Can I do everything? time management in neonatal unit

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ABSTRACT

This paper presents the findings of a study which explored the lived experience of ‘managed time’ for new graduate nurses working in a neonatal unit in the public health system in Australia. Information was collected through conducting in-depth focused interviews with six nurses. The data generated was analysed using Colaizzi’s (1978) method of data analysis. Five themes emerged including: knowing, planning, support, fulfilment, adapting and being flexible. These exhaustive themes were integrated into a fundamental structure of ‘managed time’. The findings of this study have revealed detailed insight into the phenomenon of managed time for new graduate nurses working in a neonatal unit.
INTRODUCTION

Interest in the lived experience of ‘managed time’ by new graduate nurses working in a neonatal unit in a public hospital in Australia was first stimulated through the personal experience of the author while working as a new graduate nurse in this setting. Neonatal units provide care to acutely ill newborn infants and the role of the nurse is to provide expert and complex care to these infants and their families at times of great uncertainty and complexity. Throughout the graduate nurse year the author became aware of many challenges facing new graduates – culture shock manifested by competing value systems; unfulfilled hopeful anticipation; professional socialisation; and discontent (Kramer 1974). Another challenge that appeared to be a recurring theme is that of managed time. For new graduate nurses working in a neonatal unit, managed time can be even more challenging due to factors such as the age and acuity of the patient population.

There is no doubt that the graduate nurse year is highly stressful and also that the neonatal unit is a demanding working environment. The unique stressors encountered in this environment are generally acknowledged, however there is a lack of clear understanding as to how this is experienced by the individual graduate nurse working on a day-to-day basis. It was this area that the research explored, directed by the question: What is the experience of managed time for new graduate nurses working in a neonatal unit?

While discussion of the background to this study is an important element in setting up the framework for the study, it is also important to examine the study’s core concept: managed time and graduate nurses working in a neonatal unit. A brief review of these two key concepts is provided as a means of assisting the reader in acquiring a contextual understanding of the phenomenon.

Overview of the phenomena of managed time

When most people think of time, it is usually in the context of ‘What time is it?’ or ‘There is not enough time to do everything’. Philosophers have argued ‘What is time?’ for many centuries. Some philosophers talk about physical time and psychological time; the order of time, whether it is circular or linear or whether it is related to events or consciousness or reality. The agreement on time order suggests time is an objective phenomenon not dependent on being consciously experienced.

Time is an abstract finite noun and according to Grohar-Murray and DiCroce (2003) people hold differing concepts of time, hence a specific definition is unachievable for the purpose of this study. However some principles that facilitate the best use of time will be discussed. Claborn and Zerwekh (2000) state that time cannot be altered or created, instead “we can alter the choices we make in how we use time” (p.198).

McLaughlin (1991) defines management as “the effective utilisation of resources (both human and material) to achieve an organisation’s objectives” (p.3). For the purpose of this study ‘managed time’ is defined as “the process of managing the things we need to do in the time that is available” (McLaughlin 1991 p.239).

The phenomenon of ‘managed time’ has been recognised in a variety of human service professions, including childcare, supervision and nursing. It has been identified as an important element of work for all nurses and “the factor that most affects how nurses’ work, how nurses feel about their work and how their work affects patient outcomes” (Bowers et al 2001 p.485).

Consequences related to ‘managed time’ are potentially serious, not only for those individuals experiencing such a phenomenon, but also their clients, co-workers, families and the institution in which they are employed. Anecdotal evidence of managed time issues include deterioration in the quality of care provided, job dissatisfaction, stress and burnout, role overload and role stress.

Overview of the graduate nurse program

In Australia, graduate nurse programs are conducted in public and private hospitals, since there is
a “perceived need to support new graduates” (Victorian Government Department of Human Services 1997 p.3). It is recognised that the graduate nurse has completed the theoretical and competency requirements of the educational institution and registering authority, however, “it is assumed that a fair proportion of this knowledge remains conceptual and awaits transformation...in direct clinical experience for meaningful learning to occur” (Victorian Government Department of Human Services 1997 p.4).

