School Nurses' Perceptions of and Experiences with Head Lice

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Abstract:

Researchers examined school nurses' perceptions of head lice, perceived self-efficacy in dealing with head lice, and personal experience in reducing head lice problems. Survey data from a two-wave mailing from 382 school nurses found most nurses supported a "no-nit" rule of forced absenteeism of any child with nits in their hair (60%). They perceived OTC treatments for head lice as very effective in killing adult lice (66%), and 9% perceived them as not effective. Nurses had a high efficacy expectation regarding their ability to control head lice (63%), and they had high outcome expectations regarding the results of their work with students and families of students (66%). Most nurses received their information about head lice from professional journals (76%) and professional conferences/conventions (62%). (J Sch Health. 1999;69(4):153,158)

Full Text:

As the 21st century approaches, one of the most common public health problems facing families with young children is head lice (Pediculus humanus capitis). Head lice affects more than 10 million Americans annually, and most are children 5 to 12 years of age.[1] Almost one in four elementary students was infested last year.[2] Lice infestations are common in crowded environments like day care centers and schools and usually peak between August and November.

Head lice are wingless insects that are obligate parasites of humans. The life span of a female louse is about 30 days, during which she lays up to 5 to 10 nits (eggs) per day.[3] Each nit is attached with a glue-like, water-proof substance to hairs one millimeter from the scalp. Within 10 days, the nits open and release the nymph, an immature louse.[4] The adult nymph reaches the mature reproductive stage within 8 to 9 days.[5] The infection cycle can then start over again.

Transmission of head lice occurs through direct physical contact with an infested individual or

indirectly through shared personal effects such as hats, combs, and towels.[6] Head lice do not jump or fly nor are they transmitted by pets.[7] Parents are often embarrassed when informed that their children have head lice because of the widespread misperception that head lice infestations result from unwashed dirty heads.[8]

Treatment of lice infestations include the following: 1) an agent, often an insecticide shampoo is used to kill the lice; 2) fomite control is required to reduce the risk of reinfestation, including cleaning hats, combs, and clothing; and 3) nit removal.[9] The lice cannot live more than a couple of days if not on a human head.

The primary person for therapy and parental information during lice infestations is usually the school nurse,[10] A comprehensive review of the literature failed to find any studies that examined experiences and perceptions of school nurses regarding control of head lice. Thus, this study examined the following questions: 1) How do school nurses deal with children with head lice? 2) What products do school nurses recommend for treating head lice infestations? 3) Do school nurses perceive it difficult to eliminate a school population of head lice? 4) What is the perceived self-efficacy of school nurses in dealing with head lice? 5) Where have school nurses received most of their information on head lice?

METHODS

Subjects

A simple random sample of 500 school nurses, members of the School Nurse Section of the American School Health Association, were selected as potential respondents. If a survey was returned because of an incorrect address, there was no plan to randomly select other nurses to replace undeliverables.

Instrument

A 47-item survey instrument was developed for the study. Except for three items, the survey items were closed-format design. Respondents were requested to either select from a series of potential choices to an item or to circle how much they agreed or disagreed with items (e.g., strongly agree = 5 to strongly disagree = 1). The final six questions were demographic items, including age, gender, school setting, educational background, years of experience as a school nurse, and state in which they work.

The study employed Bandura's self-efficacy model to investigate school nurses perceived self-efficacy for eliminating head lice infestations. Bandura's self-efficacy model is comprised of three components: 1) Efficacy-Expectations, which refers to one's belief regarding the ability to perform certain behaviors to produce a desired outcome; 2) Outcome Expectations, which refers to one's belief that performing certain behaviors will result in a specific outcome; and 3) Outcome Value, which denotes the degree of importance one ascribes to the outcome. Five items comprised the efficacy expectations subscale, and the possible range of scores was 5 to 25. Five items also comprised the outcome expectations subscale, and the possible range of scores was 5 to 25. The outcome value subscale was comprised of two items, with a possible range of 2 to 10.

A national panel (n = 8) of dermatologists, school nurses, representatives of Warner-Lambert Company, and researchers who published in the area of self-efficacy helped establish face and content validity. Suggestions to add two items and to reword several other items were included to produce the final instrument. A pilot study with a convenience sample of eight school nurses indicated no further changes were required.

