

## **Effectiveness of ‘Structured Teaching Programme’ on the knowledge, attitude and practices regarding ‘Needle stick injury’ among the staff nurses of Civil Hospital Ludhiana**

Reena Robin<sup>1</sup>, O P Jangir<sup>2</sup>, Naresh Kumar\*,

<sup>1</sup>Department of Nursing, CMC Hospital, Ludhiana

<sup>2</sup>Department of Biotechnology, ICFAI University, Jaipur.

\*Department of Medical Laboratory Sciences, Lovely Professional University, Punjab.

### **\*Corresponding Author**

Dr. Naresh Kumar

Associate Professor

Department of Medical laboratory Technology

Lovely Professional university

[naresh.kumar@lpu.co.in](mailto:naresh.kumar@lpu.co.in)

**ABSTRACT:** The study was conducted on 32 staff nurses of Civil Hospital, Ludhiana. The result of the present study had been discussed in accordance with the aim of the study. It was an evaluatory study in which the knowledge attitude and practices were assessed for needle stick injury by the researchers. All the subjects were from the civil hospital Ludhiana. All the subjects were experienced with all having a minimum of 4 years’ experience. It had been analysed that majority 16 (50%) of the subjects were of age group of 40-49 Years, followed by 55-59 years 6 (18.75%). The number of subjects in the age group of 25-29 years was 4 (12.5%) all the subjects were females. The nursing staffs of all the wards were involved in the study. The educational qualification of 29 (90.62%) subjects was GNM and there were only 3 subjects with baccalaureate degree in nursing.

As per the first objective, and there was significant change happened in the result after post-test knowledge as compared to the pre-test. According to pre-test results 29 subjects had average and only 3 had good knowledge. While after the administration of STP, the post results showed that 24 had very good and 8 had good knowledge of NSI.

It was found that in pre interventional or pre-test score 4 subjects had a negative attitude toward NSI whereas it turned out to be 0 in the post-test findings after the implementation of STP and practices of the subjects regarding NSI. Majority of the subjects 20(62.5%) did not ever have NSI and only 12(37.5%) had NSI in the past.

**Keywords:** pre-test, structured teaching, knowledge and attitude, Ludhiana.

### **I. Introduction**

Needle-stick injury usually happened when healthcare professional dealing with patient either injecting the medicine or withdrawing the blood or during the recapping of needle or any

sharp contaminated with blood and percutaneous injury takes place to the handlers some the minor bleeding however if there is no bleeding the chances of blood-borne infection still there especially Hepatitis B virus -30%, Hepatitis C 10% and HIV 0.3%. [1, 2]

NSI is usually happening while healthcare professionals do their routine work like withdrawing the blood, injecting medicine intramuscularly but accident happens during recapping of needle and sharps handling for biomedical waste purpose once someone failure to discard it as per BMW rule 2016. [3]

It is a big concern for healthcare professionals because the number of such incidences has been increased; according the report approximately eight lac people affected with needle stick injury in US alone. In another study, it has been revealed that NSI burden at global level is more than 3.5 million. Needle-stick injury not only transmits the viral infection but also bacteria and protozoans. [4]

In a separate study, conducted in district general hospital on 300 healthcare professionals to show personnel experiences and attitudes on NSI and result showing that 279 healthcare worker (HCW) responded, 38% had experienced NSI one time and 74% got an injury during their career.[5] [6]However 80% HCW aware about health hazards of NSI but 51% reported NSI, physician found fewer reporters than nurses.[7] [8]

In tertiary care hospital New Delhi 2009, the same type of study was conducted in that finding was 55 % needle stick injury happened during blood collection and recapping, suturing 20%, vaccination 12% so here the condition is not good for healthcare worker and it depends up the attitudes of HCW. [9, 10]

### **Materials and Methods**

An evaluatory study to assess the effectiveness of 'Structured Teaching Programme' on the knowledge, attitude and practices regarding 'Needle stick injury' among the staff nurses of Civil Hospital Ludhiana, Punjab, 2011.[11]

**Research design** –An evaluative research design has been used to assess the effectiveness of Structured Teaching Programme on the knowledge, attitude and practices regarding needle stick injury among the staff nurses. [12]

**Research setting-** Research was conducted in Civil Hospital Ludhiana. In the year 2000, the hospital building was design near the old jail road, Field Ganj, Ludhiana. Under SMO there are 30 medical officers, 1 matron, 3 ward sisters and 32 staff nurses are working. The hospital includes Emergency Ward, Male Ward, Female ward, Trauma Unit, Operation Theatre, ICU,

Blood Bank, Dispensary, Dots centre, Laboratory, Maternal and Child Health Ward and OPDs. Both medical and surgical patients are admitted to the hospital. Most Common surgeries performed in the hospital are caesarian section, cholecystectomy, laparoscopy, laparotomy and male & female sterilization.