This period is recognised as the transition process. The transition process refers to the “process of moving from university student to registered nurse” (Claborn and Zerwekh 2000 p.356). The term ‘reality shock’ (Kramer 1974) is a common central concept during the transition process. Although the term ‘reality shock’ (Kramer 1974) is dated, it is a seminal piece of work and is still being referred to in nursing literature, as is the work of Hamilton and Kiefer (1986) and Benner (1984), since they are still considered relevant. Reality shock describes:

“...the specific shock like reactions of new workers when they find themselves in a work situation which they have spent several years preparing for and for which they thought they were going to be prepared, and then suddenly find they are not” (Kramer 1974 p.viii).

According to Kramer (1974), it is the discovery that there is a divergence between school-bred and work-world values, which the new nurse has previously been sheltered from, that causes ‘reality shock’. Twelve years later Hamilton and Kiefer (1986) also recognise Kramer’s (1974) ‘reality shock’ as a major problem for new graduate nurses, suggesting that role problems are experienced such as role conflict, overload or discontinuity.

Benner (1984) describes the development of a new nurse as a process, from novice to expert. She states that during stage one, a novice has had no experience of situations; the behaviour of the novice is dictated by textbook rules, which tend to be limited and inflexible. Then during stage two, as an advanced beginner the new nurse can demonstrate marginally acceptable performance. However during both stage one and two, the new nurse is unable to absorb what is happening in a situation, which means that assistance is required. Therefore to overcome ‘reality shock’ and assist in the transition process, the aim of the graduate nurse program is “to build on the undergraduate program and facilitate the transition of the graduate into clinical practice” (Victorian Government Department of Human Services 1997 p.4).

Within the program graduate nurses will have access to more experienced nurses and are provided with appropriate induction and orientation activities, peer support and mentoring. This mentoring is provided by preceptors. It is suggested that for preceptorship to be successful there should be an organised program for the preceptors, including education about the roles and responsibilities of the preceptor/preceptee, communication skills, conflict resolution, principles of adult learning, ‘reality shock’, giving and receiving feedback and performance appraisals (Victorian Government Department of Human Services 1997).

Managed time and graduate nurses working in the neonatal unit

The nature of the neonatal unit means that graduate nurses are constantly working in a high stress environment, providing expert and complex care to acutely ill infants and their families at times of great uncertainty and complexity.

Given that managed time in the neonatal unit relies on prioritising and evaluating, the unstable condition of the neonates mean that these priorities will need frequent re-evaluation. As a result graduate nurses are constantly engaged in prioritising. Prioritising firstly involves valuing. However the graduate nurse has difficulty in both valuing and prioritising, therefore graduate nurses working in the neonatal unit are at significant risk of managed time difficulties.

Significance of the proposed study

The significance of this study is as follows:

- The phenomenon of managed time is considered a significant issue of concern for all nurses,
particularly for new graduate nurses who have little or no experience, however there is a paucity of data available describing the occurrence of this phenomenon in the neonatal unit setting.

- The impact of this phenomenon is substantial as it has been identified as an important element of work for all nurses and “the factor that most affects how nurses’ work, how the nurse feels about their work and how their work affects patient outcomes” (Bowers et al 2001 p.485).

- By developing a comprehensive understanding of the individual graduate nurses’ experience of managed time in the neonatal unit, the researcher will be able to uncover new and fresh insight into this phenomenon, and how it affects the individual graduate nurse in this specialised area of professional practice.

- Given that the research intends to explore the phenomena of managed time, it is appropriate to use a methodology suitable to the topic. In this case the research question was guided by Colaizzi (1978) in order to understand the phenomena in a meaningful way.

RESEARCH METHOD

When considering the approach to be adopted in conducting any research it is important to consider the overall goal of the investigation as well as the motivation behind it. It also must be determined whether the research will generate understandings that will be of value to the nursing profession. For the purpose of this study, which aims to explore the lived experience of managed time for new graduate nurses working in the neonatal unit, a phenomenological approach to inquiry as described by Colaizzi (1978) was considered to be the most appropriate methodology.

Phenomenology and nursing

Phenomenology has found appeal in nursing research because it reflects values and beliefs that are coherent with nursing and allows questions to be explored that are important to nursing (Schneider et al 2003). Holloway and Wheeler (1996) suggest that “holistic perspective, coupled with the study of lived experience, provides the foundation for phenomenological research” (p.123). Furthermore, phenomenology offers a methodology that intrinsically values a holistic perspective of experience and the individual’s ability to make sense of, and reflect on, those experiences (Schneider et al 2003). Phenomenology is currently relevant to the new public health, given its emphasis on the need to both describe and understand people (Liampittong and Ezzy 2000). In addition, the investigation of phenomena important to nursing requires that the researcher study lived experience as it presents itself in the everyday world of nursing practice, education, and administration (Streubert and Carpenter 1995).