Construct validity was established through principal component analysis using varimax rotation. The eigenvalues of the factor scree plot indicated that the a priori items written for the three subscales loaded on the intended three subscales (minimum factor loading was set at .35).

Stability reliability was established by distributing the instrument to a convenience sample of 21 school nurses and then distributing a second copy to them approximately one week later. Pearson correlation coefficients found the stability reliability was .81 for efficacy expectations, .77 for outcome expectations, and .52 for outcome value. Cronbach alphas on the responses from the total sample revealed that internal reliability for efficacy expectations, outcome expectations, and outcome values were .63, .71, and .58, respectively.

Procedures

A two-wave mailing procedure was used during spring 1998. Initially, each of the 500 school nurses was mailed a copy of the survey on colored paper, a hand-signed cover letter describing the purpose of the study, and a stamped, preaddressed return envelope. Approximately two weeks after the first mailing, nonresponding school nurses received a second hand-signed cover letter which thanked those who responded and encouraged those who did not to respond. Another copy of the survey and a stamped, preaddressed return envelope were also included in the second mailing. The SPSS statistical software package was used for all data analyses. A level of significance was determined a priori at .05.

Sponsorship

Table 1
Demographic and Background Characteristics of Respondents

Item	N	%
Gender		
Male	4	1
Female	371	97
Education		
Associate degree	44	12
Bachelor degree	226	59
Masters degree	164	43
R.N. certificate program	88	23
School Location of Nursing Practice		
Inner city	61	16
Suburban	198	52
Rural	103	27
Age		
20 - 29	1	3
30 - 39	39	10
40 - 49	143	38
50 - 59	167	44
60+	25	7
Number of Years as School Nurse		
≤ 5 years	89	23
6 - 9 years	65	18
10+ years	224	59

This study was funded by a grant from Warner-Lambert Company, which produces the head lice treatment Nix[R]. The research idea, design, development of the questionnaire, data analysis, and final manuscript were the sole responsibility of the authors. The Warner-Lambert Company funded the study as a professional service. The authors acknowledge the sponsor for their willingness to permit the completion of an unencumbered study.

RESULTS

Demographic and Background Characteristics

A total of 382 nurses (78%) of a possible 488 responded (12 were undeliverable). Respondents were primarily female (97%), most held a bachelor's degree (59%), worked in a suburban setting (52%), and a plurality (44%) were 50-59 years of age (Table 1). Most (59%) of the nurses had been a school nurse 10 years or longer.

Table 1
Demographic and Background
Characteristics of Respondents

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Male	4	1
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Education		
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School Location of Nursing Practice		
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Rural	103	27
Age		
20 - 29	1	3
30 - 39	39	10
40 -49	143	38
50 - 59	167	44
60+	25	7
Number of Years as School Nurse		
[is less than or equal to] 5 years	89	23
6 - 9 years	65	18
10+ years	224	59

N =382

(*) Some categories do not add to 100% since some respondents left items blank.

Perceptions and Experience of Treating Head Lice

The mean number of cases of head lice seen in the past 12 months by school nurses was 110. If a school nurse finds a student with head lice almost all of them (96%) always send the student home from school until treated (Table 2). Most (61%) school nurses would not allow a child back into school if nits remain in the hair after treatment. The "no-nit" rule of forced absenteeism for any child with nits in their hair was supported by most school nurses (60%). Furthermore, most (59%) of the nurses supported the concept that children should lose time from school as part of a "nit-free" policy.

Table 2
School Nurses' Perceptions of and Experience with Treating Head Lice

Item	
If you discover a case of head lice, how often do you send the child home from school until he/she is treated?	
How often do you allow a child back into school if nits remain in the hair after treated with some agent at home?	
The manual removal of 100% of nits is critical to prevent transmission of head lice to others in a school environment.	
The "no-nit" rule in which there is forced absenteeism of any child who has any nits in their hair is a good idea.	
A nit-free policy should not result in children losing time from school.	
How would you rate available over-the-counter treatments for head lice in terms of effectiveness of killing adult lice? (very good/very poor)	
Which of the following, in your opinion, is the better head lice treatment?	
Permethrin (Nix)	
Pyrethrin with Piperonyl (RID)	
Both equally effective	
Don't know/Not sure	
Do you recommend Nix (permethrin)?	Yes No
If yes, how many times would you recommend its usage?	
one time only	
two times (one week apart)	
as needed	
If Kwell (lindane) shampoo were available for over-the-counter use, I would suggest its use for head lice in place of presently available insecticides.	
Do you ever use or recommend vaseline or mayonnaise treatment for head lice?	
How often do you refer cases of head lice to a physician?	
In families with head lice, how often do you recommend the use of insecticide sprays to floors and upholstered furniture?	
How often do you suggest fumigation of the entire house in cases of head lice?	
How often do you recommend treating all family members, when one child has head lice?	
With each case of head lice, I meticulously comb nits from the student's hair.	
Do you worry about being infested with head lice while treating students?	
I treat myself for lice after having contact with infested students.	
Once a child comas to school with head lice it is very likely there will be a major outbreak with other students.	
It is difficult to eliminate a school of a head lice outbreak.	
If it is difficult to eliminate a school population of head lice, why is it such a problem? Because...	

