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Prevalence and retention status of new graduate nurses with special support needs in Japan[☆]Yuko Ikematsu^{a,*}, Koji Egawa^b, Midori Endo^c^a Department of Nursing, Nagoya University Graduate School of Medicine, 1-1-20 Daiko-minami, Higashi-ku, Nagoya, 461-8673, Japan^b Kobe City College of Nursing, 3-4 Gakuen-nishi-machi, Nishi-ku, Kobe, Hyogo, 651-2103, Japan^c Yamanashi Prefectural University School of Nursing, 1-6-1 Ikeda, Kofu, Yamanashi, 400-0062, Japan

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ABSTRACT

Early resignation of new graduate nurses is a global concern. Tendencies of developmental disorders or special support needs may contribute to the early resignation. A national mail survey about new graduate nurses with special support needs was conducted in Japan in 2013. A modified battery developed for a national survey of school children with special educational needs was used. The questionnaire was completed by the nurse managers of the participating hospitals who supervised the nurses. Among the 500 hospitals invited to participate in the survey, 141 hospitals responded. Sixty-six nurses were identified as having special support needs among the 2,761 nurses who were newly employed at 128 hospitals with 300 or more beds, which comprises 2.39% of the total. The most prevalent need was “social interaction/restricted interest” followed by “inattentiveness.” Of these, 40.9% of the nurses left their initial hospital jobs within one year. The need for an individualized support program specific to nurses’ needs is implied. Further research studies are warranted to prospectively identify nurses with special support needs and explore their experiences as working nurses.

1. Introduction

1.1. Background

Recently, much attention has been paid to developmental disorders, including learning disabilities (LD), attention deficit/hyperactivity disorder (ADHD), and autistic spectrum disorders (ASD), in adulthood. Adults with these disorders need special considerations to support their working life. Nurses with developmental disorders may also face a variety of difficulties.

The nursing shortage is a worldwide concern in aging societies. The International Council of Nurses lists the nursing shortage as a priority area for consideration (International Council of Nurses and Florence Nightingale International Foundation, 2013). New graduate nurses’ early resignation is a serious problem in Japan. According to the Japanese Nursing Association’s annual survey, 7.5% of new graduate nurses left their job in 2013 (Japanese Nursing Association, 2015). It is possible that new graduates with developmental disorders may be included among those who quit their job within one year. These nurses may be able to adapt their jobs if appropriate support is provided. Therefore, a national survey of new graduate nurses with special

support needs related to developmental disorders was conducted in Japan. Understanding their specific needs may help clinical educators arrange appropriate support for such nurses. Since this article targets nurses with special support needs that are related to developmental disorders regardless of their diagnoses, the term “special support needs” and “(possible or tendencies toward) developmental disorders” are used interchangeably.

1.2. Literature review

The definition of “developmental disorders” may differ among nations. This study followed the definition used at the national school children’s surveys conducted by the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) of Japan in 2002 and 2012. According to the survey reports, the term “developmental disorders” connotes a learning disability (LD) which includes dyslexia, attention deficit/hyperactivity disorder (ADHD), and autism spectrum disorder (ASD) (Ministry of Education, Culture, Sports, Science and Technology, 2003; Ministry of Education, Culture, Sports, Science and Technology, 2012). LD is an impairment of academic skills without intellectual retardation. In the Diagnostic and Statistical Manual for Mental

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Disorders-5 (DSM-5), LD is listed as a specific learning disorder that is characterized by one or more impairments in reading, writing, and mathematics (American Psychiatric Association, 2013). People with ADHD are characterized by “a pattern of diminished sustained attention and higher levels of impulsivity in a child or adolescent than expected for someone of that age and developmental level” (Sadock and Sadock, 2009, p. 79). People with ASD are characterized by impaired social interactions; difficulties in communication, especially nonverbal communication; and restricted interest and repetitive patterns of behavior (American Psychiatric Association, 2013, p. 27–28).

Although these disorders were originally categorized as childhood disorders, it has become well known that they may persist in adulthood. Accordingly, adjustments to the working lives of people with developmental disorders are a current social concern.

Mellard and Woods (2007) summarize the educational and vocational life of adults with LD. According to their literature review, adults with LD tend to have a higher rate of high school dropout, lower attendance rates in college or university educational programs, lower employment levels, lower long-term income levels, younger child-bearing ages, and a higher rate of poverty. However, they also identified some keys for their success despite their difficulties. The keys include the disclosure of their disability and self-awareness of their limitations as well as strengths.

