**Education for Elderly Patients in Renal Failure**

**Introduction**

The kidney’s main function is to eliminate waste materials, salt and fluid from the blood (Boronat et al., 2014). These mechanical processes are needed to ensure that the volume of various forms of fluid in the blood are in the right proportions, so as to avoid excesses (Knudsen, Eidemak and Molsted, 2016). Once the kidney fails or suddenly stops in performing its function, one is said to have suffered renal failure. Because of the nature of the kidney’s function, renal failure manifests in several ways, all of which given an indication that the levels of body fluid and electrolyte concentrations are not in their right proportions in the body. For example, Lalau et al. (2015) mentioned some of the ways in which the disease manifests to include swelling of the leg, loss of appetite, easily feeling tired, and onset of confusion. Kasapkara et al. (2014) noted that most cases of renal failure occurs together with other medical conditions. Consequently, risk factors of the disease include old age, diabetes, high blood pressure, scleroderma, malignant hypertension, heart failure, kidney disease, and liver diseases (Aiff et al., 2014; Friedmann et al., 2014).

Apart from the fact that old age is a risk factor of its own, it would also be noted that most of the other medical conditions associated with the disease are common among older people. For this reason, the emphasis of the study will be on the age group of 65 and above. The National Kidney Foundation and Kidney Care in UK has a number of important statistics about renal disease. According to the sources, an average of 1 in every 8 people living in the UK have the chance of developing a form of chronic kidney disease, including renal failure. As far as the UK is concerned, up to 64% of all cases of renal failure are attributed to high blood pressure and diabetes. This makes people with these two diseases the most serious risk factor. Specifically, for renal failure, statistics available to the Kidney Care UK show that there is 64,000 people currently diagnosed with the disease. Renal failure is medically termed as stage 5 chronic kidney disease, resulting in the kidney functioning less than 15% of its capacity (Aoun et al., 2014).

**Background**

Chronic kidney disease (CKD) come in five main stages with the third stage divided into two. The measurement of the stages is mostly done with the use of glomerular filtration rate (GFR). Lalau et al. (2015) noted that the GFR is generally a mathematical formula that uses the age, race, gender and serum creatinine of a person to calculate the severity of the disease. Of the variables used in the calculation, the serum creatinine seem to be the most important, given the fact that it is the one which is taken directly from the patient’s body as a waste product from muscle activity (Knudsen, Eidemak and Molsted, 2016). To get the measure of serum creatinine, a blood test is often ordered by a doctor (Boronat et al., 2014). Because a well functioning kidney removes the creatinine from the blood, high levels of it in the blood signals higher stage of the disease (Friedmann et al., 2014). In the overall measure of the GFR however, a lower score represents more serious level of the disease. The table below gives a breakdown of the stages, characteristic of the disease, and measure of GFR.

|  |  |  |
| --- | --- | --- |
| Stage  | Description of disease level  | GFR measure  |
| 1 | Normal or high GFR | GFR > 90 mL/min |
| 2 | Mild CKD | GFR = 60-89 mL/min |
| 3A | Moderate CKD | GFR = 45-59 mL/min |
| 3B | Moderate CKD | GFR = 30-44 mL/min |
| 4 | Severe CKD | GFR = 15-29 mL/min |
| 5 | End stage CKD or renal failure  | GFR <15 mL/min |

Source: Davita (2017).

Aoun et al. (2014) noted that there is a direct relationship between knowledge of the stages of CKD and provision of care. That is, when care providers such as nurses are aware of the stages and the characteristics that are associated with them, they are in a better position to offer the right forms of management and treatment, even though cure cannot be guaranteed. Currently, good practice about education for nurses is considered as one in which the nurses have practical knowledge on the best management interventions to offer to patients (Aiff et al., 2014). Once nurses have such form of knowledge, transfer of learning will take place as they also give education to the patients. Current research on the levels of adequacy of knowledge by nurses is scanty and that is what prompted this paper. Kasapkara et al. (2014) found that for most nurses, they do not see education of patients who are 65 years and above on renal failure as part of their core responsibilities. For this reason, any forms of education delivered from the nurses to them come in casual and unplanned form. It is therefore important to explore educational methods such as use of posters, play, technology, and discussion to know why they are not popular among the nurses and how they can be integrated into patient education.

**Theories and policies**

There are two main theories that guide the current study. These are Orem’s self-care theory and trans-theoretical model of behavioural change.

