by lead presenter.)

Irish parental attitudes towards the child nasal flu vaccine

Yasmin Abohalima, Medicine, (University of Limerick)

Co-contributors: Olivia Hickey Dr. Patrick O'Donnell, Dr. Peter Hayes

Abstract

Introduction

Seasonal influenza viruses pose a significant challenge to the Irish health care system. Vaccinating healthy children against influenza will reduce the transmission of the virus to other children, adults and medically vulnerable persons. Moreover, decreased transmission of the influenza virus diminishes hospital strain in the busy winter season. In October 2020, a free nasal flu vaccine for children aged 2-12 was introduced in Ireland. As the vaccine is intended for children, uptake is largely dependent on the conviction of parents and guardians to inoculate their children.

Aims

There is currently no research available examining the attitudes of parents and guardians in Ireland in relation to the introduction of the new influenza vaccine. Therefore, this study will gauge parental attitudes towards the nasal flu vaccine and examine any correlation between parental perceptions of vaccines and healthy child vaccination rate. Additionally, it may be possible to gain insights into gaps in public health knowledge and may lead to improved campaigns for the promotion of the vaccine in the future.

Methods

This cross-sectional study will collect qualitative data by means of a voluntary online questionnaire. The sampling method anonymously surveyed Irish parents aged 18 to 64. 179 participants were recruited using social media platforms such as Facebook, Twitter, and Reddit. Demographic information on the participants (age bracket, province of residence, level of education) was collected and will be kept confidential. Quantitative Results obtained from Qualtrics and analyzed using SPSS. Qualitative data is being analyzed using a methodical sequence.

Results

Of the participants 93% had received information through radio, with next being GP practice or from a GP nurse, and the HSE website. Majority of parents agreed that they wanted to

vaccinate their children with 86%, while 8.6% disagreed. Furthermore, 84% believed in vaccinating their children in general, while 8% didn't.

3D Visualisation Malware for Classification

Abdullah Mohamed Al Siyabi, Computing in Digital Forensics and Cybersecurity,
(Technological University)

Abstract

The internet has become an important part of our everyday lives. Recent reports state that 59.5% of the world's population is linked and connected to the internet; daily uses include banking, communication, entertainment, shopping, etc. While making our lives easier, the Internet also has put us at a risk of being attacked or threatened. Threat actors exploit users in cyber space to steal information, extort money, etc. Malware programs are a commonly used approach to commit fraud or even steal private and sensitive details for legitimate users. The number of the confirmed attacks is increasing significantly. Hence, the detection and analysis of malware has been one of the most important issues in the cybersecurity field.

Malware classification and identification is a difficult but important problem. Even in the past year, we have seen a significant increase in the volume of new Malware, making it very difficult to analyze these files manually. I propose to develop an interactive visualization tool that can convert a Malware file into a binary and represent it as a 3D image to aid with the classification. Colour coding will be used to highlight areas of interest, for example malicious code can be highlighted in red, making it easier for an examiner to identify areas of interest for inspection. The Malware is converted from a binary file into a 2D image, which is then converted into a 3x3 matrix using the RGB scale. All the values are then plotted by slicing the values of X, Y and Z. The expected outcome of this project is to make the process of malware classification easier. Image comparison tools will be used to verify the similarity between the Malware sample images from the same families to validate the visualization approach.

Making a home in a cold house?

Rachel Beck, BA History and English, (University of Limerick)

Abstract

This presentation examines the experiences and survival strategies of Methodists outside of Ulster from 1900 to 1932. It shows how this tiny denomination, with its isolated congregations and enthusiastic support for British rule, was able to adapt to the far-reaching changes of the early twentieth century and remain part of the religious landscape after independence from Britain. Historians of Irish Protestantism have not paid much

attention to Methodism; it is presumed that, like the Church of Ireland, it “kept the head down” out of fear during the Irish revolution and afterward, inexorably slipping into numerical decline and social isolation. This presentation aims to take a more nuanced view of how the church experienced and reacted to the evolution of Irish nationalism. Through the use of census returns, newspapers, and church records, it demonstrates the denomination’s resilience and adaptability in the face of considerable challenges. Through an examination of the Ulster deputation to America, it shows how Methodists were able and willing to resist republicanism. By visualising data from baptism and marriage records, it analyses how Methodists protected themselves by moving from isolated rural areas into small towns and cities with a high Methodist population. The presentation also subverts the view of the Irish Free State as a cold house for Protestants by pointing out the government policies, such as tighter regulation for public houses, which made it attractive for Methodists. By looking at what Methodists were saying and doing before, during, and after independence, it sheds new light on what it meant to be a religious minority allied to the British crown during the demise of British rule in the twenty-six counties of southern Ireland. Ultimately, it charts Irish Methodism’s development from a sectarian enemy of Home Rule to a stakeholder in the Irish Free State.

Critical Analysis of the Impact of Covid-19 on Prospective Tourism Graduates’ Employment and Educational Experiences

Paulina Bogusha, B. A. (Hons.) in Business Studies with Travel and Tourism Management, (Limerick Institute of Technology)

Abstract

The purpose of this research is to analyse the key issues impacting on educational and employment experiences of prospective tourism graduates within the tourism industry, prior to and in times of Covid-19. Since December 2019, when Covid-19 was first identified in Wuhan, China, the disease has rapidly spread all over the world with the World Health Organisation recognizing it as a pandemic by the 11th of March, 2020 (Chauhan 2020). Covid-19 was not only a major threat to health in 2020, but also held various economic consequences for many industries, particularly tourism (Uğur & Akbıyık 2020; Gursoy & Chi 2020). A mixed methodology approach was adopted to analyse the impact of Covid-19 and other challenges on the educational and employment experiences of tourism graduates expected to graduate in 2021. A total of 109 questionnaires were collected and analysed based on the responses of final year tourism, hospitality, culinary arts and event management students. Additionally, three sets of interviews have been delivered online through Microsoft Teams with industry lecturers, professionals and past students or employees who changed careers to analyse the strengths and weaknesses of working in or studying tourism. Findings indicate that the most significant challenges faced by the industry (aside from Covid-19) relate to stereotyping and unfavourable working conditions. The biggest issues identified resulting from Covid-19 relate to college being online, negative impact of excessive exposure to technology, securing a job in the field, motivation and loss of opportunities. Most importantly 36.7% of the students surveyed stated that they weren’t

sure if they would pursue a career in the industry after their studies, with 22.02% stating they wouldn't. Over all it is recommended that industry leaders and stakeholders work together to reposition tourism to make it more attractive as a career choice, not only in terms of perceptions but also in terms of actual working conditions.

An examination of the role Destination Marketing plays during the recovery process post terrorist attack.

Carina Boufford, BA (Hons.) Business Studies with Tourism, (Limerick Institute of Technology)

Abstract

This research thesis examines the role strategic marketing plans play throughout the process of destination recovery post terrorist attack for the purpose of encouraging the return of tourists. It investigates the impact strategic marketing plans have within crisis management utilising a mixed-method approach. Survey data analysing future industry leaders quantifies perspectives regarding the relationship between terrorism, tourism, and destination marketing. It reviews destination marketing techniques utilised by international locations to determine recovery strategies using marketing plans. Bali, Paris, Northern Ireland, New York, Sri Lanka, Syria, Tunisia, and Turkey were selected as case studies because they have been the focus of significant research studies to date (Asia-Pacific Economic Cooperation (APEC): Indonesia, 2017; BBC News, 2019a; Ferreira, Graciano, Leal, and Costa, 2019) primarily focusing on the relationship between terrorism and tourism regarding the collapse of the tourism industry. The focus on the recovery of tourism destinations will be beneficial by contributing to the body of knowledge paving the way for future research. In response to significant research gaps regarding a universal definition of terrorism; proactive versus reactive nature of crisis management; and, shifting tourism perspectives, resulted in a two phased research approach. Firstly, a survey was issued to B.A. (Hons.) in Business Studies with Travel and Tourism Management and Event Management students identifying perspectives regarding the relationship between terrorism, tourism, and destination marketing. Secondly, case study analysis was conducted examining successful and unsuccessful destination recovery strategies. Issues arising from analysing these data sources and information from the literature review identify implications for future development of strategic marketing models regarding crisis management for the tourism industry. Results indicate destinations using strategic marketing within crisis management frameworks experienced return of tourists and recovered. This research will contribute to development of an inclusive, universal crisis management framework encompassing strategic marketing plans as a recovery tool.

If Soils Could Talk. The Artist as Climate Advocate

Victoria Brazhnikova, Fine Art - Painting, (Limerick Institute of Technology)

Abstract

The topic of soil management and its impact on climate change is absent from the mainstream debate about climate change. Healthy, carbon-rich, fertile soil is what humanity has been destroying more rapidly than any other resource on the planet. I use art to illuminate this issue and speak up for the silent victim that is our soil.

I am an environmentally informed artist whose research and creative work embraces the mission of steering ecological consciousness to encourage the proactive preservation of Nature. The trite formulas of the “Save The Planet” narrative have framed environmentalism as an act of altruism towards the planet as opposed to an act of self-preservation. Drawing on this observation I shift the focus from “Save The Planet” to save ourselves from accelerated extinction due to environmental anthropocentrism.

Re-thinking soil ecology

Traditional soil management practices lead to continuous carbon release, compromising natural soil fertility and exacerbating global warming. Soil depletion has been increasingly linked to autoimmune diseases. Artists such as Helen Meyer Harrison and Newton Harrison understood it as far back as the 1970s, reflecting on their “Survival” meadow installation by warning the viewer, “If we want to survive as a species we need to learn how to preserve topsoil.” I trust the power of art to evoke ecological empathy. I deploy my art to augment the environmental call to reframe our relationship with the natural world. I believe that part of reconnecting humans with nature should include effort to invigorate appreciation of ecological knowledge and practices.

My stance on the misunderstanding of soil ecology

<https://www.vibrazhion.com/post/digging-is-killing-the-atmosphere-and-soil-life-are-you-still-part-of-it>

My website: www.vibrazhion.com

Coping during Covid-19: Could extraversion be a detriment to mental well-being during the Covid-19 pandemic?

Niamh Buckley, BA Psychology and Sociology, (University of Limerick)

Abstract

The Covid-19 pandemic and the accompanying counter measures implemented by governments have led to severe disruption of daily life for people worldwide. The resulting mental health impairments are not yet known but are expected to be significant and potentially long-term. The present study aimed to identify who may be most resistant to mental health impairments. Previous research has shown that the personality trait extraversion is positively related to mental well-being, with individuals high in extraversion usually using coping strategies that promote positive mental well-being when dealing with

stressful events. The present study investigated whether this positive relationship between extraversion and mental well-being remains when people deal with the distress that has come with Covid-19 and its countermeasures, where the distress is often characterised with lack of social interactions. Additionally, we tested whether this relationship is mediated by any of four coping strategies (self-sufficient problem focused, self-sufficient emotion focused, socially supported coping and avoidant coping) employed to deal with distress. The study implemented a cross-sectional correlational design with 243 participants, living in Ireland during a period of Level-5 (highest level) lockdown completing an online survey. In line with previous findings, people high in extraversion showed better well-being than those low in extraversion, indicating that extraversion remains to be a protective factor for positive mental well-being, even during a pandemic situation. Self-sufficient emotion focused coping was the only coping strategy that contributed in explaining this relationship. These results indicate that mental well-being of people high in extraversion is protected by self-sufficient emotion focused coping strategies. However, exploratory analysis that controlled for additional personality traits in their effect on well-being indicated that the observed relationship is also affected by other personality traits. We will discuss these findings and their implications on people's well-being dealing with severe social restrictions.

Key Words: Covid-19, Extraversion, Coping Strategies, Mental Well-Being

Auditory induced synaesthesia: Exploring a hidden musical superpower

Abby Butler, BA performing arts (voice), (University of Limerick)

Abstract

This paper presentation will explore what auditory induced synaesthesia is and whether this neurological gift gives musical synesthetes an edge in the creative field compared to people with neurotypical brains. The researcher will discuss how famous composers and artists throughout the years were labelled as musical prodigies when they may have possessed a condition called 'musical synaesthesia' (for example Liszt, Duke Ellington, Pharrell Williams). She will describe how the brains of synesthetes are structurally and functionally different to the average human and how this gift has connections with absolute pitch, total musical embodiment (e.g., seeing colours and tasting the music as you compose it) as well as enhanced memory for learning intricate pieces of music. This presentation promises to be interesting, informative and stimulating to anyone interested in how music works.

Accentuated Eccentric Loading: A systematic review of techniques and effectiveness

Conor Cantwell, BSc Sport & Exercise Sciences, (University of Limerick)

Abstract

Muscular strength is a component of fitness with important associations to health and performance. From a sports performance perspective, strength has been shown to be associated with a variety of important athletic/performance attributes. Practitioners seeking to improve their athletes' strength however, must first understand resistance training (RT) prescription. With a variety of training methods to choose from, it is important that practitioners make informed programming decisions to produce the best programs relative to the individual characteristics and needs of their athletes.

Accentuated eccentric loading (AEL) is a specific resistance training prescription method that applies eccentric load magnitude in excess of the concentric prescription using movements that require coupled eccentric and concentric actions. The intention is to do this with minimal interruption to natural mechanics. This method has been theorized to potentiate concentric performance through higher eccentric loading and, thus, higher concentric force production. However, research on this to date is inconclusive. The aims of this systematic review were to (1) review the evidence to date on the methods of AEL application and (2) examine the acute and chronic implications of AEL as a means to enhance force production.

Four online databases (PubMed, SPORTDiscus, Medline and Web of Science) were used to systematically review the AEL literature. 31 studies met the inclusion criteria. Data was extracted using PRISMA guidelines and study quality was assessed using the PEDro scale. The review found that there are large inconsistencies in subjects, exercise selection, load prescription, and method of employing AEL training. The acute and chronic effects of AEL on performance are also highly varied. The review highlights challenges for the practitioner in terms of applying AEL in practice. The review also highlights the need for future randomised control trials that provide clear and explicit exercise prescription details employing both male and female participants.

Disruption to everyday routine and depressive symptoms during the Covid-19 pandemic: social connectedness and rumination as mediators

Kevin Casey, Bachelor of Arts, (University of Limerick)

Abstract

The Covid-19 pandemic has resulted in significant changes in the day-to-day living of individuals around the world, which can have serious consequences for mental health. The present study aimed to examine the effect of the disruption to routine on mental health; in particular, depressive symptoms. To add to the existing growing body of Covid related research, this study also examined the mediating role of rumination and lack of social connectedness to explain how this disruption may lead to increased depressive symptoms. 496 people ranging in age from 18 to 73 years old ($M = 28.73$, $SD = 10.93$) participated in this study. This included 123 (24.8%) males and 372 (75.0 %) females; in addition, 1 (0.2%) identified as 'other'. Participants were recruited using snowball sampling on various social media platforms. They completed an online survey on Qualtrics, which examined how much disruption they have had to their everyday routine, how socially connected they feel during lockdown, levels of rumination, depression levels, and social media usage. Serial

mediation analyses using Hayes PROCESS Model 6 showed that disruption to well-being activities was associated with decreased perceptions of social connectedness, which was then linked to higher levels of rumination, and then, in turn associated with higher levels of depressive symptoms. Clinically significant levels of depression were found. This suggests that social distancing measures put into place to fight Covid-19 have had a negative effect on people's mental health. Interestingly, though many now rely on online means of engagement for most aspects of their daily routine. The implications these results have for our society are discussed.

Hand hygiene-related clinical trials reported since 2014: a comprehensive systematic review

Conor Clancy and Thilini Delungahawatta, Bachelor of Medicine, Bachelor of Surgery (BMBS), (University of Limerick)

Abstract

Background: There is general consensus that hand hygiene is the most effective way to prevent healthcare associated infections. However, low rates of compliance amongst healthcare workers have been reported globally. The COVID-19 pandemic has further emphasized the need for global improvement in healthcare worker hand hygiene compliance.

Aim: This comprehensive systematic review provides an up-to-date compilation of clinical trials, reported between 2014 and 2020, assessing hand hygiene interventions in order to inform healthcare leaders and practitioners regarding approaches for reduction of healthcare-associated infections using hand hygiene.

Methods: We searched CINAHL, Cochrane, EMBase, Medline, Pubmed, and Web of Science databases for clinical trials published between March 2014 and December 2020 on the topic of hand hygiene compliance among healthcare professionals. From these searches, a total of 332 papers were identified of which 57 studies met criteria.

Findings: Forty-five of the 57 studies (79%) included were conducted in Asia, Europe and the USA. A large majority of these clinical trials were conducted in acute care facilities, including hospital wards and intensive care facilities. Nurses were the largest group of healthcare workers studied followed by physicians, represented in 44 (77%) and 41 (72%) studies, respectively. Thirty-six studies (63%) adopted the World Health Organisation multimodal framework or a variation of it, and many of these recorded hand hygiene opportunities at each of the five moments, although recording of hand hygiene technique was not common.

