

The critical incident technique and nursing care quality research

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The critical incident technique, is a highly flexible qualitative research method used in solving practical problems. Although this research method has been extensively used in the service industry to evaluate consumers' expectations and perceptions, applications to the study of health care quality are just beginning. This article describes critical incident methodology, reviews previous applications of the technique to the study of health care quality and provides illustrations from research. This practical research methodology offers the following important advantages to those interested in designing studies of care quality: identifying patients' experiences in health care settings, exploring dimensions of nurse–patient interactions and identifying patients' responses to illness and health care treatment.

Keywords: critical incident technique, research methodology, health care, nursing care, delivery of health care, quality assurance, patient-provider interaction

INTRODUCTION

The critical incident technique, a qualitative research methodology developed by Flanagan (1954), has long been used in the service industry to evaluate the expectations and perceptions of consumers. More recently, this research methodology has been applied to the study of patient opinions and experiences in health care settings, an essential dimension in quality of care research.

BACKGROUND AND EARLY DEVELOPMENT

Flanagan and other members of the Aviation Psychology Team developed the critical incident technique during World War II. At the time, there was an urgent need to train flight crews in a very short time and to understand the specific behaviours that led to the success or failure of a mission. As the more traditional methods for researching

this problem were complex and time consuming, Flanagan developed a practical and efficient method of intensive interviewing aimed at pinpointing facts and identifying critical flight crew behaviours. Flanagan defined an *incident* as “any observable human activity that is sufficiently complete in itself to permit inferences and predictions about the person performing the action” (Flanagan 1954, p. 335). The term *critical* refers to the fact that the behaviour described in the incident plays an important or critical role in determining an outcome. Through a series of brief, straightforward interview questions, Flanagan was able to identify behaviours critical to the success of flight missions (Flanagan 1954, Fivars & Gosnell 1966, Woolsey 1986). His findings from critical incident studies played a key role in identifying screening criteria for flight crews, and the development of flight training programs (Weisgerber *et al.* 1990). Following the war, Flanagan continued to develop the technique, in solving other practical problems.

Since that time, the technique has been used for a variety of purposes, especially by business, industry,

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organizational psychology and other professional groups. Uses of the critical incident technique have included development of safety checklists and guidelines for action in varied emergencies, improving the design of equipment, and establishing job performance criteria (Ross & Altmaier 1990). Critical incident studies have also been used as the basis for educational curriculum design and professional certification and licensure (Jacobs *et al.* 1982).

CRITICAL INCIDENT METHODOLOGY

The critical incident technique is used to collect and analyse reports of behaviours in defined situations and is similar to other qualitative research formats. For example, data can be gathered through a variety of structured or unstructured methods and researchers are given considerable latitude in study design. Critical incident studies are unique, however, in several important aspects. Unlike other qualitative methodologies that place emphasis on describing phenomenon in naturalistic settings, critical incident studies are more highly focused on providing solutions to practical problems. The format devised by Flanagan is aimed at pinpointing facts and reducing personal opinions, judgements and generalizations. According to Flanagan (1954), observations become fact when a large number of independent observers offer the same descriptions of a behaviour.

The size of a critical incident study is based on the number of incidents that are collected rather than on the number of subjects. A general rule of thumb offered by Flanagan (1954) is to gather incidents until redundancy appears. Data collection is discontinued once the researcher determines that a sufficient degree of saturation has been obtained. Through an inductive process, the incidents are sorted and categorized according to identified behaviours, and a taxonomy of specific behaviour is developed. An effort is made to include a heterogeneous group of respondents, capable of reporting diverse and exhaustive descriptions from which the taxonomy of behaviours can be developed (Weisgerber *et al.* 1990).