This study involves exploring the experience of managed time for graduate nurses working in a neonatal unit. The research attributed “events, together with personal reactions to events” as a meaning for experience (Crotty 1996 p.14).

Colaizzi’s approach to phenomenology

Colaizzi’s approach to phenomenology was employed for this study (Colaizzi 1978). Colaizzi’s (1978) approach uses Husserl’s precept of “returning to the things themselves” in order to understand the phenomena. Colaizzi’s (1978) approach investigates phenomena in a meaningful way and recognises the importance of the phenomenological concept of being-in-the-world. Colaizzi’s (1978) statement “to believe that my experience doesn’t count amounts to believing that my existence doesn’t count” (p.52) is consistent with the research perspective. Colaizzi (1978) also emphasises that experience is essential to understand human psychology.

Phenomenology uses a purposeful sampling technique to select participants that have
experienced the particular phenomenon. Therefore the researcher must access appropriate participants that are available and willing to be interviewed. It is not the number of participants that is important in phenomenology but rather the wealth of information collected (Schneider et al 2003).

Participants who met the following inclusion criteria were selected for this study:

a. Registered nurse,
b. Undertaking a graduate nurse program,
c. Currently working in a neonatal unit, and
d. Willing to talk about their experience of the phenomenon under study.

As this study involved collecting data from currently employed registered nurses, ethics approval was sought from both the university and the hospital. Ethical considerations are acknowledged in nursing and also research, as they are “concerned with the protection of human and animal subjects” (Schneider et al 2003 p.129). In Australia, nurses must conform to strict ethical guidelines to ensure “research conducted is of high quality and acceptable to our communities” (Schneider et al 2003 p.130). Human rights have been outlined as follows: the right to self-determination; the right to privacy and dignity; the right to anonymity or confidentiality; the right to fair treatment, and the right to protection from discomfort and harm (Schneider et al 2003 p.130). As this study was considered low risk, the main ethical considerations included gaining informed consent and ensuring strict confidentiality was maintained.

All of Collaizzi’s seven phases in the research process were adhered to. The final phase of Colaizzi’s (1978) analytical process involves formulating meaning for each significant statement. During this phase, reflection on the essence of each significant statement and becoming engaged in creative insight is vital. When formulating meaning for each significant statement, it is important to be mindful of the philosophical concepts of phenomenology. These concepts were particularly important when making what Colaizzi (1978) describes as the precarious leap from what subjects say to what they mean.

The formulated meanings were then arranged into clusters of themes. This process involved identifying formulated meanings that revealed a shared or common theme. Care was taken not to ignore data or themes which did not ‘fit’.

Following clustering of themes, the research process then required integrating all the resulting ideas into exhaustive descriptions. Five exhaustive descriptions were developed. These exhaustive descriptions provided a comprehensive insight in the phenomenon of managed time as experienced by new graduate nurses working in a neonatal unit. Following are the five exhaustive descriptions developed from this research.

**FINDINGS**

**Managed time requires knowing**

When graduate nurses experienced managed time they felt it involved a sense of knowing. When these nurses did not know the clinical condition of different neonates, they felt unable to manage their time because they had to spend more time looking for information as well as learning how to care for the neonates. The nurses felt out of their depth, which caused them to feel anxious about not knowing what to do for that neonate and anxious that something would happen.

When the new graduate nurses gained knowledge, they were able to manage their time more effectively by prioritising what was important, knowing what to expect and knowing routines, which enabled them to predict. Knowing these things decreased stress and the graduate nurse was able to gain confidence and, with this, work was easier.

**Managed time involves planning**

Planning was essential for managed time as experienced by these new graduate nurses. Planning was used to ‘set out their day’; know ‘when you think you should be doing things’; ‘allocate time’; ‘tick when things are done’; and ‘make sure things are not missed’. Graduate nurses also found that the planning phase was essential for checking charts and equipment and a time for prioritising and evaluating resources required (eg float nurse).
When the planning phase was not available, graduate nurses managed time became difficult. Furthermore, if their plan was misplaced during the shift, the graduate nurse experienced feelings of distress. These nurses became frustrated when things were due simultaneously because they could not do everything at the same time.