**Result analysis and discussion of data**

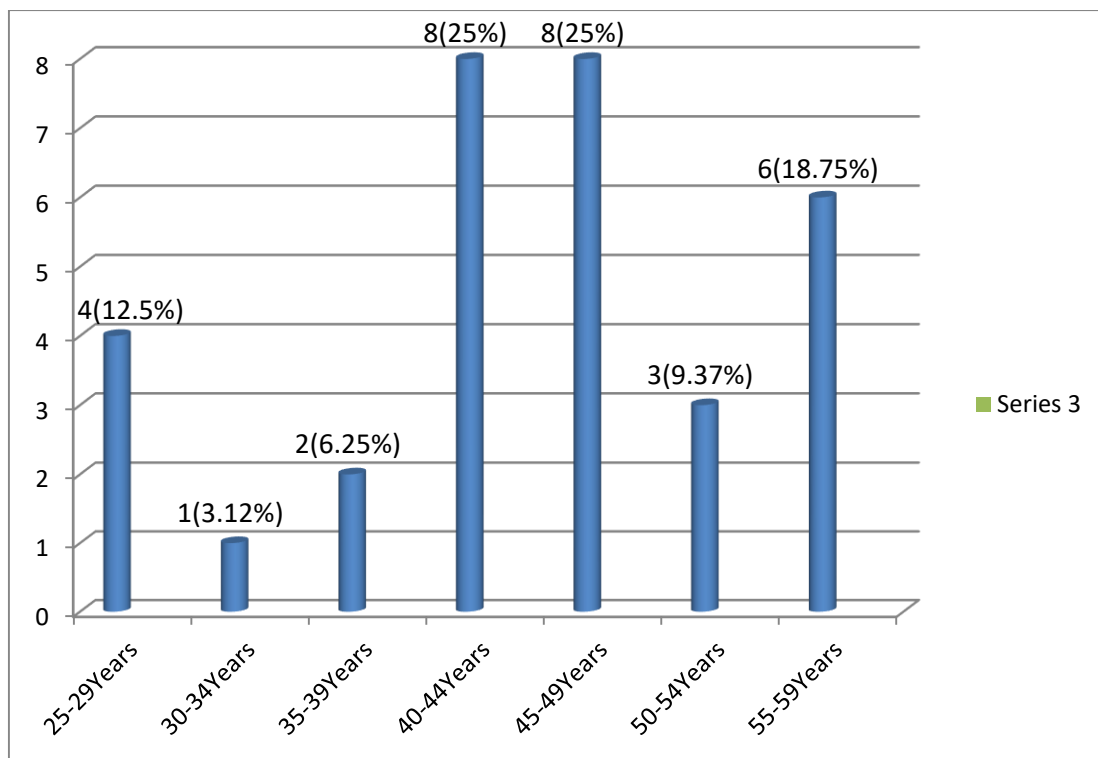
The chapter deal with analysis and interpretation of data obtained from a sample of 32 staff nurses, working in Civil Hospital Ludhiana in the month of March 2011.[13]

The study was carried out in Civil Hospital Ludhiana. A questionnaire was used to assess the pre-interventional level of knowledge, attitude and practices regarding needle stick injury.[14] A STP was conducted for all the subjects and the post-test was conducted after a period of 7-10 days to find post interventional level of knowledge and attitude regarding needle stick injury[15]. The analysis of data was done in accordance with the objectives of the study. [16]

