About

Nursing Research Unit was established to enhance the rigour of nursing research, promote evidence-based nursing practice and encourage scholarly inquiry among nurses in SGH.

Nursing Research Focus Areas

▸ **Nursing Care Quality and Outcomes**
nursing sensitive indicators such as pressure injuries, falls, phlebitis and use of physical restraints

▸ **Nursing Workforce and Well-being**
workforce sustainability, well-being and resilience of nurses

▸ **Care Environment**
physical caregiving environment and nursing care processes

▸ **Caregiver Well-being**
education and support for caregivers

▸ **Evidence-Based Nursing**
informing clinical queries using evidence from different sources

Nursing Care Quality and Outcomes

Study status: In progress

Key Project: Outcomes of Patients with Venous Leg Ulcer Treated with Compression Bandaging – Experience of a Medical Centre in Singapore

Aims: To describe the characteristics of patients with venous ulcers, type and duration of treatment, frequency of outpatient attendances and inpatient admissions, costs of treatment, and to identify demographic and clinical factors associated with delayed healing (unhealed after 4-6 weeks) among patients with venous ulcers.

Methods: Retrospective medical records of patients who attended outpatient clinic in SGH were reviewed. Co-morbidities, number, size and location of ulcers, data relating to the treatment (e.g. duration and type of compression therapy), and demographics of patients diagnosed with lower limb venous ulcer and on compression therapy were extracted.

Study significance: The result of this study will help us plan and design interventions that will help to increase the efficacy of the compression therapy.

Project team members: Ms Fazila Aloweni (Nursing Division), Dr Sivagame D/O Maniya (Nursing Division), Ms Ang Shin Yuh (Nursing Division), Ms Lim Mei Ling (Nursing Division), Ms Nicole Lee (National University of Singapore – Alice Lee Centre for Nursing Studies), Ms Tan Wei Xian (Nursing Division).

Key Project: Evaluating the Effectiveness of Different Anchoring Methods for Preventing Dislodgement of Percutaneous Drainage Catheters

Aim: To evaluate different anchoring methods for preventing dislodgement of percutaneous drainage catheter (PDC).

Methods: A quasi-experimental trial will be adopted and 100 in-patients with PDC inserted will be recruited. Recruited participants will be randomly assigned to one of the following anchoring methods: (1) IV advance with Durapore, (2) IV advance with Micropore or (3) IV advance with Griplok.

Study significance: The study findings will improve the management of the PDC and prevent accidental catheter dislodgement.

Project team members: Ms Chua Siew Huang (Nursing Division), Mr Mohammed Shafiq Bin Omar (Nursing Division), Mr Lim Cong En Julian (Nursing Division), Ms Julianah Bee D/O Abdul Latiff (Nursing Division), Ms Wang Yu Wei (Division of Radiological Sciences), Ms Fazila Aloweni (Nursing Division).

Study status: Completed

Key Project: Effectiveness of an Integrated Care Protocol in Reducing Falls among High Risk Elderly Inpatients and its Impact on Fall Efficacy

Aim: To evaluate the effectiveness of a care process model in improving risk assessment, prevention interventions and reducing fall incidents among high risk elderly inpatients.

1

Study design: A pre-and post-intervention, pragmatic trial was conducted. A multi-disciplinary approached care process model (CPM) dictated the role of nurses, physicians, physiotherapists, occupational therapists, and pharmacists. The team ensured that elderly patients receive multi-factorial fall risk assessment and interventions.

Results: Although this pilot study result did not demonstrate a reduction in falls, the use of a CPM improved the timeliness of referrals and assessments of these high risk elderly patients. Moving forward, our team aims to evaluate the effectiveness of the model among a larger sample. A stepped-wedge trial (i.e. sequential roll-out) will be adapted to wards 58B, 54D & 65, 53C and 63C.

Project team members: Ms Ang Shin Yuh (Nursing Division), Mr Gary Cheok (Allied Health Division - AHD), A/Prof Wong Kok Seng (Division of Medicine - DM), Dr Qin Yan (DM), Ms Andrea Choh (Nursing Division), Ms Lim Mei Ling (Nursing Division), Ms Teo Kai Yunn (Nursing Division), Ms Lydia Choo (AHD), Ms Chen Li Li (AHD), Dr Shim Yuan Tying (AHD).

Nursing Workforce

Study status: In progress

Key Project: Association between Influenza Vaccination and the Work Absenteeism in Nurses

Aim: To investigate the effectiveness of influenza vaccination in reducing influenza like symptoms and work absenteeism in nurses.

Methods: A retrospective study has been conducted to compare nurses who were vaccinated and those did not during April to June 2018.

Study significance: The study findings will identify the effectiveness of influenza vaccination on nurses' work absenteeism, to aid in the improvement of vaccination uptake among nurses through revised policy and intervention.

Project team members: Dr Lim Siew Hoon (Nursing Division), Prof Ostbye Truls (Duke-NUS), Dr Melvin Seng (Department of Occupational & Environmental Med Unit – DOEM), Dr Gan Wee Hoe (DOEM), Dr Wycliffe Wei (Department of Health Services Research), Ms Fazila Aloweni (Nursing Division), Ms Ang Shin Yuh (Nursing Division).

Study status: Completed

Key Project: A Photovoice Study on Nurses' Perceptions and Experience of Resiliency

Aim: To explore the meaning of resilience to nurses and perceived resilience enhancing factors.

Method: A descriptive qualitative design using Photovoice was adopted. A focus group interviews was conducted and data were analysed with inductive content analysis approach.

Results: Eight nurses participated in this study. Four themes were generated: (a) resilience is performing nursing duties despite adversities; (b) resilience is a dynamic process that develops over time; (c) religion and faith help build resilience; and (d) support of others is important in overcoming work-related stress. Knowledge on resilience is vital to understand influencing factors of personal resilience and relationship to stress and burnout. Building nurses' resilience is significant to improve and sustain healthy and effective functioning of nurses.

Awards

Best Poster @ 6th International Congress of Infection Control Association (Singapore)

1) Tan KY. Taking a Hard Approach to Reduce *HO-MRSA* Bacteremia.

Best Poster Presentation @ Wound Healing Society Singapore 2018

1) Tan WX. A Case Study on Patient with Non-Uremic Calciphylaxis – Rare Nonhealing Ulcers.

Best Poster (Special Category - Nursing) @ SingHealth Duke-NUS Scientific Congress

1) Ye LZ. Effectiveness of a Care Process Model in Improving Risk Assessment, Preventive Interventions and Reducing Falls among High Risk Elderly Inpatients - A Pilot Study.