The impacts of ADHD on adult life are also reported. Wasserstein et al. (2001) identify the work-related problems of adults with ADHD as poor time management, chronic lateness, and difficulties completing paperwork due to their problems with executive functions. These problems may cause work-related issues and may result in resignation.

Adults with ASD have even more difficulty adjusting to their work lives. According to Wilczynski et al. (2013), their poor interpersonal skills and rigid adherence to uniformity are not welcomed by employers and co-workers. Challenges faced by people with ASD at work include social interactions with co-workers, especially outside of the workplace, communication skills, understanding the context of their work, learning from previous negative experiences or criticism, punctuality, and motivation (Hillier et al., 2007). However, vocational programs to help people with ASD have been developed, and the effectiveness of these programs has been demonstrated (Hillier et al., 2007; Wilczynski et al., 2013).

Research studies about nursing students with special educational needs including developmental disorders have been increasing. Besides the authors' previous work (Ikematsu et al., 2014; Ikematsu et al., 2016), the students' experience, case reports/studies, and assessment tool development have been reported.

Evans interviewed 12 nursing students diagnosed with dyslexia to explore their identity (Evans, 2013). Dyslexia is considered as a part of LD in Japan. The students' identity was categorized into three themes; Embracer, Passive Engager, and Resister. The students' narratives imply dyslexia is not well understood especially in clinical settings. Bradshaw presented a case of nursing student with ADHD (Bradshaw and Salzer, 2003) and proposed supportive measures including roles of universities and school of nursing for such students (Bradshaw, 2006).

An innovative approach named tripartite approach to support students with special educational needs is reported (Griffiths et al., 2010). It is a collaborative support by the practice team, disability service, and practice partners. The model is presented with a single student case.

A need assessment tool has been developed to help nurse educators support students with disability to implement clinical practice (Howlin, Halligan and O'Toole, 2014). The tool has been developed based on the domains of competence identified by the Nursing and Midwifery Board of Ireland. It consists of four parts: background information about the tool to enable academic and clinical staff to understand the framework; a questionnaire about the student's disability; factors aggravating the student's disability, specific accommodations, and the student's consent form to disclose those information to academic and clinical staff; and an evaluation of the accommodations provided during the clinical

practice.

For nurses with developmental disorders, research studies of nurses with only dyslexia were found. Both studies were conducted in the United Kingdom. According to an interview-based study, nurses and healthcare assistants with dyslexia employ a variety of strategies to overcome work-related obstacles, which including completing forms, losing concentration while writing, remembering people's names and verbal instructions, spelling, taking notes and messages, and writing letters and e-mails (Illingworth, 2005). The other study was a nationwide survey recruiting participants through advertisements in professional journals (Morris and Turnbull, 2007). Nurses with dyslexia were asked about their careers as nurses and their perspectives about having dyslexia. Almost all participants (94.8%) stated that dyslexia impacts their career, and the majority perceived the effect as negative.

Although articles on ADHD in nursing students exist (Bradshaw and Salzer, 2003; Bradshaw, 2006), no research studies of nurses with ADHD or ASD were found from our literature search. Considering the impact of developmental disorders on people in terms of their working life in general population as well as in nurses with dyslexia, other developmental disorders may influence on nursing workforce. Therefore, a national survey of new graduate nurses with possible developmental disorders or special support needs was conducted in Japan. The survey investigated the prevalence, retention status after one year, work related behaviors, and clinical errors of newly graduated nurses in Japan. Among them, this article reports on the prevalence of new graduate nurses with special support needs and the impact of those needs on the nurses' retention status.

2. Research design

A quantitative descriptive survey design was used. This survey was a follow-up survey after the national survey of nursing students with special educational needs conducted by the authors in 2011 (Ikematsu et al., 2014; Ikematsu et al., 2016). Therefore, the methods of this current survey followed those of the nursing student survey as closely as possible.

2.1. Sampling

Five hundred hospitals with a capacity of 300 or more beds were randomly selected from the WAM-NET (Welfare And Medical Service NETWORK System) website (<http://www.wam.go.jp/content/wamnet/pcpub/top/>). This number comprises 33.72% of all hospitals with 300 or more beds in Japan. It was believed that smaller hospitals rarely hire nurses immediately after their graduation.

