

Clinical Research Report

Impact of Training Program on School Nurses' Confidence Levels in Managing and Supporting Students With Epilepsy and Seizures

Joan K. Austin, DNS, RN, FAAN, Jody R. M. Kakacek, MA, and Deborah Carr, MEd

This article presents a quantitative assessment of the impact of an epilepsy-focused training program on school nurses. The Epilepsy Foundation and the National Association of School Nurses (NASN) created a training program titled "Managing Students with Seizures" to educate school nurses on strategies and resources that they can use to handle emergency situations effectively and to create a safe and supportive school environment for children with epilepsy and seizures. Before and after the training sessions, nurses answered questionnaires that measured their confidence levels in providing care for students with epilepsy and seizures; these questionnaires showed an improvement in nurses' confidence levels across all measures. Analysis was also carried out to identify program components and nurse subgroups associated with statistically significant improvements. An evaluation of satisfaction indicated overall satisfaction with the program. This article presents results from 1,080 complete surveys associated with the training in 2007.

Keywords: school nurse education; school nurse knowledge/perceptions/self-efficacy; program development/evaluation; quantitative research; epilepsy; seizures; seizure disorders

INTRODUCTION

Epilepsy, which refers to recurrent seizures, is prevalent in the United States and can confer a substantial clinical and social burden. Over three million Americans currently have epilepsy, with approximately 200,000 new cases being diagnosed each year. Seizures often go untreated, in large part because patients have a hard time recognizing them and health care providers may have trouble diagnosing the disorder (Benbadis, 2010; Epilepsy Foundation, n.d.). When most people think of a seizure, they picture a tonic-clonic or convulsion lasting 1–3 min, which is characterized by jerking of the body, loss of consciousness, and noises that resemble crying and groaning. The highly visible symptoms that accompany generalized tonic-clonic seizures allow relatively easy

diagnosis. In contrast, other kinds of seizures such as absence seizures and partial seizures are much harder to identify and may lead to serious misconceptions about epilepsy (Hootman & National Association of School Nurses, 2002; Types of Seizures, n.d.).

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Approximately 326,000 children 14 years of age and younger in the United States have epilepsy (Epilepsy Foundation, n.d.). These children must contend with the physical manifestations of the disorder and the associated stigma. Children with epilepsy often have trouble handling the pressure of their condition and can develop a negative self-image, partially as a result of having little control over their seizures (Hoie et al., 2006; Marin, 2005). Anxiety and depression symptoms are common in children and adolescents with epilepsy (Hoie et al., 2006; Marin, 2005).

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School nurses play an important role in managing and supporting students with epilepsy at school. Therefore, it is important that school nurses be knowledgeable about epilepsy and about how to help children with epilepsy at school. Nevertheless, in 2005, only 60% of school nurses reported that they felt confident in their ability to manage students with seizures (Olympia, Wan, & Avner, 2005). To address this deficiency and to meet the other needs of the school nurses and the students with epilepsy under their care, the Epilepsy Foundation, in conjunction with the National Association of School Nurses (NASN) and the U.S. Centers for Disease Control and Prevention (CDC), created a unique training program entitled "Managing Students with Seizures." This program educates school nurses on the strategies and resources they can use to handle emergency situations effectively and to create an overall safe and supportive environment in their schools for children with epilepsy. In addition to training for the nurses, the program provides them with materials to train other school personnel such as teachers and administrative staff. This program is especially vital because teachers usually do not have sufficient knowledge about epilepsy and its impact on the educational setting (Lee, Lee, Chung, Yun, & Choi-Kwon, 2010).

METHOD

Overview of Training Sessions and Survey Administration

The "Managing Students with Seizures" training sessions took place across the United States from the spring of 2005 to the summer of 2007. Educators presented topics to the school nurses through videos, PowerPoint presentations, case studies, and interactive discussions. The nurses often received take-home materials at the end of their sessions to complement their training and to serve as resources in their school environments.

At the beginning and end of each training session, nurses completed questionnaires in which they rated their confidence levels about various aspects of epilepsy and seizures. Participants indicated levels of confidence on items using 5-point Likert-type scales, in which (1) represented *disagree strongly* and (5) represented *agree strongly*. The nine aspects of epilepsy management and support included in the questionnaire were the following:

- Recognizing partial seizures in students
- Recognizing generalized seizures in students
- Knowing when emergency help should be contacted for a student having a seizure
- Identifying the essential components of a seizure action plan
- Knowing the kinds of medical support that a student with epilepsy may need
- Knowing the kinds of social support that a student with epilepsy may need
- Creating a safe and supportive environment for students with epilepsy
- Providing appropriate seizure training to teachers and other school personnel
- Having the skills to effectively manage students with epilepsy

The pretraining questionnaire also posed demographic questions (i.e., gender, ethnicity, years of nursing experience, highest educational degree, most advanced licensure status, nurse educator experience, experience treating students with epilepsy or seizures, and personal familiarity with people who have epilepsy or seizures). Following the entire training program, nurses completed an evaluation designed to assess their overall satisfaction with the training. This survey also assessed the applicability of content to the participants'

needs and allowed for feedback on both training content and presentation style.

