

Background

Patient centered care (PCC) is a dynamic and individualized approach to care delivery (Lapum et al, 2012). It encompasses the integration of an individual's values, beliefs, and preferences regarding their overall health and well-being in the design and implementation of all health care related activities (Hebert, 2010). It is a way of providing care that incorporates patient' ideals into the design and provision of services that are provided (Berwick, 2009). Thus, a PCC approach requires practitioners to be respectful and inclusive of the patient as a participating care partner (Kitson et al, 2013). Through the use of PCC a relationship between the patient and the healthcare provider is formed, which is needed to facilitate the PCC process. This approach to delivering care moves away from the task-centered and/or disease-focused method that has dominated healthcare over the past century (Hobbs, 2009).

Throughout the literature, the notion of PCC has been referred to as *client*, *person*, and *individual* centered care (McCormack & McCance). Though the name may differ the concept of patient-centeredness remains the same in that the individual is the focus of care and an active member of the health care team (Berwick, 2009). Within the discipline of nursing, a person-centred nursing framework that consists of four elements have been developed (McCormack & McCance, 2006). These elements addresses the qualities, skills, and characteristics of the nurse; the healthcare environment in which care is delivered; the actual person-centred processes that addresses how care is delivered and through what activities; and the outcomes that have resulted through the implementation of patient centered activities. McCormack & McCance reasoned that in order for person-centred outcomes to be achieved; the qualities, skills, and characteristics of the nurse along with the environment and care delivery

process must be taken into account. In doing so, this will enhance the effect of patient centered care.

In relation to all health care activities, it is critical that attention is paid to how PCC shapes the design of interventions. As an example, interventions that include education and/or counseling have been designed to reflect the notion of PCC with the intended outcomes of enhancing quality of care during hospitalization, as well as increasing the performance of self-care behaviours during the post-hospital discharge period (Cohen et al, 2011; Calvert et al, 2012; Cohen-Mansfield et al, 2012). Quality of care and engagement in self-care behaviors are the two most common outcomes assessed in studies that have examined the effectiveness of PCC interventions (Beck et al, 2002; Ebell, 2004; Fung et al, 2008; Hudon et al, 2008).

While there has been recent interest in conducting systematic reviews to examine the effectiveness of PCC interventions (Beck et al, 2002; Ebell, 2004; Fung et al, 2008; Hudon et al, 2008), various studies fall short in explaining the type of intervention that is most effective in producing significant changes to desired outcomes. Specifically, the characteristics of these interventions that include the mode and dose is rarely presented. This information is vital to facilitate the design of future PCC interventions that will result in increased quality of care during the hospitalization period, as well as increased performance of self-care behaviours post-hospital discharge.

Study purpose

The purpose of this systematic review was to determine the characteristics of PCC interventions that have demonstrated effectiveness in enhancing the quality of care during in-patient hospitalizations, while increasing the performance of self-care behaviors during the post-

hospital discharge period. The target population included adults who were provided a PCC intervention comprised of patient education and/or counselling.

Conceptual definitions

In this section, the variables of interest to this systematic review were defined at the conceptual level. These definitions guided the specification of criteria for selecting the studies and facilitated data extraction. They were derived from theories and models relevant to patient centered care, quality of care, hospitalization, post-hospitalization and recovery, and self-care. The variables of interest are categorized into specific characteristics of patient centered care interventions (mode and dose), as well as the study outcomes (quality of care and self-care behaviours).

Characteristics of patient centered care interventions

Patient centered care interventions are designed in collaboration with individuals. The content of PCC interventions are reflective of patients' needs, values, and beliefs. Generally, interventions are defined in terms of mode and dose (Fredericks, 2009). The mode is most commonly described as a process used to implement an intervention (Fredericks, 2009). It encompasses two elements: communication channels, which are commonly referred to as format; and source of information, which is typically identified as medium. Examples of communication channels include: providing information on a one-to-one basis, in groups, or through the use of both individual format and group set-up, while examples of sources of information consist of: written, audio, video, verbal, or combined methods (Cutrona et al, 2010).

Dose is the strength to which the intervention is given in order to achieve a desired outcome (Fredericks, 2009). It is often measured in terms of the amount, frequency, and duration of an intervention. Amount refers to the total length of time it takes to deliver the intervention

per session; frequency is the rate to which the intervention session is delivered over a specific period of time; and duration consists of the total time period that the intervention is delivered from start to finish. For example, discharge instructions could be delivered to patients daily for three days following surgery for 10 minutes per session resulting in a total of 30 minutes for that intervention.