Conclusion: Both single intervention and multimodal hand hygiene strategies can achieve modest to moderate improvements in hand hygiene compliance among healthcare workers.

Gender Equality in Sport

Áine Cleary, Bachelor of Laws, (National University of Galway)

Abstract

Creating a level playing field for men and women is a contentious issue, particularly in sport. In recent years strides have been taken towards creating parity, however significant inequalities still exist. This research looks at gender stereotypes and how they can be broken down to give women in sport an equal opportunity. I will address the issue of the gender pay gap in sport as well as the lack of recognition of female athletes and teams. Underrepresentation in the media is one of the biggest barriers to increasing interest in women's sport. Currently women sports make up just 6% of sports coverage in the media. Women are also underrepresented in decision making bodies in sports federations throughout the EU.

There is a lack of effective legislation in this area, the equality and Equal status acts do little in practice to prevent discrimination against women in sport. Many sporting organisations are voluntary so there is a reluctance to interfere.

It is important to address this issue as participating in sport has many advantages including for both mental and physical health. Many girls stop playing sport at a young age. It is important that young girls have female role models, however this is inhibited by the lack of visibility of female athletes. The 20x20 campaign and other media campaigns have created awareness of female sports and changes the way in which women in sport are perceived. Greater media coverage of women's sports, as well as equal access to sport for are essential to improve the inequalities in sport.

Applying a Human-Centred Design Approach to Alleviate Strain on Irish Healthcare Services by Introducing a Digital Age

Louise Clifford, Digital Media Design, (University of Limerick)

Abstract

This study analyzes and identifies what is causing a strain on Irish Healthcare services and how experts can easily adapt new products or technology into the medical domain. As the seriousness of the COVID-19 became apparent in March 2020, the response of the Irish Healthcare system resulted in staff and resources being diverted from existing services and allocated to fight against the virus. A high proportion of deaths occurred as patients received insufficient care and attention during the early days of the pandemic. Many services have struggled to manage and provide continued high-quality care and support to their patients, with constant pressure felt by staff. This study aims to determine how such pressure can be relieved in order to optimise Healthcare Services in Ireland. The definition of Healthcare Services is broad, and for this study, particular attention is being paid to the pharmaceutical environment and what role the pharmacist takes in our medical needs. Is

there an opportunity or gap in service needs that can be optimised to provide pharmacy services differently? By completing interviews and observations, the aim is to investigate this area and gain a better understanding of the types of pharmacy users and their interactions with pharmacies. The aim is to support the user in completing tasks and to support the business in achieving their targets. The research carried out raises serious questions about the stability of Irish Healthcare and its services, especially as the pandemic worsens. A human-centred design approach will integrate a combination of perspectives; those whose activities will be affected by a design outcome and those who can offer expert opinion regarding the activity the design will support. The goal of this research would be to achieve a solution that supports Irish Healthcare Services on a nation-wide level of emergency should a medical threat of this calibre arise in the future.

The Double Marginality of 20th Century Republican Irishwomen

Grace Conneally, Applied Languages, (University of Limerick)

Abstract

This research began from a hypothesis which formed into a question, one which was open to debate and questioned women's role in Irish society. The hypothesis is that twentieth century Republican Irishwomen are marginalised, and so, the research question queries the validity of this. The main research question, then, is whether Republican women of the twentieth century in Irish history are marginalised, and whether they remain marginalised in contemporary times.

The objective of the project is to disrupt the silence surrounding women's involvement in contemporary Irish history, and to question whether Irishwomen remain marginalised in the twenty-first century, just as history recalls them to be in the twentieth century. The approach taken to answer this question in a modern-day society, utilises both print and new media as instruments by which knowledge can be measured.

Evaluating data from new media as a research resource, allows one to test the availability of historical female-focused knowledge to people today. The medium of Spotify was selected as a modern-day media. Spotify is an audio streaming application and a form of new media, renowned for streaming songs, podcasts, and radio. The overall ratio of available resources surrounding Republican men and women gives a fair indication of the weight distribution of gender recognition. Additionally, the use of analysing print media in this study, allows one to test the availability of knowledge in existing research and publications, to examine the extent of how history remembers Republican Irishwomen.

The research data resulted in a preponderance of findings directing history's attention to the remembrance of Irishmen, rather than women, and so, suggests validity in the hypothesis that Republican women's role was, and remains, undervalued. The qualitative data of this study finds that existing literature marginalises the work of Irishwomen in history. Similarly, the quantitative data reveals how song marginalises women's importance in history, with

the majority of songs focusing on men's role, and undervaluing women's active revolutionary role.

Further, this research project finds and concludes that this marginalisation of Irishwomen exists in both print and new media, past and present. This poses a new concept of "double marginality" – whereby Republican Irishwomen were treated as subordinates to men in history throughout the 1900s as seen in existing research, and yet, these same women remain marginalised in contemporary times as seen in the evaluation of songs as a form of new media.

A Way of Life: An Investigation into the Relationship Between Social Support, Stress and Psychological Well-Being in Irish Farmers

Avril Deegan, BSc in Psychology (Honours), (Dublin City University)

Abstract

Little is known about the relationship between social support, stress and psychological well-being in Irish farmers. This study aimed to investigate the stress buffering effect of social support on psychological well-being, the impact of farm related/demographic factors on stress and well-being, as well as the impact of social support on stress. A sample of 196 Irish farmers completed a short online questionnaire including the Multidimensional Scale of Perceived Social Support, the Farm/Ranch Stress Inventory, the 42-item Psychological Well-Being Scale and a number of farm related/demographic questions. Multiple regression analysis found support for the stress buffering effect of social support on psychological well-being, while also finding social support to have a differential impact on stress and psychological well-being. Interestingly, family support had a positive association with financial and farm related factors of stress but was not predictive of psychological well-being, with friend and significant other support being the only predictors of psychological well-being. In terms of farm related/demographic factors, multiple regression analysis found membership of a farming organisation to be a protective factor against social stress. Likewise, non-mixed farms were found to be a protective factor against financial stress. The findings highlight the importance of considering the use of the stress buffering model in future research on stress and psychological well-being among farmers. They also highlight the need for interventions and campaigns aimed at highlighting the importance of joining a farming organisation and looking for support from spouse, friends and family.

Co-development of a Video-based Evidence Synthesis Knowledge Translation Resource

Cristian Deliv, Bachelor of Medicine (MB) of Surgery (BCh) and of Obstetrics (BAO), (National University of Ireland Galway)

Abstract

People of all ages and walks of life are bombarded with health claims from an array of sources. Evidence synthesis allows all the relevant and high-quality information from those sources regarding a certain research question to be collated into a final statement. An understanding of evidence synthesis is important for people to make truly informed healthcare decisions. Knowledge translation resources allow complex and oft time-consuming-to-interpret scientific research results to be “translated” into a digestible, understandable, and accessible form for the general public, however the development of these resources has often been poorly described or studied.

This study aimed to employ a user-centred approach to develop a video animation resource to explain the purpose, use and importance of evidence synthesis to the general public in relation to healthcare decision-making.

The methodology involved using a user-centered approach to help develop a spoken animated video (SAV) that could explain evidence synthesis to a public audience, conducting several cycles of idea generation, prototyping, user-testing, analysis, and refinement. Six researchers with relevant expertise gave input on the key messages of the video animation and informed the first draft of the storyboard and script. Seven members of the public provided feedback on this draft through Think-aloud interviews, which we used to develop a video animation prototype. Seven additional members of the public participated in Think-aloud interviews while watching the video prototype.

The researchers’ initial key messages for the SAV together with the guidance, feedback, and instruction from members of the public during the two rounds of user-testing allowed us to produce a video animation that members of the public rated 9/10 for usefulness, 8/10 for desirability, 8/10 for clarity and 9/10 for credibility. The video was uploaded on YouTube (<https://www.youtube.com/watch?v=nZROxQmZVQg>) and has been viewed over 5500 times to date.

Quality of Life in Older Adults: The Role of Religion.

Sarah Duggan, BSc Psychology (University of Limerick)

Abstract

Quality of life is an area of research that is consistently important, especially in the older generation. The purpose of the present study is to look at the impact of religiosity on quality of life in the older population, and to determine if restful religiosity is a better predictor of quality of life than crisis religiosity. Restful religiosity refers to those who are intrinsically religious, while crisis religiosity refers to those who turn to religion in times of distress. This study utilised data from the fourth wave of the Irish Longitudinal Study on Ageing, which looked at 3,963 community-dwelling over 50 adults in Ireland. Quality of Life was measured by the control, autonomy, self-realisation, and pleasure scale (CASP-19) and religiosity was measured using questions in the self-completion questionnaire. This study was carried out using multiple regressions to see if the different forms of religiosity could predict quality of life scores in older adults, both men and women. Multiple regression

results showed that restful and crisis religion both significantly predict CASP-19 scores in older people, with larger effect sizes for those who are considered restfully religious $F(2, 1628) = 12.26, p < .001, \beta = .11$ and $F(2, 2393) = 6.63, p = .001, \beta = .07$ respectively. For gender, restful religion was a significant predictor for both men and women, and the effect sizes for women and men in the final model were the same, $\beta = -.03$ for both. Religiosity as a whole predicts quality of life scores in older adults, whether it is restful or crisis. This may be due to the social aspect that is integrated into the process of attending services. Future research could focus on this factor.

Keywords: Religion, elderly population, crisis religion, restful religion, CASP-19, quality of life.

Stress and Social Support in Working Family Carers

Laura Finneran, BA Psychology and Sociology, (University of Limerick)

Abstract

Several studies demonstrate that caring for a child with DD is associated with high stress and low social support, however some studies show that when parents of children with DD are also in employment they have reduced stress and increased social support. Furthermore, studies show that social support acts as a buffer against stress in parents of children with DD. This study seeks to investigate, firstly, the effect of employment status and caring for a child with developmental disabilities (DD) on stress and social support in parents and, secondly, the effect of social support on the relationship between stress and work. Participants (N=173) consisting of parents of children with DD and control parents, completed questionnaires assessing employment status, perceived stress and perceived social support. Analysis is not yet complete however, factorial ANOVA analyses will be used to determine if stress and social support differ depending on parent group and employment status. Furthermore, a mediation analysis will be used to investigate the effect of social support on the relationship between stress and work in parents of children with DD. The results will contribute to the literature on working informal carers by providing a more complete understanding of the impact employment and social support have on stress.

Keywords: stress, social support, parents, informal carers, work.

A look at the Security of IoT Devices between Premium and Cheaper Devices

Eamonn Gibson, Data Forensics and Cyber Security, (Technological University Dublin)

Abstract

Frequently in the market, well-known brands are undercut by cheaper lesser-known brands, yet vendors promise the same level of experience and features. This is common across every known commodity, but the question of “What is being sacrificed to reduce the price?” is typically asked by consumers. What is it exactly that you must compromise to obtain the lower cost, or what are you sacrificing completely? Is it design, functionality, quality, security, or all of them?

Security vulnerabilities in IoT devices is a well-known issue within the cybersecurity domain, but to the best of my knowledge, there are no direct comparisons made between premium and budget smart devices. A prime example of a device of interest is a smart doorbell. As these doorbells have both a camera and microphone, which are recording people entering and leaving the home on a real-time basis, then it is vital that the device is secure regardless of cost.

To investigate the vulnerabilities in these devices, I have developed an assessment framework which looks at different categories of the IOT device security using common penetration testing tools and techniques. Numerical values are assigned to the devices tested, allowing for an overall weighted score to be calculated. To obtain these scores, a series of tests must be completed using a scientific approach.

To conduct this research, two doorbells were chosen: the premium device, the Eufy Video Doorbell 2K that retails for approx. €200; and the cheaper alternative, the SSYING video doorbell that costs approx. €60.

The overall goal of the research is to determine the security level of the two doorbells at either end of the cost spectrum, by conducting robust suite of penetration tests using a framework adapted from the literature.

Bioinformatic Analysis of Copy Number Alteration Signature Mechanisms in Ovarian Carcinoma

Conor Giles Doran, Biomedical Health and Life Sciences, (University College Dublin)

Abstract

High grade serous ovarian (HGSOC) cancer is a complex disease associated with treatment resistance and poor prognosis. Largely driven by DNA copy number alterations (CNAs), it is characterized by an extreme level of chromosomal instability, giving rise to a vast degree of intratumoural heterogeneity among patient samples. CNA signatures have offered a novel computational method of advanced patient stratification, aiming to identify molecular patterns within the heterogeneity that exists.

This study aimed to: (i) confirm CNA signature findings from a previously published HGSOC study; (ii) use RNA-sequencing data to generate differential expression (DE) profiles for these CNA signatures; (iii) computationally derive RNA signatures based on these profiles and (iv) assess the prognostic potential of both the CNA and RNA signature classifications.

This enabled a detailed stratification of HGSOC genomes, offering insights into the fundamental mutational mechanisms that make tumorigenesis so prolific.

Using the published methods, seven CNA signatures were derived from 415 HGSOC samples, wherein the intratumoural heterogeneity among samples was evident. Six CNA signatures were used to generate DE profiles, revealing the key hallmark pathways and genes underlying HGSOC. CNA s5 and s6 were significantly associated ($p = 0.031$) with the worst and best overall prognosis, respectively. Four RNA signatures were subsequently derived for 311 HGSOC samples, of which r2 and r4 dominated, r2 being associated with the more favourable prognosis ($p = 0.21$).

Although with limitations, this study has highlighted the interesting potential of CNA signatures as both future prognostic and diagnostic biomarkers in cancer, providing an advanced level of stratification that might aid in deciphering the underlying complexity of HGSOC.

Marine protection legislation, are we doing enough?

Amber Gilgan, Bachelor of Laws LLB, (National University of Ireland Galway)

Abstract

The main aim of this research topic is to shed some light on issues regarding marine protection legislation, primarily within the European Union. Although legislation such as the Protection of Animals Act dates as far back as 1911, animals are still suffering at the hands of humans daily. This study looks to Ireland's position and legislation in relation to marine life and conservation, while adhering to EU regulations such as the important Habitats Directive. Under this directive a number of animal and plant species are protected, including cetaceans such as whales or dolphins. Under this directive, Member States are obliged to submit a report every six years regarding improvements they have made in respect of the Habitats Directive. Attempts at developments in the area of marine protection included the European Commission's 'Marine Strategy Framework Directive' in which the aim was to achieve good environmental status of the European Union's marine waters where every Member States had to develop its own strategy for its marine waters. Enforcing developments such as this, the European Union is actively ensuring its members are doing their best to protect their seas however, issues still arise where humankind's greed is more important than an animal's life. This study also highlights the issue regarding the Faroe Islands lack of legislation in protecting marine species life, with their annual whale hunting activity. Independently governed, the Faroese Government appears to have no desire to put a stop to this massacre, and this highlights the issue of whether any reform can legally take place in order to criminalise this act. Although the EU may be awarded for its efforts to implement strict marine protection legislation, the issues still lie with the interference caused by human activity and negligence.

Assessing the impact of inquiry-based investigations on student engagement and scientific literacy in an Irish education context.

Shauna Gregory, BSc with concurrent Teacher Education (Biology and Agricultural Science), (University of Limerick)

Abstract

Due to the Irish education system placing greater emphasis on students scientific literacy and critical thinking skill. The implementation of inquiry-based learning in post-primary schools through inquiry-based investigations allows teachers to become facilitators in student learning and teaching. This study aimed to determine how inquiry-based investigation can enrich student participation and challenge students cognitively. Specifically, it investigates whether this hands-on approach can allow students to develop critical thinking, problem-solving, and communication skills. It allowed students to actively explore a research question given by the teacher and, in their pairs, generate their hypothesis, aim of experiment, materials, method, results and conclusions.

There were 15 transition year participants involved in this investigation who engaged with agricultural science topics such as osmosis, photosynthesis adaptations, and soil science. Four data methods were gathered throughout two cycles of action research; they included critical incident questionnaires, reflective journal, three-dimensional learning questions, and finally, focus group questions. Both quantitative and qualitative data analysis was conducted on each data collections. From the quantitative data analysis, it was clear that students scientific understanding of the topics at hand were enhanced after completing investigative work.

Responses were analysed using coding and thematic analysis outlined by Punch (2006) in his many publications. Students reported they found the inquiry-based investigations more interesting and allowed them to generate, conduct and evaluate results. From observing students during the investigative process, students got more involved in class discussions, allowing them to learn from each other.

In conclusion, these results suggest there is a potential for inquiry-based investigations to enhance students understanding and develop key skills. On this basis, such intervention inclusion may be feasible when adequate time and planning goes in by both teachers and students. As with all studies, there are limitations such as a short timeframe for action research, small sample size and student absenteeism.