Graduate nurses found it difficult to use their plan when ‘things don’t do to plan’, they ‘get distracted’, ‘patients are unsettled or unstable’ or ‘the unit is busy’. When the graduate nurse is unable to use their plan or complete everything on their plan, they experienced feeling of distress and felt ‘terrible’, ‘bad’ and ‘overwhelmed’.

**Managed time requires a sense of support**

Managed time requires a sense of support to enable the graduate nurse to learn and develop skills to get things done in a safe and timely manner. At first, these nurses experienced feelings of guilt and frustration having to ask for and receive support.

When support was unavailable and the graduate nurse had many tasks to complete, they described the environment as being ‘full on’, ‘a room full of busyness’, ‘chaotic’, ‘messy’ and ‘flat out’. This caused feelings of stress and frustration; hence these graduate nurses felt their managed time was poor.

When support was available from senior staff, including associate unit managers, clinical nurse specialists, educators and the float nurse, the graduate nurse felt at ease and relaxed, which made a huge difference.

**Managed time is associated with a feeling of fulfilment**

Graduate nurses described achievement of managed time when ‘there is time to do things’ and ‘completed everything they wanted to’. They felt they ‘had given a lot to neonates, their families and the unit’, which made them feel fulfilled. When managed time was achieved, graduate nurses felt they were ‘doing their job properly’, ‘were professional’ and ‘a successful nurse’. This made them proud and generally happier with themselves and they were able to sleep well and relax.

When graduate nurses were unable to achieve managed time, they felt ‘disorganised’, ‘frustrated’, ‘disappointed’, ‘guilty’ and they even ‘questioned their ability as a nurse’.

**Managed time involves adapting and being flexible**

Managed time involves being flexible and adapting. Graduate nurses had to adjust to the busy, stressful neonatal unit by being flexible to accommodate unexpected and unpredictable events, parent’s needs and multidisciplinary team involvement. At first, this experience of managed time was frustrating and difficult for these nurses.

Graduate nurses also had to develop alternate ways ‘to get through the day’ when they realised that support was not always readily available. They adapted by learning how to prioritise what was important at that time, as well as coming to the realisation that nursing is a twenty-four-hour job and they could not always do everything. When graduate nurses adapted, the experience of managed time was less stressful.

**The Fundamental Structure of the Phenomenon of Managed Time**

The next phase of Colaizzi’s (1978) method of phenomenology required reducing the exhaustive descriptions of the phenomenon to an essential structure. Colaizzi (1978) recommends that an effort be made to “formulate the exhaustive description of the investigated phenomenon in as unequivocal a statement of identification of its fundamental structure as possible” (p.61).

**The fundamental structure of the phenomenon of managed time**

Graduate nurses felt that managed time in the neonatal unit involved acquiring knowledge and skills to ensure needs are met in a safe and timely manner. This required intensive support from all staff members of the neonatal unit. The planning phase was essential for graduate nurses to evaluate requirements for their shift. Managed time was difficult due to the busyness and unpredictable nature of the neonatal unit, therefore graduate nurses had to learn to adapt and be flexible. Graduate nurses
had to realise that it was not always possible to do everything in their shift and that nursing is a twenty-four-hour profession. When graduate nurses realised this they adapted by learning to prioritise what was important. When graduate nurses achieved managed time they felt they were giving a lot to the patients, families and the neonatal unit and they were fulfilled and a successful nurse.

In the final step of Colaizzi’s (1978) method of phenomenology the findings were returned to the participants for validation, to elicit participant views on the findings and seek validation that the exhaustive descriptions and fundamental structure accurately portrayed their lived experience of managed time whilst working in a neonatal unit. All participants agreed that the results represented their experience.

**DISCUSSION OF THE FINDINGS IN RELATION TO CONTEMPORARY RESEARCH LITERATURE**

Again, in keeping with Collaizzi’s methodology, a substantial literature review was carried out after the findings on the fundamental structure of managed time. What follows is the review to support the research findings.

**Knowing**

When graduate nurses experienced managed time they felt it involved a sense of knowing. Studies carried out by Casey et al (2004); Mallory et al (2003); Gerrish (2000) and Charnley (1999) all found that graduate nurses experienced difficulties with organization and prioritising associated with not knowing. Gerrish (2000) recognised that “...responsibility associated with managing the care of a group of patients was anxiety provoking...” (p.476); and that graduate nurses had difficulties in prioritising due to not knowing in what order to do things. Similarly, Duchscher (2001) found that graduate nurses had “a desire to deliver quality nursing care, but participants had neither the knowledge, focus, time, nor energy to do so” (p.429).