This practical and efficient methodology offers several important advantages. First, the design allows information to be obtained quickly. As critical incident interviews require only simple types of judgements and responses from study participants, they may be as brief as 15 or 20 minutes. An additional advantage of this research methodology relates to flexibility. The critical incident technique can easily be adapted to meet the requirements of individual research studies. While the face-to-face interview format is the most satisfactory data collection method for insuring that all the necessary details are supplied, critical incident reports can also be collected through other methods. Self-administered questionnaires, telephone interviews, workshops, group interviews, sys-

tematic record-keeping and direct observation can also be used to collect critical incident data (Flanagan 1954, Woolsey 1986, Anderson & Wilson 1997).

The goal of this methodology is to help participants be as specific as possible in describing specific incidents from memory and to include all relevant details. The accuracy of this technique, in fact, depends on the ability of the researcher in helping the participants to provide clear, concise behavioural descriptions (Flanagan 1954). When full details are given, it can be assumed that the information being recalled by the participants is accurate; vague reports that lack detail suggest that the incident is not well remembered and may be incorrect (Flanagan 1954). In using this methodology, a consistent interview guide is maintained and verbatim reports from participants are recorded. In order for this technique to be effective, the interviewer must be familiar with the aims and objectives of a given job and qualified to judge the outcomes of an activity.

For a critical incident report to be effective and useful, three important pieces of information must be included: (a) a description of a situation that led to the incident, (b) the actions or behaviours of the focal person in the incident and (c) the results or outcomes of the behavioural actions (Anderson & Wilson 1997, p. 90). When a clear description of the events leading up to an incident is provided by a study participant, an understanding is created of why certain actions were or were not taken. The actions of the focal person in the incident must also be precisely reported. A clear description of the outcome is also important because this information provides the basis for inferences about the effectiveness of the behaviour and the skills needed to enact the behaviour (p. 90). When all three elements of a critical incident report are included, an interpretation of the effectiveness of the described action can be made (Anderson & Wilson 1997).

APPLICATIONS TO STUDYING QUALITY OF HEALTH CARE SERVICES

Critical incident methodology has been effectively used by health services researchers to identify the responses and behaviours of patients in studies of health care quality. (See Table 1). Longo *et al.* (1993) assessed hospital service quality through critical incident surveys of 147 patients and 188 health care providers at a medical centre in Modesto, California. While the patients in this study identified 12 descriptive categories of excellence in hospital service quality, their perceptions of hospital care quality were most frequently related to 'nurturing' behaviours on the part of health care providers. Rubin (1993) reported the results of a critical incident survey of 3868 patients at 6 hospitals in the north-eastern United States. In this study, the patients described health care provider behaviours that resulted in satisfaction

Table 1 Applications of the critical incident methodology to health care quality

Author	Year	Focus	Population
Grant and Hrycak	1987	Identified the opinions of long-term care residents about the care they received	Participants included 409 full-time residents at an extended care agency in Canada
Norman <i>et al.</i>	1992	Elicited patient indicators of high and low quality nursing care	Participants included inpatients in medical, surgical and elder care settings in England
Pryce-Jones	1992	Identified patient opinions concerning effectiveness of discharge procedures	Participants included patients in an elderly care unit in Oxford, England
Longo <i>et al.</i>	1993	Used to assess hospital service quality from the perspectives of patients and health care providers	Participants included 147 hospitalized patients and 188 health care employees, 13 corporate subscribers and 52 physicians at a medical centre in Modesto, California
Ruben	1993	Patients described health care provider behaviours that resulted in satisfaction and dissatisfaction with health care services	Participants included 3868 patients at 6 hospitals and health services in north-eastern US
Cox <i>et al.</i>	1993	Identified positive and negative aspects of a single Macmillan nurse's role	Participants included 20 participants included 8 oncology patients, 5 caregivers, 5 district nurses and 2 general practitioners
Beech and Norman	1995	Identified indicators of high and low quality nursing care	Participants included 24 psychiatric inpatients in England
Jay	1996	Identified patient perceptions regarding effective nursing interventions used by emergency room nurses to provide psychological support	Participants included 7 patients who had sustained serious trauma, treated in emergency room settings
Kent <i>et al.</i>	1996	Described situations in which health care providers met and did not meet emotional needs of patients attending a cancer clinic	Participants included 185 patients attending a cancer clinic in England
Grant <i>et al.</i>	1996	Identified 14 indicators of quality nursing care	Participants included 52 long-term care residents, 58 significant others, and 37 nursing staff members, in five long-term care facilities in Calgary, Canada
Cheek <i>et al.</i>	1997	Explored beliefs about the nature of nursing's contribution in aged and extended care settings	Participants included 29 nursing staff members, nursing home care residents, family members, and allied health personnel in an extended care setting in Australia
Kemppainen <i>et al.</i>	1998	Categorized behavioural responses of patients with HIV/AIDS to nursing care providers in hospital settings	Participants included 118 acutely ill hospitalized male and female patients with HIV/AIDS