The authors requested those hospitals to report about newly graduated registered nurses who had extreme difficulty acquiring work skills. “Extreme difficulty acquiring work skills” was defined as those who often made errors and/or had trouble with patients and families and did not achieve the level of other first-year nurses within one year. This definition was used for probability sampling for nurses with special support needs.

2.2. Data collection

A questionnaire was sent to the directors of nursing at the selected hospitals with self-addressed envelopes in March 2013. Since the time of the survey, there has been no publication on this topic or action taken by the government or Japanese Nursing Association. The authors believe that the situation regarding new graduate nurses with special support needs has not changed in Japan by the time of this current publication. The questionnaire consisted of two parts. One part contained questions regarding the hospital's affiliation, employment process, number of new graduate registered nurses employed in April 2012 (the fiscal and academic year begins on April 1st in Japan), number of new graduate nurses who had extreme difficulty acquiring work skills,

and the resulting status of these nurses after one year.

The second part of the questionnaire consisted of a modified version of the battery (a set of assessment tools) used to survey elementary and junior high school students as well as nursing students with special educational needs in addition to supplemental questions. The battery was developed by the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) of Japan specifically for the survey in 2002 and was re-used in a replicated study in 2012 (Ministry of Education, Culture, Sports, Science and Technology, 2003; Ministry of Education, Culture, Sports, Science and Technology, 2012). It was designed to be used by un-trained school teachers who directly teach the students. Only school teachers rated the battery through observations in those surveys and the children did not. The battery was also used for a nursing student survey in Japan that was conducted by the authors in 2011. Although the battery was developed for school-aged children, majority of the items are related to study activities and only minor changes enabled to adjust it to nursing students. This part was completed by nurse educators who were well acquainted with the students.

In the current survey, although the new graduates were not students anymore, they were considered to be still in the training period and the battery was applicable. Before deciding to use this battery, the authors examined other tools to evaluate adults with tendencies of developmental disorders, but most of them were primarily designed to medically or psychologically diagnose the disorders and were not suitable to the purpose of the current study. Also, those tools require specific training to use. Other reasons to choose this battery include that it does not require interviews, and it does not include questions about private or home life. Moreover, using same tool in replicating study was thought to be important. Considering a nursing student survey used this battery has already published (Ikematsu et al., 2014; Ikematsu et al., 2016), the authors decided to use this battery for the current survey. Then, some questions were modified to be relevant to the clinical nursing context. For example, “Loses materials necessary for assignments and/or study activities” was modified to “Loses materials necessary for own work.” After modifying the battery, its reliability was determined by three volunteer nurse managers. All of them approved that the items can be rated by nurse managers. According to their advices, minor changes in wording have been made.

The battery consists of three components: LD content, ADHD content, and ASD content. The LD content consists of a total of 30 items comprising five items for six disabilities: listening, speaking, reading, writing, mathematics, and reasoning. The items use Likert-type scales ranging from 0 to 3 points. Thus, the score for each disability may range from 0 to 15 points. Nurses who scored 12 points or higher in each section are considered to have special needs related to the disability.

The ADHD content consists of a total of 18 items: nine for “hyperactivity/impulsivity” and nine for “inattentiveness”. These items also use a Likert-type scale ranging from 0 to 3 for each item, but 0 and 1 are converted to 0, and 2 and 3 are converted to 1, according to the manual. The possible scores for each trait range from 0 to 9. Nurses with six points or higher are considered as suffering from “hyperactivity/impulsivity” or “inattentiveness”.

The ASD content also uses a Likert-type scale consisting of 27 items ranging from 0 to 2 points for each item. A total score of 22 or higher indicates issues related to “social interaction/restricted interest”.

The Cronbach's alpha of each subscale of the MEXT battery ranged from 0.773 (reasoning) to 0.975 (social interaction/restricted interest) in this sample. The reliability of the battery in the other samples has not been reported. The validity of the battery has not been tested because the physicians' or psychologists' diagnoses could not be included in this design. However, one participant reported in the comment section that a nurse who was extremely difficult to acquire working skills had been diagnosed with Asperger's syndrome, and the nurse's score met the criterion of “social interaction/restricted interest.”