Statistical Analysis

Boston Healthcare Associates (BHA) conducted a statistical analysis on all completed pre- and posttraining questionnaires using SPSS Version 13.0. A Student's two-tailed *t* test determined statistical significance for all comparisons. Multivariate statistical analyses were performed using analysis of variance (ANOVA) to identify statistically significant response differences by participant characteristics. A *p* value of .05 was used as the threshold for statistical significance.

Survey

The CDC developed and validated the survey used with the training sessions in 2005. Following that pilot program, BHA revised and validated the survey tools used with the 2006 and 2007 versions of the program in conjunction with the Epilepsy Foundation and the CDC. Content experts provided an evaluation of the survey and changes were made. These changes in wording prevent the comparison of data from 2005 to data from later training sessions.

To ensure accuracy in data entry from the paper surveys, all numerical data were entered using a double key method to minimize data entry errors. BHA then used SPSS to identify and remove any identical participant records that may have resulted when affiliates sent in multiple copies of the same survey.

RESULTS

Demographic Characteristics

The 1,080 completed surveys included in the 2007 analysis of the "Managing Students with Seizures" training sessions were representative of 33 affiliates throughout the United States. These surveys included demographic, pretraining, posttraining, and general evaluation questionnaires. BHA excluded 163 surveys from the analysis because they were either not in the 2007 survey format or were incomplete (e.g., missing unique

identifiers, demographic data, or one or more of the three surveys).

The 1,080 individuals analyzed had the following characteristics:

- *Gender*: 99% of respondents were female and 1% was male
- *Ethnicity*: 85% of respondents identified themselves as White/Caucasian, 7% as Black/African American, 5% as Hispanic, 1% as Asian, 1% as Native American, and 1% as Other
- *Professional experience*: 3% of respondents had more than 40 years of nursing experience, 23% had 31–40 years of experience, 35% had 21–30 years of experience, 26% had 11–20 years of nursing experience, and 13% had less than 11 years of nursing experience
- *Highest degree obtained*: 20% of respondents had master's degree, 52% had bachelor's degrees, 16% had associate's degrees, and 12% had other degrees (including high school diploma)
- *Most advanced licensure status*: 1% of respondents were clinical nurse specialists, 4% were nurse practitioners, 85% were registered nurses, 2% were licensed vocational nurses, 4% were licensed practical nurses, and 4% had other licensures

2007 Aggregate Findings on Pretraining and Posttraining Surveys

The aggregate results from the pretraining surveys showed that prior to participating in the "Managing Students with Seizures" program, nurses had a moderate level of confidence in working with students with seizures in terms of these nine measures. Average ratings on the 5-point Likert-type scale ranged from 3.6 to 4.3 across the 9 aspects of epilepsy management and support (Figure 1). Nurses were most confident in their ability to recognize generalized seizures and least confident in their knowledge of the types of social support that a student with epilepsy might need.

Results from the posttraining surveys demonstrated a significant improvement in confidence across each of the nine measures. Following the training, nurses were most confident in knowing when emergency help should be contacted for a student having a seizure (average rating of 4.7) and least confident in recognizing partial seizures in students, with an average rating of 4.5 (Figure 2). Nurses showed the largest improvement in confidence (from 3.6 to 4.6) in their knowledge of the kinds of social support that a student with seizures and epilepsy might need (Figure 3).