Orem’s self-care theory was developed by Dorothea Orem and is based on the totality paradigm, which posits that human beings have the ability of adapting to their environment (Eleftheriadis et al., 2013). The theory has four major thematic components. The first of this is self-care, which refers to all activities that individuals engage in by themselves as ways of maintaining life, health and general wellbeing (Mohammadpour et al, 2015). Relating self-care to renal failure in elderly patients, Wong et al. (2015) stressed that there are levels where when the disease reaches, it become very difficult for patients to achieve maximum self-care. As noted earlier, stage 5 of CKD comes with a number of complications, which include swelling of legs (Sims et al., 2016). In such situations, and coupled with the fact that patients may already be having health problems, it becomes difficult for patients to achieve self-care and there have to rely on others in performing most forms of daily activities (Mohammadpour et al, 2015). The second thematic aspect of the theory is self-care agency, which refers to the relationship between the ability to engage in self-care and conditioned variables of life such as age, life experience, health, and available resources (Eleftheriadis et al., 2013).

When this second theme is related to the explanations above, it would be understood that the self-care agency of the selected sample for the study is age and health. There are a good number of studies where age has been related to ability to perform daily activities (James and Larson, 2015). Similarly, health also has such relationship. The indication this gives is that there is a genuine need for care among the selected group for the study, which needs to be attended to with all the urgency it requires. Meanwhile, the third theme of the theory focuses on therapeutic self-care demand. This theme seem to be a direct response to the needs of the identified group. The reason this is said is that therapeutic self-care demand involves the use of valid methods, operations and actions to aid others achieve totality of self-care. This where the emphasis of the study dwells since it seeks to introduce an intervention to improve nursing practice, based on which the nurses will provide education for elderly patients with renal failure. The final theme is on self-care requisites. These requisites are expected to serve as guides in evaluating the levels of improvements achieved by patients who receive nursing education (Sims et al., 2016).

Trans-theoretical model of behavioural change**.** As the name suggests, the trans-theoretical model (TTM) is an inter-disciplinary or inter-theoretical model of behavioural change, which integrates key constructs of different theories in addition to those on social and biological influences to explain the process of intentional behaviour change (Nemat Shahrbabaki et al., 2017). In the current study, theory about behavioural change is necessary, given the fact that elderly people who are diagnosed with renal failure often require several changes in their behaviour to ensure that they attain certain desired health and wellness levels (Mazloomy Mahmoodabad et al., 2017). In discussing behavioural change in relation to renal failure, the researcher saw the TTM as the most appropriate behavioural change theory because for the elderly patients, the sequences of intentional changes they require are often numerous and cuts across several dimensions of life. The TTM outlined five main stages of behavioural change as presented in the image below.

Stages of behaviour change

Source: Prochaska and diClemente 1982

From the image above, it is seen that in order for elderly patients with renal failure to complete the stages of behaviour change, they would first go through a stage of pre-contemplation, a point where they are unaware of the severity of their health problem and therefore see the need for change as a choice (Prochaska and diClemente 1982). Next, they go through contemplation after they have been made aware of the actual extent of their sickness. Third, they go through preparatory stage, where they take decision to act on their health state. Once they have received the needed education, they then take an action by undertaking practices that are desired to achieve improved quality of life. This fourth stage is the most important part in this study, where there is the need to education elderly patients to make it possible for them to adopt desired behaviour (Mazloomy Mahmoodabad et al., 2017).

**Evaluation framework**

The realistic evaluation which was developed by Pawson and Tilley (1997) will be used as the main evaluation framework for the study. The realistic evaluation model do not only focus on the outcome associated with an intervention but goes ahead to investigate how the outcomes are produced and the significance of varying conditions under which the outcomes were produced (Tilley, 2000). With basis in this proposition, there are three main investigative areas that Pawson and Tiley (1997) advised that researchers should focus on when evaluating the impact of an intervention. The three areas, which are mechanism, context and outcome pattern have been summarised in the figure below.

Evaluation framework based on Pawson and Tilley (1997)

From the evaluation framework presented above, the aspect of mechanism will be influenced by the various data collection methods that will be put in place to

measure the levels of education that nurses give to elderly renal failure patients. The aspect of context will refer to the education methods that are used by the nurses. Some of these that are intended to be measured are the use of discussion, play, technology, and posters. That is, it will seek to know how the nurses use discussion, play, technology, and posters to teach or educate the elderly patients on renal failure, including ways that they can protect themselves to achieve improved health. Finally, the aspect of outcome pattern will refer to the actual impact of the education on the patients.