and dissatisfaction with health care services. Caregiver interpersonal communication and personal treatment accounted for 46.7% of all responses. Kent *et al.* (1996) used the critical incident technique to describe situations in which the emotional needs of 185 patients attending a cancer clinic were met or not met by health care providers. In an additional study, Pryce-Jones (1992) used the findings from critical incident patient interviews to evaluate the outcomes of a revised discharge procedure in an elder care unit in Oxford, England.

Nurse researchers have used the critical incident methodology since the 1950s to investigate varied aspects of clinical practice (Bailey 1956, Benner 1984, Butts & Witmer 1992, Von Post 1996, Perry 1997, Wiggins 1997) and nursing education (Haag & Schoeps 1993, Minghella & Benson 1995, Rosenal 1995, Care 1996). Applications of this research methodology to the study of nursing care quality, however, are just beginning to appear in the literature. In one of the first reported studies, Grant and

Hrycak (1987) asked 226 patients in a long-term care facility in Canada to report their opinions about care and services they received. Study participants identified issues that affected quality of care, including privacy concerns, and the quality of nursing care services.

Grant *et al.* (1996) focused on identifying indicators of nursing care quality in an expanded study that included six long-term care facilities in Canada. Participants included 52 long-term care residents, 58 significant others and 37 members of the nursing staff. Through the use of the critical incident technique, 14 indicators of high and low quality care were identified. Similar studies completed in England, included the opinions of both patients and health care providers in medical, surgical, and elder care wards (Norman *et al.* 1992), inpatient psychiatric settings (Beech & Norman 1995) and a community setting, where care was provided to oncology patients by a single Macmillan nurse (Cox *et al.* 1993). Flanagan's critical incident technique was also used to identify the opinions about the value of

Table 2 Critical incident sample interviewing guides

'Think back to you stay at the hospital and describe in a sentence or two, your most memorable experience' (Rubin 1993)

'Think of a time when, as a patient, you had a particularly satisfying or dissatisfying experience in the hospital. Was this experience satisfying or dissatisfying? When did experience occur? Describe the events leading up to this event. Describe, as completely as you can, the experience and what made it satisfying or dissatisfying' (Longo *et al.* 1993)

'Describe something about the care (services) that you received here. Give me an example of the care (services) that you believe could have been done better. Now, something about care (services) that are not done, which you would like to have done' (Grant & Hrycak 1987)

nursing care services in a sample of 29 participants, including patients, family members and nurses in an extended care facility in Australia (Cheek *et al.* 1997). Although the majority of these studies relate to long-term care facilities, they demonstrate the potential for application of this research methodology to varied health care settings. These initial studies also demonstrate that the critical incident technique can provide meaningful information about patients' experiences in health care settings and to determine their views about health care services.

Sample interviewing guides reported in the literature, presented in Table 2, demonstrate the variability of critical incident interviews in length and format to individual settings. Although the interview format devised by Rubin (1993) was very brief, it was very effective in obtaining much rich data about the quality of hospital care services.