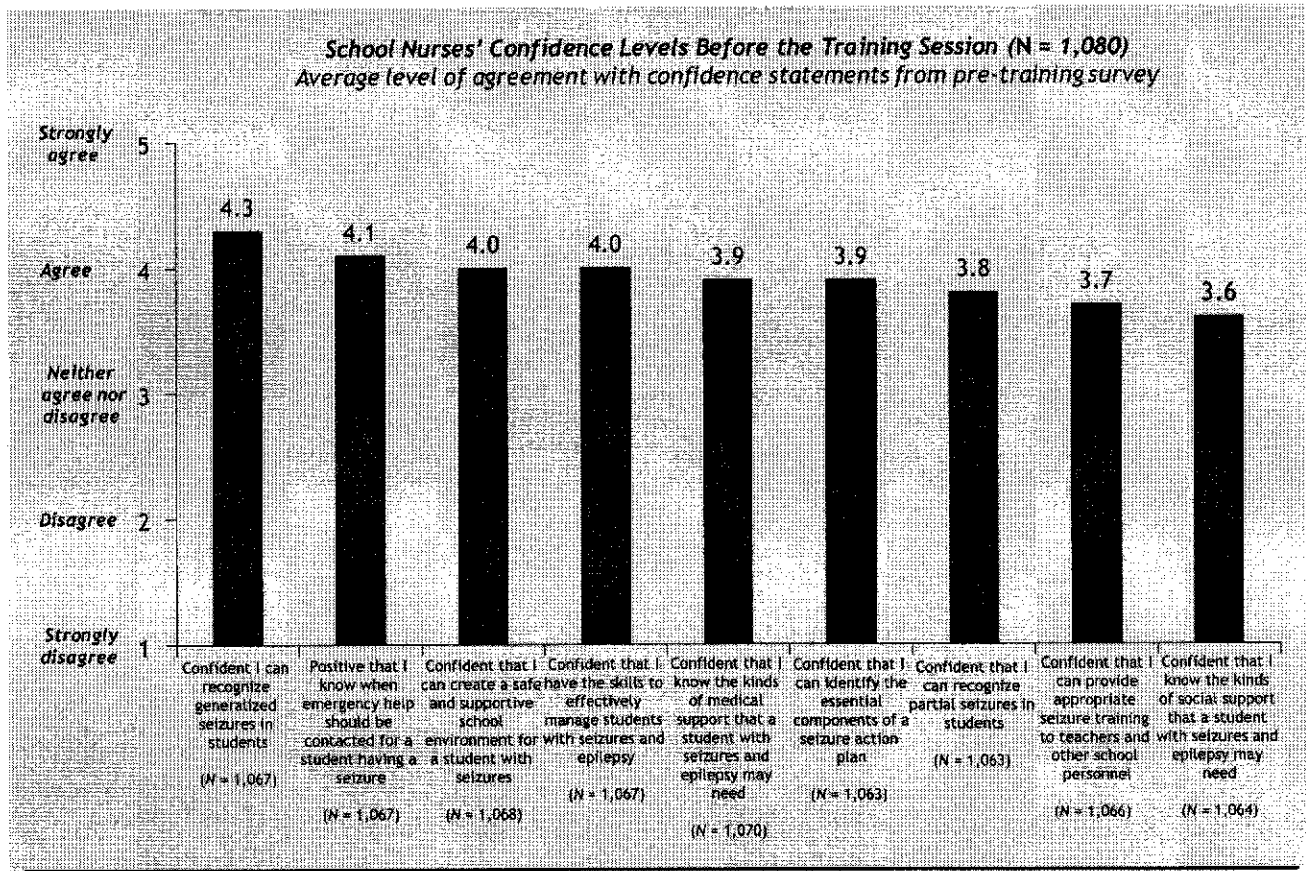


Figure 1. Aggregate School Nurses' Confidence Levels Before Epilepsy Foundation Training Program.

Trends by Years of Professional Experience

In a few cases, additional years of nursing experience corresponded to greater confidence in the ability to recognize, manage, and support students with seizures and epilepsy. Following the "Managing Students with Seizures" training, nurses with 0–10 years of experience felt significantly more confident in their ability to recognize generalized seizures in students (+0.54, $p < .001$) and to know when emergency help should be contacted for a student having a seizure (+0.76, $p < .01$). Conversely, nurses with 31–40 years of experience reported a significantly lower improvement in confidence in recognizing generalized seizures in students compared to all nurses (+0.27, $p < .01$).

Trends by Highest Degree Received

Confidence levels often varied with nurses' self-reported educational background. Nurses

with bachelor's degrees reported a significant increase in confidence in recognizing partial seizures in students (+0.75, $p < .01$), knowing when emergency help should be contacted for a student having a seizure (+0.65, $p < .05$), identifying the essential components of a seizure action plan (+0.86, $p < .01$), knowing the kinds of medical support that a student with epilepsy might need (+0.83, $p < .01$), knowing the kinds of social support that a student with epilepsy might need (+1.06, $p < .01$), creating a safe and supportive environment for students with seizures (+0.69, $p < .05$), and providing appropriate seizure training to teachers and other school personnel compared to all nurses (+0.86, $p < .01$).

In contrast, nurses with a master's degree showed significantly less improvement in confidence compared to all nurses in recognizing generalized seizures in students (+0.28, $p < .05$), knowing when emergency help should be contacted for a student having a seizure (+0.49, $p < .05$), identifying the essential components of a seizure action plan

