

ORIGINAL ARTICLE

Teachers' perceptions of the role of nurses: Caring for children who are technology-dependent in mainstream schools

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Abstract

Aim: This study explored special education teachers' perceptions of the role of nurses who specialize in providing nursing care to children who are technology-dependent in mainstream schools.

Methods: Semistructured interviews with 11 teachers were conducted, and data were analyzed using inductive content analysis.

Results: The teachers surveyed thought that the most important role of nurses was to maintain good health and safety, as well as to support children's education as members of the educational team. Teachers desired that nurses give advice based on their professional knowledge to maintain the children's good health and safety. In supporting education, nurses were required to support the children's autonomy and education, and to act as members of the educational team.

Conclusion: Study findings suggest that, for an optimal relationship with teachers, nurses who provide nursing care for children who are technology-dependent in mainstream schools need not only fulfill medical functions, but also support the education of children as members of the educational team.

Key words: mainstream school, nurse, role, teacher, technology-dependent.

INTRODUCTION

While the Japanese population under the age of 14 years decreased by approximately 120 000 in 2012 (from 16 770 000 in 2011; Japanese Ministry of Internal Affairs and Communications, 2012), the population of children under 17 years with disabilities increased by 11 200 between 2001 and 2006 (Japanese Ministry of Health, Labour and Welfare, 2008). As of 2011, approximately 126 000 children with disabilities between the ages of 3 and 18 years were educated in special-needs schools. Of the students who attend special-needs schools, 6.4% were technology-dependent

(TD) and needed nursing care in their special-needs schools. Examples of nursing care services provided include clean intermittent catheterization, mechanical ventilation, suctioning, tube feedings, and oxygen therapy (Japanese Ministry of Education, Culture, Sports, Science, and Technology [MEXT], 2012a). The US Office of Technology Assessment defined the TD child as "one who needs both a medical device to compensate for the loss of a vital body function and substantial and ongoing nursing care to avert death or further disability" (United States Congress, Office of Technology Assessment, 1987, p. 3).

At the 1994 UNESCO World Conference on Special Needs Education, the Salamanca Statement on the education of children with disabilities was agreed upon. This statement called for inclusion through mainstreaming to be the norm, as opposed to separate schools (UNESCO, 1994). In Japan, this spirit of inclusive education has gradually shaped laws and policies since 2003, making it compulsory for children with disabilities to attend mainstream schools (Japanese Cabinet

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Office, 2011). In 2012, the number of children who are TD in mainstream schools throughout Japan increased by 168 (from 670 in 2011; MEXT, 2012b, 2013). Furthermore, the number of children who need ongoing nursing care has increased (Sugimoto *et al.*, 2008); therefore, the number of children who are TD in mainstream schools is expected to increase in the future.

Despite this predicted growth in complex medical needs in mainstream schools, the details regarding the system that would safely support these children are not yet clear in Japan. In Japan, most mainstream schools have one or more Yogo teachers. Yogo teachers are specially licensed educators who support children's growth and development through health education and health services (Okada, 2011), some of whom also have registered nurses' licenses. Yogo teachers often feel the difficulty of dealing with students who require extensive nursing care (Tamura *et al.*, 2009), and they require the assistance of dedicated nurses to provide this care (Enomoto, Okushi, & Kawahara, 2009; Shimizu, 2011a). In some municipalities, parents are required to provide all nursing care for their children who are TD during school hours, placing a great burden on parents (Nishi & Okada, 2008). In other municipalities, dedicated nurses provide nursing care for children who are TD and play an important role in allowing these children to attend mainstream schools (Ishizawa, Sudou, Tokuda, Iino, & Kanoya, 2008; Shimizu, 2011b). In other countries, various systems are in place to safely support children who are TD in mainstream schools. For example, in the UK and the USA, care assistants or school nurses provide nursing care services during the school day (Gursky & Ryser, 2007; Krause-Parello & Samms, 2009; Raymond, 2009; Smith, Williams, & Gibbin, 2003).