Using Choice Boards to Implement the Universal Design for Learning when Teaching Transition Year Genetics

Eimear Horan, Bachelor of Science, (University of Limerick)

Abstract

The average student cohort in Ireland is becoming increasingly diverse. There is an increasing demand for inclusive methods for catering for all abilities and backgrounds. Universal Design for

Learning is a framework with many possibilities for creating an inclusive classroom environment. This Action Research Project investigated one UDL implementation in particular- the use of Choice Boards. A choice board (or a tic-ta-toe board) displays options in a 3x3 format, allowing students to choose a variety of activities to convey their learning. In this two-cycle process a choice board was implemented in a Transition Year Science class (n=17), during the undertaking of a genetics module. The aim of this action research was to investigate if “*choice boards be used as a tool to support UDL framework by enhancing student engagement and providing varied opportunities for expression?*”

Qualitative data was collected using critical incident questionnaires adapted from Brookfield (1998), Linkert scale type questions, a discussion group, and researcher reflections. Themes that arose in the findings were as follows: Engagement, Choice, Attitudes towards Genetics and Genetic Literacy, Difficulty of the Choice Board, Group Work, Assessment for Learning, Changes made for the Second Cycle and ICT. In the first cycle, student engagement was neutral on average. Student engagement improved in the second cycle, as changes were made based on their feedback. Applying Vygotsky's ZPD, shorter, fewer challenging activities were implemented and an increased inclusion of ICT. In both cycles' students reacted well to the choice element of the choice board, and positive feedback was received on the opportunities to express themselves through drawing, speaking etc.

The maximal session effort method of prescribing high-intensity interval training (HIIT) in national level rowers: An observational study.

Colm Horan, Sport & Exercise Sciences, (University of Limerick)

Abstract

Introduction: High intensity interval training (HIIT) is a key component of endurance athletes' training. HIIT sessions consist of repeated intervals interspersed with recovery periods and are generally performed at >85% of power at maximal rate of oxygen consumption (VO_2max). VO_2max power approximately equates to 2000m ergometer power. The aim of this study was to describe and compare the effect of prescribing HIIT using the “maximal session effort method” (MSE) for various interval distances and rest periods over two seasons in national level rowers.

Methods: Twenty-three national level rowers (males: n=15, age: 21 ± 1 years, rowing experience 6 ± 2 years, body mass: 85.6 ± 9.8 kg, and females: n=8, age: 21 ± 1 years, rowing experience: 6 ± 3 years, body mass: 71.0 ± 8.3 kg) participated. The study was an observational design and data from all HIIT sessions was recorded between January 2020 and March 2021. All sessions were completed on a rowing ergometer (Concept II, Model D, Morrisville, VT, USA). Participants were instructed by the head coach to complete all HIIT sessions at their “maximal sustainable effort”. Power (W), and stroke rate (strokes/min) were recorded for each session and compared to participants' most recent 2000m and 6000m ergometer performances.

Results: 378 sessions were analysed. Participants completed four 2000m and five 6000m ergometer tests throughout the two seasons. All HIIT sessions were completed at $95\pm 9\%$ of 2000m power and at $115\pm 11\%$ of 6000m power.

Conclusions: Prescribing HIIT sessions using MSE appears to be effective in national level rowers as all HIIT sessions were performed at $95\pm 9\%$ of 2000m power which aligns with previous recommendations of $>85\%$ of $VO_2\text{max}$ power. Data presented from this study may prove to be a useful tool in the prescription of HIIT sessions in an applied setting. Further research should investigate the physiological responses (e.g. heart rate, blood lactate, etc.) to HIIT sessions utilising MSE.

Tionchar na Tíreolaíochta agus na nGaoilta Sóisialta ar Fhorbairt na gCanúintí sa Chontanam Gaelach

Kevin Hussey, BA Applied Languages, (University of Limerick)

Abstract

Mar a thaispeánann tóir an leabhair mhór-ráchairte le Tim Marshall, *Prisoners of Geography* (2016), is go coitianta a aithnítear go mbíonn tionchar mór ag an tíreolaíocht ar fhorbairt ghnéithe an chine dhaonna, an teanga agus canúintí ina measc. Agus tagairtí déanta don leabhair *Irish Dialects Past and Present* le T.F. O’Rahilly (1932) go fóill, is léir nach amháin go coitianta ach go hacadúil chomh maith a n-aithnítear tionchar na tíreolaíochta ar fhorbairt chanúna. Ní hí an tíreolaíocht fhisiciúil amháin a mbíonn tionchar aici ar malartú teanga áfach, agus léiríonn an bheirt scoláirí seo gurb iad na gaoilta sóisialta, idir thrácht agus thrádáil, a chruthaíonn cosúlachtaí agus difríochtaí idir canúintí.

Is é an tráchtas seo ná féachaint ar an tuiscint chomh-aimseartha ar an tionchar atá ag tíreolaíocht agus ag gaoilta sóisialta maidir le forbairt chanúna sa chontanam Gaelach. Ag tagairt ar na mór-staidéir an 20ú aois mhoch, T. F. O’Rahilly agus Heinrich Wagner ina measc, agus na staidéir níos nua-aimseartha a bhaineann úsáid as an eitneagrafaíocht, cosúil le Nancy Dorian, agus modhanna anailísí idirdhisciplíneach, mar a léiríonn Peadar Ó Muircheartaigh, bailíonn an tráchtas seo na forbairtí is mó a rinneadh i Léann na Gaeilge ar an ábhar le haghaidh an tuiscint seo a léiriú. Déanann sé anailís orthu le chéile go n-ainmneoidh na nósanna agus na gnáis a tharlaigh sa Léann agus conas ar lig siad do scoláirí fionnachtain cosúil le Cineálachas Pearsanta Teanga agus treoirínte prosóide agus foghraíochta a dhaingniú.

Social connectedness as a mediator between social media and depression during the Covid-19 pandemic

Kate Kennedy, BSc Psychology, (University of Limerick)

Abstract

Individuals’ mental health is particularly vulnerable during the Covid-19 pandemic; therefore, understanding whether social media improves or exacerbates this is valuable at this moment in time. The current study investigated social connectedness as a mediating

variable explaining the association between daily hours spent on social media and depression of participants during the initial Covid-19 restrictions in Ireland. 652 adults self-reported validated psychometric questionnaires including the Patient Health Questionnaire 9 and the Revised Social Connectedness Scale through an online survey, conducted through Qualtrics research software. Daily hours spent using social media was also recorded. Results indicated that the association between social media and depression was mediated by social connectedness ($\beta = .87$ ($SE = .12$) [$.64, 1.1$]), lower levels of social media usage was linked to higher levels of social connectedness, which in turn, was associated with lower depression. These findings suggest that decreasing daily social media use during covid-19 restrictions could be beneficial for social connectedness of individuals, which consequently would decrease levels of depression. It is necessary to further investigate social connectedness as a mediating variable which could potentially fill the gap in research regarding social media and depression's association. The implications of this will be discussed.

An Analysis of Socioeconomic Status, Values and Environmental Attitudes in the European Social Survey

Criostoir King, BA European Studies, (University of Limerick)

Abstract

Climate and biodiversity breakdown are the most challenging and existential threats facing humanity today. These crises are deeply interwoven with challenges faced by societies across the globe, from economic inequality to racial injustice, and the solutions to them are often the same. The scientific consensus emerging in recent years has been consistent in pointing to the ever shrinking window of opportunity to avoid the worst impacts of ecological breakdown, but the slow pace of change has sparked a rise in social movements calling for accelerated climate action. These movements are made up of people who are deeply concerned about ecological breakdown. They have, however, been criticised for their disproportionately middle-class membership, and for failing to adequately consider the needs or value the contributions of working-class people. Some explain this by pointing to more favourable environmental attitudes among the more affluent, while others emphasise the failings of the movement to adequately consider issues of importance to the working classes. This research tests the first explanation; whether there are between-class differences in attitudes towards climate change. Using bivariate and multivariate regression analysis, this study examines data from the European Social Survey to understand how socioeconomic factors affect values and, consequently, attitudes towards climate change. The research carried out here finds relationships between socioeconomic status and attitudes towards climate change, with higher socioeconomic status often being associated with stronger interest in and support for climate action. However, it also offers some caveats as to how these findings may be interpreted. It can be argued that the measures of environmental attitudes used here are biased towards issues which are intrinsically more likely to gain support among the more affluent. It therefore

examines different types of and causes for environmental concern, and considers how the mainstream framing of environmentalism could better take these into account.

Discovering New pulsars with LOFAR

Matthew Kirwan, Physics with astronomy, (Dublin City University)

Abstract

My internship was based on discovering new pulsar candidates with the Low Frequency Array Two Meter All Sky Survey (LOTASS).

Pulsars are the collapsed core remnants of massive stars; as a result of their formation, these objects are highly magnetized and rotate at about 1000 times per second. There are approximately three thousand pulsars that are known, by discovering more scientists will be able to probe the most extreme states of matter, the magnetic fields that extend through our universe, and understand more about pulsars in general.

My work involved parsing 10,000 polarized sources from LOTASS and selecting candidates, as well as identifying known pulsars as we could provide a better position and rotation measure for the source. I created an automated pipeline in python to remove sources based on their images and if they had an optical/IR counterpart, and then parse through the remaining source list and select candidates based on their properties. I would then manually select and prioritize sources for observation.

I had discovered tens of high priority sources which hopefully are on the list for observation, and under a hundred low priority sources.

Youth unemployment in post Arab Spring Tunisia: a historical and contemporary analysis of the effect of World Bank lending programmes on the economic inclusion of young people.

Maeve Lane, Middle Eastern and European Languages and Cultures, (Trinity College Dublin)

Abstract

More than ten years have passed since the Tunisian Revolution's conclusion in January 2011 kickstarted the country's democratic transition. Despite the successful regime change that took place, the social, economic and structural issues which kickstarted the Tunisian uprising remain largely unimproved. At the heart of this socioeconomic turmoil is the issue of chronic high youth unemployment. Despite their leading role in the Tunisian Revolution (2010-2011), as of 2019 youth unemployment in Tunisia stood at 35.8%, which is almost triple the global average of 13%. Tunisia's transition to democracy nor its strong calls for reform amongst its highly politically-engaged youth demographic have been enough to

improve young people's socioeconomic outcomes in the country. This reveals that the issue is both a deep-rooted historical problem and a persistent contemporary one. I will show that the consistent undermining of the social contract by the country's authoritarian government has been bolstered by their formation of extensive systems of repression, cronyism and corruption. These systems have allowed them to hide gaping socioeconomic issues and quieten public discontent. Up until 2010, development actors including the World Bank, have unintentionally contributed to this socioeconomic turmoil, as they have pushed neoliberal policy reforms on the Arab World without paying enough regard to mitigating the negative effects of these reforms. The failure by the government and development actors they work with to improve socioeconomic outcomes resulted in the youth economic exclusion which sparked the Tunisian Revolution and wider Arab Spring movement. However, in the post-uprisings period, the World Bank has shown promising signs that it will correct its past failures and improve the socioeconomic outcomes of its projects. Perhaps it will be international institutions such as the World Bank, with the funds, economic expertise and renewed post-2011 development approach that they possess, that will break the socioeconomic deadlock.

Quality of life in Interstitial Lung Disease

Sarah Lawless and Ellen Deely, BSC Physiotherapy, (University of Limerick)

Abstract

Background: People with Interstitial Lung Disease (ILD), experience a diverse range of symptoms including dyspnoea, cough and fatigue. Both symptom and disease burden can adversely affect physical function and psychological well-being in people with chronic respiratory disease. Categorized as high risk to COVID-19, coupled with sustained periods of cocooning and isolating may further impact health related quality of life (QOL) in this cohort.

Methods: In this cross-sectional study, we examined QOL in a group of people with ILD using baseline data from the UL telehealth programme (a 12-week programme of online supervised exercise and education delivered by physiotherapy students). Self-reported physical and mental functioning was collected during baseline telehealth assessment using the SF-12 questionnaire, a valid measure of health-related QOL. Data was extracted to an excel file and analysed using descriptive statistics.

Results: 21 participants (n=14 females, mean age 67.65 ± 9.15 years, mean MRCD 1.67 ± 0.73) enrolled in the programme. 6 participants (28.6%) used ambulatory or long-term oxygen therapy. 14 participants (66.7%) previously completed a supervised pulmonary rehabilitation programme. The mean physical SF-12 score was 36.35380952 (± 8.83 , n=2 above average score), while the mean mental score was 49.74619048 (± 10.44 , n=13 above average score), indicating lower physical and mental functioning compared to average scores among the general population.

Conclusion: Disease burden and the COVID-19 pandemic have impacted the health related QOL people living with ILD, with levels of physical functioning particularly affected. This may be due to extended periods of cocooning in this group or signal disease progression during this time. Post programme assessment of the SF-12 will evaluate the effectiveness of our 12-week online programme of exercise and education at improving health-related QOL in this cohort.

Nonlinear and Chaos Dynamics with Video Game Physics

Aidan Lee, Mechanical Engineering, (University College Dublin)

Abstract

During the COVID-19 pandemic, laboratories were cancelled and the opportunity for engineering students to undergo enhanced experiential learning of mechanical systems was challenged.

While mechanical experiments are difficult and expensive to conduct, they can be supplemented by digital experiments in a virtual learning environment.

Nonlinear and chaos dynamics are subjects of growing importance that are unknown to undergraduate engineers. The use of flexible structures in engineering is rising and these involve dynamics and nonlinear operation, such as in floating offshore wind turbines which are of great importance to achieve the UN sustainable development goals. As these mechanics are not on the undergraduate engineer's syllabus in UCD and most universities, this project aims to explore simplified nonlinear and chaotic systems for the purpose of education through digital learning. The animation software, Blender, was used for its fast, yet accurate, deterministic physics engine and intuitive interface, which make it ideal for students learning dynamics.

'ULMedX': A community based chronic rehabilitation programme can prevent the onset of symptoms associated with frailty in older adults

Morgan Lewis, Sports and Exercise Science, (University of Limerick)

Abstract

Introduction

Frailty is a common syndrome of older adults that can lead to increased vulnerability for adverse health outcomes such as falls, hospitalisation, and death. Exercise is becoming recognised as a key protective behaviour that may help to prevent the onset of the frailty syndrome in older adults.

Aim

To assess the potential of an exercise intervention to improve physical health and prevent the onset of symptoms associated with frailty in older adults.

Method

A pre post quasi experimental pilot study carried out in the University of Limerick examined the effect of a community-based exercise programme called 'ULMedX' on the physical health of individuals with established cardiovascular disease over 12 weeks. 'ULMedX' offered twice weekly medically supervised exercise classes to 28 individuals [18 male, average age 72 (65-82 range) years]. These consisted of a warmup, strengthening and aerobic exercises and a cool down totally to 60 minutes per class. Baseline and 3-month assessments of the 6-minute walk test (6MWT), Sit to stand test (STS), Single leg balance test (SLBT) and Handgrip dynamometer test (HGDT) were conducted. Data were analysed using descriptives, t-tests and Wilcoxon Sign Ranked tests as appropriate. Results for the 65-75(n=18) and 75+(n=10) year old participants were analysed separately to highlight differences in responses.

Results

Significant improvements of 73.4m (p=0.002) and 34.6m (p=0.038) were observed in the 6MWT for the 65-75 and 75+ year old group respectively. Single leg balance on the right leg improved by 3.7sec (p=0.018) for the 75+ year old group only while no change was seen on the left leg for the 75+ year old group or on either leg for the 65-75 year old group. STS and HGDT scores remained.

Conclusions

An exercise intervention can improve aerobic endurance and delay the progression of symptoms associated with frailty in community dwelling older adults.

A Place of many incarnations': Space, Place and Institutions at Glencree, Co. Wicklow, 1830-1930.

Ruairi Long, BA History, (University College Dublin)

Abstract

In 1880, the Lord Mayor of Dublin described St. Kevin's Reformatory School for Catholic Boys as 'the most successful social experiment of modern times.' St. Kevin's was the second institution that would be located in the rural, isolated Glencree valley of County Wicklow. This dissertation will use Glencree as a case study of place and space in history, examining how Glencree saw changes in purpose and occupation, transitioning from barracks to reformatory school, becoming a 'place of many incarnations'.

The initial institution, Glencree Barracks, was completed in 1806, alongside the construction of the Wicklow military road. It is in these same buildings that St. Kevin's Reformatory was

established, certified in 1859, run by the Oblates of Mary Immaculate, and in the eyes of the establishment appeared a contemporary success.

Glencree is a place wild and sparsely populated. However, it is often these seemingly empty places that are in fact full of both life and meaning. This dissertation will consider how Glencree can be seen as a unique concentration of activity in this largely empty, mountainous landscape. Travelers and writers like J.M Synge identified the beauty of Glencree but also discerned the loneliness as one which has “no equal”.