Best Poster @ Singapore Healthcare Management 2018

1) Towle RM. Creating a Standardised Algorithm to Support Discharge Planning.

2) Towle RM. Utilising the Zarit Burden Interview (ZBI) in Early Recognition of Caregiver Burden: A Study to Facilitate Care Transition.

Best Runner Up for the Original Article

1) Lim ML. A Randomized Controlled Trial to Evaluate the Incremental Effectiveness of a Prophylactic Dressing and Fatty Acids Oil in the Prevention of Pressure Injuries. Coloplast Biatain® Literary Award 2018.

With sufficient external resources and psychosocial support from hospital administrators, early resilience-based approach may provide the buffer and protective factor in facing workplace stress, to improve overall job satisfaction and improve nurses' retention.

Project team members: Ms Ang Shin Yuh (Nursing Division), Ms Thendral Uthaman (Nursing Division), Dr Tracy Carol Ayre (Nursing Division), Dr Lim Siew Hoon (Nursing Division), Prof Violeta Lopez (National University of Singapore – Alice Lee Centre for Nursing Studies).

Publication: Ang SY, Uthaman T, Ayre TC, Lim SH, Lopez V (2018). A Photovoice study on nurses' perceptions and experience of resiliency. Journal of Nursing Management. DOI:10.1111/jonm.12702.

Key Project: Association between Demographics and Resilience – A Cross-sectional Study among Nurses in Singapore

Aim: To examine associations between various demographics variables and resilience level.

Methods: A cross-sectional survey was conducted. Self-reported questionnaire consisting of demographic questions on demographics and the Connor–Davidson Resilience Scale CD-RISC 10 was used.

Results: The experience of life events (as exemplified by significant variables including marital status, age and years of experience) was associated with higher resilience levels.

Project team members: Ms Ang Shin Yuh (Nursing Division), Ms Thendral Uthaman (Nursing Division), Dr Tracy Carol Ayre (Nursing Division), Dr Siti Zubaidah Mordiffi (National University Hospital), Prof Emily Ang (National University of Singapore – Alice Lee Centre for Nursing Studies), Prof Violeta Lopez (National University of Singapore – Alice Lee Centre for Nursing Studies).

Publication: Ang SY, Uthaman T, Ayre TC, Mordiffi SZ, Ang E, Lopez V (2018). Association between Demographics and Resilience – A Cross-sectional Study among Nurses in Singapore. International Nursing Review. 65(3): pp.459-466. DOI: 10.1111/inr.12441.

Key Project: Differing Pathways to Resiliency: A Grounded Theory Study of Enactment of Resilience among Acute Care Nurses

Aims: To generate a comprehensive account of the experiences of nurses as they cope with stress and demands of work, and to develop knowledge of resilience.

Methods: A qualitative grounded theory design study was conducted. Nine nurses who scored low and nine nurses who scored high on the Connor–Davidson Resilience Scale were recruited for one-on-one semi-structured interviews. The theory was developed "differing pathways to resiliency".

Results: Despite the stresses experienced at work, some nurses were highly resilient, while others were not. Highly-resilient nurses tend to adopt active coping mechanisms, whereas nurses who have low resilience tend to undertake passive measures to let nature runs its course.

Project team members: Ms Ang Shin Yuh (Nursing Division), Ms Thendral Uthaman (Nursing Division), Dr Tracy Carol Ayre (Nursing Division), Dr Lim Siew Hoon (Nursing Division), Prof Violeta Lopez (National University of Singapore – Alice Lee Centre for Nursing Studies).

Grants

A*STAR, Industry Alignment Fund (pre-positioning) (IAF-PP)

1) Harnessing Telemedicine to Manage Surgical Wounds
   (**amount: S$259,956**)

2) Outcomes of Patients with Venous Leg Ulcer Treated with Compression Bandaging - Experience of a Medical Centre in Singapore
   (**amount: S$259,200**)

A*STAR Skin Innovation Grant

1) A Nursing Care Redesign Using an Integrated, Evidence-based Incontinence-associated Dermatitis (IAD) Program for Healthcare Institutions in Singapore
   (**amount: S$99, 916**)

AM•EI EDUCATION GRANT 2018

1) Developing a Blended Learning Programme to Enhance General Ward Nurses' Clinical Competence in Postoperative Patient Education for Orthopaedic Patients
   (**amount: S$5,000**)

Key Project: Understanding the Influence of Resilience on Psychological Outcomes - Comparing Results from Acute Care Nurses in Canada and Singapore

Aims: To evaluate a theoretical model of the impact of resilience on burnout (BO), secondary traumatic stress (STS) and compassion satisfaction (CS) by comparing results between nurses in Canada and Singapore.

Methods: A cross-sectional survey was conducted Data on demographics, resilience (Connor-Davidson Resilience Scale), and psychological adjustment (Professional Quality of Life, QoL) were collected.

Results: Resilience exerts a significant negative direct impact on STS, and a significant negative direct impact on BO. Resilience has a positive direct impact on compassion satisfaction. STS exerts a positive direct impact on BO while CS has a negative direct impact on BO. This study affirmed significant associations between resilience and professional QoL.

Project team members: Ms Ang Shin Yuh (Nursing Division), Prof David Hemsworth (Nipissing University), Ms Thendral Uthaman (Nursing Division), Dr Tracy Carol Ayre (Nursing Division), Dr Siti Zubaidah Mordiffi (National University Hospital), Prof Emily Ang (National University of Singapore – Alice Lee Centre for Nursing Studies), Prof Violeta Lopez (National University of Singapore – Alice Lee Centre for Nursing Studies).

Care Environment

Study status: In progress

Key Project: Harnessing Telemedicine to Manage Surgical Wounds

Aim: To evaluate the effectiveness of teleconsultation in the management of patients with carbuncle or perianal abscess wounds.

Methods: A prospective cohort study design will be adopted. Patients recruited into the intervention group will receive their wound care in Bedok or Pasir Ris polyclinics. Control group patients will receive standard wound care in Singapore General Hospital wound clinic. Outcome measures will include healing rate, costs of care and patient satisfaction.

Study significance: The findings will help to inform the design and implementation of future wound care services in Singapore.