Multiple studies have confirmed that the presence of dedicated nurses for children who are TD decreases teachers' anxiety, but that teachers still have difficulty collaborating with these nurses in school settings (Komuro & Kato, 2008; Nakamura *et al.*, 2011). Shimizu (2011b) reported on the collaboration between teachers and dedicated nurses for children who are TD in mainstream schools, and showed that nurses felt that teachers did not understand the role of dedicated nurses for children who are TD. Effective interdisciplinary collaboration requires common shared perceptions and expectations of each team member's role (Nakamura, Okada, & Fujita, 2012; Petri, 2010; Weller, Janssen, Merry, & Robinson, 2008). There has certainly been some research on the role of school nurses from the perspective of educators (Leier, Cureton, & Canham,

2003; Maughan & Adams, 2011) and the role of dedicated nurses who provide nursing care in special-needs schools (Ikeda, Goma, Nagai, Muto, & Ushio, 2009; Maruyama & Murata, 2006). Maughan and Adams (2011) found that the most important factor affecting educators' perceptions of school nurses was the quality of their interactions; they found that professional interactions and being a team player were the key factors in valuing and understanding the role of the school nurse. Maughan and Adams (2011) also reported that the school nurses surveyed felt that their roles had changed over time, becoming more complex. They felt that this was, at least partially, due to laws mandating inclusion that put children who needed more medical and nursing procedures in mainstream classrooms for the first time. Teachers of children who are medically fragile or TD perceived that their role was ambiguous as both educators and care providers (Rehm, 2002). As the number of mainstream schoolchildren who are TD increases, it is possible that the roles of teachers and school nurses will continue to change.

Despite preliminary research in this area, little is known from the teachers' perspectives about the details of interactions between special-education teachers and dedicated nurses who provide nursing care to children who are TD in mainstream school settings. Teachers' perceptions of the role of dedicated nurses who provide nursing care for these children in mainstream schools are also underexplored. Therefore, the purpose of this study was to explore special-education teachers' perceptions of the role of dedicated nurses who provide nursing care to children who are TD in mainstream schools, through examining interactions between teachers and these nurses.

METHODS

Participants

Teachers were recruited using purposeful sampling in one prefecture (governmental/administrative jurisdiction similar to a county or state) in western mainland Japan. This prefecture is one of the pioneer municipalities that have started placing nurses in mainstream schools to meet the needs of children who are TD. After obtaining initial permission from the board of education of each school for this study, the authors telephoned and sent letters to the school principals. After explaining the study, the authors asked them to pass on the recruitment letter, response sheet, and a return envelope to teachers who work with children who are TD in special-needs

Table 1 Characteristics of participants ($n = 11$)

Characteristics	N
Sex	
Male	3
Female	8
School	
Junior high school	3
Elementary school	8
Length of time working in a mainstream school	
6–10 years	2
26–30 years	2
31–35 years	5
36–40 years	2
Length of time working in a special-needs classroom	
7–11 months	1
1–5 years	5
6–10 years	4
11–15 years	1
Length of time educating children who are technology-dependent	
7–11 months	7
1–3 years	3
>3 years	1

classrooms. Teachers could agree to participate by mail or email.

Eleven teachers were interviewed and the characteristics of participants are described in Table 1. Participants worked at five elementary schools and three junior high schools in five municipalities. In each school, there is one child who is TD and who receives nursing care from a nurse, not a Yogo teacher. The nurses were part-time employees of the board of education for the children who are TD. The nurses provided nursing care for children who are TD and assisted in their daily activities. Six nurses worked every day when school was in session, and two nurses worked only 2–3 days a week. Teachers taught children who are TD in special classes within mainstream schools; as the children who are TD joined the standard classroom alongside non-impaired children for many hours a day, these teachers also taught children who are TD in standard classrooms with class teachers.

These children needed multiple nursing care procedures during the school day, such as suctioning from tracheotomy, intermittent catheterization, parenteral nutrition, blood glucose monitoring, and administration of insulin. Teachers had an average of 27 years and 11 months of experience teaching in mainstream schools, and they had worked as teachers in a special-needs classroom for an average of 5 years and 9 months. None

of them had worked in schools specifically dedicated to special-needs education. Each teacher interviewed was having his or her first experience educating a child who is TD, and they had been working with these children for an average of 1 year and 3 months.

Data collection

A descriptive qualitative research design was used to explore teachers' perceptions. Data were collected from October to November in 2011 and in January of 2013. Three individual (average length, 40 min) and two focus group (3–5 participants; average length, 99 min) semistructured interviews with teachers were conducted. The focus group interviews were chosen because they have been shown to provide a safe environment for the exchange of ideas. They also tend to stimulate more participation than individual interviews (Madriz, 2000). Individual interviews were conducted only with those teachers whose schedules would not permit them to participate in the focus group interviews.

The interviews were facilitated by the researchers, using an interview guide. The main interview questions were:

- 1 How do you educate children who are TD in cooperation with nurses?
- 2 How do you feel about working with nurses?
- 3 What is the nurse's role?
- 4 Have there been any difficulties or problems that you encountered in working with nurses? If so, what were they?
- 5 How do you feel in the presence of a nurse?