Implicit and Explicit Measures of Sexism: Occupations and Toys

Cassidy Mahon, BSc in Psychology, (University of Limerick)

Abstract

The present study examines the relationships between implicit sexism towards occupations and toys, and explicit sexism. Implicit sexism is sexism that occurs in the subconscious, often without the individual's awareness or control. Explicit sexism, conversely, is controllable and requires cognitive functioning. There is very little research investigating the specific relationship between implicit stereotypes regarding occupations and toys and explicit sexism. The research delves into other important factors, including gender, awareness of gender inequality, perceived university course gender balance, and parental status, and how these additional factors influence implicit and explicit sexism, and the relationship between the two. The sample was predominantly female undergraduate students, also including parents. Participants answered demographic questions, filled out two questionnaires regarding ambivalent sexism, a questionnaire for gender inequality awareness, and carried out two Implicit Association Tests (IATs), one with male and female names, manual labour, and hospitality sector jobs, and the second with male and female names, vehicles, and dolls. The ambivalence questionnaires measure explicit sexism, while the IATs measure implicit sexism. There were few significant relationships found. Awareness of gender inequality was negatively related to both the occupation IAT and ambivalent sexism towards women. This indicates that when participants have higher awareness of gender inequality, they are less implicitly sexist regarding occupations and less explicitly sexist towards women. Parents/guardians had significantly higher scores on the toy IAT than non-parents, suggesting they held stronger implicit bias towards toys. These results have implications in the development of school and work policies to help citizens become aware of the discrimination experienced by women, and in marketing for children's toys.

Keywords: Implicit, explicit, sexism, stereotypes, implicit association test

The treatment of vehicles at the end of their life: An investigation of the sustainability of practices in Ireland.

Oassis Mahove, Transport Operations and Technology DT028, (Technological University)

Abstract

It is important to analyse the Irish motor industry to understand the processes that each vehicle goes through, from first registration throughout its operational lifespan until it reaches its end of life to ensure that vehicles are treated in the most equitable manner possible. The primary objective of this exploratory study is to identify the treatment of vehicles at their end of their life with a particular focus on the authorized treatment facilities which operate as responsible bodies for the disposal of end-of-life vehicles in an environmentally compliant way. Central to the study will be an investigation into the secondhand vehicle export market to assess the level and pattern of trade and identify how vehicles are sourced for the export market. The study will explore if there is a link between end-of-life vehicles, scrap metal trade and the secondhand vehicle export market between Ireland and countries such as those in Southern Africa. Previous research suggests that globally, the total number of used vehicles sold is estimated to be at least double that of new vehicles.... However, a significant share, of used vehicles are exported to developing countries (United Nations Environment Programme, 2020). To provide insight, data from the International Trade Centre will be used to monitor and calculate the amount of trade between Ireland and Southern Africa to examine the scrap metal and vehicle trade balance. The results of this study will show the robustness of authorized treatment facilities and describe how end-of-life vehicles are treated, as well as what needs to be done in terms of market management ensure that goods are accurately described so that they can be monitored from point of origin to destination and vice versa.

Exploring Coaches' Knowledge and Processes of Making a Technical Change in High Level Rowing.

Amy Mason, Sports and Exercise Science, (University of Limerick)

Abstract

This study explores coaches' processes of implementing changes to well-learnt but problematic technique in the sport of rowing. Six high-level rowing coaches took part in a semi-structured interview, each lasting approximately one hour. The content of the interviews focused on the coaches' knowledge of technique refinements, the process specifics of making a change and consequently how the change is made robust to competitive pressure. The data were analysed using thematic analysis. Preliminary results suggest that the coaching tools reported were generally consistent with existing literature, although the degree of sophistication which coaches displayed differed dramatically from coach to coach. Insights were provided on attaining "buy-in", utilising part-practice and differentiation drills, tweaking the existing technique, ensuring re-automation of the new technique, and securing robust technique under competitive pressure. Most coaches described a non-linear process, lacking in clear steps and progression. As per recent studies on the topic, coaches expressed a lack of formal knowledge on implementing technical changes and processes were largely based off of past experience. Furthermore, all coaches displayed a general preference for peer/mentor learning. The data provide useful insights

for rowing coaches faced with the task of making a technical refinement. Based off of these preliminary results, it can be seen that there is a need for further coach education on best practice with regards to technique refinement. Future research should focus on optimal methods for upskilling coaches in relation to technique refinement.

What is Dance Therapy?

Lauren Mc Gonagle, BA performing arts, contemporary dance, (University of Limerick)

Abstract

This paper presentation will explore the question “What is Dance Therapy?”. The researcher’s fundamental aim is to raise the awareness of the public of what this new and evolving profession has to offer. Especially during current times when taking care of our mental health is crucial, being aware of the different forms of therapy available is always useful.

Within this paper, the researcher will look at the topic in more depth by exploring sub-questions such as: Where does dance therapy come from? Who are the pioneers? How did dance therapy establish itself in the UK? Why is dance therapy not very established in Ireland? Is dance therapy valued and accepted as a useful and formal type of therapy? Are there different approaches to dance therapy and how do they work? Is there room for the profession to be developed in Ireland and would people avail of these services? What are the employment prospects of a dance therapist?

She will describe the variations of both the terms and definitions used to describe dance therapy across the US, the UK, and Ireland and the confusion and lack of clarity that comes alongside this. She will look at the lack of dance therapy in Ireland and the reasons behind this. The researcher believes that this is a profession that should have a place in Ireland as it gives a new form of support for people who do not feel comfortable with talking therapies. She questions why there is still no formal training available at master’s level in dance therapy while other arts therapies are established in Ireland and hopes to contribute to policy in this area.

This presentation promises to be interesting, informative, and stimulating to anyone interested in dance and dance therapy. Attendees will leave with an understanding of the fundamentals of a new form of therapy.

“I can’t, I’m on a diet.”; A corpus-based critical discourse analysis of fashion and beauty articles.

Aoife Mcalindon, BA Economics and Linguistics with TESOL, (University of Limerick)

Abstract

There has been a growing rate body dissatisfaction, drive for thinness and disordered eating experienced by young women in Western society over the last 20 years. This social phenomenon is a result of increased consumption of mass media, including advertising, television, social media and magazines. Which market the “thin-ideal” women to society. Previous research done on this topic has revealed a direct relationship between the consumption of fashion and beauty magazines on feelings of body dissatisfaction, drive for thinness and disordered eating. (Tiggemann, 2003) Past research on this topic relied on monitoring a group of women, their magazine consumption levels and the different levels of body dissatisfaction, disordered eating and drive for thinness they felt using different surveys. This research uses the creation of a corpus of over 30,000 words of data taken from fashion and beauty articles from women’s magazines ranging from 2008-2011. A critical discourse analysis of the corpus is then carried out. The key words, collocation and concordance lines are studied for linguistic patterns to reveal insight into whether the language used in these articles is ideologically motivated in order to target women and increase instances of body dissatisfaction, drive for thinness and disordered eating. The results showed the relationship between how the thin-ideal is marketing primarily towards women, encouraging them to pursue unhealthy and dangerous diets in order to achieve the slender, perfect body. As well as this, the results show a relationship between the profitability of the diet industry and the language used in these articles, showing how the diet industry exploit women’s insecurities by selling expensive weight-loss products.

Investigating the Relationship Between Ecological Concern and Mental Health: A Systematic Review

Lauren McCaffrey, BSc Psychology, (Dublin City University)

Abstract

Climate change can impact mental health in many ways including directly, indirectly and via an overarching awareness or concern for its potential global consequences. The relationship between the concern about climate change and mental health is of growing interest to a variety of health professionals and to the general public. We systematically reviewed the English-language literature with the primary aim to investigate the association between levels of environmental concern and mental health variables available in the published literature to date (PROSPERO Record ID: 226866). Searches were conducted in PsycINFO; Medline; CINAHL; EMBASE; GreenFILE; Web of Science (Social Sciences Citation Index). These databases were selected to best represent source material in mental health and environmental science. Quantitative and mixed method studies with sufficient quantitative data were included if they measured the relationship between ecological concern and mental health (not associated to the environment). Heterogeneity of outcome measurement precluded the possibility of meta-analysis. Included studies reflect participants' environmental concern rather than direct or indirect exposure to climate change or an environmental event. Following full-text review eight articles fulfilled the inclusion criteria. Overall, following critical assessment, studies were of good quality. Although data synthesis and analysis of the included has not yet been completed,

preliminary results indicate that 1) there was no consistent relationship between mental health variables such as anxiety, depression and stress and measures of ecological concern, 2) there appears to be no gold standard measure of ecological concern in extant literature to date. These preliminary findings highlight a need for more standardised and population-specific measurement approaches to the study of ecological concern and mental health.

Hand Hygiene: Medical Students vs Public

Gemma McDonnell, BMBS, (University of Limerick)

Abstract

Background: The COVID-19 pandemic and its associated morbidity, mortality and economic disruption has reignited interest in simple protective and preventive measures. The aim of this study is to assess the knowledge, attitudes, and practices (KAP) of hand hygiene in a sample of medical students in Ireland and members of the public to evaluate these within the context of the COVID-19 pandemic. We will also explore any differences between the two groups.

Methods: A 35-question survey was formulated and circulated to potential participants comprising Irish medical students and members of the public. The data was analysed using Microsoft Excel with P-values being calculated using Chi-squared goodness-of-fit analysis.

Results: There were 356 responses to the survey, categorised into medical students and general public populations. Incomplete surveys were removed leaving 303 responses. There was no statistical difference between the groups for attitudes and self-reported behaviour toward hand hygiene. Statistical differences were found between the two groups in terms of knowledge.

Discussion/Conclusion: The study shows that medical students and the public had a good knowledge base and positive attitude in regards to hand hygiene. Both groups display consensus that the practices are essential, especially within the current pandemic context. However, larger studies, involving multiple universities and a larger portion of the public may be useful to ascertain whether there is a true difference in the KAP between healthcare students and the general public.

Public Attitudes Towards Sex Workers and Image-Based Sexual Abuse: Does Exposure and Information About Legislation Reduce Stigma?

Erinn Mclvor, Bachelor of Science, Psychology, (University of Limerick)

Abstract

Public attitudes towards sex workers have always been quite polarised in the past, resulting in the emergence of the 'oppression versus profession' argument. Some view sex

work as a profession like any other whereas others perceive sex work as facilitating oppression. Several studies have investigated attitudes towards sex workers, and fewer studies are looking at image-based sexual abuse (IBSA) in Ireland. None of these studies, however, accounted for the effects of legislation change in combination with the effects of exposure to people involved with sex workers or IBSA. Legislation has now legalized the selling of sexual services, yet purchasing these services are criminalized. New legislation also criminalized IBSA. This study was conducted to uncover the influence of legislation change, exposure, and body autonomy values on attitudes towards sex workers and IBSA. Participants were members of the public who completed an online survey assessing their attitudes. We experimentally manipulated knowledge of the legislation around sex work, and we will compare attitudes of people with and without exposure to sex work/ workers. Thus, a 2 (experimental conditions) x 2 (no versus some exposure) design will be run to explain people's attitudes towards sex workers, while controlling for body autonomy beliefs. We also included in the survey a set of measurements around the awareness of new legislation surrounding IBSA, and people's attitudes towards the victims and perpetrators of IBSA. For this part of the study, we will run a regression model to test whether people's body autonomy beliefs and awareness of legislations affects their attitudes towards those involved in IBSA. The results of both sets of analyses will contribute to the literature on attitude change and norms (via legislation change) by providing a more complete understanding of attitudes towards stigmatized and victimized groups.

Keywords: sex workers, image-based sexual abuse, attitudes, stigma, legislation, exposure.

Orbit Modelling of the International Space Station (ISS) Using Symplectic Integrators in Python.

Ben McKeon, BSc. Mathematics and Physics., (University of Limerick)

Abstract

This oral presentation, adapted from the author's final year project, presents an overview of symplectic integrators, a type of geometric integration scheme often used when studying Hamiltonian systems.

The area-preserving nature of symplectic integrators is examined, illustrating how symplectic methods are capable of integrating over long time scales without accumulating large errors. A number of symplectic integrators are then applied to the orbit of the International Space Station (ISS), demonstrating how symplectic numerical techniques outperform their non-symplectic counterparts when modelling physical systems.

Bunreacht na hÉireann: A Barrier to Irish Unity?

James McElearney, Economics, Politics and Law, (Dublin City University)

Abstract

This paper examines the relationship between the politics of the Irish Constitution and the pursuit of Irish unity, from the period immediately before the inception of Bunreacht na hÉireann until the present day. Analysed is the manner in which the 26-county political establishment, historically sought to reconcile the emphasis the document placed on both Catholicism and Gaelic cultural nationalism, with its aspirations towards the reunification of the partitioned island. Until recently, the culmination of these somewhat paradoxical constitutional ambitions can be fairly accused of having contributed to the psychological entrenchment of partition over time.

It is argued that more recent developments in our constitutional politics, mean that the Constitution's manifesto can no longer be interpreted as representing a barrier to unity, in the way that it previously may have been. Up until the 2016 Brexit referendum in the UK, this did not necessarily take on much significance, as the question of Irish unity was not to the forefront of the mainstream political agenda. This has changed drastically however, following the UK vote to leave the European Union, as the potential prospect of Irish unity has become a more pressing political issue. Despite the removal, or amendment, of constitutional provisions which historically could have been interpreted as representing an obstacle to achieving a unity of hearts and minds on our island; this paper examines whether there may yet be aspects to Bunreacht na hÉireann's architecture, which might continue to restrain progress towards unification. It is concluded that a significant obstacle to achieving Irish unity in contemporary times, might possibly be an unwillingness to approach with an open mind, the complex questions that the constitution presently alludes to, regarding national identity in a united Irish state.

SME Supports – More than just funding needed.

Rachel Millerick, Intl Development and Food Policy, (University College Cork)

Abstract

Small and medium sized enterprises (SMEs) are the backbone of the Irish economy, generating two out of every three jobs available in Ireland with nine out of every 10 enterprises being classified as an SME. This highlights clearly how imperative SMEs are to Ireland's employment levels and how beneficial they are to the economy. There are a number of governmental and non-governmental supports available for SMEs in Ireland, such as the Local Enterprise Office and Enterprise Ireland but sometimes SMEs need more than just funding to be a success.

Providing a platform like the English Market in Cork for SMEs to show case their produce, allows them to feel secure which encourages them to invest in themselves and grow as an enterprise. A survey I carried out of over 250 people highlighted how aware Corkonians are of the importance of the English Market and why it is imperative to shop in SMEs. This research has provided a strong argument as to why platforms are so important to the success of SMEs and why post Covid 19, it is essential for these platforms to be more readily available. Recommendations for Limerick to provide a platform for its SMEs is highlighted and its benefits are outlined.

Impact of breastfeeding on the incidence and severity of RSV bronchiolitis in infants: Systematic review

Gabriela Mineva, GEMS, (University of Limerick)

Abstract

Introduction: Respiratory syncytial virus (RSV) is a leading cause of lower respiratory tract infections (LRTI) in infants worldwide, and an important cause of morbidity, hospitalization, and mortality (Law *et al.*, 2002). Millions of infants and young children are hospitalized yearly with RSV disease and majority live in developing world. Breastfeeding has shown to reduce incidence, morbidity and mortality of RSV bronchiolitis; however, exact mechanism is still unknown. Ireland reports one of the lowest breastfeeding rates in developed world. Aim of this systematic review is to summarize available evidence and draw conclusions based on published evidence from last two decades (2000-2020).

Methods: Preliminary database search was conducted using agreed key words and MeSH headings. Articles were screened based on set inclusion/exclusion criteria for infants aged 0-12 months. Database search was carried out in MEDLINE, PubMed, Google Scholar, EMBASE, MedRxiv and Cochrane Reviews. Only articles in English were included. Covidence® software was used for evidence extraction using paired investigator agreement and PRISMA guidelines were followed. Data was extracted manually, generating summary tables.

Results: 1368 studies were screened and 215 were eligible for full text review. 179 were excluded based on pre-agreed criteria. So far 32 were selected for data extraction, 17 studies on RSV-positive bronchiolitis and 15 on viral bronchiolitis in general. Results showed that breastfeeding is associated with lower hospitalization of infants due to RSV bronchiolitis. Exclusive breastfeeding for >4 months significantly lowered hospitalization and supplemental oxygen use. A few reports suggested that partial breastfeeding for shorter duration also had an impact on the severity of RSV-bronchiolitis.

Discussion/Conclusion: Breastfeeding has been shown to have a protective effect for infants with RSV bronchiolitis. Both exclusive and partial breastfeeding reduces severity of disease, length of hospital stay and supplemental oxygen requirement. Breastfeeding practices should be encouraged and supported as a cost-effective intervention.