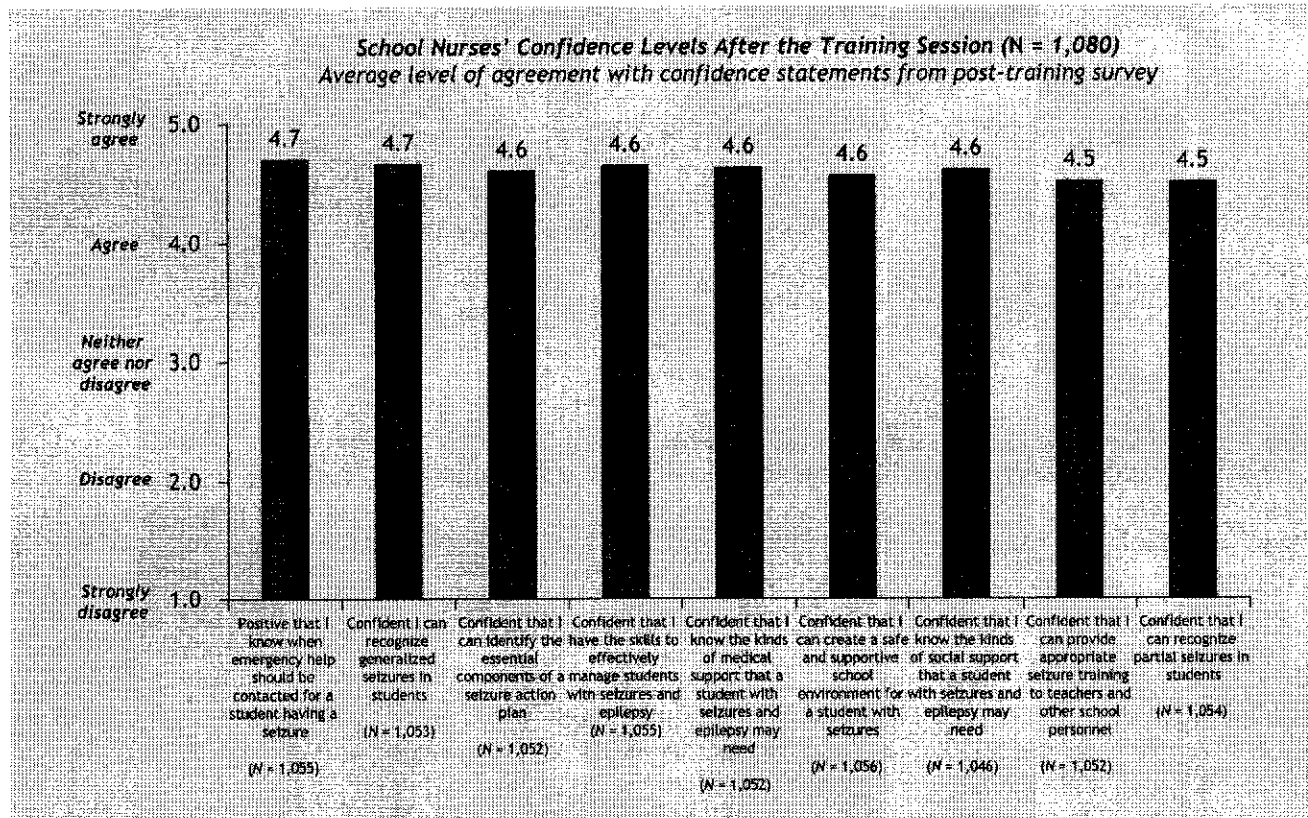


Figure 2. Aggregate School Nurses' Confidence Levels After Epilepsy Foundation Training Program.

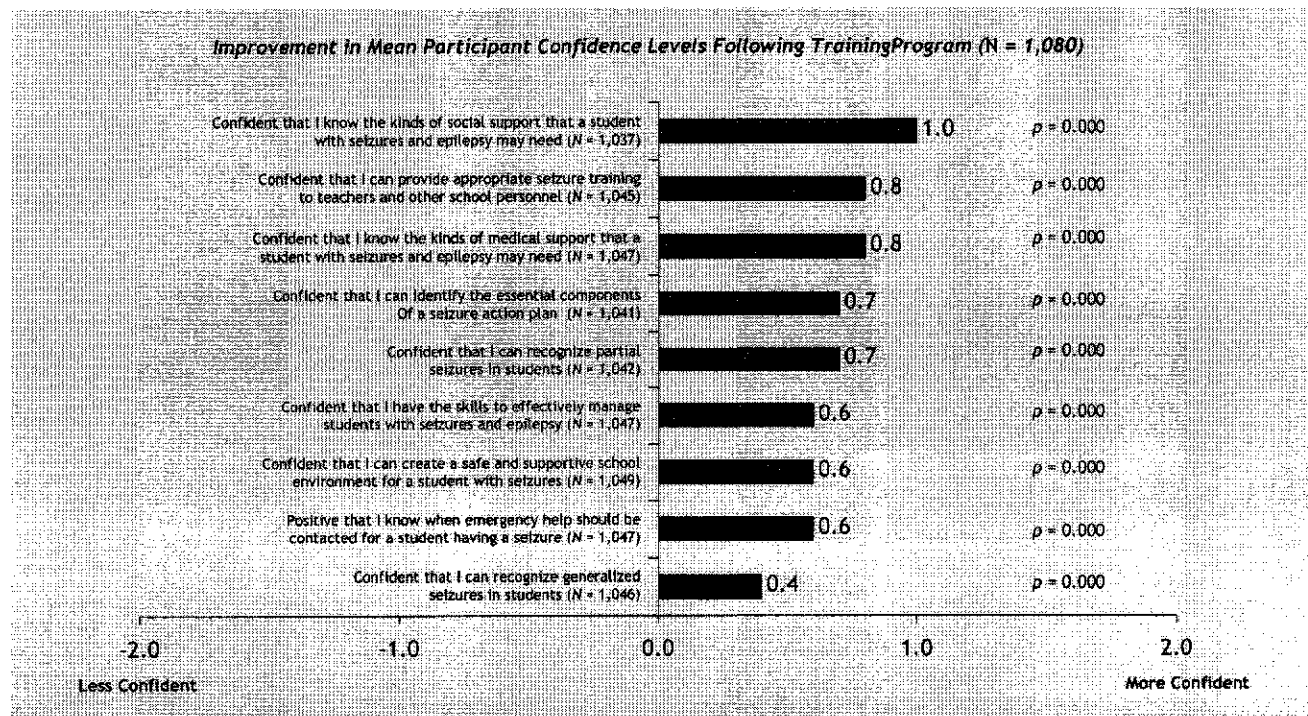


Figure 3. Change in Mean Confidence Levels Following Training Program.