All interviews (conducted in Japanese) were recorded on digital voice recorders and then transcribed in full. Afterwards, transcripts were translated into English by the first author. A native-English speaker verified the comprehensibility and accuracy of the translation. Data were stored and organized with the assistance of the qualitative data analysis software NVivo10 (QSR International, Melbourne, Vic., Australia).

Ethical considerations

The study was approved by the ethics committee of the School of Nursing, Senri Kinran University, Osaka, Japan. When meeting with principals, the researchers stressed that potential participants were not to be coerced into participating in any way. Before interviewing, the authors explained the purpose of the study, the research methods, the length of the interviews, the way results would be used, the identity of the researchers, and how anonymity would be ensured. Participants

were informed that they could withdraw from the study at any time without penalty. All participants provided consent for both participation and the recording of interviews. Recordings, transcripts, and materials related to data analysis were stored in a locked cabinet by the researchers.

Data analysis

The authors used inductive content analysis (Elo & Kyngäs, 2008) and constant comparison to analyze the data. The first step of the analysis was reviewing transcripts, reading them repeatedly to achieve immersion. Text was then divided into meaning units that were condensed and coded. Codes were compared and sorted into subcategories and categories. Using the resulting taxonomy of categories, themes expressing the latent content of the text were identified. The research team met several times to compare findings and reconcile inconsistencies in the authors' coding scheme. To achieve trustworthiness (Graneheim & Lundman, 2004), the authors solicited feedback from participants on the subcategories, categories, and themes identified in the data by mailing them the derived interpretations and having them provide feedback. Analyses were supervised by a doctoral nursing student and a professor specializing in pediatric nursing at Kyoto University.

RESULTS

Teachers perceived the key role of nurses who provide nursing care to children who are TD as maintaining children's good health and safety, thereby supporting their education. Data analysis on teachers' perceptions of these nurses' roles yielded two themes and a total of six categories (Table 2). The following section will discuss these themes and categories in detail.

Maintaining good health and safety

Teachers thought the most important role of nurses was maintaining good health and safety. This included maintaining good physical conditions and safety for children who are TD, paying attention to other children's physical conditions and safety, and giving advice based on their professional knowledge.

Maintaining good physical condition and safety for the child who is technology-dependent

Teachers perceived nurses as professionals, which reassured teachers. They felt that the presence of nurses was

Table 2 Teachers' perceptions of nurses' role

Theme	Category
Maintaining good health and safety	Maintaining good physical condition and safety for the child who is technology-dependent Paying attention to other children's physical conditions and safety Giving advice based on professional knowledge
Supporting education	Supporting the autonomy of the child who is technology-dependent Supporting the education of the child who is technology-dependent Acting as members of the educational team in the mainstream school

important, because nurses provided nursing care that teachers could not, which made it possible for children who are TD to attend mainstream schools. Teachers perceived nurses as maintaining good physical conditions and safety for the child who is TD through observing and assessing the child, and then providing any necessary nursing care. This finding was well illustrated by the following comment:

The nurse observes the child who is TD in the classroom and assesses whether suctioning is needed. When suctioning is necessary, the nurse takes the child to the special-needs classroom to suction sputum.

Paying attention to other children's physical conditions and safety

Teachers wanted nurses to pay attention to the physical conditions and safety of all children, in both the special-needs and mainstream classes. Teachers were very appreciative of this help. One teacher noted:

There is a pupil whose physical condition requires observation during some activities. The nurse observes the pupil's activities and condition every day.

Another teacher reported that:

The nurse noticed a fever in a child who was incapable of communicating this himself. She noticed it much earlier than the teachers did. That made me think she is very professional.

Giving advice based on professional knowledge

Teachers recognized nurses' role as providing information about the children's health condition to parents and teachers, as well as advising teachers on appropriate activities considering the children's health condition:

Nurses see children a little differently from us. They mainly observe children's health conditions. I was unsure whether a student could participate in music class, so I asked the nurse. She informed me that the student's health condition that day was not suitable for participating in that activity, and she stopped me from including the child.

One teacher shared an instance in which the nurse's watchful assessment of the physical environment was helpful while on a school trip. One teacher commented:

As soon as we arrived at the hotel, the nurse looked at the bathtub and said, "This bath won't work for [the child who is TD]." Thanks to the nurse, everything was okay.

Nurses also provided parents with advice for promoting the health of their children who are TD. As another teacher described: "The nurse advised a mother whose child needed insulin injections on proper eating habits."