This part was completed by nurses who directly supervised the new graduate nurses. Such nurses were presumably nurse managers, but

might be nurses in other positions because title of nurses who directly supervise staff nurses vary among hospitals in Japan. Therefore, the term “nurse managers” is used to connote nurses with any title who directly supervise staff nurses. In addition to the battery, the participants were asked to report the nurses' work-related behavior and errors during their first year.

2.3. Ethical considerations

This study was approved by the Research Ethics Committee of Yamanashi College of Nursing (Approval number 20). Informed consent of assessed nurses was waived by the ethics committee, because knowing they were considered to be extremely difficult to acquire work skills might cause psychological distress to the nurses. Objective assessment using the battery can help nurse managers be aware of the new graduate nurses' tendencies and lead to providing appropriate support, and it is potentially beneficial to the new graduate nurses. The questionnaire was accompanied by a cover letter stating anonymity assurances and the voluntary nature of this survey. The age and gender of the reported nurses were not collected to maximize the anonymity of the nurses. The returned questionnaires were kept in a locked cabinet in the first author's office, which was accessible only by the author.

2.4. Data analyses

Descriptive statistics were used to present the survey results. The prevalence of new graduate nurses who experienced extreme difficulty in acquiring work skills and those with special support needs were identified from among all new graduate nurses hired in April 2012 at the participating hospitals. The nurses with special support needs were determined by the same standard used in the previous nursing student survey in 2011 (Ikematsu et al., 2014) as described above.

Differences between the nurses with and without special support needs who resigned were determined by a Chi square test. The differences of the resignation rates of nurses with each need were not tested due to their small numbers.

3. Results

The questionnaires were returned from 141 hospitals (28.2%). Among them, ten were returned blank or partially completed. Thus, responses from 131 hospitals (26.2%) were used for the analysis. A total of 2,761 new graduate nurses were hired by 128 (25.6%) hospitals in April 2012; three hospitals did not employ new graduate nurses that year. One hundred thirty nurses from 56 hospitals were identified as having extreme difficulty acquiring work skills by their nurse managers. Among them, 103 were accompanied by the second part of the questionnaire. Inclusion flow is displayed as Fig. 1.

According to the MEXT survey protocol, 66 nurses met the special support needs criteria, which indicated a prevalence of 2.39% (95% confidence interval: CI: 2.389–2.392%) out of all new graduates at participating hospitals. The most prevalent need was “Social interaction/restricted interest” followed by “Inattentiveness.” The prevalence of each need is listed in Table 1. Forty-seven nurses (71.2%) were identified as having two or more special needs.

Over four out of 10 nurses (40.9%) with special support needs left their jobs within one year. A slightly higher proportion of nurses with special support needs left the hospital within one year, but the difference between the nurses with and without special support needs was insignificant (Table 2).

The highest proportion of nurses who resigned was found to have needs related to “Reading”, followed by “Writing”, “Listening” and “Hyperactivity/impulsivity” (the same rates were seen for the latter two). All turnover rates except for those affected by “Speaking” were higher than the turnover rate of nurses without special support needs.