**Table1: Socio-demographic profile of the subjects**

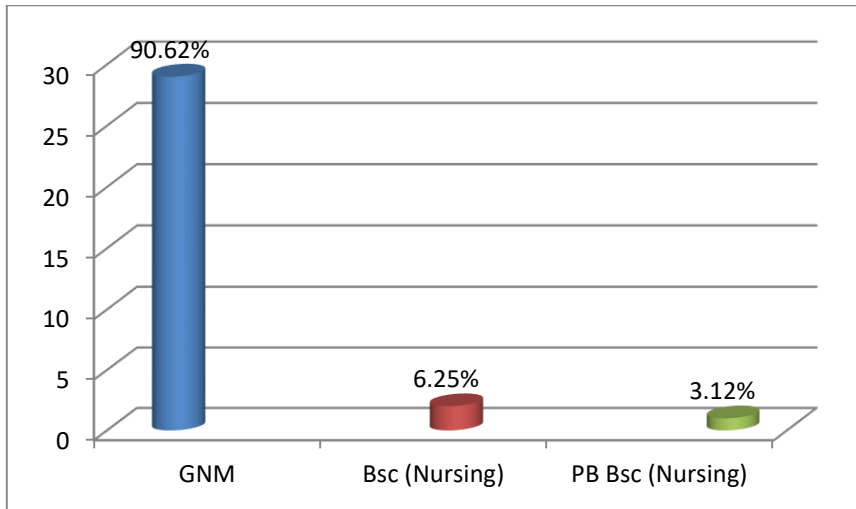
Characteristics	n (%)
<b>Age</b>	
25-29 years	4 (12.5)
30-34 years	1 (3.12)
35-39 years	2 (6.25)
40-44 years	8 (25)
45-49 years	8 (25)
50-54 years	3 (9.37)
55-59 years	6 (18.75)
<b>Sex</b>	
Male	Nil (0)
Female	32 (100)
<b>Work area</b>	
OT	5 (15.62)
Emergency	5 (15.62)
Trauma	3 (9.37)
Female ward	5 (15.62)
Male ward	5 (15.62)
Labor room	6 (18.75)
OPD	1 (3.12)
ECG	1 (3.12)
STI Clinic	1 (3.12)
<b>Qualification</b>	
GNM	29 (90.62)
BSc (Nursing)	2 (6.25)
PB BSc ( Nursing)	1 (3.12)

Table 1 shows the socio-demographic profile of the subjects. The majority, 16(50%) of the subjects are of the age group of 40-49 years, followed by 55-59 years 6(18.75%). The number of subjects in the age group of 25-29 years was 4 (12.5%). All the subjects were females. The staff nurses of all the wards were included in the study. The educational qualification of 29(90.62%) subjects was GNM and there were only 3 subjects with a baccalaureate degree in nursing. All the subjects were experienced, with all having a minimum of 4 years of experience.



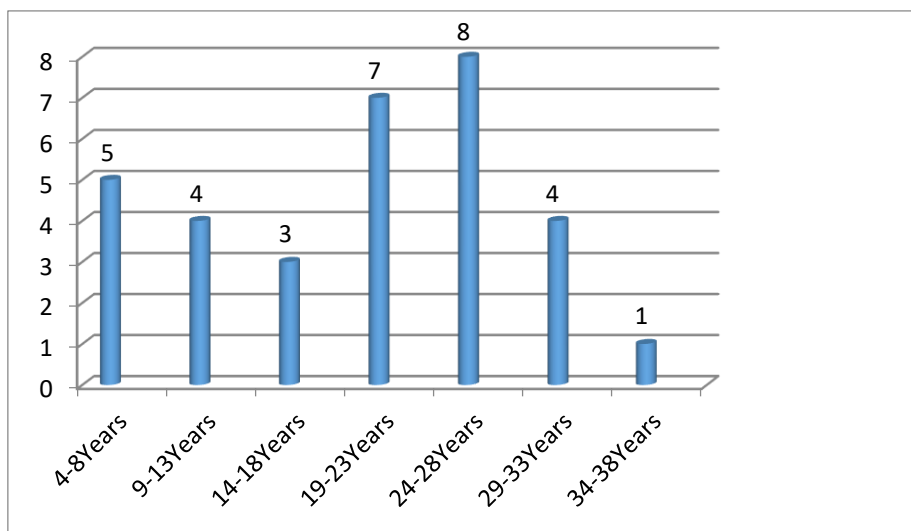
**Fig 1: Age wise distribution of the subjects.**

Fig. 1 shows the age-wise distribution of the subjects. 25% of subjects were between the age of 40-44 years, 25% of subjects were between the age of 45-49 years.18.75% of subjects were between the age of 55-59 years, 12.5% of subjects were between the of 25-29 years, 9.37% of subjects were between the age of 50-54 years, 6.25% of subjects were between the age of 35-39 years and remaining 3.12% were from the age group of 30-34 years.