**Methodology**

As noted in the background, nurses currently offer education for elder patients with renal failure but a study by Wong et al. (2015) noted that most hospitals do not incorporated such activities as a major clinical responsibility in their policies. Because of this, most nurses are not familiar with the use of standardised educational methods such as the use of posters, discussion, technology, and play in teaching the older patients about how they can deal with renal failure. In the light of this, the PDSA improvement model will be used as an intervention to increase the knowledge of the nurses on how they can offer educational support to the patients. The PDSA stands for plan, do, study, and act as indicated below.



PDSA Cycle in Mohammadpour et al. 2015

As reflected in the name of the model, it would seek to intervene by educating the nurses on how they can plan the content of what to educate patients about, how they can do or try out the test on small scale, how they can find time to analyse and study data about their education to the patients, and how they can act by refining the intended change in patients (Bosswurm and Larrgbee, 1999). The study will make use of a mixed research method. By mixed research method, reference is made to the combined use of quantitative and qualitative methods of data collection and analysis (Adams and Schvaneveldt, 1991). Another feature about this mixed research method is that it will also incorporate the use of both primary and secondary data collection methods.

As part of secondary data collection, the researcher will review existing works of literature and professional documents about renal failure education to patients. The primary research on the other hand will involve data collection from nurses and patients who ascertain the impact of the PDSA improvement intervention on the education given to patients. The mixed research method is expected to have the advantage of supplementing the weaknesses of the various methods that will be combined (Bell, 2015). For example, the quantitative method will supplement the weaknesses of the qualitative method and vice versa. An example of the weakness with qualitative research is that it is often conducted among fewer respondents. It however has the strength of ensuring in-depth and thorough data collection process (Bell, 2015). Quantitative method on the other hand has the weakness of dealing with descriptive data that do not allow for thorough investigation of facts from respondents. Regardless of this, its strength include the fact that it allows for high level of objectivity in the data analysis process (Creswell, 2007) An evaluation framework that is based on Pawson and Tilley Realist Theory will be used to compare levels of knowledge of disease among patients before and after the intervention, which is the use of PDSA improvement model among the nurses.

# Aims of evaluation

There are studies in literature that suggest that most nurses do not have the requisite knowledge in applying different methods and techniques in educating elderly patients with renal failure (Williams et al., 2014). It is for this reason that the intervention is targeting the nurses, who through the use of the PDSA improvement model are expected to gain the skill of applying various methods and techniques in educating patients about renal failure. The aim of evaluation is therefore to ascertain the extent to which nurses apply educational methods and techniques such as play, discussion, posters, and technology after they have been introduced to the intervention in helping elderly patients with renal failure know about the disease and live more healthy and meaningful life. Based on the evaluation framework that will be selected, the state of health of patients will be measured before and after the intervention. By inference, the evaluation will serve the purpose of by measuring the effectiveness of proposed interventions. Such an evaluation will be of help in policymaking and decision making among nursing educational facilities. This is because they will help in determining the practicality of the PDSA intervention as a change model. Nursing education will then be directed at the use of such interventions.

# Qualitative method

## Rationale

Qualitative research method generally seeks to explore social phenomenon through the collection of non-statistical data from a research setting (Adams and Schvaneveldt, 1991). This method will be used in the study to understand the social phenomenon of quality healthcare to elderly renal failure patients and how this is influenced by quality education from nurses to the patients. The rationale for including qualitative method is that it gives the researcher opportunity to have a closer and in-depth interaction with respondents, while gaining deeper understanding of the whole research problem (Bell, 2015). The qualitative methods will thus involve the use of individual interviews among the nurses and patients, before and after the intervention has been introduced on nurses.

## Critiques

For the proposed study, the site for intervention will be a specialist healthcare facility, specialising in renal diseases. Both nurses and patients will take part in the data collection process but the intervention will be applied on nurses, who would in turn apply the knowledge gained in educating patients about renal failure. Nurses will be sampled through random sampling technique so that there can be fairness in the selection process to avoid any forms of favouritism and biases. In qualitative research, the main goal of the researcher is to gain deeper understanding of the research problem and how it affects people within the research setting (Cooper, 2008). To this end, it often includes only a handful of respondents who the researcher can have closer engagements with. When the sample size is large, it becomes difficult to have this form of closer interaction with each person (Creswell, 2007). Meanwhile, studies that have smaller sample sizes have been criticised for lacking generalisation with their outcomes. That is, it becomes difficult to generalise the research outcomes as affecting all other people with similar characteristics as those selected for the study (Ghauri and Gronhaung, 2012). What is more, the interpretation of qualitative research findings could be subjective rather than objective (Gill and Johnson, 2007).