OD carbon nanomaterials in anti-cancer formulations

Hugh Moran, BSc. Chemical and Pharmaceutical Sciences, (Dublin City University)

Abstract

Carbon nanomaterials offer many opportunities to increase the therapeutic index of antineoplastic drugs. The unique properties of this novel class of materials allow them to be

used as the foundations of theranostic drug delivery systems. Zero-dimensional carbon nanomaterials such as nanodiamonds, quantum dots, fullerenes and nano-onions are particularly well suited for these applications as they can take advantage of the enhanced permeability and retention effect. This, combined with the use of targeting ligands, allows for the selective delivery of drugs and imaging agents directly to tumours. A database of anti-cancer formulations utilising these unique nanomaterials was constructed, and important functional molecules from these hybrid systems were selected for further study. It was found that many systems utilise polyethylene glycol linkers to attach functional molecules to the nanomaterial's surface. These molecules were modelled in the gas phase using density functional theory with the def2-SVP basis set to investigate the effects of attaching polyethylene glycol linkers on their properties and structures. It was found that the use of these linkers had a marked effect on the energy levels, and occasionally the geometry, of the molecule's frontier orbitals, and polarity. The results of this study form the basis of further investigation into the engineering of nanomaterial-based therapeutic systems.

A Thematic Comparison of Self-Representation and Pop Culture Depictions of Autism

Charlie Mallowney, Bachelor of Arts: English with Digital Culture and Communication, (University of Limerick)

Abstract

This study aims to analyse and critique the accuracy of how autism is represented in popular culture, including the stereotypes that are reinforced in media sources such as *Atypical* (Rashid, 2017-present). Its core argument is that self-representational sources are first-hand and are therefore better than mainstream media sources such as television shows. These media sources then are compared with self-representational sources, including YouTube videos from autistic and 'dis'abled self-advocates (Gough 2016; Hayden 2018,2019,2020 a-c; Kelgren-Fozard 2019). The introductory chapter explains what autism is and provides a brief summary of the remaining chapters. The literature review chapter will discuss and review pre-existing academic articles on the topics of autism and disabilities. The methodologies chapter will discuss how I approached my research on the current representation of autism in the media. The analysis chapter compares Rashid Robia's *Atypical* (2017 – present) with media content from autistic and 'dis'abled self-advocates (Farrelly 2014; Gough 2016; Hayden 2018,2019,2020 a-c; Kelgren-Fozard 2019). The conclusion chapter includes a summary of my main findings. It also includes suggestions for media content creators to take into account when portraying autism within the media.

The effect of self-regulation learning strategies on students self-efficacy and learning in Junior Cycle Science”

Conor Murphy, Bachelor of Science with concurrent Teacher Education (Biology and Chemistry), (University of Limerick)

Abstract

Science curricula reforms internationally have tasked science educators in developing the strategic learning behaviours of students so that they actively inquire in the development of their science knowledge, skills and values. Researchers use the term self-regulated learner to portray the development of students in becoming more metacognitively, motivationally, and behaviourally active participants in their learning. In Ireland, little is known about the role of science educators to facilitate and enable this process. This action research study explores the implementation of self-regulated learning strategies on students' self-efficacy perceptions and learning of concepts during a three week intervention. Both qualitative and quantitative methods of data collection were used through the scope of an action research methodology. While one might assume that these strategies would positively impact both variables of a students' educational experiences, other interesting findings presented themselves to the researcher through self-questionnaires and focus group interviews. While the timeframe of this study seemed insufficient to generate a sense of full self-regulation within students, the findings present evidence of individuals relying on some internal skills to manage situations that arose within practical and classroom activities. The suitability of the Junior Cycle science specification to foster an environment in which self-regulation tendencies can develop is also discussed. Further research needs to be conducted in this area to evidence if self-regulation learning strategies can facilitate a sense of change and development for student autonomy in the Irish education system.

Loneliness, meaning, and social identification.

Michael Murphy, BSc Psychology, (University of Limerick)

Abstract

We investigated if experiencing loneliness leads people to perceive their lives as less meaningful, and if people who experience decreased meaning after loneliness identify more strongly with an ingroup in an implicit social identification task to compensate for their decreased meaning. Our hypothesis is based on the meaning maintenance model' by Heine et al., (2006), which posits that threats to people's belongingness needs, such as loneliness, can also threaten people's sense of meaning in life (see also Stillman et al., 2009; Williams 2007). The 'meaning maintenance model' premises that people will seek to re-establish meaning after loneliness through boosting other domains related to meaning in life. For our research, we adapted Van Tilburg and Igou's (2011, p.1681) argument that "social identification holds the potential to serve as a strategy aimed at (re) attaining or

defending meaningfulness". We used a between-subjects experimental design to test our hypotheses. In the experiment, participants were randomly assigned to either a loneliness condition (experimental) or belongingness condition (control), in which they were asked to recall and write about experiences relevant to their assigned condition. Both groups then reported their sense of loneliness and meaninglessness. Subsequently, participants read a scenario where an ingroup member was attacked by an outgroup member. Participants then gave the outgroup member a prison sentence in months as a measure of participant's identification with their in-group. Using one-way ANOVAs, we demonstrated that participants in the loneliness condition experienced significantly more loneliness and meaninglessness than those in the control condition. An ANCOVA, controlling for participant's general need to belong, revealed that the groups did not differ significantly in prison sentences given. Findings will be discussed briefly in relation to past literature.

Comparative Genomics of Emerging SARS-CoV-2

Fiona Neylon, Industrial Biochemistry, (University of Limerick)

Abstract

In December 2019, cases of pneumonia of unknown origin were reported in Wuhan, China. The source was soon identified as a novel betacoronavirus related to SARS-CoV. This was named SARS-CoV-2 and the illness it causes was termed COVID-19. As of March 2021, SARS-CoV-2 has infected 120 million people worldwide. Vaccines are being developed at extraordinary speeds in an attempt to curb its spread. To date, most approved vaccines target the S protein, which is responsible for viral attachment to the human ACE2 receptor. However, as the virus spreads, it is acquiring mutations, particularly in the S gene. This has raised concerns over vaccine efficacy and viral pathogenicity. Using comparative genomics, SARS-CoV-2 sequences were analysed for mutations, with particular attention on those occurring in the S gene.

SARS-CoV-2 complete genomes were collected from GISAID. These included both regional isolates and variant isolates. Using Mauve, these were analysed and compared for mutations against the reference Wuhan genome. Comparative analysis of the reference and predicted proteins was then carried out using multiple alignments. Protein homology modelling was used to assess the potential implications of S gene mutations on S Protein 3D structure using 3D template structures deposited in the PDB database.

It was observed that variant isolates carried significantly higher numbers of mutations than the regional sequences. Overall, 306 nucleotide mutation events were identified. Of these, 191 caused amino acid alterations in the main viral proteins. Almost 42% of these occurred in the S protein, attesting to the concern over mutations in this key attachment protein. Three of these, Y453K, E484K and N501Y are of particular concern due to their location in the S protein RBD. Superimposition of the S protein homology models revealed a number of putative structural changes that may confer advantages such as increased transmissibility or evasion of the host immune response.

An investigation into the expression of the S100 ligands in the progression of Prostate Cancer.

Meadhbh Ní Ghallchóir, Biomedical Health and Life Sciences, (University College Dublin)

Abstract

Despite curative intent of surgery and radiation therapy for the treatment of Prostate Cancer (PCa), failure is common leading to Biochemical Recurrence. This study aimed to investigate the expression and localisation of S100A1, S100A2 and S100A14 in PCa progression *in vitro*. Using *in vitro* cell line models of disease progression and treatment failure we investigated the expression of our three proteins by Western blot analysis.

We demonstrated that S100A1 was consistently expressed across all models, S100A2 was not expressed and S100A14 was solely expressed in the PC-3 bone metastatic cell lines. The localisation of the proteins was also analysed, and it was found that S100A1 translocates to the nucleus in more advanced disease. RAGE is the receptor for the three S100 ligands and using bioinformatic techniques we constructed signalling pathways and identified 44 genes that express proteins downstream of the ligand receptor interaction. Using The Cancer Genome Atlas (TCGA) dataset we investigated these 44 genes and identified 9 including SRC and ELK1 to be significantly associated with Biochemical Recurrence. This project demonstrated that S100A1, S100A14, SRC and ELK1, have the potential to be used clinically as a panel of biomarkers to predict Biochemical Recurrence following treatment for localised PCa.

Has the Judiciary has failed to promote substantive equality with reluctance to strike down indirectly discriminative legislation as unconstitutional, under Article 40.1 of Bunreacht na hÉireann?

Cliona Ni Laoi, Bachelor of Civil Law, (National University of Ireland Galway)

Abstract

My research is conducted in two parts.

I first posed the question whether the Judiciary has failed to promote substantive equality with reluctance to strike down indirectly discriminative legislation as unconstitutional, under Article 40.1 of Bunreacht na hÉireann? Through doing doctrinal research, I answered this question.

I have come to the conclusion that the Judiciary has failed to promote substantive equality with reluctance to strike down indirectly discriminative legislation as unconstitutional, under Article 40.1 of Bunreacht na hÉireann. I came to this conclusion by addressing the case law, assessing the general theme of the cases to come to the conclusion that the courts

only strike down legislation when the text of the legislation itself is discriminative. The courts failed to take into account the discriminative effects of legislation.

Through my research it has come to light, that it's come to the point where people have to look to more accessible provisions to uphold and protect their equality rights. One particular case that I came across in my research is the Heaney case, that sets a proportionality test, this sets a threshold, that's objectively too high, to determine whether they should strike down the legislation.

With that conclusion, I conducted research to find an appropriate comparator to the Irish provision. After discovering Section 9 of The Constitution of South Africa, I came to the conclusion that we need an extensive, clear and elaborate provision. This is an appropriate comparator due to the similarities in our legal system and history. The rulings in the South African Constitutional Court are something our judiciary should strive towards.

My final word is that I propose that Article 40.1 be reworded. I acknowledge that we have failed but that there is an appropriate method of reform worth considering.

Differences in anxiety and depressive symptoms based on physical activity-screen time level interactions among Irish adolescents.

Darragh O'Sullivan, Sport and Exercise Sciences, (University of Limerick)

Abstract

Introduction: Emerging evidence supports the negative impact that reduced physical activity (PA) and increased screen time (ST) have on depressive and anxiety symptoms among adolescents. However, less is known about the influence of PA-ST interactions on anxiety and depressive symptoms.

Purpose: To quantify differences in anxiety and depressive symptoms between PA-ST interactions among 1756 adolescents (15.2±1.6y; 995 female).

Methods: Participants self-reported depressive and anxiety symptoms, PA, and average daily weekday hours of television (TV), computer use (CU) and phone use (PU). PA and ST were classified by ≥60mins of PA: 0-2 (Low), 3-4 (Moderate), and ≥5d/wk (High), and ≤2h (low), ≥3h to ≤4h (moderate), and ≥5h (high) of ST/d. PA-ST interaction variables were created using PA level and ST dose for each modality. ANOVA with Bonferroni-corrected pairwise comparisons examined anxiety and depressive symptom differences between ST modality-specific PA-ST interactions. Cohen's d quantified the magnitude of differences.

Results: There were significant differences in anxiety and depressive symptoms between PA-TV ($p<0.001$), PA-CU ($p<0.001$), and PA-PU ($p<0.001$) dose interactions. Anxiety symptoms were lower for high PA-low ST for CU (all $p<0.001$, $d: -0.34$ to -1.35) and PU (all $p\leq 0.025$, $d: -0.32$ to -1.18) compared to all other interactions, excluding high PA-moderate ST.

Depressive symptoms were higher for low PA-moderate ST for TV (all $p \leq 0.004$, d : 0.70 to 1.53) and PU (all $p \leq 0.007$, d : 0.43 to 1.06) compared to all other interactions, excluding PA-high ST interactions. Symptoms were higher for low PA-high PU compared to all high PA-PU interactions (anxiety: all $p \leq 0.014$, d : 0.54 to 1.07; depressive: all $p \leq 0.007$, d : 0.50 to 1.26).

Conclusions: High PA-low ST coincides with the lowest anxiety and depressive symptoms. However, dose-response increases in symptoms were found for moderate and high PA interactions as ST increased, suggesting that higher ST may attenuate the anxiolytic and antidepressant high PA benefits.

Machine learning applied to wireless EEG signals.

Eoghan O'Connor, Electronic and Computer Engineering, (University of Limerick)

Abstract

The aim of this project is to provide a comprehensive review on the application of machine learning algorithms to Electroencephalography (EEG) signals for the use of controlling a software application. An investigation into convolutional neural networks (CNN) and Support vector machines (SVM) highlights the advantages and limitations of machine learning algorithms for this purpose. This investigation also justifies the use of CNN over SVM for the classification of signals. The reliability and clarity of Electromyography (EMG) signals validates its use instead of EEG signals for the initial development of a machine learning algorithms. A comparative analysis of using frequency domain signal instead of time domain signal underlines the frequency domains significance as it provides more data points per sample than time domain. The increase in datapoints results in higher accuracies for the CNN. Restricting these datapoints to most active frequencies results in the highest accuracy. Using the developed CNN on EEG signals yields limited success as the CNN overfits to the EEG training dataset. Although the CNN gives adequate accuracies to classify test samples developed within the same training session as the training datasets, it is ineffective at classifying test samples external to that training session. This highlights the necessity for large quantities of EEG signal datasets in improving the accuracy of a classifier applied to EEG signals.

Breaking free from regret... Or perhaps we are all just in denial?

Niamh O'Neill, BSc in Psychology, (University of Limerick)

Abstract

Humans have a fundamental need to experience meaning in life. Negative experiences in life pose a threat to our meaning systems, such as regret. However, studies suggest that people recognise regret as a positive motivator for future behavioural guidance (Roese and Summerville, 2005). Experiences of regret encourage corrective action so one can learn from the past and avoid the same suboptimal outcomes in the future (Zeelenberg, 1999a; 1999b). Furthermore, the reparative aspect of regret is associated with a search for meaning in life (Igou et al., 2018).

Using the Meaning Maintenance Model (Heine et al., 2006), we investigated the different ways people restore lost meaning. In Study 1, we examined if regret (trait) causes people to reaffirm alternative meaning systems (i.e. belief in free will) to re-establish lost meaning. In addition, belief in free will offers people the opportunity for future corrective action. Results indicated that people do not reaffirm free will beliefs to overcome regret. Instead, regret was more closely associated with denial ($r = .31, p < .01$).

In Study 2, we investigated the mediating role of denial between regret (state) and meaning search. As expected, our mediation model was significant ($ab = .05, SE = .02, 95\% CI [.0162, .0978]$). In fact, denial had a large direct effect on meaning search ($B = .62, SE = .16$). Life regrets are often difficult to correct. Denial is an emotion-focused coping strategy aimed at regulating emotional distress when problem-focused coping (i.e. changing a behaviour or situation) is impossible (Lazarus, 2013). It temporarily mitigates distress by altering the significance of the experience (Folkman & Lazarus, 1990), thus alleviating pain while the individual tries to restore meaning.

Our studies contribute to the literature on regret and highlight the existential nature of denial. Research implications are discussed in relation to these findings.

Investigating the possibility of 'closed loop' circular economy waste management options on a construction case study project.

Feilim O'Dowd, Construction Management, (Galway-Mayo Institute of Technology)

Abstract

Construction and Demolition Waste (C&DW) and its management is one of many developing environmental concerns globally, partially due to the increased awareness of sustainability and perhaps equally, to the rising costs of landfill levies, taxes and raw materials (Kwan et al., 2013). The construction sector by its nature is not an environment-friendly activity (Tam, 2017) and the current linear approach of take, make, dispose within the industry is unsustainable. The industry's failure to acknowledge the environmental effect of construction processes has contributed to a global crisis caused by depletion of resources and an increase in C&DW generation around the planet. The most recent data available shows that Ireland produced 4.75 million tonnes of C&DW in 2017 (EPA, 2018). The construction sector in the EU is the highest producer of waste in comparison to any other industry, accounting for 35% of the total waste produced. C&DW has a low value recovery rate and traditionally, in Ireland, C&DW was sent to landfill. However, the number of landfills in Ireland is decreasing rapidly from over 200 in the 1980's to just 3 in operation today (EPA, 2020). This is inevitably causing the construction industry to consider alternative methods of waste management practices. There needs to be a shift towards creating circular economy markets that avoids exporting waste outside of Ireland. Circular economy approaches offer the best opportunity of reducing waste sent to landfill and this study aimed to identify current waste management practices and investigate the possibility of changing these practices into a cyclical model where waste becomes a valuable resource. This was achieved by conducting case study action research through site waste audits on a large building project in Galway including two skip audits of mixed

waste skips. The study concludes that there are markets available for construction waste in Ireland that can help to keep the industries waste in a circular economy loop.

The Impact of the SARS-CoV-2 Pandemic on Referral Characteristics to a National Tertiary Spinal Injuries Unit

Louis O'Halloran, Medicine, (University College Dublin)

Abstract

The SARS-CoV-2 pandemic has had profound implications on healthcare institutions. The aim of this study is to assess and compare referral patterns during Covid-19 to corresponding dates for the preceding three years (2017-2019), in order to pre-emptively coordinate the logistics of the surgical unit for similar future experiences.