**Fig 2: Education qualification of the subjects.**

Fig.2 shows the educational qualification of the subjects. It was found that 90.62% of the subjects have done GNM. 6.25% had BSc. Nursing and 3.12% with P. B. BSc Nursing degrees.



**Fig 3: Experience wise distribution of the subjects**

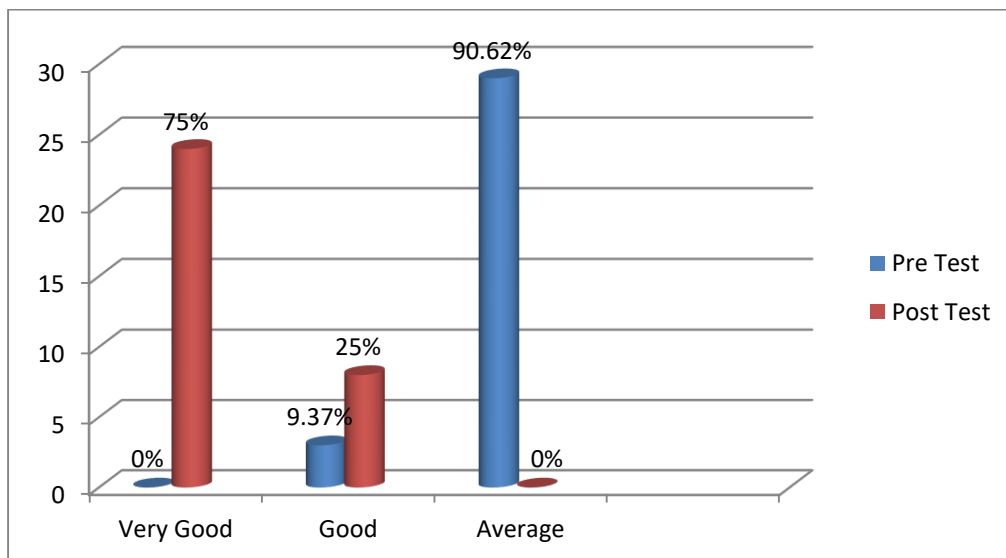
Fig 3 Shows that the majority of the 25% of subjects had 24-28 years’ experience, followed by 21.87% had 19-23 years’ experience.15.62% of subjects had 4-8 years’ experience,12.5% of subjects had 9-13 years’ experience, and other 12.5% of subjects had 29-33 years’

Remarks	No. of subjects in Pre- test	No. of subjects in Post- test
Very Good	0	24
Good	03	08
Average	29	0
Total	32	32

experience, 9.37% of subjects had 14-18 years’ experience and remaining 3.12% had 34-38 years’ experience.

**Table 2: Knowledge regarding NSI**

Table 2 shows the level of knowledge of the subjects regarding the needle stick injury. According to the pre-test results 29 subjects had average and only 3 had good knowledge. While, after the administration of STP, the post results showed that 24 had very well and 8 had good knowledge of NSI.



**Fig 4: Comparison of knowledge in pre-test and post test result**

Fig.4 shows the no. of subjects relating to the knowledge of the staff nurses regarding NSI.

	<b>Positive attitude (n)</b>	<b>Negative attitude (n)</b>
Pre- Test Findings	28	04
Post -Test Findings	32	0

The result shows that 90.62% of subjects had average knowledge and 9.37% of subjects had good knowledge in Pre-test but 75% of subjects had very good knowledge and 25% of subjects had good knowledge in Post-test.

### **Table 3: Attitude of the subject towards NSI**

Table 3 shows the difference in the attitudes of subjects before and after STP. It was found that in pre-interventional or pre-test score 4 subjects had negative attitude towards NSI whereas it turned out to be 0 in the post test findings after the implementation of STP.