CRITICAL INCIDENT ILLUSTRATIONS

A recently completed study by the author (Kemppainen *et al.* 1998) provides an example of the utility of the critical incident technique in the study of nursing care quality. The overall objective of the study was to develop an outcome measure of patient engagement with nursing care providers, based on the findings of critical incident interviews with hospitalized patients with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS). This research methodology was selected because it provided the most complete and efficient means for describing job performance behaviours that relate to changes in patient behavioural outcomes (Ross & Altmaier 1990). This interviewing format also offered the important advantage of gathering information on patient behavioural outcomes of nursing care without creating fatigue or excessive response burden on the part of the acutely ill, debilitated patients who participated in the study.

A total of 118 hospitalized patients with HIV/AIDS were asked to provide critical incidents that described their

behavioural responses to recent nursing care events. The brief focused interviews lasted from 10 to 15 minutes. Additional critical incidents were gathered through direct observation of actual care giving events. The incidents gathered through patient interviews and direct observation were grouped into categories and a taxonomy containing the broad range of patient behavioural responses to nurses was developed for use as the basis for questionnaire development. In a follow-up study, patient verbatim comments derived from each of the major categories in the taxonomy were used to develop a measure of patient engagement with nurses (Kemppainen *et al.* 1999).

The first step in conducting the critical incident interviews involved the following brief introduction describing the purpose or aim of the study: "We are trying to learn more about ways that patients with HIV/AIDS respond to their nurses." Next, patients were asked to recall specific incidents they remembered when a nurse treated them well/not well. Once the patient identified an event, the following questions were asked:

- What were the circumstances leading to that event?
- Exactly what did the nurse do?
- How did you respond to the nurse?
- How did the nurse's actions affect your behaviour?

Useful critical incident interview

The example presented in Table 3 is a critical incident that was included in the study because it successfully met the requirements identified by Anderson and Wilson (1997):

- The incident describes the circumstances surrounding a nursing care event.
- The incident presents a description of the interaction which occurred between the patient and a specific nurse.
- The behavioural outcomes that occurred as a result of the caregiving event are clearly described.

The incident is taken from an interview with a 42-year-old mother of two teenagers, who has been diagnosed with HIV/AIDS. At the time of the interview, this patient had a CD4 count of less than 100, with frequent hospitalizations for bacterial pneumonia and lymphoma. She reported being 'seriously depressed' over her AIDS diagnosis and indicated that she was taking antidepressant medications. She confided that she 'worried herself into sickness over HIV' and attempted suicide. This incident presents a description of her behavioural response toward a nurse following surgery for that suicidal attempt.

This example effectively captures the interaction that occurred between the patient and a nurse during a specific postoperative caregiving event. The value in this incident lies in the complete, precise descriptions of behaviours presented by the patient. The rich detail suggests that the

Table 3 Example of useful critical incident

Think of a time a nurse treated you well/not well

'I was in the hospital two months ago. I was depressed about having AIDS and stabbed myself in the stomach'

What were the circumstances that led up to this event?

'It was right after surgery and I was supposed to walk. I didn't want to try. I just wanted to lay there'

What exactly did the nurse do?

'The nurse got me up and put her arm around me and we walked down the hall. She talked with me about her children and then got me to talk about my children. She had a daughter...me too. She teased me about my boyfriend'

How did you respond to the nurse?

'It was nice and pleasant. The nurse made me feel like I want to try. She gave me courage. It made my behaviour nicer, and I tried not to give her a bad time'

How did the nurse's actions affect your behaviour?

'I talked back to her. We were two persons on the same level. She didn't treat me any differently than I treated her. We were the same. I did everything to make her job easier. Do every thing you can to help them if they treat you good.'

information presented in this incident is accurate and easily recalled. The patient described her willingness to participate in nursing care ('I did everything to make her job easier.') and also identified a specific behavioural response to the nurse ('I talked to the nurse.').