Methods:

A retrospective review was carried out at our institution, a national tertiary referral centre for spine pathology. Two distinct time-points were chosen to represent the varied levels of social restriction during the current pandemic; (i) Study period 1 (SP1) from 11/03/20-08/06/20 represents a national lockdown, and (ii) Study period 2 (SP2) from 09/06/20-09/09/20 indicates an easing of restrictions. Both periods were compared to corresponding dates (CP1: 11/03-08/06 and CP2: 09/06-09/09) for the preceding three years (2017-2019). Data collected included age, gender, and mechanism of injury (MOI) for descriptive analyses. MOIs were categorised into disc disease, cyclist, road-traffic-accident (RTA), falls < 2m, falls > 2m, malignancy, sporting injuries, and miscellaneous.

Results:

All MOI categories witnessed a reduction in referral numbers during SP1; disc disease (-29%), cyclist (-5%), RTAs (-66%), Falls <2m (-39%), Falls > 2m (-17%), malignancy (-33%), sporting injuries (-100%), miscellaneous (-58%). 4/8 categories (RTAs, falls < 2m, malignancy, miscellaneous) showed a trend towards return of pre-lockdown values during SP2. Two categories (disc disease, falls >2m) showed a further reduction (-34%, -27%) during SP2. One category (sporting injuries) portrayed a complete return to normal values during SP2 while a notable increase in cyclist related referrals were witnessed (+63%) when compared with corresponding dates of previous years.

Conclusion:

Spinal injury continues to occur across almost all categories, albeit at considerably reduced numbers. RTAs and falls remained the most common mechanism of injury. Awareness needs to be drawn to the reduction of malignancy related referrals to dissuade people with such symptoms from avoiding presentation to hospital over periods of social restrictions.

'Learning to Talk the Language of Men': A Corpus-Based Analysis of the Masculinisation of Deputy Mary Lou McDonald's Linguistic Style, 2012 to 2020

Caoimhe Power Gallagher, Bachelor of Arts in Applied Languages, (University of Limerick)

Abstract

Deputy Mary Lou McDonald is arguably the most prominent female politician in contemporary Irish politics, following her assuming the role as Leader of the Opposition in 2020, after Sinn Féin's most successful election in the history of the State. Past research suggests that if women are to succeed in politics, they must learn to talk the language of men. Using a systematic database of 13,561 words of transcribed speech, I investigate the linguistic styles of Deputy Mary Lou McDonald from 2012 to 2020 through the prism of Corpus Linguistics (CL). Drawing on studies in the field of Language and Gender, I investigate how feminine or masculine her linguistic style is in each of the respective time periods under review using qualitative and quantitative corpus-based methods. Results on Deputy McDonald's linguistic style indicate that her language grew increasingly masculine as her role and significance in Irish politics increased, reflecting the highly gendered expectations of modern-day politicians.

Adverse Outcomes in Older Adults Attending the Emergency Department: Investigating the Potential for Identification of Risk Factors in the Prehospital Setting using Clinical Trial Data

Rebecca Rigney, Bachelor of Science in Paramedic Studies, (University of Limerick)

Abstract

Older adults are at higher risk for adverse outcomes following an attendance at the Emergency Department (ED) (Ellis et al 2014). Many older adults (aged over 65 years) live with multiple chronic conditions and paramedics on frontline ambulances are more frequently responding to calls for assistance from older adults in the community and long-term care settings. Repeat calls account for 18% to 40% of ambulance calls in older adults

(Weiss et al 2012). This study will involve secondary analysis of data from a randomised controlled trial (OPTIMEND) (Cassarino et al 2019) and a controlled before-and-after study (SOAED) (Leahy et al 2021). Baseline data will include pain scores, frailty scores and ED length of stay. The following outcomes will also be evaluated at 30 days and 6 months; ED re-attendance, functional decline, hospital readmission, institutionalisation and mortality rates. A subset of ePCR will be reviewed and data will be extracted for potential risk factors (e.g. lives alone, scene safety, social supports etc) contributing to adverse outcomes in older adults. This information is not available to other healthcare professionals and has not previously been explored for its potential to identify risk of adverse outcomes for older adults. Scene safety and frailty screening by paramedics could provide better outcomes for older adults by "fast-tracking" high-risk patients to more targeted care for earlier intervention.

Finally, this project will help to expand the body of knowledge in paramedicine research and emergency medicine, in particular, research pertaining to the care of older adults. The

most appropriate care for elderly patients in the ED has been identified as the No. 2/30 research priority by the Royal College of Emergency Medicine in partnership with the James Lind Alliance.

Voluntary and Non-Voluntary Blood Donations among Doctors

Renad Saleh, Medicine, (University College Dublin)

Abstract

BACKGROUND

Physicians may be an important source of blood donations as they are more likely to be familiar with the importance of donating and the donation process. This is the first study in Saudi Arabia to report physicians' knowledge, attitudes, and practices towards voluntary and non-voluntary blood donations.

STUDY DESIGN AND METHODS

This was a cross-sectional study conducted in 2019 at King Faisal Specialist Hospital and Research Centre (KFSH&RC) in Riyadh and Jeddah. One-hundred-and-sixteen registered physicians and dentists responded to an online survey sent to their institutional emails.

RESULTS

Sixty-eight percent of participants reported having previously donated blood. Male gender, younger age, being married, and being a non-Saudi were associated with being a previous donor.

Eighty-eight percent of donors previously donated on a voluntary basis, while 31% of donors previously donated for a specific person. Fifty-eight percent of total participants agreed with using blood holdings as a source of donation.

Younger participants were more likely to intend to donate in the next 6 months, while those reporting poor nutritional status or medical disease as a barrier were less likely to intend to donate. Among donors, intention to donate was associated with having donated within the last 1 year and 5 years and with having a pleasant donation experience.

DISCUSSION

Our findings indicate that blood donation practices are strongly tied to physicians' sociodemographic characteristics and their knowledge of the donation process.

Supplementation use among male senior intercounty Gaelic footballers

Keela Spillane, BSc in Sport and Exercise Sciences, (University of Limerick)

Abstract

Background: Dietary supplements (DS) are commonly used by athletes to support health, well-being training and performance. The extant literature reports varying levels of prevalence of DS, dependent on sports discipline, age (chronological and training), sex and playing level. To date, little is known about these practices in Gaelic football (GF). Additionally, the appropriateness of supplement strategies has not been previously reported for this or other cohorts.

Objectives: Our aim was to examine the prevalence and assess the appropriateness of DS use among male senior intercounty GF players and compare by age (18-25y vs.26-34y).

Methods: DS use, practices and perceptions were assessed through an online questionnaire. The appropriateness of DS strategies was assessed using a novel scoring system on the nuances of supplement intakes as quantified by adherence with best practice intake guidelines for supplement quantity, quality and timing. Eligible participants included current male senior intercounty GF players between 18-45y.

Results: Eighty-eight male senior intercounty GF players (Mean \pm SD) (age (y) 23.27 ± 3.63 ; height (cm) 183.59 ± 5.78 ; weight (kg) 85.04 ± 6.62) participated in this cross-sectional study. 87.5% (n=77) reported using at least one DS. However, no significant difference between younger (18-25y) and older (26-34y) players (86% vs. 91%, $p=0.721$) was reported. The most prevalent supplements among this cohort of GF players were whey products (33.7%), creatine (27.5%), vitamin D (7.3%), fish oils (4.5%), multivitamins (3.9%) and caffeine (3.3%). Of those DS reported, 1.4% achieved a maximum score (7) for appropriateness with levels of inappropriate use (score 4 or less) reported by 39.2%. The mean score reported was 4.55 ± 1.14 , indicating an 'average' appropriateness of DS strategies.

Conclusion: DS use is prevalent among GF players and aligns with those observed in other field-based sports. Improved education and resources are needed to enhance appropriateness of DS strategies.

Keywords: dietary supplement; Gaelic football; athletic performance; nutrition; fitness for purpose.

Justice Beyond the Courtroom

Xhesjola (Jessie) Sulaj, BCL, Law and Society, (Dublin City University)

Abstract

Justice for victim-survivors of sexual violence can take many different forms such as being believed and respected by society at large, having the opportunity to tell one's story or even being an active participant in the justice process (McGlynn, 2011). However, conventional ideas of justice are often associated with convictions or punitive punishments from the Criminal Justice System, obscuring these different forms available to victims of

sexual violence (McGlynn, 2011). As a result, the implementation and search for more meaningful and adequate means of securing justice for these victims have been slow.

Based on an analysis of victim survivor's dissatisfaction with the criminal justice system (Miller, 2011) as well as an analysis of conviction rates for sexual violence (McGee et al, 2002), this paper will provide an overview of why these conventional means of securing justice are often not sufficient or effective for victims of sexual violence.

It will then go on to explore means of achieving justice for victims of sexual violence that have been generally obscured to the public such as restorative justice (Daly, 2002), acknowledgement and validation as justice (McGlynn and Westmarland, 2019) and also, prevention as justice (McGlynn and Westmarland, 2019) and how these means can be more effective than those offered by the criminal justice system due to their victim-centred approach.

Finally, this presentation will show how these means can be implemented into the criminal justice system effectively, to ensure an adequate approach to justice for all victims of sexual violence is adopted by the justice system.

Access to general practice healthcare during the Covid -19 pandemic in the Irish adult population who use social media

Monika Volz, Bethany Rogers, Gabriel Mineva and Dana Pearl, Graduate Entry Medical School (University of Limerick)

Abstract

The COVID-19 pandemic has had a significant impact on healthcare and wellbeing worldwide. Since the onset of the pandemic, three Level 5 lockdowns have ensued, and significant change to the healthcare system—including General Practice—has occurred. Telemedicine has increasingly become adopted, yet barriers to accessing General Practice healthcare still exist; fear of contracting the virus, cancellation of appointments, and prioritization of COVID-19-positive patient diagnosis and treatment have all been implicated in this ongoing dilemma.

Data were collected through an anonymous 25-question online survey open to the adult Irish population, in which participants were recruited via social media between October 2020 and February 2021.

The responses were collected using Qualtrics, quantitative results were analyzed using Excel, and qualitative results were analysed using a methodical sorting scheme. 649 adults participated in the study. 140 (22%) participants had their appointments cancelled since March 2020, and of those, 120 appointments were cancelled by the GP. Of those that cancelled the appointment themselves, the greatest reason was personal fear/precaution. 17.5% of participants had a disruption in their medication regime since March 2020 and 27% were unsatisfied with the length of their appointment.

The current analysis obtained from this study highlights widespread disruption that the COVID-19 pandemic imposed across general practice healthcare services in Ireland. Such reasoning behind this include both personal fear of virus transmission as well as reduced accessibility. In keeping with this, findings of medication interruption & patient dissatisfaction advocates the need for a protocol to be implemented for future scenarios in order to avoid such reoccurrence and maintain functioning general practice services as well as patient wellbeing. Limitations of this study include achieving a representative sample of general practice patients as respondents were primarily female and of younger age bracket.

Etanercept for Ankylosing Spondylitis; A Systematic Review.

Aidan Walsh, Medicine (Graduate Entry), (University of Limerick)

Abstract

Background; Ankylosing Spondylitis (AS) is a chronic autoimmune rheumatological condition. It can lead to pain and reduce quality of life through axial or non-axial symptoms. Tumour necrosis factor (TNF) inhibitors are the recommended treatment strategy for refractory AS. No Cochrane review has been published on TNFs inhibitors since 2015. Moreover, there is no systematic review of etanercept examining non-radiological outcomes, with a need to review the latest evidence to inform best practice.

Aim; To provide an updated overview of the evidence from randomised controlled trials (RCTs) regarding the management of AS using etanercept. Objectives included the systematic searching, selecting and appraising appropriate RCTs, and summarising results in the context of the literature.

Methods; A comprehensive search of MEDLINE, CINAHL, EMBASE and Cochrane CENTRAL was conducted on 10th/08/2020 using key words for 'etanercept', 'ankylosing spondylitis' and 'RCT'. Bibliographies were searched and key authors were contacted. Only full-text, English-language RCTs of participants diagnosed using the Assessment of Spondyloarthritis International Society (ASAS)-recommended criteria were included. Biosimilar products were not included. The Cochrane Risk of Bias in RCTs (ROB2) tool was used to assess for bias. Results were summarised by narrative.

Results; 17 trials were included, totalling 2,227 participants. There is high-quality evidence that etanercept improves outcomes, including ASAS20, BASDAI, BASFI, BASMI, ESR/CRP and MRI/ultrasound. There is moderate quality evidence that dosage can be reduced during remission and that different regimens are effective during active disease. There is little high-quality evidence comparing etanercept to other TNF inhibitors treatments, although etanercept appears superior to sulfasalazine. There is no evidence of significant risk of adverse events in the limited follow-up periods included.

Conclusion; This review presents etanercept as a safe, effective treatment for AS, with 6 new studies since the last Cochrane review. Further research is needed to compare it to other treatments/TNF inhibitors.

In flight Object Targeting and Tracking for Submersible Rov

Luke Vickery, Electronic & Computer Engineering, (University of Limerick)

Abstract

Remotely operated vehicles (ROVs) are deployed in some of the harshest conditions on the planet to perform inspection and survey tasks where it is too dangerous to send people. A fundamental requirement for these missions is the deployment of sensing technology, key among which is the camera. This project aims to expand the capability of on-board vision systems using a machine vision application that will reduce the operator load and increase the versatility of the ROV. A thorough analysis of machine vision theory and techniques is presented in this project to lay the foundation for the practical application. Using LabVIEW, a system was developed that allows for object targeting and tracking while the ROV is deployed without the need to train a machine learning model or predefine an object template. This is useful for the subaquatic environment where water clarity and RGB light levels vary significantly as it allows for an object template to be defined under current conditions. The software was developed using machine vision techniques to provide a new tool that can be easily integrated with existing control systems. The resulting machine vision application was tested underwater and demonstrated to be an effective method of object position tracking.

The 'MED-WELL' programme: A non-randomised controlled trial comparing an exercise intervention to a mindfulness-based stress reduction programme in medical students

Aubree Worobetz, Medicine, (Graduate Entry), (University of Limerick)

Abstract

Background

Medical students are faced with many challenges throughout their academic career that lead to increased amounts of stress and poor mental health. Physical Activity (PA) and Mindfulness-Based Stress Reduction (MBSR) have both been shown to have positive effects on the mental health and well-being of medical students. This non-randomized controlled trial evaluates whether there is a mean difference in measured outcomes of participants of a PA programme, the 'MED-WELL' programme, versus a control group which engages in a MBSR programme of the same duration between baseline and follow-up.

Methods

All second year medical students were voluntarily allocated into the intervention group (the 'MED-WELL' programme) or control group (a MBSR programme). Data was collected and analysed from both groups at baseline and after eight weeks at programme completion.

Results

Baseline and follow-up data was available for 69/70 (99%) of the intervention group and 38/70 (54%) of the control group. Statistically significant improvements were seen in the EQ-5D-5L-VAS in both groups which increased from (73.2 to 77.4; $p=0.010$) in the intervention group, and from (72.3 to 77.7; $p=0.005$) in the control group. There were also statistically significant improvements in sleep quality over time in both groups, increasing from (5.87 to 6.78; $p<0.001$) in the intervention group, and from (5.84 to 6.65; $p=0.007$) in the control group. The intervention group alone had statistically significant improvements in levels of PA which increased from (3.3 to 3.7; $p=0.003$), and confidence in prescribing exercise which increased from (4.0 to 4.5; $p<0.001$). However, there were no statistically significant differences in the changes in outcomes between groups.

Conclusions

This study has shown that participants in a PA curricular intervention (the 'MED-WELL' programme) had equivalent improvements in overall wellbeing and sleep quality to those in a control group who participated in a MBSR programme of the same duration.

A feasibility study of an exercise intervention to educate and promote health and well-being among medical students: the 'MED-WELL' programme

Aubree Worobetz, Medicine, (Graduate Entry), (University of Limerick)

Abstract

Background: Medical School programme workloads challenge the physical and mental health of students particularly in compressed graduate entry programmes. There is evidence that physical activity (PA) can improve holistic care and help maintain wellness among medical students. We tested the feasibility of introducing an exercise programme to the medical school curriculum which would educate and promote health and well-being among its students.

Methods: This study was conducted in a single graduate entry medical school at the University of Limerick (UL). The 'MED-WELL' programme was a six-week programme of 1 hour-long weekly sessions, each involving a different type of PA (45 min). These sessions were prefaced by an interactive lecture about how to incorporate exercise theory into daily medical practice (15 min). The study was conducted in a single graduate entry medical school at UL and involved year one and year two graduate entry medical students. Three parameters were used to test feasibility: 1. Recruitment and retention of participants, 2. Acceptability of the programme and 3. Efficacy in terms of health and well-being.