### **Table 4: Practices of the subjects regarding NSI**

PRACTICES	YES	NO
	n (%)	n (%)
<b>Q 1 Did you ever have needle stick injury?</b>	12 (37.5)	20 (62.5)
<b>Q 2 Immediate care</b>		
• Washed hand immediately	6 (18.75)	26 (81.25)
• Squeezed and withdrawn the blood	3 (9.37)	29 (90.62)
• Washed with antiseptic	4 (12.5)	28 (87.5)
• Applied dressing	3 (9.37)	29 (90.62)
<b>Q 3 Post exposure care</b>		
• Informed doctor	14 (43.75)	18 (56.25)
• Underwent blood investigation	11 (34.37)	21 (65.62)
• Received PEP	8 (25)	24 (75)
• Received hepatitis B vaccine	1 (3.12)	31 (96.87)
<b>Q 4 Care of used needles / used sharps</b>		
• Burn needles	8 (25)	24 (75)
• Chemical disinfection	16 (50)	16 (50)
• Drop-in puncture-proof container	32 (100)	Nil (0)
• Discard in a cardboard container	Nil (0)	Nil (0)
<b>Q 5 Other</b>		
• Recapping needles after use	Nil (0)	Nil (0)
• Putting a finger in mouth to squeeze blood	Nil (0)	Nil (0)
• Sought no treatment	6 (18.75)	26 (81.25)
• Using needle cutter regularly	22 (68.75)	10 (31.25)
<b>Q 6 When do you empty the sharp container</b>		
• It is not the duty of staff nurses, only servants check and empties it	2 (6.25)	30 (93.75)
• Every day in the morning shift	8 (25)	24 (75)
• once its 2/3 <sup>rd</sup> filled	9 (28.12)	23 (71.87)
• Every time when the disinfectant solution of the sharps container is changed	13 (40.62)	19 (59.37)



Table 4 shows that the majority of the subjects 20(62.5%) did not ever have NSI and only 12 (37.5%) had NSI in the past.[17]

Regarding immediate care, 6(18.75%) subjects practice immediate hand washing, followed by 4(12.5%) subjects practice wash hands with antiseptic. 3(9.37%) subjects practice to squeezed and withdrawn the blood and applied dressing. Regarding Post care 14(43.75%) subjects practice to inform the doctor.[16]

Regarding care of the used needles/ used sharps maximum 32(100%) subjects' practices to drop the sharps in puncture-proof container. 16 (50%) subjects answered that all sharps should be chemically disinfected.[15]

About other care 22(68.75%) subjects are using needle cutter regularly. According to 13 (40.62%) of the subjects, the best time to empty the sharp container is every time when the disinfectant solution of the sharps is changed.

### **Conclusion**

In this study the HCW included for study experienced. But according to the analysis the majority 16 (50%) of the subjects were of age group of 40-49 Years, followed by 55-59 years 6 (18.75%).[18] The number of subjects in the age group of 25-29 years was 4 (12.5%) all the subjects were females. The nursing staffs of all the wards were involved in the study. The educational qualification of 29 (90.62%) subjects was GNM and there were only 3 subjects with baccalaureate degree in nursing.

As per the first objective, and there was significant change happened in the result after post-test knowledge as compared to the pre-test. According to pre-test results 29 subjects had average and only 3 had good knowledge. While after the administration of STP, the post results showed that 24 had very good and 8 had good knowledge of NSI.[19]

It was found that in pre interventional or pre-test score 4 subjects had a negative attitude toward NSI whereas it turned out to be 0 in the post-test findings after the implementation of STP and practices of the subjects regarding NSI. Majority of the subjects 20(62.5%) did not ever have NSI and only 12(37.5%) had NSI in the past.[20]

### **Conflict of Interests**

The authors declare that there is no conflict of interests regarding the publication of this paper