Knowing what was important and what to expect was a significant theme in this study. Duchscher (2001) presented a good example of how knowing what was important impacted on graduate nurses. “That time I did not worry about time restrictions or all the other work I had to do. I knew my focus and priority was this one patient in particular who needed me” (Duchscher 2001 p.432).

Participants felt that knowing the routine helped and made work easier; this is supported by Duchscher (2001). Their study mentioned that once graduate nurses knew the general routine they became “a little familiar with getting back into practice” and “felt a lot better about being up there, but at first it’s everything’s coming at you at once and I just felt overwhelmed” (Duchscher 2001 p.431).

Casey et al (2004) and Charnley (1999) both reported that graduate nurses were aware that not knowing how to do things or where to find things made them slower; they were rushing around all day and they had difficulty leaving work on time. This also was the experience of this study.

In this study participants did not feel prepared by the university and this impacted on their ability to manage time. Gerrish (2000) was the only study that made the connection between university training and managing time. Gerrish (2000) stressed that “in order to ease the transition process, consideration needs to be given as to how pre-registration courses can provide more appropriate opportunities for student nurses to develop the clinical, organisational and managerial skills necessary to their future role” (p.477).

**Planning**

Planning was a significant theme in this study. Participants described it as a time for essential checking and prioritising. Although studies examined acknowledged the need for organisation and prioritising, none of them mentioned any type of planning. Delaney (2003) emphasised that time management was the hardest part of transition and was spoken about most. Even though Delaney (2003) did not describe types of plans, she recognised that graduate nurses learned that things don’t always go according to plan. Some of the nursing management literature mentioned planning under the topic of time management. One source noted that “planning is
the essential ingredient for effective use of time” (Grohar-Murray and DiCroce 2003 p.291).

Graduate nurses interviewed for this study named a few reasons why using a plan became difficult at times. Only one study mentioned that graduate nurses were easily distracted and dealing with families and with their questions distracted them from “their overall goal of completing tasks and performing daily routines” (Duchscher 2001 p.434). Since none of the studies were set in the neonatal unit, other distractions such as, patients being unsettled and the busy unit were not examined.

Graduate nurses felt guilty handing things over to the next shift and didn’t like leaving things unfinished. This was similar to the findings of Gerrish (2000) who quoted that “nurses also felt pressurised to complete the ward routine... to finish the tasks routinely undertaken by one shift before the next shift came on duty” (p.478). Furthermore, Duchscher (2001) also reported the ‘need to uphold the time-honoured traditions of the nursing unit... completing tasks on time allowed the nurse to blend into the fabric of the nursing unit” (p.230).

Support
It has been emphasised that graduate nurses’ managed time requires knowledge. This study found that to gain this knowledge graduate nurses also require support. This finding was congruent with other sources (Casey et al 2004; Mallory et al 2003; Duchscher 2001; Gerrish 2000; Charnley 1999). A common complaint of graduate nurses interviewed for this study was that finding information was time consuming. This was also found by Casey et al (2004), who reported that “having to use multiple references and resources made tasks and care delivery “take three times as long as it should” ” (p.308).

Graduate nurses found it difficult to ask for and receive support. This study revealed they felt guilty asking for support. Casey et al (2004) also reported that graduate nurses felt frustrated and guilty asking for help. However Casey et al (2004) identified “that a consistent preceptor would have been helpful...especially surrounding issues of time management” (p.308). Other studies (Duchscher 2001; Charnley 1999), as well as this one, also found that graduate nurses would benefit from a consistent preceptor. Hom (2002) recognised that graduate nurses perform better if they have a consistent preceptor. Staff shortages and pressure of time were found to be contributors of lack of available support (Charnley 1999).

Graduate nurses found that some nurses were more helpful than others. Duchscher (2001) also observed similar findings and Casey et al (2004) reported that graduate nurses “verbalised frustration, perceiving that preceptors were not ‘in tune with’ what it was like to be a new graduate and therefore were not sensitive to their needs for continued development in time management skills” (p.307). Like this study, Casey et al (2004) also identified talking to other graduate nurses was a good source of support.