Families do not follow instructions.
Do not use an agent to kill the lice.
Do not use the treatment correctly.
Do not remove nits from the student's hair.
Do not take precautions to clear their environment of lice and eggs.
Some forms of lice are resistant to treatments.
The cost of the treatment is expensive.
It is too hard to control fomite transmission.

Item	Always/Agree N	(%)
If you discover a case of head lice, how often do you send the child home from school until he/she is treated?	364	(96)
How often do you allow a child back into school if nits remain in the hair after treated with some agent at home?	94	(25)
The manual removal of 100% of nits is critical to prevent transmission of head lice to others in a school environment.	287	(75)
The "no-nit" rule in which there is forced absenteeism of any child who has any nits in their hair is a good idea.	230	(60)
A nit-free policy should not result in children losing time from school.	157	(41)
How would you rate available over-the-counter treatments for head lice in terms of effectiveness of killing adult lice? (very good/very poor)	251	(66)
Which of the following, in your opinion, is the better head lice treatment?		
Permethrin (Nix)	78	(21)
Pyrethrin with Piperonyl (RID)	49	(13)
Both equally effective	123	(32)
Don't know/Not sure	131	(34)
Do you recommend Nix (permethrin)?	225	(59)
	107	(28)
If yes, how many times would you recommend its usage?		
one time only	48	(13)
two times (one week apart)	134	(35)
as needed	38	(10)
If Kwell (lindane) shampoo were available for over-the-counter use, I would suggest its use for head lice in place of presently available insecticides.	56	(15)
Do you ever use or recommend vaseline or mayonnaise treatment for head lice?	16	(4)
How often do you refer cases of head lice to a physician?	27	(7)
In families with head lice, how often do you recommend the use of insecticide sprays to floors and upholstered furniture?	85	(22)
How often do you suggest fumigation of the entire house in cases of head lice?	11	(3)
How often do you recommend treating all family members, when one child has head lice?	148	(39)
With each case of head lice, I meticulously comb nits from the student's hair.	22	(6)
Do you worry about being infested with head lice while treating students?	15	(4)

I treat myself for lice after having contact with infested students.	3	(1)
Once a child comas to school with head lice it is very likely there will be a major outbreak with other students.	34	(9)
It is difficult to eliminate a school of a head lice outbreak.	126	(33)
If it is difficult to eliminate a school population of head lice, why is it such a problem? Because...		
Families do not follow instructions.		
Do not use an agent to kill the lice.	126	(33)
Do not use the treatment correctly.	268	(70)
Do not remove nits from the student's hair.	307	(81)
Do not take precautions to clear their environment of lice and eggs.	311	(82)
Some forms of lice are resistant to treatments.	216	(57)
The cost of the treatment is expensive.	188	(49)
It is too hard to control fomite transmission.	41	(11)

Item	Never/Disagree N	(%)
If you discover a case of head lice, how often do you send the child home from school until he/she is treated?	10	(3)
How often do you allow a child back into school if nits remain in the hair after treated with some agent at home?	234	(61)
The manual removal of 100% of nits is critical to prevent transmission of head lice to others in a school environment.	59	(16)
The "no-nit" rule in which there is forced absenteeism of any child who has any nits in their hair is a good idea.	96	(25)
A nit-free policy should not result in children losing time from school.	170	(45)
How would you rate available over-the-counter treatments for head lice in terms of effectiveness of killing adult lice? (very good/very poor)	36	(9)
Which of the following, in your opinion, is the better head lice treatment?		
Permethrin (Nix)	NA	
Pyrethrin with Piperonyl (RID)	NA	
Both equally effective	NA	
Don't know/Not sure	NA	
Do you recommend Nix (permethrin)?		
If yes, how many times would you recommend its usage?		
one time only	NA	
two times (one week apart)	NA	
as needed	NA	
If Kwell (lindane) shampoo were available for over-the-counter use, I would suggest its use for head lice in place of presently available insecticides.	225	(59)
Do you ever use or recommend vaseline or mayonnaise treatment for head lice?	269	(71)
How often do you refer cases of head lice to a physician?	247	(65)
In families with head lice, how often		