**References**

- [1] A. Prüss-Üstün, E. Rapiti, and Y. Hutin, "Estimation of the global burden of disease attributable to contaminated sharps injuries among health-care workers," *American journal of industrial medicine*, vol. 48, no. 6, pp. 482-490, 2005.
- [2] S. C. McClinsey, "Occupational exposure to HIV: considerations for postexposure prophylaxis and prevention," *The Nursing clinics of North America*, vol. 34, no. 1, pp. 213-225, 1999.
- [3] EPINet, "Exposure prevention information network data reports," 1999.
- [4] D. M. Bell, "Human immunodeficiency virus infection and needle stick injuries," *The Pediatric infectious disease journal*, vol. 15, no. 3, pp. 277-278, 1996.
- [5] B. Elmiyeh, I. Whitaker, M. James, C. Chahal, A. Galea, and K. Alshafi, "Needle-stick injuries in the National Health Service: a culture of silence," *Journal of the Royal Society of Medicine*, vol. 97, no. 7, pp. 326-327, 2004.
- [6] A. Bhargava, B. Mishra, A. Thakur, V. Dogra, P. Loomba, and S. Gupta, "Assessment of knowledge, attitude and practices among healthcare workers in a tertiary care hospital on needle stick injury," *International journal of health care quality assurance*, vol. 26, no. 6, pp. 549-558, 2013.
- [7] S. L. Lusk and W. A. Robbins, "Postexposure prophylaxis for HIV exposed health care workers," *Aaohn Journal*, vol. 48, no. 3, pp. 148-151, 2000.
- [8] S. Gulaganji, "Knowledge Regarding Needle Stick Injury among Student Nurses," *Journal of Nursing Science & Practice*, vol. 6, no. 1, pp. 39-42, 2019.
- [9] B. N. Doebbeling *et al.*, "Percutaneous injury, blood exposure, and adherence to standard precautions: are hospital-based health care providers still at risk?," *Clinical Infectious Diseases*, vol. 37, no. 8, pp. 1006-1013, 2003.
- [10] M. E. Hernandez, M. Bruguera, T. Puyuelo, J. M. Barrera, J. M. S. Tapias, and J. Rodés, "Risk of needle-stick injuries in the transmission of hepatitis C virus in hospital personnel," *Journal of hepatology*, vol. 16, no. 1-2, pp. 56-58, 1992.
- [11] C. Leliopoulou, H. Waterman, and S. Chakrabarty, "Nurses failure to appreciate the risks of infection due to needle stick accidents: a hospital based survey," *Journal of Hospital Infection*, vol. 42, no. 1, pp. 53-59, 1999.

- [12] C. Shen, J. Jagger, and R. D. Pearson, "Risk of needle stick and sharp object injuries among medical students," *American journal of infection control*, vol. 27, no. 5, pp. 435-437, 1999.
- [13] D. R. Smith, W. Smyth, P. A. Leggat, and R. S. Wang, "Needlestick and sharps injuries among nurses in a tropical Australian hospital," *International Journal of Nursing Practice*, vol. 12, no. 2, pp. 71-77, 2006.
- [14] E. Au, J. Gossage, and S. Bailey, "The reporting of needlestick injuries sustained in theatre by surgeons: are we under-reporting?," *Journal of Hospital Infection*, vol. 70, no. 1, pp. 66-70, 2008.
- [15] S. Maheswari and G. Muthamilselvi, "Assess the Effectiveness of Structured Teaching Programme on Universal Precaution among Class IV Employees Working at Aarupadai Veedu Medical College and Hospital, Puducherry, India," *American Journal of Nursing Research*, vol. 2, no. 2, pp. 26-30, 2014.
- [16] A. Khan, A. Rahman, M. Pietroni, and M. Salam, "Experience of needle-stick injury among healthcare providers at an urban diarrhoeal-disease hospital in Bangladesh," *Annals of Tropical Medicine & Parasitology*, vol. 103, no. 4, pp. 365-368, 2009.
- [17] H. Wang, K. Fennie, G. He, J. Burgess, and A. B. Williams, "A training programme for prevention of occupational exposure to bloodborne pathogens: impact on knowledge, behaviour and incidence of needle stick injuries among student nurses in Changsha, People's Republic of China," *Journal of advanced nursing*, vol. 41, no. 2, pp. 187-194, 2003.
- [18] A. Ayub, A. Goyal, A. Kotwal, A. Kulkarni, A. Kotwal, and A. Mahen, "Infection control practices in health care: Teaching and learning requirements of medical undergraduates," *medical journal armed forces india*, vol. 69, no. 2, pp. 107-112, 2013.
- [19] L. Yang and B. Mullan, "Reducing needle stick injuries in healthcare occupations: an integrative review of the literature," *ISRN nursing*, vol. 2011, 2011.
- [20] S. Wicker, J. Jung, R. Allwinn, R. Gottschalk, and H. F. Rabenau, "Prevalence and prevention of needlestick injuries among health care workers in a German university hospital," *International archives of occupational and environmental health*, vol. 81, no. 3, p. 347, 2008.