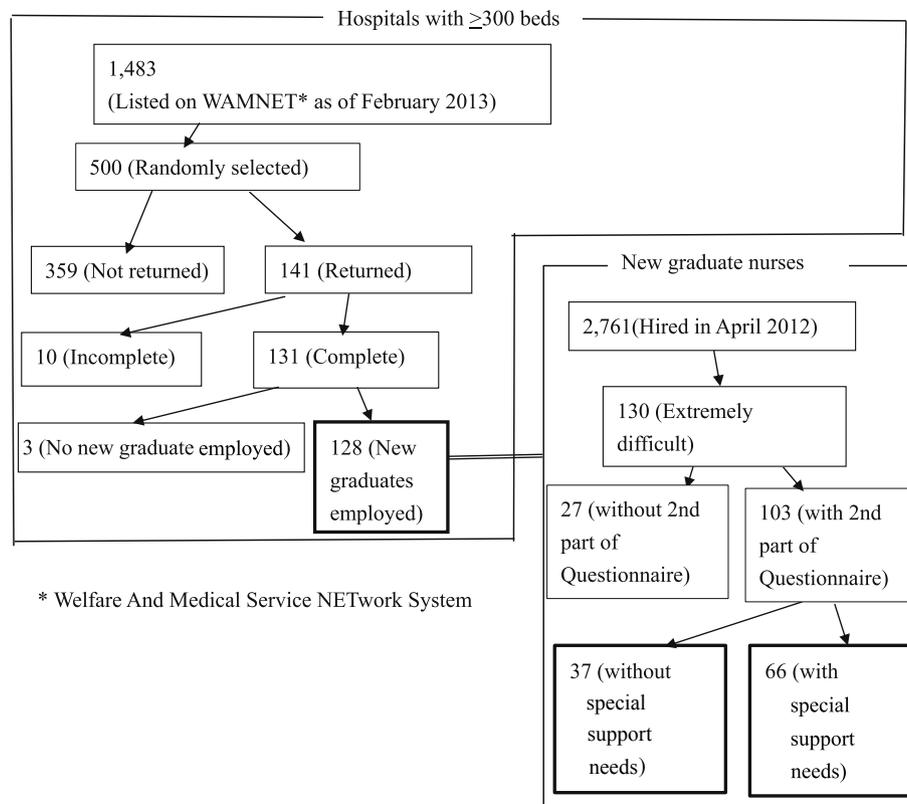


Fig. 1. Inclusion flow of sample hospitals and new graduate nurses
* Welfare And Medical Service NETWORK System.

Table 1
Prevalence of new graduate nurses with special support needs n = 2,761.

Special needs	Number of nurses	%	95% confidence interval
Listening	28	1.014	1.013–1.015
Speaking	22	0.797	0.796–0.797
Reading	9	0.326	0.326–0.326
Writing	7	0.254	0.253–0.254
Mathematics	9	0.326	0.326–0.326
Reasoning	16	0.580	0.579–0.580
Inattentiveness	35	1.268	1.267–1.269
Hyperactivity/impulsivity	8	0.290	0.290–0.290
Social interaction/restricted interests	44	1.594	1.593–1.595
Any of the above	66	2.390	2.389–2.392

Table 2
Consequences after one year (duplicated listing^a) n = 101.

Special needs	Left the hospital	Were reallocated	Continued working
Listening (n = 28)	14 (50.0%)	3 (39.3%)	11 (10.7%)
Speaking (n = 22)	7 (31.8%)	5 (22.7%)	10 (45.5%)
Reading (n = 9)	6 (66.7%)	2 (11.1%)	1 (22.2%)
Writing (n = 7)	4 (57.1%)	1 (14.3%)	2 (28.6%)
Mathematics (n = 9)	4 (44.4%)	1 (11.1%)	4 (44.4%)
Reasoning (n = 16)	7 (43.8%)	3 (18.8%)	6 (37.5%)
Inattentiveness (n = 35)	14 (40.0%)	6 (17.1%)	15 (42.9%)
Hyperactivity/impulsivity (n = 8)	4 (50.0%)	1 (12.5%)	3 (37.5%)
Social interaction/restricted interests (n = 44)	20 (45.5%)	9 (20.5%)	15 (34.1%)
Any of the above (n = 66)	27 (40.9%)	10 (15.2%)	29 (43.9%)
No special needs (n = 35)	12 (34.3%)	7 (20.0%)	16 (45.7%)

^a Nurses with more than one special support need are listed more than once.

4. Discussion

4.1. Prevalence

It was found that more than 2% of the new graduate nurses have special support needs that are related to developmental disorders. This was contrary to the expected results from the previous study, which revealed that 1% of nursing students had special educational needs (Ikematsu et al., 2014). There may be multiple reasons for this discrepancy. First, the previous study depended on the instructors' memory because the survey was conducted after those students had graduated or withdrawn (within four years), whereas the current study sought an evaluation of the nurse managers who supervised these nurses within one year. The memories of the nurse managers may be fresher than those of the nurse educators. In addition, the nurse educators work closely with the student for only a few weeks for clinical instruction. Difficult situations related to teaching those students reported by the nurse educators mostly occurred in the clinical settings (Ikematsu et al., 2014). The nurse managers may have spent more time with the new graduate nurses than nurse educators did. Therefore, the nurse managers may have been able to report the behaviors more accurately than the nurse educators.