Outcomes associated with patient centered care

This systematic review examined PCC interventions in terms of their effectiveness in producing changes to specific outcomes. The first outcome, being quality of care during hospitalization, which was defined as: “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes” (Institute of Medicine, 2001). It encompasses the notion of avoiding injury or harm to patients; providing effective services based on scientific evidence; and the provision of care that is patient centered, efficient, and delivered in a timely manner (Institute of Medicine). Decreased quality of care can be indicative of the onset of preventable symptoms (i.e. bedsores) that result in an increased use of health care resources that include increased length of hospitalization and/or increased hospital readmission rates.

The second outcome of interest pertinent to this systematic review was self-care behavior performance. Engagement in self-care behaviours is a process involving the selection and performance of treatment strategies to enhance or maintain functioning, alleviate the onset of symptoms, and/or to evaluate a treatment strategy (Orem, 2001). Examples of indicators of self-care behaviours include activity, nutrition, medication and symptom management.

Method

Study Design

A systematic review of studies to determine the characteristics of PCC interventions that have demonstrated effectiveness in enhancing the quality of care during in-patient hospitalization, and the performance of self-care behaviors during the post-hospital discharge period was conducted. The PRISMA framework was used to ensure the accurate and complete conduct and reporting throughout this review (Moher et al, 2009). Specifically, areas that relate to the study sample, data abstraction, measurement of outcome, data synthesis, and data analysis are discussed below. As this is a systematic review, there were no anticipated ethical issues.

Sample

Search strategies

The search for relevant studies was performed using: OVID, PROQUEST NURSING, CINAHL, MEDLINE, PUBMED, EMBASE, Cochrane Database of Systematic Reviews, and HEALTH STAR. The keywords used in the search included: client, patient, person, and individual centered care, post-hospital discharge, self-care behaviour, quality of care, and intervention characteristics. Following initial searches, the results were combined with the operand AND. Reference lists of studies retrieved that capture similar primary studies were examined manually. A total of 6589 articles were found to have addressed PCC interventions. Five hundred and seventy-eight of these articles were duplications, which were removed. An additional 5971 articles were excluded because they reported studies that assessed the effectiveness of a combined PCC and non-PCC intervention or did not assess outcomes of interest. A total of 40 studies met the selection criteria and were included in this systematic review (articles included in systematic review are indicated in Reference list with an asterisk).

Study selection: Inclusion criteria

Studies were included in the systematic review if they met the following selection criteria: 1) the sample represented adult (≥ 18 years) patients who received a patient centered care intervention during their hospitalization, 2) the outcomes assessed relate to quality of care during hospitalization and/or performance of self-care behaviours post-hospital discharge, 3) the study report was published in English between 1995 and 2014, 4) design included either: non-experimental, quasi-experimental, and experimental or randomized clinical trial (RCT).

Study selection: Exclusion criteria

Studies whose participants received a PCC intervention prior to being hospitalized were excluded from this systematic review. These individuals are inherently different from those who receive a PCC intervention during their hospitalization; as they were more likely to use information they received prior to their hospitalization to influence the quality of care received during the hospitalization period. Thus, they are more likely to behave differently than other study participants.

Screening

Studies rather than reports were considered as the unit of interest for this systematic review. The reports were compared based on the names of the authors, location and setting, specific details of the intervention (i.e. the mode [format and medium] and dose [amount, frequency, and duration]), the number of participants and baseline data, and the date and duration of the study. Thus, multiple reports of the same study were identified and linked together. If uncertainties remained after considering these factors, the authors of the reports were contacted.

Data extraction

Data were extracted on study characteristics, study participant characteristics, characteristics of PCC intervention, and outcomes. The definitions presented earlier guided the

development of a coding scheme to facilitate data extraction from each article and to assign numeric values to the extracted data. The data extracted were used for descriptive purposes.

Study characteristics

The following study characteristics were gathered about each study: year of publication, design (non-experimental, quasi-experimental, and experimental), sample size (total, and for each study group), number and type of study groups (control or comparison; and treatment or two treatment groups), type of randomization (if applicable), sample size approached, sample size consented, attrition, and reasons for attrition.

Study participant characteristics

The following information was extracted from each study to describe the study participants: total number of study participants, age (mean and standard deviation), sex (frequency of males and females), education (frequency of individuals with less than or greater than high school education), culture (frequency of white and non-white study participants), and medical diagnosis (frequency of 3 most common medical diagnoses).

Characteristics of PCC intervention

The following information on the mode (format and medium) and dose were collected to describe the characteristics of PCC interventions: format (frequency of PCC interventions delivered individually, in groups, or through the use of both individual format and group set-up), medium (frequency of PCC interventions delivered through written, audio, video, verbal, or combined methods), amount (total length of time it takes to deliver the intervention per session), frequency (rate to which the intervention session is delivered over a specific period of time), and duration (total time period that the intervention is delivered from start to finish).

Outcomes

The specific outcomes of interest, that is, quality of care during hospitalization and self-care behavior performance following hospital discharge were assessed with self-report measures capturing the following: length of hospitalization (mean and standard deviation), rate of symptom onset during hospitalization (mean and standard deviation) and performance of self-care behaviours following hospital discharge (mean and standard deviation).