Project team members: Ms Chang Yee Yee (Nursing Division), Ms Peng Shuangshuang (SHP – Clinical Services), Ms Yeo Guat Hoon (Nursing Division), Ms Haryati Binte Zulkifli (SHP – Clinical Services), Fazila Aloweni (Nursing Division), Ms Angela Liew (Nursing Division), Ms Loh Sheau Lan (Nursing Division), Ms Ong Choo Eng (Nursing Division), Ms Tan Wei Xian (Nursing Division), Mrs Haryati Binte Abdul Ghani (SHP – Clinical Services), Mrs Halimabeeve D/O Gul Mohamed (SHP – Clinical Services), Ms Ng Xin Ping (Nursing Division).

Key Project: Evaluating the Effect of a Bedside Rehabilitation Chair on Functional Decline in Hospitalized Older Adults

Aim: To create and evaluate the effect of an interactive bedside rehabilitation chair on functional decline among elderly inpatients.

Grants

SGH Medical Board Patient Safety Grant

1) Evaluating the Effect of a Bedside Rehabilitation Chair on Functional Decline in Hospitalized Older Adults **(amount: S$43,951)**

2) Improving Effectiveness of Interdisciplinary Communications through Review and Enhancement of Electronic Health Records **(amount: S$35,000)**

3) Evaluating the Effectiveness of the Different Anchoring Methods of the Percutaneous Drainage Catheter in Preventing Dislodgement **(amount: S$3,000)**

Get in Touch With Us

Address: SGH Bowyer Block B Level 2, 31 Third Hospital Avenue, Singapore 168753

Email: nursing.research @sgh.com.sg

Contact no:6326 5796

DDN Ang Shin Yuh

NC Fazila Aloweni

SSN Lim Siew Hoon (Dr)

SSN Chew Suet Mei

CRC Ng Xin Ping Joanne

ACRC Nurliyana Bte Agus

Methods: A randomized controlled trial will be adopted. Participants will be assigned to either an intervention or control group. Additional to standard care (may or may not include physiotherapy interventions); the Intervention group will receive a rehabilitation chair by their bedside and be taught to operate it whereas the controlled group will only receive standard care.

Study significance: The study findings may provide ground-breaking data in the transformation of local healthcare settings to curb functional declines among patients in the future.

Project team members: Ms Ang Shin Yuh (Nursing Division), Mr Jason Phil Seow (Nursing Division), Ms Fazila Aloweni (Nursing Division), Ms Juweita Binte Arba'in (Nursing Division), A/Prof Ong Hwee Kuan (AHD), Ms Shamala D/O Thilarajah (AHD), A/Prof Tan U-Xuan (Singapore University of Technology and Design - SUTD), A/Prof Yuen Chau (SUTD).

Key Project: Subjective Sleep Quality and its Association with Demographics, Clinical and Environmental Factors among Hospitalized Adult Patients

Aims: To understand the subjective sleep quality of hospitalised patients and its association demographic and environmental factors.

Methods: A cross-sectional design with convenience sampling is used, and participants in medical wards were recruited within 72 hours on admission. The Pittsburgh Sleep Quality Index (PSQI) was administered upon recruitment to establish baseline sleeping habits, a sound meter was used to record the noise level over a single night and the Richards Campbell Sleep Questionnaire (RCSQ) was administered thereafter.

Results: Females had a poorer perception of sleep and perceived their environment to be noisier than males. Individuals who slept with their lights on reported better sleep than those who did not. Individuals who received medication overnight perceived their sleep to be disturbed but returned back to sleep more easily than those who did not receive any.

Project team members: Ms Lee Ying Hui (Nursing Division), Mrs Zhang Aimei (Department of Neuroradiology - Nursing), Mr Abuhanifah Bin Abdul Sukor (Nursing Division), Mrs Sri Sukarti Bte Mostafa Bin Abdollah (Nursing Division), Ms Fazila Aloweni (Nursing Division).

Caregiver Well-being

Study status: Completed

Key Project: Caregivers' Experience and Perceptions of Different Modalities of Enteral Feeding

Aim: To understand their experiences caring for their loved ones with nasogastric tube (NGT)/percutaneous endoscopic gastrostomy tube (PEG).

Methods: A qualitative explorative descriptive study design was conducted. A total of nine caregivers were interviewed between August to December 2017.

Results: Three main themes were generated: (1) factors influencing choice of mode of enteral feeding; identified factors such as challenges faced living with NGT - need to 'conceal' illness, need to be independent and previous bad experience with alternative feeding modality; (2) identified informational, emotional and physical needs. Respondents reported the need for support in terms of information on the different modalities, training on how to care and availability of specialist advice; and (3) individual perception and attitude towards life with enteral feeding. Acceptance as a whole family improves resilience and help in coping, importance of peer advocate is highlighted.

Project team members: Ms Ang Shin Yuh (Nursing Division), Ms Madeleine Lam (Home Nursing Foundation – HNF), Ms Chan Mei Mei (HNF), Prof Violeta Lopez (National University of Singapore – Alice Lee Centre for Nursing Studies), A/Prof Ong Hock Soo (Department of Upper GI/ Bariatric Surgery), Mrs Janet Chong (Nursing Division), Ms Lim Mei Ling (Nursing Division), Dr Lim Siew Hoon (Nursing Division), Ms Ng Xin Ping (Nursing Division).

Key Project: The Impact of a Mindfulness-Based Program on the Stress and Anxiety of Family Caregivers of Peritoneal Dialysis Patients: A Pilot Randomized Controlled Study

Aim: To investigate the effectiveness of a mindfulness-based programme in reducing the stress and anxiety among family caregivers of patients on Peritoneal Dialysis.

Methods: Randomized Controlled Study. Thirty-four caregivers participated in the study and were randomly allocated to either mindfulness training (MT) group or control group (treatment- as-usual; TAU).

Results: After 4 weeks of post-training, caregivers in MT group showed a higher significant improvement in their Perceived Stress Scale (PSS) and Trait anxiety (T-STAI) score compared to the TAU group. However, there was no significant difference in the state anxiety symptoms (S-STAI) score between the groups. Results have shown that Mindfulness-based training is effective at reducing anxiety and perceived stress.

Project team members: Fazila Aloweni (Nursing Division), Prof Ostbye Truls (Duke-NUS), Jessica Wang (Clinical Trials Resource Centre), Dr Doshi Kinjal (Department of Neurology), Dr Marjorie Foo (Department of Renal Medicine), Ang Shin Yuh (Nursing Division), Chew Suet Mei (Nursing Division), Kong Lau Peng (ward 42), Elena Ayob (Nursing Division), Wu Sin Yan (ward 42), Nur Liyana (Nursing Division), Ng Lei Beng (Nursing Division).