Fulfilment
This study found that when graduate nurses achieved managed time they felt a sense of fulfilment. Delaney (2003) also recognised that when graduate nurses gained organisational skills, it gave them a sense of accomplishment. Gerrish (2000) noted that graduate nurses “judged their performance on their ability to complete the ward routine” (p.477).

On the other hand, when managed time was not achieved, graduate nurses felt disappointed. Brighid (1996) found that graduate nurses felt a sense of frustration when there was a lack of time to do what you want to do.

Adapting and being flexible
A major component of adapting involved the graduate nurses coming to a realisation that the workplace was not what they expected. This situation can be related to what Kramer (1974) termed “reality
shock”. Graduate nurses had to adapt to the busy environment of the neonatal unit, not being able to do everything they planned to do in a shift and not having support always readily available. Brown (1999) found that graduate nurses came to the realisation that they had high expectations of themselves and they realised that proficiency in management of time and skills would require practice and time. Casey et al (2004) found that graduate nurses had high expectations of what could be accomplished in a shift. Whereas, Gerrish (2000) found that graduate nurses would rather leave some work for the next shift than compromising care by rushing through their work, even if this meant that they might be criticised by their colleagues.

Mallory et al (2003) found that after organisation and prioritisation skills, the ability to adapt to change was also an important characteristic. On the other hand, Delaney (2003) found that graduate nurses learned to be flexible by going with the flow and that was where prioritising came in. These were all similar ways of adapting and being flexible, which were congruent with this research.

CONCLUSION

This study, which explored the phenomenon of managed time, as described by graduate nurses working in a neonatal unit has revealed new insights. Using Colaizzi’s method of phenomenology has allowed the phenomenon to emerge as it presents itself in the everyday world of nursing practice. Thus the research has identified implications for both contemporary nursing practice, and further nursing research.

Nursing practice implications:
Graduate nurses in this study found they lacked the knowledge and skills to manage time, making them feel out of their depth, anxious and scared. Not knowing what was important also made prioritising difficult. They felt unprepared by their university training and this impacted on their ability to manage time in many ways.

The participants also felt they required support in order to manage time. They also felt that the support they received was insufficient. Graduate nurses mentioned that working with senior staff and other graduate nurses provided benefits. They found that looking for information, to gain knowledge in order to provide quality and safe care to neonates, was difficult at times.

Graduate nurses used plans to get through the day. However they found that things did not always go to plan and this caused feelings of distress. The participants often felt guilty they had not achieved everything on their plan and they did not like handing things over to the next shift. Graduate nurses also felt immensely overwhelmed having multiple tasks due simultaneously. Especially in the beginning, these nurses often became distracted and would fall behind on their plan.

RECOMMENDATIONS:

- Improved undergraduate university education on specialised clinical areas, including paediatrics and neonates.
- Improved university education on managing time, including organisational and prioritisation skills.
- Increased clinical exposure with more emphasis on managing a group of patients, focusing on prioritisation.
- Provide graduate nurses with easily accessible information about clinical conditions, priorities of care and procedures.
- Provide experienced preceptors that work in the special care section of neonatal units, who are approachable, understanding and have good teaching skills.
- Provide graduate nurses time to reflect on their experiences with other graduate nurses in order to gain peer support and stress relief.
- Provide extra support during handover times so that essential checking and prioritising can be carried out and the shift is commenced in a safe and stress-free environment.
- Provide guidance to graduate nurses for
prioritising the important things to be completed on their plan and follow them through during early phases of the graduate nurse year to ensure they don’t become distracted.

- Assist graduate nurses overcome the stress of having multiple tasks due simultaneously by planning ahead, ensuring support and provide a ‘float nurse’ specifically for special care nursery.
- Conduct further research into the use of plans to determine their usefulness, practicalities and possible improvements required.

**Future nursing research**

This study has revealed that managed time is indeed difficult for graduate nurses working in a neonatal unit. However literature demonstrates that many of these difficulties are universal for graduate nurses. Therefore, further nursing research into the experience of managed time would benefit many clinical areas of nursing, especially paediatrics and critical care areas.

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**CLIMATE CHANGE**

Prior to the industrial revolution, the focus of climate change research was mainly on the effects of natural processes such as volcanic eruptions and solar radiation changes on the global climate. However, with the advent of the industrial revolution and the widespread use of fossil fuels, the focus of research shifted to the impact of human activities on the climate. This shift in focus has been accompanied by a growing recognition of the urgency and severity of the climate change problem.

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