(+0.66, $p < .01$), and knowing the kinds of medical support that a student with seizures and epilepsy might need (+0.61, $p < .01$). Similarly, nurses with an associate degree showed significantly less improvement in confidence in creating a safe and supportive environment for students with seizures and epilepsy compared to all nurses (+0.52, $p < .05$).

Trends by Licensure Status

Registered nurses showed significantly greater improvement in mean confidence levels compared to all nurses in recognizing partial seizures in students (+0.71, $p < .05$), identifying the essential components of a seizure action plan (+0.82, $p < .01$), knowing the kinds of medical support that a student with epilepsy and seizures might need (+0.79, $p < .01$), and knowing the kinds of social support that a student with seizures and epilepsy might need (+1.01, $p < .01$). Conversely, licensed practical nurses reported significantly less improvement in confidence compared to all nurses in identifying the essential components of a seizure action plan (+0.47, $p < .01$). Nurse practitioners also reported significantly less improvement in recognizing general seizures compared to all nurses (+0.19, $p < .05$).

Trends by Experience Treating Students With Epilepsy or Seizures

Nurses who reported previous experience treating a student with epilepsy or seizures reported less improvement in mean confidence levels compared to all nurses across each of the nine aspects of epilepsy management and support. Differences in mean confidence levels were significantly lower for nurses who had previously treated a student with epilepsy or seizures across eight of the nine aspects of management and support, with confidence in creating a safe and supportive school environment for a student with seizures being the only aspect not achieving statistical significance.

Trends by Personal Familiarity With Someone who has Epilepsy or Seizures

Nurses who reported personal familiarity with someone who has epilepsy or seizures reported

equal or less improvement in mean confidence levels compared to all nurses across each of the nine aspects of epilepsy management and support. Differences in mean confidence levels were significantly lower for nurses who had personal familiarity with someone who has epilepsy or seizures across seven of the nine aspects of management and support, with confidence in recognizing generalized seizures and knowing when emergency help should be contacted for a student having a seizure being the two aspects failing to achieve statistical significance.

Overall Satisfaction With the Program

Results from the general evaluation questionnaires indicate that nurses responded favorably to the training objectives, content, and presentation format, with ratings ranging from 4.6 to 4.72 on the 5-point Likert-type scale (Figure 4). Nurses most strongly agreed with the statement that they understand the session's objectives (average rating of 4.72) and further supported this with their level of satisfaction with the program's modules with an average rating 4.61–4.7 (Figure 5).

When asked about their likes and dislikes in the program, 86.9% of nurses indicated that they liked the take-home materials and 83% expressed approval of the presenters of the program (Figure 6). Nurses also commented positively on the opportunities to network, opportunities to ask questions, and the convenience of the location. Overall, 46.4% of nurses noted that there was "nothing" they disliked about the program, and of the 10.2% who reported "other" in response to the "what did you dislike about the program" question, their comments reflected dissatisfaction with room logistics, the amount of material covered during the training, and insufficient supplies for all participants (Figure 7).

DISCUSSION

Overall, these results were encouraging. After participation in the program, nurses showed improvement in their confidence to handle seizures and epilepsy in children at school.