# Quantitative method

## Rationale

Whereas qualitative researches are explorative in nature, quantitative methods are descriptive. They therefore make use of mathematical and statistical indices in interpreting variables (Cooper, 2008). In this study, the variables to be interpreted will be knowledge of nurses in offering education on renal failure. The rationale for selecting quantitative method for this is that it makes it possible to assign interpretive values to the competencies of the nurses (Creswell, 2007). With such values, it will be easier for policymakers to determine the levels of competencies by using measurable metrics. This way, they would help in modifying the intervention to be implemented. The quantitative method will involve the use of survey and questionnaire.

## Critiques

While quantitative methods offer a lot of advantages and benefits, it is often criticised as not being thorough and in-depth in its application. For example, when researchers use questionnaires, they do not get the chance to ask respondents follow up questions or observe situations for themselves. Because of this, they do not gain deeper understanding of the problems as they are only described superficially on the questionnaire.

# Collection of data

## Routine health care data

Routine health care data will be collected through a primary data collection approach. As part of the approach, two data collection procedures will be undertaken. These are individual interviews and survey. The individual interview is qualitative and will come along with observation, while the survey will be quantitative and involve the use of questionnaires. As part of the individual interview, patients who receive renal failure management and care from selected health facilities will be observed and interacted with. The interview will solicit from them, their perception about the kind of education they receive from nurses and how they perceive the education as meeting their health needs. The interview will be generally unstructured. Unstructured interviews are noted to improve reliability of studies because when used, respondents feel at ease to give answers that represent the true state of affairs (Ghauri and Gronhaung, 2012). After the interview, the health progress of the respondents will be monitored both physically and through the use of their heath records, where permissible. The indicators in monitoring progress would include ability to perform daily tasks. The survey on the other hand will seek to measure the level of knowledge that nurses exhibit in the use of various educational methods such as play, technology, discussion, and others, after they have received the intervention. The measurement will be done by relating improvements in health status of patients to periods before the nurses received the intervention.

## Document review

Apart from the focus group, the use of document review will form another aspect of the qualitative method. Using document review is generally a form of secondary data collection method but have aspects of primary data collection (Gill and Johnson, 2007). The primary data collection will involve the researcher using health records of the respondents that are publicly accessible. Apart from this, greater part of the document review will involve the use of academic articles, which are previous researches conducted in the area of nursing education on renal failure care for older patients. To use the document review, a search strategy will be developed to select 12 articles and professional documents. The 12 articles will focus on various themes about the research topic such as types of educational intervention, importance of nursing education, challenges in nursing education, and best practices in nursing education for elderly renal failure patients. The main databases to be used in searching for the articles will be CINAHL Plus and Google Scholar. These are all electronic online databases and so can make the search process easier. The search will take place by identifying keywords from the themes and setting some inclusion and exclusion criteria. Once the articles have been selected, they will be subjected to rigorous content analysis.

**Data Analysis**

Gerrish and Lacey (2013) admonished that the best way to approach a mixed research method is to analyse data with the combination of both qualitative and quantitative approaches. The qualitative analysis of data will be largely narrative in nature, where the researcher gives a narration of the findings that were made from the interview, observations and document review. Ahead of the narration, a content analysis method will be used to deduce key codes that relate to the themes that were set ahead of the data collection. The codes will be in the form of words, sentences, phrases or paragraphs that give clues to the themes. The quantitative analysis on the other hand will involve the use of mathematical and statistical indices (Blaxter, Hughes and Tight, 2011). Major among these will be the use of bar charts to present the responses of the nurses on their competence levels with the use of the various educational interventions.

# Ethical consideration

Clifford and Clark (2014) noted that the credibility of a research is influenced by how ethical the researcher was. There are a number of ethical considerations that will be made for the study. The need to be ethically considerate is informed by the fact that there will be primary data collection procedures. Among other things, official permission will be sought from authorities in the targeted health facilities to be involved in the study. A consent form will also be designed and given to the respondents to be aware of their roles, the need for them to participate in the study, and arrangements made by the researcher to protect their anonymity and confidentiality. Similar to procedures recommended by Blaxter, Hughes and Tight (2011), the researcher shall achieve anonymity and confidentiality by ensuring that the respondents do not identify themselves in anyway on the questionnaire. Another ethical consideration made was to ensure that the exact responses of the respondents were presented without any form of false representation of their answers.