do you recommend the use of insecticide sprays to floors and upholstered furniture?	244	(64)
How often do you suggest fumigation of the entire house in cases of head lice?	349	(92)
How often do you recommend treating all family members, when one child has head lice?	163	(43)
With each case of head lice, I meticulously comb nits from the student's hair.	291	(76)
Do you worry about being infested with head lice while treating students?	304	(80)
I treat myself for lice after having contact with infested students.	369	(97)
Once a child comas to school with head lice it is very likely there will be a major outbreak with other students.	301	(79)
It is difficult to eliminate a school of a head lice outbreak.	200	(53)
If it is difficult to eliminate a school population of head lice, why is it such a problem? Because...		
Families do not follow instructions.		
Do not use an agent to kill the lice.	NA	
Do not use the treatment correctly.	NA	
Do not remove nits from the student's hair.	NA	
Do not take precautions to clear their environment of lice and eggs.	NA	
Some forms of lice are resistant to treatments.	NA	
The cost of the treatment is expensive.	NA	
It is too hard to control fomite transmission.	NA	

N = 382; NA = not applicable

Table 2
School Nurses' Perceptions of and Experience with Treating Head Lice

Item		Always/Agree N	(%)	Never/ Disagree N	(%)
If you discover a case of head lice, how often do you send the child home from school until he/she is treated?		364	(96)	10	(3)
How often do you allow a child back into school if nits remain in the hair after treated with some agent at home?		94	(25)	234	(61)
The manual removal of 100% of nits is critical to prevent transmission of head lice to others in a school environment.		287	(75)	59	(16)
The "no-nit" rule in which there is forced absenteeism of any child who has any nits in their hair is a good idea.		230	(60)	96	(25)
A nit-free policy should not result in children losing time from school.		157	(41)	170	(45)
How would you rate available over-the-counter treatments for head lice in terms of effectiveness of killing adult lice? (very good/very poor)		251	(66)	36	(9)
Which of the following, in your opinion, is the better head lice treatment?					
Permethrin (Nix)		78	(21)	NA	
Pyrethrin with Piperonyl (RID)		49	(13)	NA	
Both equally effective		123	(32)	NA	
Don't know/Not sure		131	(34)	NA	
Do you recommend Nix (permethrin)?	Yes	225	(59)		
	No	107	(28)		
If yes, how many times would you recommend its usage?					
one time only		48	(13)	NA	
two times (one week apart)		134	(35)	NA	
as needed		38	(10)	NA	
If Kwell (lindane) shampoo were available for over-the-counter use, I would suggest its use for head lice in place of presently available insecticides.		56	(15)	225	(59)
Do you ever use or recommend vaseline or mayonnaise treatment for head lice?		16	(4)	269	(71)
How often do you refer cases of head lice to a physician?		27	(7)	247	(65)
In families with head lice, how often do you recommend the use of insecticide sprays to floors and upholstered furniture?		85	(22)	244	(64)
How often do you suggest fumigation of the entire house in cases of head lice?		11	(3)	349	(92)
How often do you recommend treating all family members, when one child has head lice?		148	(39)	163	(43)
With each case of head lice, I meticulously comb nits from the student's hair.		22	(6)	291	(76)
Do you worry about being infested with head lice while treating students?		15	(4)	304	(80)
I treat myself for lice after having contact with infested students.		3	(1)	369	(97)
Once a child comes to school with head lice it is very likely there will be a major outbreak with other students.		34	(9)	301	(79)
It is difficult to eliminate a school of a head lice outbreak.		126	(33)	200	(53)
If it is difficult to eliminate a school population of head lice, why is it such a problem? Because...					
Families do not follow instructions.					
Do not use an agent to kill the lice.		126	(33)	NA	
Do not use the treatment correctly.		268	(70)	NA	
Do not remove nits from the student's hair.		307	(81)	NA	
Do not take precautions to clear their environment of lice and eggs.		311	(82)	NA	
Some forms of lice are resistant to treatments.		216	(57)	NA	
The cost of the treatment is expensive.		188	(49)	NA	
It is too hard to control fomite transmission.		41	(11)	NA	