Second, the low response rate in the current survey may contribute to the inflation of the prevalence. Only hospitals that were seriously concerned with these nurses may have responded, and hospitals without such concerns may not have done so. The timing of this survey may have influenced the low response rate; March is the busiest season for nursing departments at hospitals because it is the end of fiscal and academic year in Japan. Many nurses leave hospitals as of March 31st, and many nurses are hired for April 1st. In addition, some directors of nursing may leave their position as of March 31st, and the new directors may occupy the position as of April 1st. It is possible that some questionnaires may have been lost or forgotten in the confusion. However,

this time was considered to be best to identify the outcomes of new graduate nurses for their first year. Returning the questionnaire in spite of the busy period may imply the seriousness of the concern for new graduate nurses with special support needs. Nonetheless, one nurse with special support needs out of 50 nurses has a significant impact on new nurse orientation and possibly on the economic burden to the hospital.

4.2. Type of special needs

The most prevalent need was “social interaction/restricted interest.” These traits are among the characteristics of ASD. It is known that people with ASD have difficulty understanding non-verbal cues when communicating with others. A study of non-nursing college students demonstrated a significant positive correlation between tendencies toward autism and the misrecognition of non-verbal cues (Ingersoll, 2010). This impairment may significantly affect the provision of nursing care. Nurses often take care of patients who are not able to verbalize their pain, feelings and emotions. These patients include infants, dysphasic patients, and cognitively impaired patients, to list a few. In addition, even patients without speech problems may not present their thoughts in a straightforward manner when they are in unusual health care settings. Nurses are expected to sense these patients’ unspoken messages through non-verbal cues.

Moreover, one of the characteristics of ASD is a “reduced sharing of interests, emotions, or affect” (American Psychiatric Association, 2013, p. 27). This trait may limit caring interactions with patients. Many nursing theorists claim that the display of care is the primary feature of nursing. However, improvements in empathic skills may be possible through appropriate training. The research evidence suggests that people with ASD do experience empathy. According to an experimental self-report study of adults (mean age of 42.9 years) with ASD, a non-significant difference in affective empathy was demonstrated compared to matched controls (Rogers et al., 2007). It is possible that people with ASD feel empathy but are not aware of their own emotions because their cognitive empathy levels were significantly lower than matched controls in the study. Therefore, if the nurses with tendencies toward ASD or special needs in terms of social interaction are properly trained in recognizing and expressing empathy, they may become able to care for their patients by empathizing with the patients’ feelings.

It is possible that reduced social interaction and restricted interest are related to anxiety and depression which are not uncommon among new graduate nurses. A previous study of college students revealed positive relationships between ASD tendency and social anxiety and depression (White et al., 2011). If anxiety and depression are linked to developmental disorders, approaching to the disorders may be more effective than approaching the anxiety and depression per se.

4.3. Turnover rate

The turnover rate of nurses in this sample was much higher than the overall turnover (7.9%) surveyed by the Japanese Nursing Association (Japanese Nursing Association, 2014). Although the turnover rate has been declining from 2007, when it was 9.2%, the early resignation of new graduate nurses is still a serious concern in Japan. The issue has long been given attention by the public; consequently, employers’ duty to provide post-registration training for new graduate nurses was added to the Act on Assurance of Work Forces of Nurses and Other Medical Experts in 2011. This legal movement was based on the assumption that the new graduate nurses’ turnover was due to the immaturity of their skills, the lack of employers’ support, and a gap between education and practice. Uchino and Shimada (2015) identified factors influencing new graduate nurses’ intentions to leave through their literature review study. The sample articles examined the factors by collecting data from new graduate nurses, nurses who had completed their first year, nurses who had resigned within one year, nurses with less than three years of

experience, senior nurses, nurse administrators, and nurse educators. According to their review, “Reality shock” and “Inter-personal relationships at the work place” were identified by all parties in the sample articles, while the most frequently reported reason for resignation by nurses who actually resigned within one year was “Mental and physical health problems.” It is possible that nurses with developmental disorders developed mental or physical issues because people with developmental disorder tendencies are prone to being anxious and depressed (Kanne et al., 2009). It is reasonable to assume that nurses with special support needs related to developmental disorders account for the majority of early resignations. If so, a standardized program may not be effective for preventing the early resignation for these nurses. Rather, an individualized approach would be more appropriate for nurses with special support needs. Nurses in educational or administrative roles need to be knowledgeable about developmental disorder traits.