# Reflection

Preliminary results from the study gave a strong indication of the current level of competence of nurses in offering education to elderly patients with renal failure. That is, of the four main types of educational interventions, two that the nurses had higher competence were the use of posters and discussion. Most of them were however not familiar with the use of technological tools and role play. Responses gathered from the health facilities indicated that the use of posters was incorporated by the facilities themselves and not mostly used by the nurses as their personalised educational interventions. However, once the posters were provided present, the nurses took the opportunity to educate the patients about their meanings and interpretation. Also, the nurses often engaged the patients and their caregivers in informal discussions on best practices that were needed to improve the quality of life of patients. The document review similarly confirmed the popularity of the two educational interventions, which are discussion and posters.

On the competence levels of nurses, the reflection it gives is that there remains a large vacuum that needs to be filled in terms of offering education to renal failure patients. The reason for this is that there is strong evidence in literature from studies such as James and Larson (2015) and Williams et al. (2014), which show the effectiveness of using technology based education and role play. The fact that the nurses lack the right competences to use these two interventions mean patients cannot be deemed as having the expected outcomes from the educational programs. In line with evaluation framework that was designed, the researcher also collected data specifically from the patients to confirm the impact of the education on them. Through the interview and observation, it emerged that the patients had evidence of improvement in their wellness but were expecting more than their current states. Frustrations were thus written on the faces of most of these patients, who felt that their rate of recovery into normal life was being slower than anticipated. In reflection, this outcome from the patients can be attributed to the fact that the education they received was not as comprehensive as expected.

# Conclusion

The reflection presented above help to draw conclusion for the study, especially when the results are compared to the problem outlined in the introduction. From the results, it can be concluded that nurses do not have the required competence in patient education, needed for them to transfer their knowledge to the latter. At this point, it cannot be concluded if the nurses lack knowledge about renal failure entirely. Rather, claim can be made to the effect that even if they have the needed knowledge, they do not have the competence to education their patients by using most forms of educational interventions considered as effectiveness for the age group used in the study. This conclusion means that educators of the nurses need to incorporate educational methodologies in their curriculum during nursing training in schools. When the nurses graduate and start working also, there could be capacity building programs aimed at making them better educators of their patients, especially elderly ones diagnosed with renal failure.

**References**

Adams, G. & Schvaneveldt, J. (1991). *Understanding Research Methods*. New York: Longman.

Aiff, H., Attman, P. O., Aurell, M., Bendz, H., Schön, S., & Svedlund, J. (2014). The impact of modern treatment principles may have eliminated lithium-induced renal failure. *Journal of Psychopharmacology*, *28*(2), 151-154.

Aoun, B., Ulinski, T., Termos, S., Kalkas, G., Fakhoury, H., & Schmitt, C. P. (2014). Rapid and sustained recovery of renal function with transient placement of an intrauretral nephrostomy catheter in an infant with ureteropelvic junction obstruction and acute renal failure. *Lebanese Medical Journal*, *62*(1), 54-56.

Bell, J. (2005). *Doing Your Research Project*. Fourth Edition. Maidenhead: Open University Press

Blaxter L., Hughes C., & Tight M. (2011). *How to research*. 2nd edition. Buckingham: Open University Press.

Boronat, M. et al. (2014). Non-albuminuric renal disease among subjects with advanced stages of chronic kidney failure related to type 2 diabetes mellitus. *Renal failure*, *36*(2), 166-170.

Clifford C. & Clark J. (2014). *Getting research into practice*. Churchill Livingstone, London

Cooper, H. (2008). *Synthesizing Research: A Guide for Literature Reviews*. Harlow: Pearson Education Limited.

Creswell, J. (2007). *Review of the Literature*, Thousand Oaks: Sage Publications.

Davita (2017). Stage of chronic kidney disease. [Online] Available at https://www.davita.com/kidney-disease/overview/stages-of-kidney-disease [December 2, 2017]

Eleftheriadis, T., Antoniadi, G., Pissas, G., Liakopoulos, V., & Stefanidis, I. (2013). The renal endothelium in diabetic nephropathy. *Renal failure*, *35*(4), 592-599.