Data analysis

Descriptive statistics were utilized to 1) delineate the characteristics of the studies included in this systematic review, 2) describe the characteristics of study participants comprising the sample selected across studies, and 3) identify the elements of PCC interventions found to be effective in producing changes in quality of care during hospitalization and self-care behavior performance following hospital discharge.

Results

Study characteristics

The 40 studies that met the inclusion criteria were conducted between 1995 and 2013. More than half (52.4 %) of the studies contained an experimental design, 19.1 % used non-experimental strategies, and 14.3 % used a quasi-experimental approach to describe and/or evaluate PCC interventions. Of the studies that contained an experimental design, 42.9% engaged in random assignment. The most common method of randomization was the use of sealed envelopes (9.5%); however other methods included table of random numbers (4.8%), block design (4.8%), and stratified randomization (4.8%). Most studies (97.5 %) contained two groups, of which one was described as an experimental group (100%) and the other as a control group (66.6%). The studies involved a total of 4294 study participants of which 1234 individuals were assigned to a control group and 3060 were assigned to an experimental group. In total,

11442 individuals were approached for study participation, 4835 (42.3%) consented, and 541 (11.2%) study participants dropped out over the course of the study. For the most part (95.2%), reasons for drop out were not identified across the individual studies.

Study participant characteristics

Across the studies, the mean age of the participants was 53.5 (SD = 20.6) years. On average, the male: female ratio was somewhat comparable, with there being a slightly higher percentage ($\bar{x} = 52.6\% \pm 24.2\%$) of female study participants. Approximately, a third (33.3%) of the study participants had greater than a high school education, with 14.3% reporting more than 16 years of formal education. Just under half (42.9%) of the studies did not report on study participant's cultural background. When culture was reported, it was identified as either white (42.9%) or non-white (15%). All studies included individuals with a medical diagnosis. The three most common diagnoses were diabetes (28.6%), asthma (14.3%), and cancer (9.5%).

Characteristics of PCC intervention

In general, the PCC interventions were either education (90%) or counselling (10%); and involved the patient being provided with the opportunity to tailor the intervention content, dialogue, and/or activity to reflect their desired learning needs and/or beliefs. Descriptions of the tailoring process were generally not well described across the various studies. In general, PCC interventions addressed the following topic areas: activity performance, medication management, nutrition adjustment, and need for follow-up with physician and/or specialist.

The most common means for delivering the PCC interventions were on a one-to-one basis (76.2%), in a combined, verbal and written format (66.7%). The interventions were delivered on average 2.75 (± 2.12) times, for approximately 1 hour (± 1 hour and 13 minutes) per

session, with the total time for intervention delivery lasting roughly 2 hours and 12 minutes (\pm 2 hours and 35 minutes) (Table 1).

As well, additional analyses suggest for the most part, the intervention was unstructured (95.2%) in its formation, was provided by a number of individuals at any one point in time (42.9%), and was typically provided during the post-hospital discharge period (90.5%) (Table 1).

Outcomes

On average, study participants spent approximately 3.1 (\pm 1.0) days in hospital, experienced on average the onset of .4 (\pm .1) symptoms during their hospitalization, and engaged in 4.3 (1.1) self-care behaviours during their first week at home. The type of symptoms experienced and self-care behaviours engaged in were not identified throughout the studies.

As well, across the studies that evaluated the effectiveness of PCC interventions (52.4%) in either enhancing quality of care in hospitals and/or performance of self-care behaviours following discharge, a statistically significant between group differences in quality of care and self-care behaviours were reported in 23.8 % and 28.6 % of these studies, respectively, with small effect sizes identified (.1 and .2, respectively).

Discussion

Findings indicate only a small number of studies have been conducted over the past 18 years to evaluate the effectiveness of patient centered care interventions delivered during the post-operatively hospitalization period and/or following hospital discharge. The effectiveness of PCC interventions were noted in a quarter of these trials (approximately 5 studies), even though these studies were designed to reflect a rigorous process, (i.e. use of randomized controlled trial design) and had a low attrition rate. Of particular interest, the intervention studies that reported non-statistically significant findings in relation to the effectiveness of PCC interventions,

contained populations that were diagnosed and living with chronic conditions (i.e. asthma, diabetes, and cancer). These studies reported small effect sizes suggesting PCC interventions may not be worthwhile to implement to individuals diagnosed and living with chronic illnesses, as these individuals, over time, may have developed their own self-care behaviours and may have formed a unique, long-term relationship with their immediate health care provider. Thus, PCC interventions may be more effective when delivered to individuals experiencing acute conditions such as a person who has had a myocardial infarct and requires cardiac bypass surgery to enhance coronary blood flow. This individual will require short-term health care support in which PCC interventions may be worthwhile.