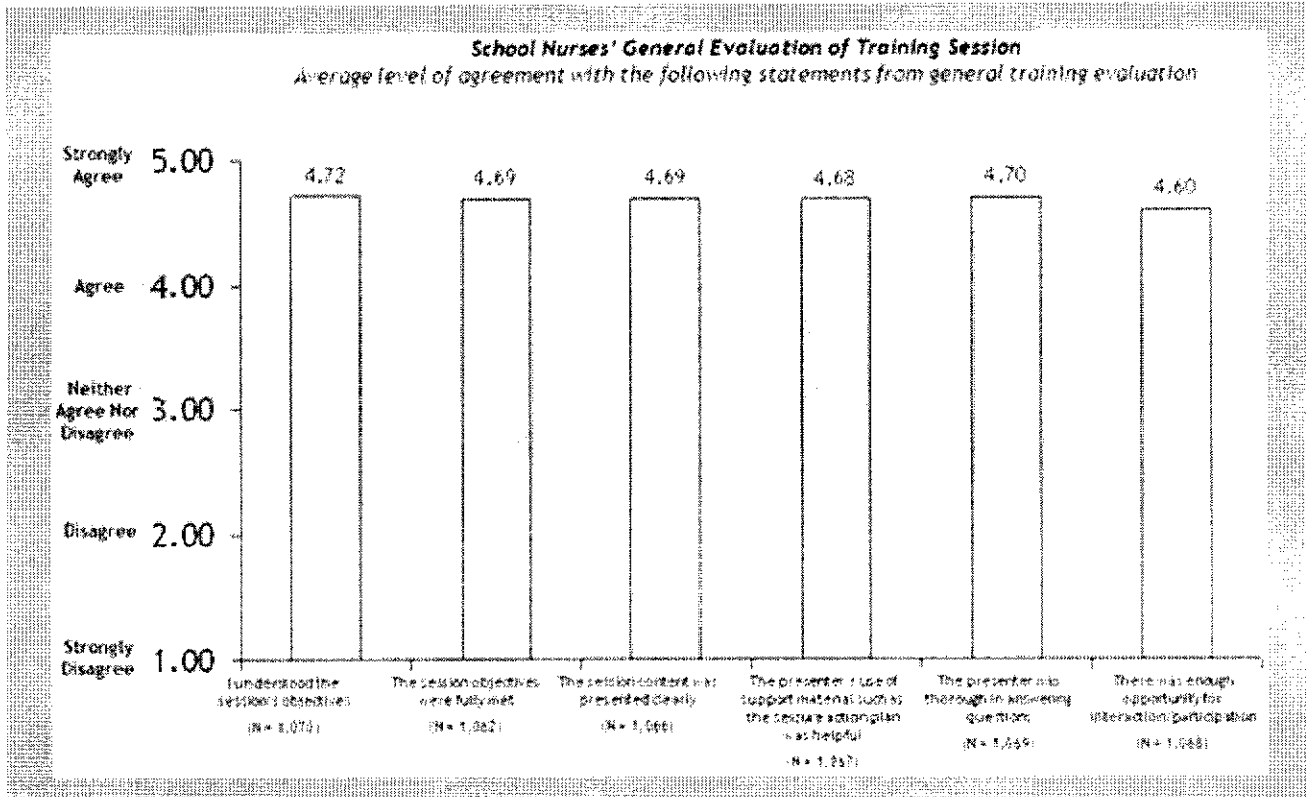


Figure 4. Aggregate School Nurses' General Evaluations After Epilepsy Foundation Training Program.

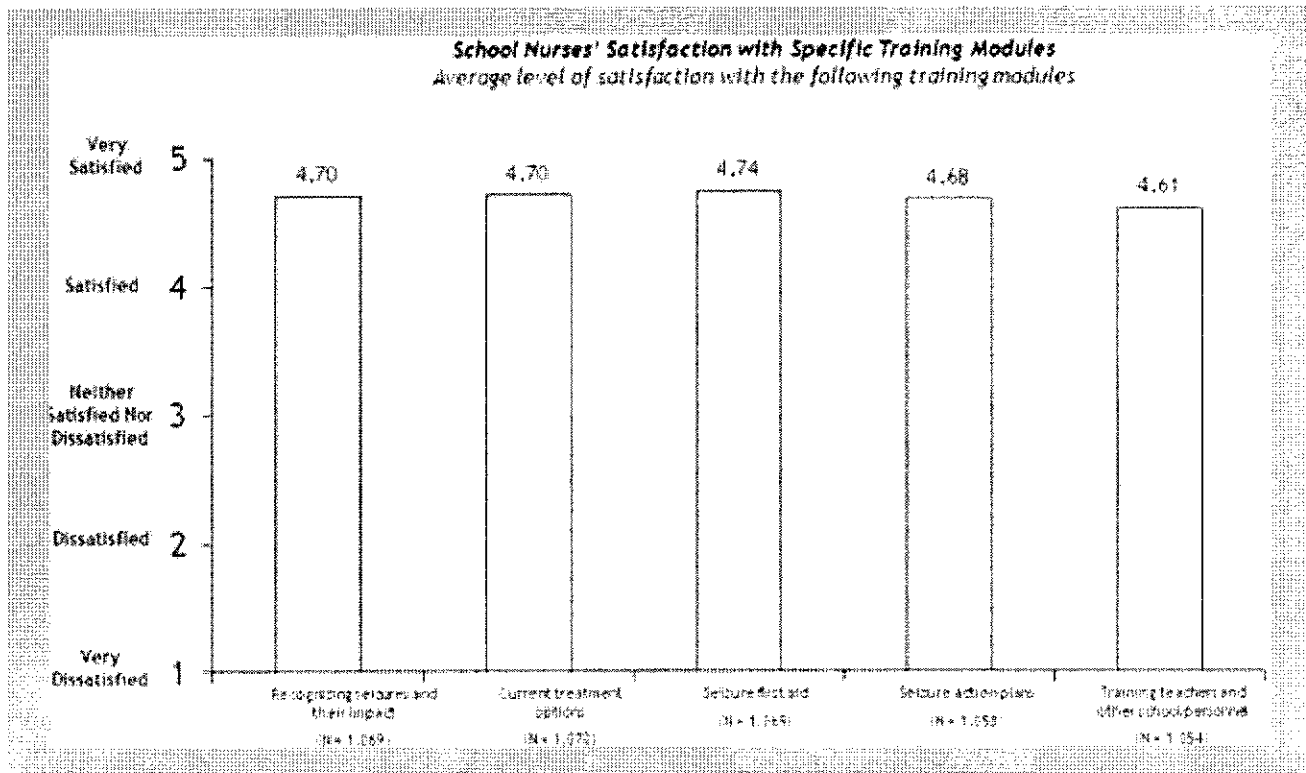


Figure 5. Aggregate School Nurse Satisfaction Levels After Epilepsy Foundation Training Program.