Evidence-Based Nursing

Clinical Query 1: Is it necessary to limit healthcare workers (HCWs) in patient's cubicle during ward round?

P –Immunocompromised patients
I – Limiting number of healthcare workers during the ward round
C – No restriction to the number of healthcare workers during the ward round
O –Preventing transmission of microorganism

Highlights of review results: Ward rounds are critical in the development of rapport and building of trust with patients, while fulfilling a duty of care. Although there is no direct evidence on limiting the number of healthcare workers' during ward round, but guidelines from reputable sources recommended limiting traffic flow in order to reduce transmission of microorganism. Consultant in-charge leading the ward round should limit the number of people during the ward round to only the essential personnel especially if the patients are immunocompromised.
HCWs should practice good hand hygiene at all times and to wear personal protective equipment when required (burns or infectious cases) to prevent the transmission of microorganism.

Clinical Query 2: How do we determine the consistency of diet for patients with difficulty swallowing?

P - Patients with swallowing difficulties
I – Tools or method to determine diet consistency
O – Accuracy and feasibility

Highlights of review results: International terminology for thickened liquids and texture-modified food differs among countries. Standardization of terminology and definitions is essential to improve patient safety and inter-professional communication, e.g. International Dysphagia Diet Standardisation Initiative Framework.

Eating Assessment Tool (EAT-10) and Swallowing disturbance questionnaire (SDQ) are the two commonly used questionnaire-based tools with sensitivity (73 to 86%) and specificity (68 to 78%) and can be administered by nurses at bedside. EAT-10 is a self-administered nutrition tool to assess for swallowing difficulties whereas SDQ is a self-rated screening tool for dysphagia in patients.

Clinical Query 3: Should we replace insulin pen needles with Autoshield pen needles?

P – Diabetic patients who need insulin injections
I – Autoshield Insulin Pen Needle
C – Conventional Insulin Pen Needle
O – Feasibility and cost analysis

Highlights of review results: Nurses are at risk of needle stick injuries with the use of insulin pen needles due to the need to recap before unscrewing needle for disposal. Unlike the insulin pen needles, the use of BD Autoshield Duo^{TM} pen needle has two shields that completely cover the needle, which prevents exposure before and after an injection, and it does not require recapping after use. Autoshield pen needle may prevent needle stick injuries and benefit patients who are not cognitively or mentally ready for self-injection or caregivers who are not available for teaching on insulin administration.

Adopting a cost-minimization approach, we postulated that the expected cost for BD Autoshield Insulin Pen needle is **$5665.53 less** than the conventional insulin needle ($24,550.63 vs $18,885.10); after accounting for a lower risk of needle stick injuries (and hence decreased post exposure investigations and risk of contracting blood borne diseases). Medical board approval was obtained to switch from insulin pen needles to Autoshield pen needles, targeting for implementation in SGH from 2nd quarter 2019 onwards.

Clinical Query 4: What are the possible strategies to Improve Joy at work among healthcare workers?

P – Healthcare workers
I – Strategies to improve/increase joy at work
O – Improve/ increase joy at work

Highlights of review results: A shift of focus from preventing professional burnout to fostering joy in work by creating systems that promotes staff engagement, satisfaction, and resilience, which can promote a healthful workplace.
Making joy in work needs to be a shared responsibility at all levels of organization.
Four steps leaders can take to improve joy in work (the "how") include: 1) ask staff, "What matters to you?", 2) identify unique impediments to joy in work in the local context, 3) commit to a systems approach to making joy in work a shared responsibility at all levels of the organization and 4) use improvement science to test approaches to improving joy in work in your organization.
Strategies based on the Institute for Healthcare Improvement (IHI) Framework for Improving Joy in Work can be used for ensuring a joyful, engaged workforce (the "what"). Leader capacity at all levels and senior leader of organization need to be ready to participate in this improvement. Routine system level and local level measurement of joy can be incorporated for organizations to understand employees and also enable employees to evaluate themselves promptly.

Clinical Query 5: What are the strategies to minimize distraction during medication round?

P – Nurses administering medications
I – Strategies to minimize distraction during medication round
O – Medication error

Highlights of review results: Some of the key strategies to minimize distraction while serving medication include:
1. Educate all healthcare professionals, patients and visitor of the signage.
2. Use diversion strategy such as allocating other staff not performing medication administration to attend to phone calls and non-emergency patient inquiries.

3. Streamline medication administration process e.g. ensure the trolley is fully stocked before begin serving, inform nursing colleagues when commencing medication round, instruct nursing students to withhold any questions not directly related to task at hand until round is concluded, avoid initiating conversation unrelated to medication administration process.

Publications (names of SGH nurses are in bold)

Aloweni FAB, **Ang SY**, Fook-Chong S, Agus N, **Yong P**, **Goh MM**, Tucker-Kellogg L, Soh RC (2018). A prediction tool for hospital-acquired pressure ulcers among surgical patients: Surgical pressure ulcer risk score. International Wound Journal. DOI: 10.1111/iwj.13007.

Abstract
Surgical patients are prone to developing hospital-acquired pressure ulcers (HAPU). Therefore, a better prediction tool is needed to predict risk using preoperative data. This study aimed to determine, from previously published HAPU risk factors, which factors are significant among our surgical population and to develop a prediction tool that identifies pressure ulcer risk before the operation. A literature review was first performed to elicit all the published HAPU risk factors before conducting a retrospective case-control study using medical records. The known HAPU risks were compared between patients with HAPU and without HAPU who underwent operations during the same period (July 2015-December 2016). A total of 80 HAPU cases and 189 controls were analysed. Multivariate logistic regression analyses identified eight significant risk factors: age ≥ 75 years, female gender, American Society of Anaesthesiologists ≥ 3, body mass index < 23, preoperative Braden score ≤ 14, anaemia, respiratory disease, and hypertension. The model had bootstrap-corrected c-statistic 0.78 indicating good discrimination. A cut-off score of ≥6 is strongly predictive, with a positive predictive value of 73.2% (confidence interval [CI]: 59.7%-84.2%) and a negative predictive value of 80.7% (CI: 74.3%- 86.1%). SPURS contributes to the preoperative identification of pressure ulcer risk that could help nurses implement preventive measures earlier.

Ang BY**,** Lam SWS, **Pasupathy Y**, Eng MHO (2018). Nurse workforce scheduling in the emergency department: a sequential decision support system considering multiple objectives. Journal of Nursing Management. 26(4): pp. 432-441. DOI: 10.1111/jonm.12560.