Friedmann A. J. P. et al. (2014). Inactivation of the ferroptosis regulator Gpx4 triggers acute renal failure in mice. *Nature cell biology*, *16*(12), 1180-1191.

Gerrish, K & Lacey, A. (2013). *The Research Process in Academic Research*. Wiley. Kindle Edition.

Ghauri, P. & Gronhaung, K. (2012). *Research Methods in Business Studies: A Practical Guide*. London: Financial

Gill, J. & Johnson, P. (2007). *Research Methods for Managers*. London: Paul Chapman. Times Prentice Hall.

James, A., & Larson, T. (2015). Acute renal failure after high-dose antibiotic bone cement: case report and review of the literature. *Renal failure*, *37*(6), 1061-1066.

Kasapkara, Ç. S., Akar, M., Yıldırım, Y. Z. N., Tüzün, H., Kanar, B., & Özbek, M. N. (2014). Severe renal failure and hyperammonemia in a newborn with propionic acidemia: effects of treatment on the clinical course. *Renal failure*, *36*(3), 451-452.

Kidney Care UK (2017). News and campaigns. [Online] Available at https://www.kidneycareuk.org/news-and-campaigns/facts-and-stats/ [December 2, 2017]

Knudsen, S. P., Eidemak, I., & Molsted, S. (2016). Health related quality of life in 2002 and 2015 in patients undergoing hemodialysis: a single center study. *Renal failure*, *38*(8), 1234-1239.

Lalau, J. D., Arnouts, P., Sharif, A., & De Broe, M. E. (2015). Metformin and other antidiabetic agents in renal failure patients. *Kidney international*, *87*(2), 308-322.

Mazloomy M. S. S., Mozaffari-Khosravi, H., Shahrbabaki, E. H., & Fallahzadeh, H. (2017). Analysis of Weight Control among overweight and obese Iranian Adolescents: Application of the Trans-theoretical Model. *International Journal of Pediatrics*. *5*(5), 4939-4949.

Mohammadpour, A., Rahmati Sharghi, N., Khosravan, S., Alami, A., & Akhond, M. (2015). The effect of a supportive educational intervention developed based on the Orem's self‐care theory on the self‐care ability of patients with myocardial infarction: a randomised controlled trial. *Journal of clinical nursing*, *24*(11-12), 1686-1692.

Motlagh, Z., Hidarnia, A., Kaveh, M. H., & Kojuri, J. (2017). Influence of a Trans-Theoretical Model Based Intervention on Physical Activity in Hypertensive Patients: A Randomised Clinical Trial. *Asian Journal of Sports Medicine*, (In Press).

Shahrbabaki, B.N, Hashemian, M., Fallahi, A., Rahmani, A., & Saedpanah, A. (2017). The Relationship between Stages of Dental Cleaning Behavior Change Based on Trans-theoretical Model (TTM) with School Role and Social Support in Students. *International Journal of Pediatrics*, *5*(5), 4939-4949.

Sims, A. N., Feig, D. I., Dietiker, K. L., Peterson, D. T., Zinkan, L., Youngblood, A. Q., & Tolfil, N. M. (2016). A Novel Teaching Mechanism in Nephrology on the Dangers of Hypocalcemia in Chronic Renal Failure. *Journal of Clinical Pediatric Nephrology*, *1*(1).

Tilley, N. (1998) Evaluating the effectiveness of CCTV schemes, in Norris, C., Moran, J., and Armstrong, G. Surveillance, Closed Circuit Television and Social Control. Ashgate: Aldershot.

Tilley, N. (2000) Realistic Evaluation: An Overview. Presented at the Founding Conference of the Danish Evaluation Society. September 2000. [Online]. Available at:  www.danskevalueringsselskab.dk/pdf/Nick%20Tilley.pdf [accessed December 5 2017].

Williams, J. B. et al. (2014). Central venous pressure after coronary artery bypass surgery: Does it predict postoperative mortality or renal failure?. *Journal of critical care*, *29*(6), 1006-1010.

Wong, C. L., Ip, W. Y., Choi, K. C., & Lam, L. W. (2015). Examining Self‐Care Behaviors and Their Associated Factors Among Adolescent Girls With Dysmenorrhea: An Application of Orem's Self‐Care Deficit Nursing Theory. *Journal of Nursing Scholarship*, *47*(3), 219-227.