Results: In total, 26% (74/286 students) participated in the programme. Of those who participated, 69 students (93%) attended one or more sessions of the programme and completed questionnaires at baseline and at followup. Significant improvements were seen in scores after the programme in the WHO-5 Well-Being Index which increased from 63.2 (95%CI: 48–78.4) to 67.5 (95%CI: 55.1–79.9); ($P < 0.01$), the sleep scale which increased from 3.1 (95%CI: 2.2–4.0) to 3.5 (95%CI: 2.5–4.5); ($P < 0.001$), and the loneliness scale which decreased from 4.1 (95%CI: 2.7–5.5) to 3.5 (95%CI: 2.5–4.5); ($P < 0.005$). Students level of PA during a typical week also increased from 3.7 (95%CI: 2.1–5.4) to 4.0 (95%CI, 3.5–4.5); ($P < 0.05$).

Conclusion: This study has shown it is feasible to deliver this programme in a medical school's curriculum. The programme seems to be of benefit and is acceptable to students. Well-designed randomised controlled trials are needed to measure outcomes, durability of effect, and cost effectiveness.

Posters

What does Strengths-Based Education look like?

Sarah Aherne, Bachelor of Education in Education and Psychology, (University of Limerick)

Abstract

A systematic review examining the specific approaches underpinning effective strengths-based education.

The realm of positive psychology has gained momentum over the last two decades. This branch of psychology aims to apply a scientific lens to an individual's positive characteristics. Strengths-based approaches (SBA) support an individual in identifying areas of strength/competence and employ strategies which utilise these strengths, thus overcoming areas of weakness, improving happiness, well-being and flourishing. Strengths-based approaches have been effectively implemented in settings, such as the workplace or clinical settings. It is widely accepted that SBA can be effective in improving wellbeing and engagement in education settings however, there is a lack of empirical evidence to support this claim. Furthermore, there is a shortcoming in the research outlining the specific methodologies utilised in strengths-based education models. This review aims to examine the current body of research relevant to strengths-based education, in order to elicit the strategies, processes and methodologies utilised in strengths-based education models. A thorough literature search was conducted using four databases (ERIC, PsychINFO, PsychARTICLES and Medline) to identify suitable articles. 172 articles were initially identified. After screening and inclusion/exclusion criteria were applied, 5 articles were included for review. The JBI Meta-aggregation approach was employed to examine these qualitative studies in order to extract methodologies. A total of 53 methodologies were identified, upon analysis, three synthesised findings emerged; strengths identification, strengths application and strengths development. The results of this review highlight the need for more empirical research examining the effectiveness of these methodologies, as well as more research examining the validity of strengths-based programmes which are already in place.

Relationship warmth between college students and older siblings and its effect on their academic motivation.

Avril Bryan, Bachelor of Education in Education & Psychology, (Mary Immaculate College)

Abstract

Sibling relationships are one of the most significant connections which an individual may experience during their lifetime. Research has recognised that warm sibling relationships are associated with higher levels of academic motivation and support. Sibling relationship warmth and academic motivation has also been found to be moderated by sex, with

same-sex sibling dyads said to experience warmer relationships. As a result, this study seeks to examine the relationship warmth of Irish college students and their older sibling and investigate its effect on the academic motivation of the college student. A cross-sectional design with correlational analysis was employed to examine the relationship between sibling relationship warmth, sibling sex constellation and academic motivation. One hundred and fifty two Irish college students participated in this study, involving a demographic questionnaire as well as measures of academic motivation and sibling relationship warmth. Analyses on the data were conducted using SPSS. Correlational analysis showed a weak, positive correlation between sibling relationship warmth and academic motivation. Analysis on sibling sex constellation and sibling relationship warmth indicated a significant difference in relationship warmth for same-sex and opposite-sex dyads. Finally, regression analysis revealed that sibling relationship warmth and sibling sex similarity explained 6.2% of the variance in academic motivation. Results are discussed in terms of the role of siblings in college students' academic motivation.

Can the collapse of the scalp hair follicle pigmentary unit with age (canities) provide insights into how melanocyte death could be induced in melanoma?

Halin Veronicka Maria Buruno, Biomedical, Health and Life Science, (University College Dublin)

Abstract

Melanoma, a potentially deadly skin cancer is increasing incidence worldwide. It develops from melanocytes located preferentially in the pigmented epidermis rather than the pigmented hair follicle(HF) epithelium.¹ In greying HFs the aging follicular melanin unit has been associated with increased melanocyte death by apoptosis perhaps triggered by uncontrolled oxidative stress (OS). Ataxia Telangiectasia Mutated(ATM) is a protein kinase that can sense DNA damage and OS, however its activation mechanisms in skin are little understood.² We aimed to investigate the relationship of melanocyte death (in greying HFs) and ATM sensing of OS.

Human haired scalp tissue(n=7,all male[25-73yrs,mean=46,4>40yrs]) was ethically obtained from The Charles Institute via Hair Restoration Blackrock. Tissue sections(5-10µm) were cut and a double immunohistochemistry assay was performed using a melanocyte lineage marker (Nkibeteb) and antibodies to ATM and phospho-ATM. Images were prepared using CellSense and ImageJ.

Melanocyte number decreased in greying HFs as pigmentation decreased. Nuclear ATM was expressed in the HF bulbar melanocytes and in some fibroblast cells of the dermal papilla of the HF bulb, but not in melanocytes of the more superficial and UV exposed epidermis. By contrast, phospho-ATM was expressed cytoplasmically in the keratinocytes of the epidermis and of the upper HF.

Results confirmed melanocyte depletion in human canities-affected HF and also suggested a protective role of ATM to OS in HF bulbs that retained pigmented melanocytes even at

significant age. A potential melanoma intervention strategy may be modulate ATM kinase expression in melanoma cells to make these cells more susceptible to a canities-like deletion.^{1,2}

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The Moderating Role of Self-Efficacy in the Relationship Between Problematic Smartphone Use and Academic Procrastination.

Lisa Byrne, Bachelor of Education in Education and Psychology, (Mary Immaculate College)

Abstract

Academic procrastination is a behaviour which is prevalent amongst college students, impacting negatively on one's academic performance. Problematic smartphone use has been shown to predict academic procrastination, however as this is considered as a relatively new construct, research in this area is limited. This study seeks to build on such research to examine this relationship, whilst also exploring the mechanisms at work within this relationship by considering the role of one's self-efficacy. Gender, age, and academic level have previously been found to affect the variables mentioned and so they are controlled for in this study. A quasi-experimental design was employed in this study with problematic smartphone use as the independent variable, academic procrastination as the dependent variable and self-efficacy as the moderator variable. One hundred and fifty-four undergraduate students from seventeen different higher education institutions across Ireland completed an online survey. This survey involved a demographic questionnaire as well as measures of self-efficacy, problematic smartphone use and academic procrastination. This data was analysed using SPSS before using the PROCESS plugin in SPSS to conduct a moderation analysis. Correlation analysis showed that problematic smartphone use was positively related to academic procrastination while the moderation analysis showed that self-efficacy moderates this relationship. Additionally, self-efficacy was negatively correlated with both problematic smartphone use and academic procrastination. Considering these results, practical considerations for addressing these constructs in education are discussed.

Key words: Problematic smartphone use, Academic procrastination, Self-efficacy.

Referral patterns of a Dublin outpatient dermatology service.

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Affiliations

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Abstract

Introduction: There is no data collection system in Ireland for out-patient dermatology referrals. Data is extrapolated from NHS sources, but with differences in healthcare systems (e.g. wait times, availability of GPwERs), and patient factors (e.g. skin type), the data does not accurately reflect Irish referral patterns.

Aims: To categorise referrals received by an adult out-patient dermatology unit by diagnosis and source and to investigate the utilization of the National Cancer Control Programme (NCCP) Pigmented Lesion GP Referral Form and compliance with the diagnoses of exclusion suggested by the Dermatology National Clinical Programme.

Methods: Over a 4-week period in November 2020, data from referrals to out-patient dermatology unit including patient demographics, source of referral and suggested diagnosis were recorded.

Results: 407 referrals were received, with a female predominance (n=249, 61.2%). The age range was 17-95 years. 295 (72.7%) referrals were received electronically; 206 (50.6%) via Healthlink e-referral, 89 (22%) via the NCCP pigmented lesion e-referral and 1 via email. The largest category of referrals (n=244, 60%) was for skin cancer. Only 65.3% (n=100) of all pigmented lesions and 52% (n=13) of suspected melanomas were referred by NCCP e-referral. Referrals sent via other methods included vague clinical descriptions (e.g. "large dark lesion" and "new lesion"). 148 (37%) referrals were related to inflammatory conditions, and 13 (3.2%) related to benign lesions listed for diagnoses of exclusion under the National Clinical Programme for Dermatology.

Conclusions: This report provides important information on current outpatient dermatology referral patterns. The data retrieval process was labour intensive, thus implementation of an electronic system would improve accurate data collection for long-term trends and service improvement. It is concerning that only 52% of suspected melanomas were received by NCCP e-referral. Encouraging increased use of the NCCP referral form is vital as the Covid-19 restrictions may cause delayed presentation of skin cancers.

The effect of interventions on reducing sedentary behaviour in older adult populations: a systematic review

Sarah Crowley and Leah Murphy, BSc in Physiotherapy, (University of Limerick)

Abstract

Introduction: Adults ≥ 60 years engage in sedentary behaviour (SB) for approximately 5.3 to 9.4 hours a day. Participating in high levels of SB has detrimental effects on older adults'

global health. The World Health Organisation (2020) strongly recommends that all older adults reduce SB and replace it with physical activity (PA). To date, a consensus on the most appropriate intervention to encourage a behavioural change (BC) in all cohorts of sedentary older adults in different settings, has not yet been reached.

Aims: To systematically examine the effect of PA, BC strategies or other interventions on SB in older adults with various comorbidities, in different settings.

Methods: An electronic database search was conducted in AMED, Academic Search Complete, CINAHL Complete, MEDLINE, PubMed and Cochrane Library. Randomised controlled trials were deemed suitable based on inclusion criteria. Two reviewers independently screened studies for inclusion. The Cochrane Risk of Bias tool was used to assess methodological quality. A qualitative analysis was completed on the data extracted.

Results: Ten studies with n=599 participants were included. Participants from both community and acute inpatient sites were represented. Methodological quality across studies was mixed. Interventions varied between PA, BC and multi-disciplinary team management, with reductions in SB shown in seven studies. Two studies, one PA based and one BC based intervention, with unclear risk of bias, demonstrated statistically significant SB reductions in community cohorts.

Conclusion: A SB reduction in community-dwelling older adults through SB, BC or PA interventions is possible. Further research is required to determine the optimal intervention recommendations in all older adult cohorts in a range of settings. Clinicians should refer to SB-specific interventions previously demonstrated in younger adult reviews for SB reduction guidance at present.

Keywords: sedentary behaviour, older adults, physical activity, behavioural change.

The lived experiences of women who abuse substances during pregnancy

Gemma Doheny, Mental Health Nursing, (University of Limerick)

Abstract

Introduction: Substance abuse in pregnancy is a public health concern, associated with increased risk for pregnancy complications, birth complications, maternal mental health difficulties. However, much of the literature is concerned with the impact on the child and the experience of the pregnant mother is poorly documented. **Aim:** To explore the lived experiences of women who abuse substances during pregnancy

Methods: This integrative review incorporated Wakefield (2015) 7 stages. Review literature was sourced through four electronic databases, CINAHL, Psych Info, Psych Articles and Medline. The application of limiters (peer review articles, time span 2010–2020, English language and methodologies) resulted in 651 articles. Quality appraisal was conducted through use of CASP.

Results: 8 articles met the study criteria and were analysed using Braun and Clarke (2006) thematic analysis resulting in the development of three themes; 1) The emotional journey of pregnancy; 2) Pregnant and unable to stop; 3) positive experiences. These themes capture the experience of pregnant women who during pregnancy abuse substances such as heroin and cocaine.

Conclusion: Pregnant women with substance abuse issues experience high rates fear, guilt, stigma, and trauma during pregnancy. For women in contact with supportive services the experience can have a positive outcome and women can grow in confidence in their ability to be “good mothers”. However, a paucity of research examining women’s particular experience in the literature exists indicating that their voice is poorly heard. If this population of women are to be supported physically, psychologically, and socially to have healthy pregnancies and healthy babies’ health care services need to be holistic, adaptive, and accepting in their delivery of care.

Supply Chain Resilience in the Face of a Pandemic – A Microsoft Case Study

Erica Dowling and Abubakar Ali, School of Business, TU, Dublin

Abstract

This project is focused on developing an understanding of the Covid-19 pandemic on company supply chains. It includes details on the outputs from my literature review, as well as a survey which was carried out on the impact of the pandemic on Microsoft Ireland. The specific objectives of this project were:

- To carry out a literature review to develop an understanding of the impact of the pandemic on supply chains. This review focused on three industry sectors (Clothing, Aerospace and Technology).
- In addition to the pandemic to evaluate wider supply chain risks such as the competitor activity, economic environment, and internal and external forces. Particularly ‘black swan’ events.
- To evaluate the resilience (both soft and hard) and risk management strategies of supply chains. In addition to identifying as to where they could be potentially strengthened.
- To evaluate the impact on Microsoft’s supply chains

Microsoft interviews were carried out in two stages, the first during the Autumn of 2020 involved 15 people, from across their Trade and Supply Chain teams. This was followed by an ‘update’ interviews involving 5 staff members in the Spring of 2021. Microsoft’s supply chain was initially badly disrupted by Covid-19, particularly given to its dependency on mainland China for parts and assembly. This was associated with 90% of plant employees

not returning to the factory early last year along with the suspension of flights from China. Microsoft's held stocks helped them with this disruption. Alternative manufacturing locations are being actively evaluated to address individual regional supply disruption issues. Microsoft's extensive contingency plans which addressed 'what if' scenarios were found to be very helpful in strengthening the resilience of its supply chain.

A Review of Novel Therapies in the Treatment of Triple Negative Breast Cancer

Shane Fitzgerald, Medicine, (University of Limerick)

Abstract

Triple negative breast cancer (TNBC) is a heterogenous disease, that tends to occur in younger women and carries a poor prognosis, with early relapse rates and metastasis is common. For a long time, there has been limited treatment options with systemic chemotherapy being the therapeutic mainstay. TNBC has been classified into different molecular subtypes. This review focuses on advances in the treatment of TNBC and the potential therapies with promising future in both the early and advanced stages. Recent studies have shown the efficacy of immunotherapy agents and poly (ADP-ribose) polymerase inhibitors in the treatment of metastatic TNBC. Immune checkpoint inhibition by programmed cell death ligand 1 (PD-L1) inhibitors in combination with systemic chemotherapy, have been of particular benefit in subpopulations whose tumours express PD-L1, altering the course of the disease significantly. There are multiple other new agents currently in development for the treatment of TNBC, with the most promising being: AKT inhibitors, Sacituzumab Govitecan and androgen receptor inhibitors.

Databases interrogated: PubMed, Embase and Medline. Inclusion criteria utilised in this literature review incorporated clinical trials published from January 1st 2015 to August 21st 2020. Studies excluded were those with incomplete data on treatment and ER/PR/HER2 status, irrelevant topics i.e. those without the five core areas of interest in this paper: PD-L1 inhibitors, PARP inhibitors, AKT inhibitors, androgen receptor inhibitors, and Sacituzumab Govitecan; and papers reporting the same results, but just one particular population within that study.

Keywords: Triple-negative breast cancer, Immunotherapy, PARP inhibitors, AKT inhibitors, Sacituzumab Govitecan, Androgen receptor

An Investigation into the potential therapeutic mechanisms of novel curcumin analogues in a model of human renal cancer

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Abstract

Renal cell carcinoma (RCC), the primary form of adult kidney cancer, is highly metastatic and lacks early symptoms resulting in late-stage diagnosis and poor prognosis. Treatment options are insufficient, limited by serious adverse effects or resistance, highlighting a need for effective therapies. A potential novel immunotherapy involves TRAIL, which has the remarkable ability to selectively induce apoptosis in cancer cells. However, TRAIL resistance is rampant among primary cancers, including kidney cancer. Curcumin, a non-toxic turmeric extract, has demonstrated the ability to resensitize resistant tumours to TRAIL-mediated apoptosis, however therapeutic potential is significantly limited by its low oral bioavailability. Therefore, in this thesis curcumin analogues, DMC and EF24, alone and in combination with TRAIL were investigated to see if they could maintain the benefits of curcumin, whilst overcoming its limitations. Specifically, this project aimed to investigate effects on RCC cell viability and migration and potential cellular targets of Curcumin, DMC, and EF24, including DR4 and apoptotic proteins (Bcl-xL, Bax and Caspase-8). DMC and EF24 reduced ACHN cell viability and migration at IC₁₀ concentrations, an effect dramatically enhanced by addition of TRAIL. In conclusion from these results, DMC and EF24 are capable of overcoming TRAIL resistance to induce cytotoxicity in RCC cells and suppress cell migration and invasion. Anti-apoptotic Bcl-xL, pro-apoptotic Bax and caspase-8 expression were altered following treatment and DR4 expression was upregulated at 24-hour and 72-hour in response to most treatments. It was concluded treatments likely upregulate DR4 expression to mediate cytotoxicity in RCC cells and that each compound has distinct effects on Bcl-xL and Bax proteins.