Teachers needed nurses' advice on how to get to know children who are TD, as well as how to familiarize the other children with them, so that they are not frightened. This was well illustrated in the following comment:

The nurse suctioned from the tracheotomy in the classroom. It is good for the other children to get to know the child who is TD. The nurse performed suctioning in front of the other children. The other children then noticed when the child needed suctioning and understood the child better. The nurse also conducted two training sessions for teachers to explain this child's disease and nursing care. After the training, some young teachers said they wanted to administer care to the child who is TD.

Supporting education

Teachers recognized that nurses were not educational specialists, but that they supported teachers as members of the educational team. Teachers perceived nurses as supporting the autonomy and education of children who are TD. Teachers were thankful for the role nurses played in supporting the education of those children.

Supporting the autonomy of the child who is technology-dependent

Teachers thought it was good for the child who is TD in mainstream schools to be cared for by nurses as opposed to parents, because it promoted the child's autonomy. Teachers thought that it was the nurse's role to teach the children who are TD to perform routine nursing care by themselves, to give them advice supporting their self-determination, and to advise parents regarding how to encourage autonomy in their children. One teacher described the following situation:

She is a junior high school student, undergoing puberty. She is beginning to notice her disability. She needs to understand her disability and learn how to be autonomous with this disability. Therefore, I want the nurse to teach her how to perform nursing care herself, not just do it for her. As the student learns how to make decisions and perform care on herself, the nurse should provide advice, like "It's too difficult for you, because . . ." It is very important that the nurses give advice based on their professional opinions.

Teachers saw the nurses as having the power to communicate with parents about ways to encourage autonomy in their children. Another teacher reported that:

The nurse said to the parent, "You want to move gradually from diapers to normal underwear, right? Here's what you should do."

Supporting the education of the child who is technology-dependent

Teachers reported that nurses helped children who are TD to manage their studies, ensuring that things go smoothly by arranging textbooks, notebooks, and pencils. Teachers recognized that nurses played a part in carrying out the child's educational program. One teacher commented that:

As teachers, I feel that we should plan and organize the educational program. Children dependent on technology have limitations, so the child studies almost the same educational program every day. We ask nurses to do this routine instead of teachers.

Acting as members of the educational team in the mainstream school

Nurses are expected to support all children's education as members of the educational team. Teachers believed that children perceived nurses as more familiar than teachers. Teachers recognized that this was due, at least in part, to their different relationship with and approach to children.

Teachers hoped that nurses would join staff meeting and offer insights about children. One teacher reported that:

The nurse is in a regular classroom supporting a child who is TD. Therefore, she knows the situation of the class very well when the teacher is out of the classroom. The nurse is not just a nurse, but also an educational assistant and a member of the educational team. Nurses should therefore join in staff meetings. From the children's point of view, nurses are teachers.

Teachers recognized that nurses needed to act as educators. Another teacher commented that:

Nurses should be aware of the fact that they are members of the educational team until they get home, because children see what nurses do and imitate them.

Teachers also desired that nurses think of the children who are TD as members of the class, and interact with the child as a person. As one teacher described:

A nurse interacts with the child who is TD as a machine. This attitude is different from the perspective in the educational world – the child is a person, not a thing.

Another teacher had a different experience with a nurse in the classroom:

I asked the nurse if she could do tube feeding here. She answered that it was good for the child who is TD to stay with classmates. I was very glad to hear that. I felt the nurse really cared for her and thought of her as a member of the class.

DISCUSSION

In this study, teachers considered the most important role of nurses for children who are TD was “maintaining good health and safety”, and they hoped that nurses would use their specialization in performing nursing care and give advice based on their professional knowledge. Based on the findings of this study, it is evident that the specialization of nurses influenced the teachers’ perception of the role of nurses working for children who are TD. This concurs with earlier findings that the professional behavior of school nurses is key to educators’ perceptions of school nurses (Maughan & Adams, 2011) and that dedicated nurses in special-needs schools were desirable to provide nursing care, deal with emergencies, and to give advice (Maruyama & Murata, 2006).

Teachers used the nurses’ professional advice to manage the school lives of children who are TD, get to know them, share information about them with others, and design good schedules for them. This agrees with a previously cited study (Shimizu, 2011b) in which nurses providing care for children who are TD in mainstream schools reported that daily communication with teachers was important for teachers to get to know the children who are TD. Previous studies have also indicated that teachers need more information about working with children who have chronic health conditions (Clay, Cortina, Harper, Cocco, & Drotar, 2004; Mukherjee, Lightfoot, & Sloper, 2000; Nabors, Little, Akin-Little, & Iobst, 2008). Therefore, giving advice

based on professional knowledge is an important part of the role of nurses who provide nursing care in mainstream schools.