Most (65%) school nurses never refer students with head lice to a physician. Two-thirds (66%) of respondents perceived that the available over-the-counter (OTC) treatments for head lice were effective in killing adult lice, but 9% believed them not effective. When asked to rate the effectiveness of Nix[R] and RID[R] over-the counter head lice treatments, about one-third (34%) of the nurses did not know which was more effective, about one-third (32%) thought they were equally effective, and the other third preferred either Nix[R] (21%) or RID[R] (13%).

When asked what specific product they recommended most, a plurality identified Nix[R] (43%), followed by RID[R] (38%), and the rest indicated they did not recommend a specific product (19%). When asked why they recommended a specific product, a plurality (34%) indicated it was because the product was more effective. A majority (59%) of school nurses had, at some time, recommended Nix[R] and the majority recommended its use two times, one week apart. The majority (59%) claimed they would not recommend Kwell shampoo over other OTC preparations if Kwell was available for OTC use. Questionable home remedies for head lice, such as vaseline and

mayonnaise in the hair, were recommended by 4% of the school nurses.

School nurses were asked to list those measures they believed could better help them treat head lice. They identified the following as being potentially helpful: publications for parent education (26%), more helpful parents (14%), cheaper OTC products (10%), better nit removal products (9%), and more effective OTC products (8%).

School nurse interactions with families resulted in a variety of recommendations (Table 2). Most (92%) never recommend fumigation of the entire house in cases of head lice. The majority (64%) also claimed they never would recommend the use of insecticide sprays to floors and upholstered furniture. Furthermore, a plurality (43%) never recommend treating all family members when a child in the family has head lice.

An overwhelming majority (79%) of the school nurses did not believe that, once a child comes to school with head lice, it is very likely there will be a major outbreak with other students. In addition, a majority (53%) of the school nurses did not believe it is difficult to eliminate a school head lice outbreak. When asked why a school population might have a difficult time eliminating a head lice infestation, the majority of nurses claimed it would most likely be because families do not take precautions to clear their environment of lice and eggs (82%), that families do not remove nits from their student's hair (81%), and that families do not use treatments correctly (70%). A majority (57%) of nurses also believed that it could be because some forms of lice are resistant to treatments.

Perceived Self-Efficacy of Head Lice Control

Most school nurses (63%) had a high efficacy expectation (scored 20 or more out of a potential 25) regarding their ability to control head lice (Table 3). Better than 9 of 10 school nurses believed they could accurately diagnose students with head lice (99%), instruct students and parents on how to correctly use lice treatment products (97%), and properly instruct students and parents on how to clear their environment of lice and lice eggs (95%). Most (66%) also had high outcome expectations (scored 20 or more out of a potential 25). They believed that by diagnosing students early (91%), properly instructing students and parents on the use of treatment products (85%), and by students and parents following their instructions (81%) it could help prevent a lice outbreak at school.

Table 3
Self-Efficacy of Head Lice Control of School Nurses

Subscale Item	Agree N	Agree (%)
Efficacy Expectations		
I believe I can accurately diagnose a student who has head lice.	378	(99)
I believe I am able to instruct students and parents on how to correctly use lice treatment products.	368	(97)
I believe I can properly instruct students and parents on how to clear their environment of lice and lice eggs.	362	(95)
I believe I can remove all the nits from a student's scalp through manual removal, or by instructing parents on manual removal.	268	(70)
I believe I am able to choose the best treatment to help cure head lice cases.	180	(47)
Outcome Expectations		

By adequately diagnosing students early, it can help prevent a school outbreak.	345	(91)
Properly instructing students and parents on the use of treatment products will help prevent an outbreak at school.	322	(85)
By following my instructions for clearing the environment, students and parents can prevent an outbreak.	309	(81)
By removing all the nits in all infested school children, it can help prevent an outbreak.	304	(80)
By using the best treatment, a family can help prevent an outbreak at school.	275	(72)
Outcome Values		
Eliminating head lice infestations is one of the many important roles of school nursing.	244	(69)
I find treating head lice to be professionally gratifying.	43	(11)