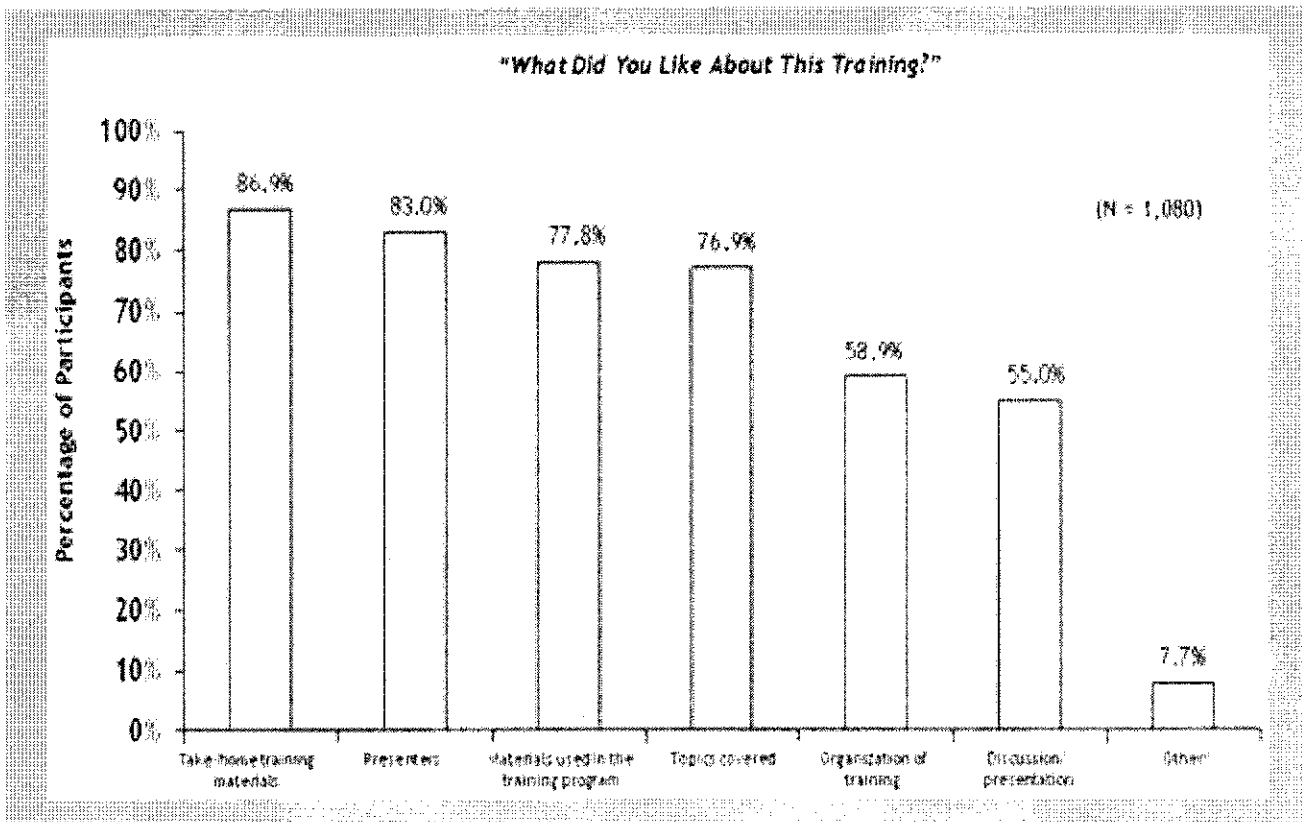


Figure 6. Compiled Results of Items Liked by School Nurses Following Completion of the Epilepsy Foundation Training Program.