Regarding special need types, the highest proportion of nurses with special needs related to “reading” and “writing” left their hospitals, although the sample sizes were too small to generalize the results. It is unfortunate, because many nurses with such difficulties in the United Kingdom are able to overcome obstacles with a variety of coping strategies. The strategies used by the nurses include receiving colleagues’ support, using computer technology, and taking memos frequently (Illingworth, 2005; Morris and Turnbull, 2007). Among these strategies, the use of computer technology may have the strong potential to help these nurses. Spellcheck and autocomplete functions may help nurses with special needs related to “writing”, while text-to-speech functions may help nurses with special needs related to “reading.” It is hoped that advances in technology will contribute to the retention of nurses with special support needs in the future.

4.4. Implications to nurse educators

This survey revealed more new graduate nurses are with special support needs related to developmental disorders than nursing students with such needs reported by nurse educators. It implies responsibilities of nurse educators to identify students with such tendencies more accurately before registration. Selection of the students before enrolment to nursing programs may be one of the solutions but it contains a risk for discrimination (Howlin et al., 2014). Therefore, it is more important to identify the students with special support needs related to developmental disorders in early phase of the program and appropriately prepare the students and clinical sites. In order to accomplish those responsibilities, nurse educators are expected to properly understand about developmental disorders.

In addition, assessment tools which objectively evaluate the students’ special support needs are warranted. The Clinical Assessment Tool developed in Ireland (Howlin et al., 2014) may be a useful tool but it requires translation and modification to adjust to language and cultural differences in each country.

Promoting collaboration of multiple parties including student service, clinical sites, and the students’ parents to support those students may also be a role of nurse educators.

4.5. Limitations and future directions

This survey identified nurses with special support needs related to developmental disorders among nurses who experienced extreme difficulty in acquiring work skills. However, the results should be interpreted with caution. First, its prevalence of 2.39% may be overestimated because of the low response rate. Only hospitals that are seriously concerned with these nurses may have responded. Second, the instrument had not been validated in terms of its psychometric properties, either in the original or modified version. Its sensitivity and specificity are uncertain. Third, the samples used as controls when examining turnover rate were not true control cohorts because they

were also determined as having difficulty acquiring work skills. Forth, although the battery is designed to be used by supervisors with little knowledge about developmental disorders, we did not assess the knowledge of participated nurse managers. If there were nurse managers with a plenty of knowledge, such knowledge might be a bias to the results. It is possible that the knowledgeable nurse managers rated higher scores for the items of the disorder which the manager suspected. Last, this study examined the administrative perspective only. The perspectives of the nurses with special support needs are not known.

Considering the limitations listed above, more studies are needed to generate knowledge about nurses with special support needs. Identifying the accurate rates of new graduate nurses with special support needs is necessary. A multicenter study, as opposed to a national survey, may more accurately elucidate the prevalence of nurses with special support needs. The accurate prevalence level of these nurses may be a driving force to influence policy makers such as the Ministry of Health, Labor and Welfare in Japan.

A screening instrument that is specifically able to measure the special support needs of clinical nurses is needed. The obstacles in daily life may not hinder clinical practice, while nonsignificant problems in daily life may be a serious concern in clinical settings. The early detection of these problems during the orientation period or prior to employment may enable employers to plan tailored orientation programs for those nurses. To develop special orientation programs, the voices of the nurses with special support needs, especially those with tendencies of ADHD and ASD, should be heard. These voices may be helpful in establishing an orientation program that matches their needs because new graduate nurses may not be aware of the obstacles they will face once they begin working.

It must be noted that these research findings should not be used to eliminate nurses with special support needs. It is known that nurses with dyslexia can continue working by either remaining in a lower position or advancing with the help of a variety of coping strategies (Morris and Turnbull, 2007). It is possible to help nurses with special support needs related to tendencies of ADHD and ASD with clearer knowledge about nurses with special support needs generated by a series of subsequent research studies.

5. Conclusions

A national survey in Japan revealed the existence of new graduate nurses with special support needs that are related to developmental disorders. It was found that 2.36% of new graduate nurses are supposed to have special support needs. However, 40.9% of these nurses resigned from their initial workplaces within one year. Some strategies to retain those nurses are warranted.

Conflicts of interest

The authors declare no conflicts of interest in this work.

Ethical approval

Research Ethics Committee of Yamanashi College of Nursing (#20).

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.nepr.2019.02.007>.

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