Unlike in previous studies, “supporting education” emerged as a theme in our sample. Teachers desired that nurses act as members of the educational team in mainstream schools. The importance of school nurses being part of the educational team has been repeatedly indicated (Kruger, Radjenovic, Toker, & Comeaux, 2009; Maughan & Adams, 2011). These studies focused on the importance of developing interpersonal relationships with school personnel, as opposed to suggesting that school nurses engage in educational tasks. The present study confirmed the importance of nurses supporting their school colleagues as members of the educational team. This may be because nurses work for the children who are TD in the standard classroom to monitor their health conditions for many hours a day, and have contact with many children in addition to the children who are TD. Teachers thought that the nurses are role models for children, because the children see what the nurses do and imitate them. This emphasizes the role that teachers perceive nurses to play in supporting education as members of the educational team. Moreover, teachers perceived that nurses were more familiar than the teachers with some children; accordingly, teachers wanted nurses to join staff meetings to share information about these children. For these reasons, the presence of nurses had an educational side for teachers.

In the theme “supporting education”, supporting the autonomy of the child who is TD emerged as a category. Teachers thought that it was the nurse’s role to teach the children who are TD to perform routine nursing care by themselves, to give them advice supporting their self-determination, and to advise parents as to how to encourage autonomy in their children. Peery, Engelke, and Swanson (2012) reported that the roles of educator, counselor, and collaborator are important for school nurses who provide care to school-age children with diabetes. Both the school-age children with diabetes and the children who are TD need to perform self-care and choose their activities by themselves, depending on their health. To support these children in developing autonomy, teachers thought that nurses needed to give advice based on their professional knowledge.

In the same theme, supporting the education of the child who is TD emerged as another category. Teachers perceived nurses for helping children who are TD to manage their studies, ensuring that things go smoothly. When teachers are busy teaching other children, nurses may be required to support the education of the children

who are TD, because nurses are employed only for children who are TD, and are always around to assist these children. As one teacher commented that teachers should plan and organize the educational program, teachers are professionals in education. On the other hand, nurses are not professionals in education; therefore, they do not have the same educational knowledge and skills. Role awareness, and mutual trust and respect are widely recognized as essential for the development of interdisciplinary collaboration (Petri, 2010). Therefore, when nurses support the education of children who are TD, nurses must understand and respect teachers' educational programs, taking care not to threaten teachers' professional roles.

Implications for nursing practice

From the teacher's perspective, the ideal role of nurses who specialize in providing nursing care to children who are TD in mainstream schools was summed up in two themes: (i) nurses who work with children who are TD in mainstream schools should clearly present themselves as specialized medical professionals; and (ii) these nurses should also act as members of the educational team to support education. In mainstream schools, children are expected to grow into independent and autonomous adults. Nurses need to keep this expectation in mind and remember that they are working in a school environment where they are not only nurses, but also members of the educational team.

Limitations

An important limitation of this study was the small sample size, but in the analysis, the authors did not obtain any new information from the last interview. Japanese municipalities have only just begun to establish systems for nurses to provide a higher level of nursing care in mainstream schools, and the population available for survey was small. While focus group interviews were the preferred method of data collection, scheduling difficulties with participants necessitated the use of some individual interviews. Finally, the systems the authors examined have not been in place for very long, so they are not yet firmly established. The researchers recommend that follow-up studies use a larger sample to confirm that these findings are representative of teacher perceptions.

CONCLUSION

This study explored special education teachers' perceptions of the role of dedicated nurses with regard to

children who are TD in mainstream schools. Teachers had broad expectations of these nurses; while the primary goal was maintaining the health and safety of children who are TD, teachers also expected nurses to support student autonomy and to support teachers as members of the educational team. To ensure a successful working relationship and optimal care for children, nurses need not only to demonstrate their professional competence as nurses, but also to support general education as members of the educational team.

Despite the small sample size, this study is significant for identifying teachers' respect for nurses who care for children who are TD in mainstream schools. These findings could inform the design and improvement of innovative policies to support increasing inclusion and mainstreaming of children with disabilities of all kinds.

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CONFLICT OF INTEREST

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AUTHOR CONTRIBUTION

F. S. designed the study, conducted individual and focused group interviews, analyzed the data and interpreted the findings, and drafted and submitted the manuscript. H. K. supervised the study, conducted focus group interviews, analyzed the data and interpreted the findings, and provided guidance.

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