Critical incident interviews that were not useful

Table 4 contains two critical incident examples that were not included in the study. A 42-year-old male patient, hospitalized with PCP pneumonia, CMV retinitis, and leukopenia, provided both incidents.

Instead of describing the actions of a specific nurse, the information provided by the patient is vague and lacks specific details. According to Flanagan (1954), general reports that lack detail suggest that an incident may not be fully remembered or may be inaccurate. In this incident because a nursing action is not clearly described, it is unclear what led to the outcome described by the patient. Despite prompting efforts, this patient continued to offer very general responses. As these incidents did not clearly describe specific behaviours, they were not included in the study.

Critical incident observation

Although critical incidents gathered through direct observation created additional requirements and efforts on the part of the researcher, they added a broader range of patient behaviours. For example, observations made by the data collectors identified intense psychological and

Table 4 Critical incident reports that were not useful

Example 1

Think of a time that a nurse treated you well/not well

'They're all OK. Nothing stands out. The nurses are fine.

They've all been great. I can't think of a specific example.

They treat me good everyday. They help me with whatever

I need. I feel good'

Example 2

Think of a time that a nurse treated you well/not well

'The nurses are all good to me.'

Exactly what did the nurse do?

'The nurses start conversations with me...they change my bed promptly and without asking, and they check to see that I have ice water. They help me with the things I need'

How do you respond to the nurse?

'It gives me self-confidence. I realize that I'm not facing this alone and that they're not afraid to shake my hand or touch me'

behavioural problems displayed by dual and triple diagnosed patients with HIV/AIDS, mental illness, and substance use that frequently precluded their participation in the study. The following incident recorded in the clinical log of a data collector, documents angry, threatening behaviours presented by a 52-year-old patient triply diagnosed with HIV/AIDS, schizophrenia and substance abuse. This patient was nonadherent with clinic appointments and with attempts to manage his constant pain. A physician's chart note indicated that he "resorts to poly-pharmacy to manage his pain, and is not responsibly managing prescribed opiates. He is currently using numerous IV drugs." He was admitted with a diagnosis of right heart failure, cor pulmonale, chronic hypoxia, laryngeal cancer and a CD4 count of 18/mm³. The patient had been admitted to the medical ward on numerous occasions and was well known by all of the nurses. Although greatly weakened and debilitated, he was largely uncooperative with nursing care efforts and frequently refused to accept medications.

This incident clearly describes the difficult behaviours presented by this patient and also the frightened and stressful response experienced by a young nurse who was assigned to care for him.

When Mr H accidentally dropped the remote control to the T.V. onto the floor, the call bell accidentally turned on. A young nurse entered the room. Her facial expression appeared tense and hurried. She moved quickly toward Mr H's hospital bed and began abruptly pushing at the call lights fastened along the bedrail. 'Your call light is on,' she said. 'I didn't call you', he said. His voice tone was very sharp and angry. 'Get outa here and leave me alone!' Although the young nurse looked frightened and also very flustered, she continued to push the control knobs on the patient's bedside rail in an effort to turn off the call bell. She seemed to have difficulty. The patient began waving his arm at the

nurse and yelling 'Leave me alone! I won't take my medicine from you. I just drank Ensure. I'll take my medicine when I want to. Get outa here!' The young nurse accidentally dropped the papers that she was carrying in her hands. After bending down to retrieve the papers off the floor, she quickly left the patient's room. The patient laughed loudly in a satisfied fashion.

Another recorded incident describes the patient's more co-operative response to a second nurse.

Later, a second nurse entered the room. The nurse was smiling and quiet. She moved gently toward the patient's bed and handed him a small cup with medications in it. The patient accepted the cup from the nurse, carefully examined each pill and quickly swallowed them. When he was finished, he looked directly at the nurse and stated, "That's it. I'm all done. Now you can get out."