Abstract

Aim: We propose a nurse scheduling framework based on a set of performance measures that are aligned with multiple outcome measures. A case study for the emergency department is presented.
Methods: A total of 142,564 emergency department attendances over 1 year were included in this study. Operational requirements, constraints and historical workload data were translated into a mixed-integer sequential goal programming model, which considers the following outcome measures: (1) nurse–patient ratios; (2) number of favourable/unfavourable shifts; and (3) dispersion of rest days. Computational studies compared the performance of the mixed-integer sequential goal programming results with manually generated historical nurse schedules.
Results: The maximum nurse–patient ratio deviation against the target was approximately 10% compared to 47% generated by the historical rosters (a 10% deviation translates to approximately two nurses). An on-line decision support system, which integrates shift preferences, staff databases and a workload forecasting module, was also developed.
Conclusion: A decision support system based on the mixed-integer sequential goal programming modelling framework was proposed. The application of the model in a case study for an emergency department demonstrated improvements over existing manual scheduling methods.
Implications for Nursing Management: This study demonstrates a mathematical, programming-based decision support system, which allows for managerial priorities and nurse preferences to be jointly considered in the automatic generation of nurse rosters.

Ang SY, Hemsworth D, Uthaman T, **Ayre TC**, Mordiffi SZ, Ang E, Lopez V (2018). Understanding the influence of resilience on psychological outcomes — Comparing results from acute care nurses in Canada and Singapore. Applied Nursing Research. 43: pp. 105-113. DOI:10.1016/j.apnr.2018.07.007.

Abstract

Background: Building resilience among nurses is one of the ways to support and retain nurses in the profession. Prior literature which evaluated influence of resilience on psychological outcomes, were conducted in relatively homogeneous populations. It is

of interest to evaluate whether relationships between resilience and psychological outcomes remain consistent across nations and among different nursing populations.

Aim: To evaluate a theoretical model of the impact of resilience on burnout (BO), secondary traumatic stress (STS) and compassion satisfaction (CS) by comparing results between nurses in Canada and Singapore.

Method: A self-reported questionnaire consisting of questions on demographics, resilience (Connor-Davidson Resilience Scale), and psychological adjustment (Professional Quality of Life) was administered via an online survey. One thousand three hundred and thirty-eight nurses working in two Academic Medical Centres in Singapore responded to the online survey. Similar data was also collected from 329 nurses in Canada. Hypotheses were tested using structural equation modelling.

Results: Resilience exerts a significant negative direct impact on STS, and a significant negative direct impact on BO. Additionally, resilience has a positive direct impact on compassion satisfaction. STS exerts a positive direct impact on BO while CS has a negative direct impact on BO.

Conclusion: Current study affirmed significant associations between resilience and professional quality of life. Knowledge on resilience is key in informing design and implementation of resilience-building strategies that include professional development, and strengthening of interpersonal skills. A resilience-based approach will help reduce nurses' BO and STS while caring for their patients, and in turn reduce turnover.

Abstract

Aim: To give an overview of the level of resilience among nurses in Singapore and to examine associations between various demographics variables and resilience level.

Background: The World Health Organization reported a global needs-based shortage of over 9 million nurses and midwives in 2013. Building resilience among nurses has been postulated as one of the ways to support and retain nurses in the profession.

Method: A self-reported questionnaire consisting of questions on demographics and the Connor–Davidson Resilience Scale CD-RISC 10 was used.

Results: Univariate analysis identified marital status, age group, years of experience in nursing, highest education qualification and job grade to have significant associations with resilience. During multivariate analysis, only marital status, age group, highest educational qualification and job grade remained significant. A strong association was found between highest educational qualification and resilience level; nurses with bachelor's or postgraduate degree were about three times more likely than nurses with only a general nursing certificate to be of moderate/high resilience.

Conclusion: The experience of life events (as exemplified by marital status, age and working experience) was associated with higher resilience levels. Implications for nursing policy: There is a need for healthcare organizations and nurse leaders to develop programmes focusing on building resilience among younger and less experienced nurses. Nurses should also be supported in their pursuits for higher education, which will in turn lead to higher resilience, and consequently, retention of nurses within the profession and institution.

Abstract

Aim: To explore the meaning of resilience to nurses and their perceived resilience enhancing factors.

Background: With challenges faced at work, nurses' professional quality of life is adversely affected with nurses experiencing compassion fatigue, depression, burnout and even signs of post-traumatic stress disorder. Degree of resilience can determine job satisfaction and nursing attrition.

Methods: The study adopted a descriptive qualitative design using Photovoice. Eight nurses from an academic medical centre in Singapore participated in focus group interviews and data were analysed with inductive content analysis approach.

Results: Four themes were generated: (a) resilience is performing nursing duties despite adversities; (b) resilience is a dynamic process that develops over time; (c) religion and faith help build resilience; and (d) support of others is important in overcoming work-related stress.

Conclusions: Knowledge on resilience is vital to understand influencing factors of personal resilience and relationship to stress and burnout. Building nurses' resilience is significant to improve and sustain healthy and effective functioning of nurses.

Implications for nursing management: With sufficient external resources and psychosocial support from hospital administrators, early resilience-based approach may provide the buffer and protective factor in facing workplace stress, to improve overall job satisfaction and improve nurses' retention.

Ang SY, Uthaman T, **Ayre TC, Lim SH,** Lopez V (2018). Differing Pathways to Resiliency: A grounded Theory Study of Enactment of Resilience Among Acute Care Nurses. Nursing and Health Sciences. DOI: 10.1111/nhs.12573.

Abstract

It is well-recognized that nurses are exposed to high levels of stress, thus resilience has been postulated as a key trait in enabling nurses to cope successfully and remain in the profession. In this qualitative study, we used Glaser's approach to grounded theory. Nine nurses who scored low and nine nurses who scored high on the Connor–Davidson Resilience Scale were recruited for one-on-one semi structured interviews of the factors contributing to their work-related stress and how they overcome these stressors. Three categories emerged from the data: outlook on work, self-efficacy, and coping responses. These categories led to the emergence of the theory "differing pathways to resiliency". Despite the stresses experienced at work, some nurses were highly resilient, while others were not. Highly-resilient nurses tend to adopt active coping mechanisms, whereas nurses who have low resilience tend to undertake passive measures to let nature runs its course. The emerging theory provided an understanding of the different pathways to resiliency and how nurse leaders can potentially develop and grow the level of resiliency among nurses.