Subscale Item	Disagree N	(%)
Efficacy Expectations		
I believe I can accurately diagnose a student who has head lice.	0	(0)
I believe I am able to instruct students and parents on how to correctly use lice treatment products.	4	(1)
I believe I can properly instruct students and parents on how to clear their environment of lice and lice eggs.	5	(1)
I believe I can remove all the nits from a student's scalp through manual removal, or by instructing parents on manual removal.	72	(19)
I believe I am able to choose the best treatment to help cure head lice cases.	67	(18)
Outcome Expectations		
By adequately diagnosing students early, it can help prevent a school outbreak.	14	(4)
Properly instructing students and parents on the use of treatment products will help prevent an outbreak at school.	23	(6)
By following my instructions for clearing the environment, students and parents can prevent an outbreak.	30	(8)
By removing all the nits in all infested school children, it can help prevent an outbreak.	46	(12)
By using the best treatment, a family can help prevent an outbreak at school.	36	(9)
Outcome Values		
Eliminating head lice infestations is one of the many important roles of school nursing.	102	(27)
I find treating head lice to be professionally gratifying.	273	(72)

N=382

Agree = 5 or 4; Disagree = 1 or 2 on a 5-point scale

The school nurses split on two items that measured outcome values. Approximately two-thirds (69%) perceived eliminating head lice infestations as one of many important roles of school nursing. However, almost three of four (72%) did not find treating head lice to be professionally gratifying. Most (86%) had a low outcome value score (scored six or less out of a potential 10).

Age, Education, Experience, and Location of Nurses

Table 3
Self-Efficacy of Head Lice Control of School Nurses

Subscale Item	Agree N	Agree (%)	Disagree N	Disagree (%)
Efficacy Expectations				
I believe I can accurately diagnose a student who has head lice.	378	(99)	0	(0)
I believe I am able to instruct students and parents on how to correctly use lice treatment products.	368	(97)	4	(1)
I believe I can properly instruct students and parents on how to clear their environment of lice and lice eggs.	362	(95)	5	(1)
I believe I can remove all the nits from a student's scalp through manual removal, or by instructing parents on manual removal.	268	(70)	72	(19)
I believe I am able to choose the best treatment to help cure head lice cases.	180	(47)	67	(18)
Outcome Expectations				
By adequately diagnosing students early, it can help prevent a school outbreak.	345	(91)	14	(4)
Properly instructing students and parents on the use of treatment products will help prevent an outbreak at school.	322	(85)	23	(6)
By following my instructions for clearing the environment, students and parents can prevent an outbreak.	309	(81)	30	(8)
By removing all the nits in all infested school children, it can help prevent an outbreak.	304	(80)	46	(12)
By using the best treatment, a family can help prevent an outbreak at school.	275	(72)	36	(9)
Outcome Values				
Eliminating head lice infestations is one of the many important roles of school nursing.	244	(69)	102	(27)
I find treating head lice to be professionally gratifying.	43	(11)	273	(72)

Chi-square tests were calculated to examine if interactions existed between the independent variables, age of the nurses, education level, years of experience as a school nurse, and location of school (urban, suburban, or rural). No significant interactions occurred between age and location (3 x 3), age and level of education (3 x 2), location by level of education (3 x 2), or years of experience by location (3 x 3). However, significant differences occurred for age by years of experience ([X.sup.2] = 77.96, df = 4, p [is less than] .001), since the older they were the more experience they had; and years of experience by level of education ([X.sup.2] = 9.34, df = 2, p [is less than] .01), the more years of experience the more likely they were to have graduate level of education. Thus, analyses of the last independent variables by self-efficacy subscales were calculated by analysis of covariance to control for these interactions.

Efficacy expectations, outcome expectations, and outcome values were examined by education level of the nurses controlling for age and years of experience, and no significant differences occurred for any of the components. Efficacy expectations, outcome expectations, and outcome values were examined by age of the nurses controlling for years of experience and level of education, and no significant differences occurred. Finally, efficacy expectations, outcome expectations, and outcome values were examined by years of experience as a school nurse controlling for level of education and age, and there were no significant differences.