When the second nurse came out of the room she said, 'He lets me give him medicines. He checks everyone out! He's quiet at first and really looks at you and frowns to see what you'll do. He's adamant about getting proper care. He prefers some nurses to others. He gets really agitated and threatens to leave. He's done that in the past. When he was admitted, the nurses in the emergency room found a syringe full of cocaine and heroin in his belongings. The doctor said that he was speedballing...he denied that the syringe was his...he said that a friend accidentally left it in his suitcase. We've had him before. Sometimes he leaves. This time he's too weak and sick.'

Another nurse who was nearby added, "Most of my AIDS training relates to the tasks I have to do. We're seeing more and more patients that present difficult and challenging behaviours and we don't know how to handle them."

These observations made by the data collector include clear, precise descriptions of the actions and behaviours of the key persons in the incident. The behavioural outcomes of those actions were also identified. These examples show the effectiveness of critical incident observations in identifying behavioural outcomes of nurse-patient interactions.

IMPLICATIONS FOR NURSING RESEARCH

The critical incident technique, a qualitative research methodology developed by Flanagan (1954), offers the following important advantages to nurses who are interested in designing studies of nursing care quality.

Identifying patients' experiences in health care settings

Major changes are occurring in today's health care industry. In addition to adapting to rapidly advancing technology, health care systems are reorganizing with an overall emphasis on cost control and efficiency. In an ever-changing health care market, it is becoming evident that

gathering patients' perceptions are an important aspect in planning for health care. Data from studies that identify and describe patients' perceptions in health care settings are becoming an essential component in research on health care quality. Research studies using the critical incident methodology can offer valuable insights about specific nursing care interventions that most effectively match patient needs or provide the greatest levels of comfort and satisfaction. As the critical incident format is brief and requires less effort from participants, this methodology can be used to gather the opinions of patients in varied nursing care settings, including those who are acutely ill or debilitated. For example, a potential critical incident study could be used to identify nursing actions or behaviours associated with high quality care in orthopedic surgical settings. Elderly postoperative patients with hip fractures might be asked the following question: "Think of a nurse you admire and respect. Can you recall an incident that convinced you that this nurse was outstanding?" Data from the critical incident interviews could offer nurses valuable insights on patient needs and expectations in this acute care setting.

Exploring nurse-patient interactions

Literature demonstrates that the quality of the patient-provider interaction is one of the most significant contributors to patient ratings of overall health care quality (Rubin 1993). There is increasing recognition that patients vary in their responses to health care providers. Their response is based on a variety of factors, including personal characteristics of the patient or provider, socioeconomic factors, or stage of illness (Kemppainen *et al.* 1998). Critical incident studies provide an efficient means for analysing the complex and varied interactions that occur between patients and nurses. Critical incident studies also provide an important perspective on the complex dimensions impacting nurse-patient encounters in today's rapidly changing health care environment.

Identifying patient responses to illness and health care treatment

Through the use of the critical incident technique, nurses can learn about patient responses to acute and chronic illnesses, and identify factors associated with decision-making around important health care issues. For example, based on the findings of critical incident interviews, Wilson *et al.* developed self-management programs for adults and children with asthma (McNabb *et al.* 1985, Wilson-Pessano *et al.* 1987, 1993, Wilson *et al.* 1998). Potential critical incident studies could be used to identify specific patient behaviours related to pain management, health care prevention strategies, or medication adherence. For example, a critical incident study on

medication adherence could be used to identify factors and circumstances surrounding adherence to psychotropic medications. Patients attending an outpatient mental health clinic appointment might be asked the following questions: "What helps you take your medicine as scheduled? What things interfere or prevent you from taking your medicines as scheduled?" In addition to providing nurses with important information on patients' perceptions about how medication adherence is affected, data from the critical incident interviews could be used as the basis for developing and testing adherence education programs related to the unique needs in this patient population.

In summary, the critical incident technique is useful for analysing the complex factors related to the delivery of nursing care services. As nurses learn more about this research methodology and its application to the study of nursing care quality, they will begin to identify areas of priority for quality improvement that will be the driving force for change in the delivery of nursing care services.

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