Choo PJ, **Tan YTJ,** Ong LT, Aw AT, Teo LW, Tan MLM, Yusoff AME, Lee KK, **See MTA, Lim SH, Ang SY,** Lopez V (2018). Role Transition: A descriptive exploratory study of Assistant Nurse Clinicians in Singapore. Journal of Nursing Management. DOI: 10.1111/jonm.12657.

Abstract

Aim: To explore the role-transition experiences of assistant nurse clinicians after their first year of appointment.
Background: The National Nursing Taskforce was set up in Singapore to examine the professional development and recognition of nurses. It created the assistant nurse clinician role as an avenue for the nurses' career development. The role was intended to assist nurse managers to guide the nursing team in the assessment, planning, and delivery of patient care.
Methods: A qualitative descriptive study design was adopted. A purposive sample of 22 registered nurses from six acute care institutions and two polyclinics in Singapore participated in the face-to-face interviews. An inductive content analysis approach was used to analyse the data.
Results: Four themes emerged: (a) promotion to assistant nurse clinician is a form of recognition and vindication; (b) there was uncertainty about the expected role of the assistant nurse clinician; (c) experience eases transition; and (d) there was a need for peer support, mentorship, and training.
Conclusions: The job description of the assistant nurse clinician needs to be better defined to provide greater clarity about their clinical and administrative duties and what is expected of their performance.
Implications for Nursing Management: It is essential for nurse managers to provide successful role-transition strategies to help the newly appointed assistant nurse clinicians to become efficient and effective leaders.

Goh MJA, Ang SY, Della PR (2018). Leadership style of nurse managers as perceived by registered nurses: A cross-sectional survey. Proceedings of Singapore Healthcare. 27(3): pp. 205-210. DOI: 10.1177/2010105817751742.

Abstract

Given rapid changes in the health care landscape, nurse leaders need to be equipped with effective leadership skills. Those who are aware of their styles of working and its impact on their employees could adopt a better leadership style. The study aim was to assess the leadership styles of nurse leaders, as perceived by their employees. The secondary objectives were to explore differences between self-ratings and others' ratings of leadership styles, as well as correlation between perceived leadership styles and organisational outcomes. A cross-sectional survey was conducted among registered nurses from four inpatient wards in an acute tertiary hospital in Singapore. Respondents were asked to complete a questionnaire that consisted of demographic questions, the Multifactor Leadership Questionnaire and the Organizational Commitment Questionnaire, as well as a Three-

index item Questionnaire, to elicit turnover intention. A total of 111 completed surveys (37% response) were received. Overall, registered nurses reported that their nurse leaders exhibited both transformational and transactional leadership behaviours and, to a lesser extent, laissez-faire. Of interest was the finding that nurse leaders in this study tend to rate themselves higher than others rate them. The results implied a need to incorporate self-awareness elements in nursing leadership development programmes.

Abstract

Short peripheral catheter (SPC)-related phlebitis can lead to bloodstream infections and affect patients' quality of life. A randomized trial was carried out to evaluate the effectiveness of 2 treatment methods in reducing the incidence of SPC-related phlebitis. The 2 treatment methods differed in terms of the cleansing solution used before insertion and dressing material used after removal. The results demonstrated that the type of cleansing solution and post removal dressing material did not make a difference in the incidence of phlebitis. Strict adherence to aseptic techniques and prompt removal of the SPC remained the cornerstone in the prevention of phlebitis.

No abstract available.

Abstract

An exploratory descriptive study was conducted to explore the perspectives of patients who had fallen in the hospital; 100 patients were interviewed. An inductive content analysis approach was adopted. Six themes emerged: Apathetic toward falls, self-blame behaviour, reluctance to impose on busy nurses, negative feelings toward nurses, overestimating own ability, and poor retention of information. Patients often downplayed the risks of falls and were reluctant to call for help.

Abstract

Background: Falls are the most frequent adverse events among hospitalised older adults. Previous studies highlighted that older adults might not understand the risk factors associated with falls and may have an altered perception of their actual risk.
Aim: To describe differences between perceived and actual physiological risk of falling among older adults and to explore factors associated with the differences.
Methods: A prospective cohort study was done. Older adults (age 65 years and above) were interviewed one-to-one at bedside. Morse Fall Scale (MFS) and other risk factors for falls were used to identify the patients' physiological fall risks. Patients' perceived risk of falls were assessed using the Falls Efficacy Scale-International (FES-I).
Results: Three hundred patients were recruited. Patients' mean age was 75.3 (SD = ± 6.2). Majority were males (51.7%), lived with others (91.7%), and had received primary school education (35.3%). Based on the MFS, most patients had moderate fall risk (59.7%). Using the FES-I, more than half the patients (59%) interviewed had high concerns about falling. About one-third of the patients' (31.3%) perceived risk matched with their physiological fall risk (Risk-Aware). Half of the patients' perceived risks was higher than their physiological fall risk (50.7%) (Risk-Anxious), while the remaining patients' perceived risks was reported to be lower than their physiological fall risk (18%) (Risk-Taker).
Conclusion: Older patients are poor at recognizing their fall risks. Both patients' perceived and actual fall risks should be evaluated in the inpatient setting in order to inform individualized fall prevention education and strategies.

Abstract

Aims and objectives: To explore the experiences of community nurses and home carers, in caring for patients on home enteral nutrition.
Background: The number of patients on home enteral nutrition is on the increase due to advancement in technology and shift in focus of providing care from acute to community care settings.
Methods: A mixed-method approach was adopted. (i) A face-to-face survey design was used to elicit experience of carers of patients on home enteral nutrition. (ii) Focus group interviews were conducted with community nurses.
Results: Ninety-nine carers (n = 99) were recruited. Patient's mean age that they cared for was aged 77.7 years (SD = 11.2), and they had been on enteral feeding for a mean of 29 months (SD = 23.0). Most were bed-bound (90%) and required full assistance with their feeding (99%). Most were not on follow-up with dietitians (91%) and dentists (96%). The three most common reported gastrointestinal complications were constipation (31%), abdominal distension (28%) and vomiting (22%). Twenty community nurses (n = 20) were recruited for the focus group interviews. Four main themes emerged from the analysis: (i) challenge of accessing allied health services in the community; (ii) shorter length of stay in the acute care setting led to challenges in carers' learning and adaptation; (iii) transition gaps between hospital and home care services; and (iv) managing expectations of family.
Conclusion: To facilitate a better transition of care for patients, adequate training for carers, standardising clinical practice in managing patients with home enteral nutrition and improving communication between home care services and the acute care hospitals are needed.
Relevance to clinical practice: This study highlighted the challenges faced by community home care nurses and carers. Results of this study would help to inform future policies and practice changes that would improve the quality of care received by patients on home enteral nutrition.