Sources of Information on Head Lice

School nurses were asked to "identify where they received the majority of their information on head lice by checking all that applied from a list of five potential choices and a category labeled "other." Most nurses received their information on head lice from professional journals (76%) and professional conferences/conventions (62%) (Table 4). Very few nurses had obtained information

on head lice from their coursework for their nursing degree.

Table 4
Sources of Information on Head Lice

Item	N	%
Professional journals	291	76
Professional conference/convention	236	62
Inservice education program	175	46
General mass media	116	30
Coursework for nursing degree	43	11
Other	162	42

DISCUSSION

Limitations of the study should be noted. First, the data collected were anonymous and self-reported; therefore, some nurses may have responded in a socially desirable manner. Second, the monothematic format of the survey instrument may have resulted in some respondents answering in a socially desirable manner. Last, the nurses who are members of the School Nurse Section of ASHA may not be representative of the majority of school nurses, possibly limiting the external validity of the results.

Head lice have become more common, and nearly 80% of school districts have at least one outbreak.[2] School nurses are fighting a frustrating war, and the lice seem to be gaining ground. School nurse respondents in this study sent students home from school until they were treated and most would not allow students back in school if nits remained in their hair after treatment. With an estimated 6 million elementary school students a year acquiring head lice, this fact may result in 12 to 24 million days of school lost, assuming each student were to lose two to four days for treatment. Furthermore, the psychological effects of excluding students from school for head lice infestations has not been adequately explored.

School nurses were most likely to recommend Nix[R] to control head lice, if they recommended a specific product. Furthermore, they indicated the main reason they recommended the product was because it was more effective. Nix[R] has been clinically recommended as the agent of choice for head lice treatment.[11] Thus, it is not surprising that the top selling OTC head lice product ending with the March 1, 1998 sales period was Nix[R].[12]

School nurses did not perceive it as difficult to eliminate a head lice infestation. Yet, when a school population had a difficult time eliminating a head lice infestation, they more often laid the "blame" on the families. They felt that families were not doing enough to clear their environment of lice and eggs, they were not adequately removing nits from their student's hair, and they were not correctly using treatments. Some families are not aware of the time commitment required to remove head lice. Some large cities even have professional nit removers for hire. Obviously, some families are not going to spend the time, money, and energy to do a good job of eliminating head lice. Possibly this is why when nurses were asked what would be helpful to them in fighting head lice, the first thing that they identified was publications for parent education.

School nurses had high self-efficacy scores regarding their abilities to deal with head lice. School nurses had high efficacy expectation scores regarding their ability to help cure student head lice cases. They were least certain about their ability to choose the best head lice treatment. School nurses also had high outcome expectations, believing that by doing the five efficacy expectations, it would prevent a school outbreak of head lice. However, only about two-thirds of the school nurses perceived eliminating head lice infestations to be one of the many important roles of school nursing,

and even fewer (11%) found it to be professionally gratifying. These results imply that school nurses are obtaining the information they need through professional publications and conferences, since few nurses had coursework for their nursing degree on this topic, or the nurses may be overestimating their skills in fighting head lice infestations. However, since the skills necessary to help eliminate student head lice infestations are not complex and the nurses correctly perceived that by doing the five efficacy expectations they would have positive outcomes, it is most likely the former rather than the latter.

Table 4
Sources of Information on Head Lice

Item	N	%
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Greater emphasis needs to be placed on the importance of school nurses dealing with head lice, since they may already possess the requisite skills. It may also be a function of the time available for school nurses to complete the variety of tasks they are expected to conduct and the limited amount of support available to them. None of the analyses of self-efficacy by age, education level, years of experience as a school nurse, or location of school were significant. This result is probably not surprising since few nurses (11%) identified formal coursework as addressing this subject. Nurses claimed they were most likely to obtain their information through professional journals. A review by the authors of published manuscripts found a dearth of readily accessible publications on head lice, and those that existed were not likely to be very useful to school nurses.

CONCLUSION

According to Brainerd, "The school nurse has a key responsibility in halting the spread of pediculosis."[10] We strongly support that belief. Furthermore, school nurses seem to have the skills to help reduce this problem. However, they do not seem to value this component of their job. Perhaps lack of support by school administrators, as evidenced by the number of schools nurses often have to cover,[12] results in inadequate time commitments for the less gratifying aspects of their jobs, which includes dealing with head lice infestations. Until school nurses receive more support for their jobs, solutions to head lice infestations will continue to languish.

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