Also, the studies that reported a significant difference in outcomes of interest, were those in which the PCC intervention was delivered at multiple points in time. The effect of this from a cost-benefit perspective has not been examined. Thus, to determine a more comprehensive effect of PCC interventions on the larger health care system, interventions delivered at multiple points in time should be examined. In doing so, this will allow researchers to determine if the short term financial expenses associated with delivering PCC interventions at multiple points in time are outweighed by the long term outcomes related to a reduction in hospital readmission rates, a decline in the onset and/or exacerbation of illness condition, and a decrease in mortality rates for those individuals.

An important consideration is culture, as PCC interventions are interventions that are tailored to reflect the needs, values, and beliefs of an individual; and needs, values, and beliefs are shaped by an individual's cultural experience (Hinde, 1987). Thus, data pertaining to culture should have been reported in more detail. Presently, a broad representation of culture based on skin colour, as opposed to culture based on geographical heritage was presented. No study

specifically identified a cultural profile of their sample. In order to determine the true effect of PCC interventions on the health care system, long term studies should be implemented for cultural characteristics of a specific group and individuals on different levels, such as national, organizational, or individual characteristics (Pawlowski, 2008). This information is needed to help understand the decisions individuals make when designing and/or tailoring the PCC intervention. This is of importance as culture can have a significant impact on the decisions an individual may make; as suggested by Uba (1992) who argued many Southeast Asians share the cultural mindset that suffering and illness is inevitable and that one's life span is predetermined. This type of belief serves to impact on how a person's Southeast Asian ancestry may interact with healthcare services. Thus, they may choose to not fully engage in the design and implementation of PCC interventions resulting in the misconstrued notion that they do not need any support.

Findings also indicate only a small portion of studies identified the type of preventable symptoms (e.g. chest pain, difficulty breathing, inability to walk) developed during the hospitalization period, as well as specific type of self-care behaviours (e.g. take a shower, climb a flight of stairs, move from bed to chair, prepare a meal, take medication as required) that were engaged in during the conduct of the study. This information is important, as the type of symptom that developed during hospitalizations and/or self-care behaviours that may not have been performed, may not likely be due to the ineffective nature of the PCC intervention, but rather to the medical condition of the individual. Thus, the presence of the symptom and/or inability to engage in a specific type of self-care behaviour would have occurred, in spite of the intervention because of the nature of the illness experience.

Implications

Rigorous research examining the effectiveness of PCC interventions is limited. Thus, caution should be taken when considering incorporating existing findings into clinical practice. Future research should examine the effectiveness of these interventions in enhancing the quality of care received during hospitalizations and the performance of self-care behaviours following hospital discharge. In particular, the inclusion of populations experiencing acute illness should be considered for future intervention studies. Randomized clinical trials, in which the intervention is delivered at multiple points in time should be designed to examine broader effects of PCC interventions that include: hospital readmission, emergency room visits, and mortality rates. These outcomes directly affect the larger financial structure of the health care system (Benbassat and Taragin, 2000). If PCC interventions are shown to significantly reduce these outcomes, then it is more likely they will be accepted as viable options for influencing patients' overall health and well-being. Additionally, the use of a qualitative evaluation of a PCC intervention could provide a more detailed and contextualized explanation of how and why an intervention is effective/ineffective and how the intervention could be further tailored.

Moreover, incorporating cultural profile assessments into future research studies that include identifying geographic location to which study participant closely identifies (Schwartz, 2006), allow for a more complete understanding of specific decisions individuals make when tailoring and/or designing various elements of PCC interventions. Finally, if short-term outcomes such as preventable symptoms and/or self-care behaviours, are included in future studies, then an overview of the type of preventable symptom and/or self-care behaviour should be presented, as this may provide information as to whether or not these outcomes occurred as a result of the illness experience.

Limitation

The most significant limitation associated with this study is the lack of consistency in how data is presented. In several instances, only partial results were reported for key variables; and in a few cases when complete data were reported, the quality of the data identified was not adequate to calculate an effect size. In both of these instances, at least 3 attempts were made to contact the corresponding author. To date, none of the authors contacted, responded to our request for further information. Without a complete presentation of data from all studies included in this review,

Conclusion

In summary, engaging in PCC interventions provides patients with the opportunity to be actively involved in their own health. These individuals are viewed as a dynamic member of the health care team. Through the performance of a systematic review it was noted that PCC interventions were not effective when delivered to individuals living with chronic illnesses; as well they tended to be delivered over a very short period of time. It has been recommended that future PCC interventions be designed, evaluated, and delivered over an extended period of time, as well at multiple points in time. Furthermore, a clearer understanding of the role of culture and how it impacts on decisions that are made during patient-healthcare provided PCC interactions is required.

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