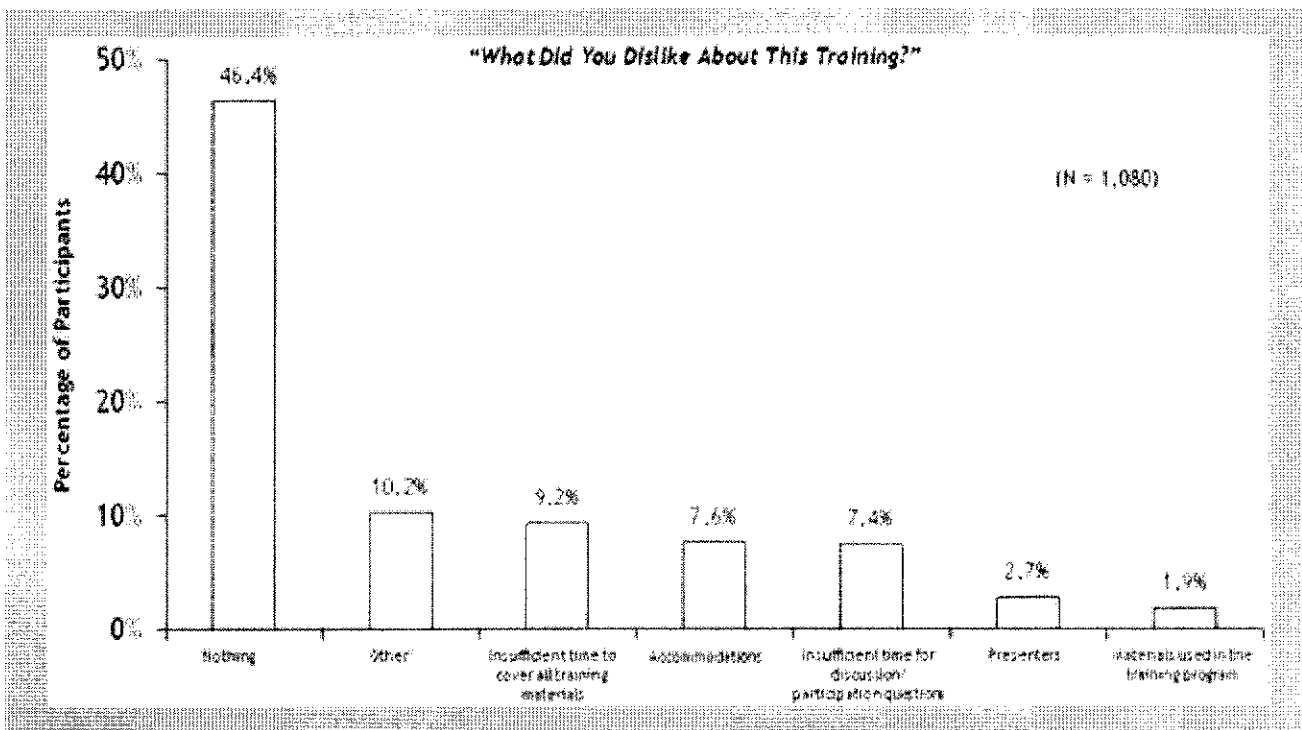


Figure 7. Compiled Results of Items Disliked by School Nurses Following Completion of the Epilepsy Foundation Training Program.

Nurses especially felt confident in knowing when emergency help was needed and in their ability to recognize generalized seizures. Licensure seemed to play a role in confidence levels, with nurses possessing higher degrees also reporting more experience with seizures, thus potentially contributing to their comfort level with students with seizures. It was especially encouraging that those nurses who had the least prior experience with epilepsy gained the most from the program. This finding demonstrates that the program was aimed at the proper level for nurses with little experience with epilepsy. Nurses also provided feedback about the materials, as well as suggestions for improvements that could be made to make the program even more effective. This program met their needs for information and led to their gaining new knowledge, which should help them when they come into contact with students with seizures and improve the environment for children with epilepsy in the future.

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Despite the encouraging data, training still needs to be improved in terms of seizure recognition of partial seizures and in confidence in their ability to provide training to other personnel. Nurses with bachelor's degrees had the highest level of confidence in recognizing partial seizures, whereas nurses with other degrees reported a lower level of confidence in recognizing different types of seizures in their students. Partial seizures can be difficult to recognize and more time might need to be devoted to describing and showing examples of the range of partial seizures in the program. It is important that nurses become aware of the full range of bodily movements and behaviors that reflect partial seizures to reduce the possibility that children with partial seizures will not go unrecognized in the school setting. Identifying children who are experiencing partial seizures that have previously gone unrecognized

could lead to earlier diagnosis and treatment of seizures.

"Identifying children who are experiencing partial seizures that have previously gone unrecognized could lead to earlier diagnosis and treatment of seizures."

Further information is needed regarding how the training on recognition of partial seizures can be improved and on what is needed to help school nurses be more confident in providing training for teachers and other school personnel. It might be that the Epilepsy Foundation should conduct focus groups with teachers to identify any additional materials needed to teach other school personnel.

There are a few limitations to the study that need to be considered in the interpretation of results. Results of the study might not be generalizable because this was a convenience sample and nurses choose to attend the trainings based on their interests. It is not possible to test the effectiveness of the program because all interested nurses received the training and there was not a control group.

SCHOOL NURSING IMPLICATIONS

Besides enhancing the care provided to students with epilepsy, the *Managing Students with Seizures* program has implications for the education of school nurses as well as other school personnel.

School nurses can access the training program through several different methods, including in-person and online training. A school nurse may contact the local Epilepsy Foundation affiliate in his or her area to schedule training or a school nurse may take the training online through the NASN website at www.nasn.org. School nurses are encouraged to take advantage of the training, because it will provide them with the necessary tools to prepare a seizure action plan for each student with epilepsy, to communicate and educate other school personnel about seizure first aid, and to find resources for parents regarding epilepsy management in the school setting.

In addition to educating school nurses, the *Managing Students with Seizures* program provides nurses with a program to teach at their schools, *Seizure Training for School Personnel*. This presentation is designed to help teachers, administrators, coaches, bus drivers, and other school personnel recognize seizures, learn appropriate first aid, and dispel myths and misperceptions that may be present about epilepsy among students in their school environment. This valuable tool along with a *Quick Reference Guide* that serves as a resource guide about epilepsy to nurses are components that a school nurse can share within his or her school and have an impact on other faculty that interact with students with seizures. By participating in the *Managing Students with Seizures* program, school nurses will not only enhance their own knowledge of epilepsy but they will optimize the delivery of care for students with seizures.

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