No abstract available.

Abstract

Aims: To explore the experiences of patients who underwent a support availability, Thinking positively with acceptance, Overcoming social stigma, Minimizing negative feelings, Analysing self-efficacy in stoma care (STOMA) psychosocial intervention programme for people with colorectal cancer with stoma.
Background: The STOMA psychosocial intervention programme was developed to improve stoma-related health outcomes for patients with colorectal cancer and stoma. Evaluation was carried out to explore their experiences.
Design: A qualitative exploratory approach was adopted.
Methods: A total of 13 people with colorectal cancer, who were: (a) scheduled for surgery that resulted in a surgical formation of stoma at a tertiary public hospital in Singapore, and (b) were allocated to the intervention group and received the STOMA psychosocial intervention programme, were recruited for the qualitative evaluation study (September to November 2016). Participants were asked to comment on the contents and delivery methods of the intervention and the effect of the presence of family members during the sessions. Thematic analysis was used to analyse the data.
Findings: Four themes were generated: (a) individual attitudes towards stoma, (b) benefits of the STOMA psychosocial intervention programme, (c) strengths of the STOMA psychosocial intervention programme, and (d) recommendations for future programmes.
Conclusion: The qualitative evaluation reflected the benefits of the intervention programme in improving the outcome of people with colorectal cancer with stoma with its multimodal and multidimensional approach.

Loh SL, Ramli S, Tan WX, Chang YY (2018). Management of complex abscess wounds post saucerisation using negative pressure wound therapy with polyhexamethylene biguanide instillation: Case series. World Council of Enterostomal Therapists. 38(2): pp. 18-23.

Abstract

Complex wounds from deep carbuncle and ischiorectal abscess surgery often require wound closure by secondary intention. Patients with diabetes mellitus or autoimmune diseases are especially of concern over the potential for wound infection. To promote rapid wound closure, negative pressure wound therapy (NPWT) has always been the dressing of choice within our facility. However, the conventional NPWT alone does not provide the adequate antimicrobial coverage that is sometimes warranted. The recent advancement of negative pressure wound therapy with instillation (NPWTi-d) has overcome this limitation with regular infusion of antimicrobial solutions on to the wound surface to reduce bioburden. The aim of this study is to share the positive outcome in using NPWTi-d on two patients whose wounds were located in an anatomically challenging area.

Ng YSL, **Wang FF,** Ng LG (2018). A Case Study in Video Urodynamics: A Unique Lesson Learned. Urologic Nursing. 38(1): pp. 36-41.

Abstract

The following case discusses a 62-year-old female patient who presented to a local emergency department with severe abdominal pain and acute urinary retention secondary to bladder stones. She was diagnosed with a cystocele and uterine prolapse. Video urodynamic studies (VUDS) were undertaken for further evaluation, but due to the altered anatomical landmarks, the left ureter was inadvertently initially cannulated, then corrected.

Ong NWR, Ho AFW, Chakraborty B, Fook-Chong S, **Yogeswary P, Lian S,** Xin X, Poh J, Chiew KKY, Ong MEH (2018). Utility of a Medical Alert Protection. The American Journal of Emergency Medicine. 36(4): pp. 594-601. DOI: 10.1016/j.ajem.2017.09.027.

Abstract

Objective: Medical Alert Protection Systems (MAPS) are a form of assistive technology designed to support independent living in the care of elderly patients in the community. We aimed to investigate the utility of using such a device (eAlert! System) in elderly patients presenting to an Emergency Department (ED).
Methods: Elderly patients presenting to an ED were randomized to receive MAPS or telephone follow-up only (control arm). All patients were followed up at one-week, one-month and six-month post-intervention. A confidence scale (at 1week, 1month and 6months) and EQ-5D score (at 6months) were also administered.
Results: 106 and 91 participants enrolled in the MAPS and control arms respectively. Within both individual arms, there were significant reductions in the median number of ED visits and median number of admissions in the six month periods before, compared to after intervention ($p<0.01$ for both). However, the reductions were not significantly different between the two arms. Among participants who have had one or more admissions during the six months period post intervention, the MAPS arm had significantly lower median total length of stay (8days, Interquartile Range [IQR]=(4, 14)) compared to the control arm (15days, IQR=(3, 25), p=0.045). The median health state score for health state was significantly higher in the MAPS arm (70 IQR= (60, 80) versus 60 IQR= (50, 70), p=0.008).
Conclusion: In this population of elderly ED patients, the use of MAPS decreased length of stay for admissions and improved quality of life measures.

Seah XY, Tham XC, **Kamaruzaman NR,** Yobas PK (2018). Nurses' perception of knowledge, attitudes and reported practice towards patients with eating disorders: A concurrent mixed-methods study. Archives of Psychiatric Nursing. 32(1): pp. 133-151. DOI: 10.1016/j.apnu.2017.11.011.

Abstract

Eating disorders are complex disorders requiring specialised care, thus knowledge and attitudes are crucial for management. This study aims to examine nurses' knowledge, attitudes, reported practice, and perceptions towards patients with eating disorders in Singapore. A concurrent mixed-methods study was carried out in Southeast Asia's only psychiatric unit with eating disorders programme. Twenty nurses were recruited using census sampling. Quantitative data were analysed with descriptive and inferential statistics, while qualitative data were analysed with content and thematic analysis. Certain personal factors were

associated with nurses' levels of perceived knowledge. Different attitudes towards managing these patients were identified during interview sessions.

Tan HK, **Lee Y, Chia PY, Hussain SN, Tan KCT,** Fook-Chong S, Chang PE, **Aloweni FAB** (2018). Translation and cultural adaption of the Chronic Liver Disease Questionnaire for the Mandarin-speaking Chinese population in Singapore through cognitive debriefing. Proceedings of Singapore Healthcare. DOI: 10.1177/2010105818782710.