Condition Proportions and Genetic Testing Utilisation and Yield at an Inherited Cardiac Conditions Clinic

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Abstract

Background: This study was undertaken to compare the proportions of conditions referred/detected in probands of at-risk families at a single Inherited Cardiac Conditions (ICC) clinic and assess the uptake of genetic testing and the yield of actionable genetic testing results in these individuals.

Methods: In this retrospective study, we interrogated the clinic's proband database (n=1,817; representing a total of 3,316 condition-affected persons) in July 2020. We extracted data about those whose primary diagnosis was one of seven ICCs: Hypertrophic Cardiomyopathy (HCM; n=444), Dilated Cardiomyopathy (DCM; n=235), Long QT Syndrome (LQTS; n=220), Sudden Adult Death Syndrome (SADS; n=165), Arrhythmogenic Cardiomyopathy (ACM; n=31), Brugada Syndrome (BrS; n=25) and Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT; n=9). Genetic variants which were classified as Pathogenic (P), Likely Pathogenic (LP)

and Variant of Uncertain Significance (VUS) by American College of Medical Genetics were grouped together as 'not negative'.

Results:

Condition	n=	No Genetics	Genetics	Genetics -ve	Genetics not -ve	Pathogenic*	Likely Path*	VUS*	> 1 variant
HCM	444	290 (65.3%)	154 (34.7%)	68 (15.3%)	86 (19.4%)	58 (13.1%)	13 (2.9%)	14 (3.2%)	10 (2.3%)
DCM	235	193 (82.1%)	42 (17.9%)	15 (6.4%)	27 (11.5%)	9 (3.8%)	11 (4.7%)	7 (1.6%)	5 (2.1%)
LQTS	220	98 (44.5%)	122 (55.5%)	37 (16.8%)	85 (38.6%)	51 (23.2%)	21 (9.5%)	13 (5.9%)	9 (4.1%)
ACM	30	17 (56.7%)	13 (43.3%)	3 (10%)	10 (33.3%)	6 (20%)	1 (3.3%)	3 (10%)	1 (3.3%)
BrS	25	18 (72%)	7 (28%)	2 (8%)	5 (20%)	2 (8%)	3 (12%)	0 (0%)	0 (0%)
CPVT	9	6 (66.7%)	3 (33.3%)	1 (11.1%)	2 (22.2%)	2 (22.2%)	0 (0%)	0 (0%)	0 (0%)
SADS	165	140 (84.8%)	25 (15.2%)	18 (10.9%)	7 (4.2%) ^	0 (0%)	0 (0%)	7 (4.2%)	0 (0%)

Conclusion: A significant minority of probands have undergone genetic testing to date at this ICC clinic and had an actionable result. The overall not negative (P, LP or VUS) rate for genetic testing across the ICCs probands in whom genetic testing was pursued was 60.5%. P and LP variants are directly clinically actionable while VUSs are not. P and LP variant rates within the not negative group in the larger cohorts of HCM (n=86) and LQTS (n=88) were 82.6% and 84.7% respectively. VUS rates vary from 0% to 30% within the not negative groups (excluding SADS where it was 100%). More publications of genotype-phenotype data may further reveal the degree of pathogenicity of variants.

Characteristics of Long QT Syndrome Probands who had Aborted Cardiac Arrest Prior to Diagnosis

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Abstract

Introduction/ Background: Within the Inherited Cardiac Condition (ICC)-affected population, Long QT Syndrome (LQTS) is the primary cause in 21% of aborted

cardiac arrests (ACA) (Skinner et al. 2020). We reviewed the cases of ACA among the LQTS patient subgroup at an Irish tertiary referral center for ICC.

Methods: A retrospective study was undertaken to profile cases of ACA in LQTS probands attending the Family Heart Screening Clinic between February 2007 and June 2020. Relevant individuals were identified through the proband database and their records were used to attain information.

Results: There were 656 LQTS patients of whom 212 were probands; and of whom 27 had an ACA prior to their diagnosis of LQTS. These were 17 females (mean age, 44 years) and 10 males (mean age, 27 years).

Five had been taking QT-prolonging drugs at the time of arrest while one was undergoing unascertained treatment for a RTI. Other precipitating factors included diarrhoeal illness (n=1; LQT1), swimming (n=2; LQT1, LQT2), running (n=1; LQT3), undergoing alcohol detoxification (n=1; LQT1), initiating a bar fight (n=1).

Seventeen out of the 27 (63.0%) had genetic testing. Eleven (64.7% of gene-tested) had a Pathogenic (P) or Likely Pathogenic (LP) mutation detected; 2 of whom had a further VUS. Two (11.8% of gene-tested) had VUSs alone and 4 (23.5% of gene-tested) were gene negative. P and LP mutations occurred in SCN5A (n=5), KCNQ1 (n=4), KCNE1 (n=1) and KCNH2 (n=1). Our youngest affected patient was a young child when ACA occurred and had the highest burden of variants detected - a P variant in SCN5A and 3 VUSs in KCNE1, KCNE2, RYR2.

Considerable variability in duration of QTc over time was noted in some patients (eg. >600ms to <460ms in the case of one proband).

Of the 27 LQTS probands with ACA, 22 had ICDs implanted after the arrest. Of the probands who did not have ICD implanted, two had life limiting complications associated with their arrest; a third fatally arrested in hospital after resuscitation from the initial ACA; a fourth had their ACA prior to widespread ICD implantation and has been successfully managed with Beta-Blockade alone. The fifth had been given 3 QT-prolonging drugs at the time of ACA and has been successfully managed with Beta-Blockade and QT-prolonging drug avoidance.

Conclusions: This retrospective review of a single centre experience demonstrates genetic diagnosis in 65% of cases where sought in a post-ACA LQTS proband subgroup. Detection of P and LP variants enables family screening for the affected gene. We saw increased prevalence of LQT3 among ACA sufferers; that QT-prolonging drug use was the most commonly recognized modifiable precipitator of cardiac arrest in this group.

ICD insertion is generally undertaken in survivors of ACA with LQTS at this clinic.

Characterising Exotic Pet Ownership and Access to Veterinary Services

Matt Goins, Veterinary Medicine, (University College Dublin)

Abstract

Background: There has been increasing concern expressed about the welfare of exotic pets worldwide. An online survey of pet owners conducted between July and August 2020 provides the first empirical data for Ireland. In this pilot study we aim to characterise exotic pet ownership, the challenges and benefits of keeping exotic pets, and access to veterinary services from the pet owner's perspective.

Results: Using an online survey this study gathered evidence from 93 respondents comprising 83 domestic and 32 exotic pet owners within the staff ($n = \sim 3600$ FTE) at University College Dublin, the largest third level institution in Ireland. The prevalence of exotic pet ownership was determined to be 34.4% of households with more than 10% owning only exotic pets. Half of exotic pet owners indicated they had not accessed veterinary services in the past with 45% indicating a lack of local veterinary clinics specialising in their exotic species. Commonly reported benefits of exotic pet ownership included that the pet was friendly, affectionate, or easy-going and that the pet was calming to the owner.

Conclusions: This pilot study contains important implications for veterinary education to support the veterinary community with providing services to the exotic pet owning community. Policy issues with exotic pet ownership also need to be considered and further research into the proposed strategies to support the health and welfare of exotic pets should be carried out such as the introduction of white lists and guidelines on responsible pet ownership.

Second Language Acquisition in Third Level Education: Does an individual's self-esteem affect their perceived ability to learn a second language?

Maya Hamoudadh and Paige Dalton, BA Psychology and Linguistics, (University of Limerick)

Abstract

The purpose of this research project was to examine third-level students' perceptions of studying another language in college based on their self-reported self-esteem. Over the past century, research in these areas has been completed, but not necessarily relating self-esteem and second language acquisition (SLA) together. This research paper aims to provide an understanding of the effect of self-esteem on SLA in higher level education and to help fill the existing gap in knowledge in this area of study. This was accomplished through an online questionnaire distributed to students at the University of Limerick, which 29 second and third-year undergraduate students participated in. The questionnaire used

a mixed methods approach to acquire both quantitative and qualitative data, through the Rosenberg Self-Esteem Scale, Likert-scale questions, and open-ended questions. It was found that self-esteem does influence an individual's perceived ability to learn a language. Furthermore, it was found that there is a negative correlation between self-esteem and language learning anxiety, indicating that the higher the self-esteem of a participant, the lower their language learning anxiety. This is to say that students with high self-esteem perceive language learning as easier and associate a more positive experience with it.

The Application of ICT In Teaching Construction Studies And Materials Technology Wood

Benen Lynch, Bachelor of Science (Honours) in Education (Design Graphics and Construction)

Abstract

This topic was chosen as a fourth year Dissertation topic because of the need felt for the greater use of ICT in education, and particularly so in the technologically orientated subjects of Construction Studies (CS), Design and Communication Graphics (DCG), Materials Technology (Wood) (MTW) or renamed Wood Technology in the new Junior Cycle and Engineering in Post Primary schools. The research undertaken in this Dissertation demonstrates the important role ICT can play in Post Primary schools and to what extent it is being used as an integrated tool in the education process by teachers. Primary research was undertaken with a group of student teachers to determine the level and extent of ICT use in teaching Construction Studies and MTW. This was undertaken to determine the role ICT played for both teacher and student in the technological subjects. The broader research also includes a literature review of school policies in relation to mobile phone policy. It explores the need for the introduction of an ICT teaching resource and student aid designed to guide and assist students in the development of their design portfolios and by doing so integrating ICT in the preparation and quality of work produced for design portfolios in CS/MTW. The general conclusion drawn is that ICT is not being used sufficiently in the formulation of design and project portfolios in CS and MTW.

How adults' perceptions of childhood impact policy developments in Ireland with specific emphasis on play in the construct of the Early-Years Education-Focused model of Inspection by the Department of Education and Science.

Keelin O'Grady, Early Childhood Care and Education, (Mary Immaculate College)

Abstract

As of January 2010, the free pre-school year (FPY) under the Early Childhood Care Education (ECCE) Scheme administered by the Department of Education and Science (DES) obligates that all preschools availing of the state-funded ECCE scheme '*for children*

aged more than three years two months and less than four years seven months on 1 Sept in the relevant pre-school year' (DES, 2014) operate underpinned by the principles of the play-based curriculum, Aistear (National Council for Curriculum and Assessment (NCCA, 2009) and the National Quality Framework for Early Childhood Education - Síolta (Centre for Early Childhood Development and Education (CECDE, 2006). Both of the aforementioned highlight the importance of play for children. Research suggests that there are varying perspectives on the value of play; therefore, an argument must be developed on how play is viewed. Dominant discourses tend to either view play as an innately valuable process or place value on equipment or materials used in play. To understand how play is inspected by the Early-years Education-focused Inspections (EYEI), the effect of perception of adults on childhood generally and play specifically must be presented.

Undertaking desk-based research, this study justifies the use of qualitative methodology to examine how play is viewed in the EYEI model of inspection by the DES, facilitated by the *'Guide to Early Years inspection'* (DES, 2018) and published online records of inspections based on a specific geographical area. The underlying substrate of qualitative secondary data analysis exemplifies the process of gathering observable data to answer a research question. The researcher has use the data analysis process commenced with three preliminary stages identified in Braun and Clark's (2006) thematic data analysis evaluation guide and the findings are quite interesting!

The role of family in supporting mental health wellbeing in LGBT Adolescents

Valerie OHalloran Hayes, BSc Mental Health Nursing, (University of Limerick)

Abstract

Introduction: Adolescence is an important period of identity development and families play an important function in guiding that development. It is a challenging time for all adolescents, but can be particularly so for LGBT youth who are at increased risk of experiencing mental health difficulties as a result of the many challenges they face. The "coming out" period can be extremely stressful and a time of much needed support. This study will explore the role of the family unit in supporting mental health wellbeing during an adolescent's "coming out".

Aim: To explore the role of family in supporting mental health wellbeing in LGBT Adolescents

Methods: An integrative review utilising Wakefield (2015) 7 stage approach. A comprehensive search of four electronic databases (CINAHL, PsychInfo, PsychArticles and Medline) was conducted and focused on peer reviewed articles published in English during 2010–2020. Seven articles met the inclusion criteria for review. Quality appraisal was conducted through use of CASP.

Results: Thematic analysis (Braun and Clarke, 2006) developed three themes; Family as a Protector, Family Adversity and Challenge, Family within a Circle of Support.

Conclusion: Families have an important role in supporting the mental health wellbeing LGBT adolescent family members. Families can act as a buffer to stigma but also they play an important role in addressing adversity and the various life challenges face by LGBT adolescents. The family are part of a circle of support for young LGBT people navigating adolescence and societal expectations. Mental healthcare professionals need to take cognisance of the role of family in healthcare delivery and promotion activities.

Exploring problem-solving and coping strategies of video gamers

Lilia Ramazanova, Higher Diploma in Psychology in Arts, Dublin Business School

Abstract

The aim of this research was to qualitatively examine the problem-solving and coping strategies of video gamers and determine if their gaming strategies have helped them to cope with strong emotions and find better solutions in real-life scenarios. Five semi-structured interviews were carried out where participants from different cultural backgrounds were asked to share their thoughts and feelings about videogaming experiences. The interviews were transcribed and analyzed using thematic analysis, which identified five themes along with their subthemes. The results found that participants experience a wide range of feelings during the game, which provides insight into how they deal with some negative emotions during the game and whether this helps them in their-real life scenarios. Participants broadly described the problem-solving and coping strategies used in games, and then it was explored to what extent in-game strategies were used in real-life situations.

Relationship between negative psychological states and resilience coping on emotional eating.

Francine Romani, Higher Diploma in Arts in Psychology, (Dublin Business School)

Abstract

Introduction: Emotional eating is defined as the tendency to eat despite not feeling physically hungry when experiencing negative emotions. It is used as a coping mechanism in a way to distract or escape from aversive affective states, and for comfort. Most people experience changes in eating when face negative psychological states, however, these states can increase or decrease the appetite or intake. Unclear, as well, is the role of resilience in this scenario.

Aim: To examine the relationship between negative psychological states (depression, anxiety, stress) and resilient coping on emotional eating among adults.

Methods: 130 individuals from the general population (female=84, male=45, other=1), sample age ranged between 18 and 60 years old ($M = 39.6$, $SD = 12.2$), took part in the cross-sectional design study. A convenience sampling was used, and participants were invited via social media to volunteer to complete an online survey. The questionnaire contained the DASS-21,

Brief Resilient Coping Scale, and Emotional eating scales. Multiple correlations were performed in SPSS to analyse the relationship between variables.

Results: It was found that overall negative psychological states significantly predicted overall emotional eating ($b = .29, p = .001, 95\% \text{ CI} = .25 - .95$) however, resilient coping nonsignificant predicted emotional eating ($b = -.03, p > .05, 95\% \text{ CI} = -1.36 - 0.92$). Overall negative psychological states score was the stronger predictor of overall emotional eating.

Conclusion: Findings from the present study provided additional support to previous research that found a significant relationship between negative psychological states and emotional eating. However, these results indicated that resilience has not affected food intake. In the long run, learning coping mechanisms to regulate emotions that do not involve food may prevent health problems such as obesity.

Sex Edutainment

Pamela Barrett, BA, Sociology, (University Of Limerick)

Abstract

This study examines how sexuality and gender are represented in the Netflix TV show *Sex Education* (2019). The research questions motivating this analysis ask how sexuality and gender are constructed as a discourse within the show? Research into the effects of pop culture on the interpretation of shows like *Sex Education* for young people could positively impact them and further our knowledge of society's evolution. Young people's sex, sexuality, and gender experiences are diverse and unique to them; representation in media is pivotal as media influences our concept and understanding of such, along with primary and secondary socialisation. While previous work looks at masculinities and taboo language, this research focuses on the extent to which gender impacts sexuality. More specifically, applying three frameworks and using thematic analysis, the aim is to show how pop culture entertainment such as *Sex Education* demonstrates young people's experience of sexuality and intimacy. Giving visibility to their experience and growth through intimacy with a realistic depiction rather than an unrealistic one is a goal well achieved in *Sex Education*. This analysis uncovers that gender did not impact males or females regarding sexual issues; both sexes had similar experiences. To the extent that characters in this popular fiction reflect real attitudes, this should be considered when designing policies and sex education provision in the future.