Abstract

Background: Patients with chronic liver disease often suffer from poor quality of life. The Chronic Liver Disease Questionnaire (CLDQ) is a validated tool to assess health-related quality of life in these patients. It has been translated and validated for use in many countries and languages globally.
Objectives: We aimed to translate Mainland Chinese Mandarin to Singapore Mandarin and perform cross-cultural adaption of CLDQ for the Mandarin-speaking population in Singapore (CLDQ-SG).
Methods: This study was conducted based on the International Society for Pharmacoeconomics and Outcomes Research Principles of Good Practice. The study consisted of two parts: part one involved cognitive debriefing and cultural adaption of CLDQ, and part two was a pilot study on the first version of CLDQ-SG among adult patients with chronic liver disease in a tertiary hospital.
Results: During the cognitive debriefing process of part one, questions beginning with "recent" (最近) two weeks in Mandarin were changed to "last" (在过去) two weeks. Eighteen patients were recruited for part two of the study (50% male, mean age 49±13 years). Time taken to complete CLDQ-SG was 15±8 minutes, and the mean score was 5.1±0.5. The reliability of measurements for all domains was good, with an intra-class correlation coefficient ≥0.8. Items one and four needed further restructuring. There were no discrepancies between CLDQ and CLDQ-SG.
Conclusion: This study showed that CLDQ-SG was culturally acceptable by the Mandarin-speaking population in Singapore. There were only two items that needed revision in the finalized CLDQ-SG.

Tan SB (2018). 'Manipulative and body-based therapies', in Lindquist, R., Tracy, M.F. and Snyder, M (ed.) Complementary and Alternative Therapies in Nursing. New York: Springer Publishing Company, pp. 283 – 284.

No abstract available.

Teo KY, Ang SY, Bian LP, Cheah EFS, Aquino SM, Ahmad NH, Lim SH, Goh HQI, **Aloweni FAB** (2018). Evaluating the effectiveness of silicone multilayer foam dressing in preventing heel pressure injury among critically ill patients in Singapore. Wound Practice and Research. 26(2): pp. 76-82.

Abstract

Background: The heel has become the second most common site for the development of pressure ulcers in recent years. Hospitals worldwide have been implementing preventive measures to tackle pressure ulcers in patients, such as the use of offloading devices and dressing.
Aim: To evaluate the effectiveness of a soft silicone multilayer heel dressing (Mepilex® Heel) in reducing the incidence of heel pressure injuries (HPI) among critical ill patients in the intensive care unit (ICU).
Method: This was a quasi-experimental, pre-, and post intervention study design conducted in three adult ICUs in an academic teaching hospital. A convenience sampling was used to recruit 326 patients (195 patients in pre-intervention, 131 patients in intervention group).
Result: Statistical analysis was made using Fisher exact test to compare between the two groups. The results showed a reduction of 86% in the incidence of HPI between the two groups (pre-intervention: 10.8% versus post-intervention: 1.5%). Patients in the intervention group were less likely to develop HPIs (p=<0.007).
Conclusion: A prophylactic multilayer foam heel dressing has shown to be effective at reducing the incidence of HPIs among critically ill patients in ICU, even with the tropical climate in Singapore.

Abstract

Background: Nurse preceptors guide students to integrate theory into practice, teach clinical skills, assess clinical competency, and enhance problem solving skills. Managing the dual roles of a registered nurse and preceptor poses tremendous challenges to many preceptors. Online learning is recognized as an effective learning approach for enhancing nursing knowledge and skills.

Objective: The systematic review aims to review and synthesise the online learning programs for preceptors.

Design: A systematic review was designed based on the Cochrane Handbook for Systematic Reviews of Programs.

Data sources: Articles published between January 2000 and June 2016 were sought from six electronic databases: CINAHL, Medline OVID, PubMed, Science Direct, Scopus, and Web of Science.

Methods: All papers were reviewed and quality assessment was performed. Nine studies were finally selected. Data were extracted, organized and analysed using a narrative synthesis.

Results: The review identified five overarching themes: development of the online learning programs for nurse preceptors, major contents of the programs, uniqueness of each program, modes of delivery, and outcomes of the programs.

Conclusion: The systematic review provides insightful information on educational programs for preceptors. At this information age, online learning offers accessibility, convenience, flexibility, which could of great advantage for the working adults. In addition, the online platform provides an alternative for preceptors who face challenges of workload, time, and support system. Therefore, it is paramount that continuing education courses need to be integrated with technology, increase the flexibility and responsiveness of the nursing workforce, and offer alternative means to take up courses.

Abstract

For advanced cancer patients, an emergency department (ED) visit in the last week of life may result in aggressive care that is inappropriate and futile. The objective of this study is to explore the characteristics of advanced cancer patients who present to ED in the last week of life. Specifically, we describe the spectrum of presenting symptoms. This was a retrospective cross-sectional study of ED attendances in the Singapore General Hospital during a one-year period. The electronic medical record system was used to retrieve demographic data, characteristics of the ED visits and presenting complaints. A total of 145 patients with advanced cancer dying in hospital within seven days of an ED visit were included. Breathlessness was the most common reason for presenting to ED (85 patients, 58.62%), followed by pain (50 patients, 34.48%), generalised weakness or lethargy (39 patients, 26.90%) and decreased appetite or anorexia (35 patients, 24.14%). Strategies to improve end-of-life care can focus on pre-emptive management of breathlessness and pain. Community programmes can also help prepare families for symptoms like generalised weakness and appetite loss which may signal a progression of the disease. Supportive and palliative care interventions will need to be implemented in the ED setting to better manage the symptoms suffered by these advanced cancer patients.

Abstract

Background: We evaluated the outcome for fasting Muslims with diabetes prepared with pre-Ramadan optimization through education and medication adjustment, tele-support and intervention up to post-Ramadan.

Methods: Muslims with diabetes planning to fast were recruited into a focused diabetes program for Ramadan fasting.

It consisted of (a) a pre-Ramadan assessment and test fasting to optimize glycemic control, (b) education on diabetes management during fasting, (c) tele-monitoring from pre-Ramadan and (d) a post-Ramadan review. Their metabolic profiles and diaries for meals, activities and glucose monitoring were evaluated.

Results: Twenty-nine participants were enrolled, with mean age 58.4 ± 9.2 years, 75.9% female, 79.3% Malays and 93.1% type 2 diabetes. A total of 92% needed medication adjustment and 93% fasted for at least 14 days. Glycated hemoglobin (HbA1c) and weight decreased from 8.8 ± 1.8% (72.7 mmol/mol) pre-Ramadan to 8.5 ± 1.7% (69.4 mmol/mol) post-Ramadan and 76.6 ± 20.3 kg pre-Ramadan to 75.9 ± 21.3 kg post-Ramadan, respectively. There were decreased complications of hypoglycemia from 13.8% to 10.3% and several-fold improvement in hyperglycemia from 31.0% to 3.5% during Ramadan fasting when compared with pre-Ramadan.

Conclusions: Muslims with diabetes were able to self-manage when fasting using tele-monitoring support and intervention, with decreased complications during Ramadan compared with pre-Ramadan.