EMERGENCY MANAGEMENT OF TRAUMATIC DENTAL INJURIES AMONG NURSING INTERNS- CRONBACH'S ALPHA RELIABILITY ANALYSIS AND PERCENTAGE ANALYSIS

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ABSTRACT

BACKGROUND

Nursing interns play substantial role in the department of emergency, and they are in the first line health-care service in trauma. Responsive dealing by them becomes the influential factor for the prognosis of traumatic dental injuries. This survey was done to estimate the proper knowledge and awareness with reference to the emergency management of traumatic dental injuries among nursing interns in School of Nursing, K.A.P.V. Govt. Medical College, Trichy. A questionnaire with 12 elements in regard to clinical circumstances and awareness of dental trauma and tooth avulsion are gathered from 179 intern nurses. To test the reliability of the survey items, Cronbach's alpha coefficient is used. Also, the frequency distributions and percentages are examined for each item.

METHODS

A descriptive and cross-sectional study with a quantitative approach among nursing interns of second year and third year students was conducted in School of Nursing, K.A.P.V. Govt. Medical College, Trichy. Prior Permission obtained to conduct the review in school of nursing, K.A.P.V. Government Medical College, Trichy. The study period was from January 2019 to March 2019. Acknowledgment of all participants has been obtained and strict confidentiality was guaranteed to participants and maintained throughout the process of study. The total sample size was 179 female interns which represented the above-mentioned college.

RESULTS

A total of 179 nursing interns actively participated in the study, and returned back the completed questionnaires on the same day. The first part contained about the demographic features and earlier exposure relevant to the avulsion tooth for analysis. All the respondents were female and 95% (152 nursing interns) were between the age of 18 to 21 years and 5% (8 nursing interns) were between the ages of 25 to 28 years.

CONCLUSIONS

Knowledge related to emergency management of tooth avulsion is important for first line health care service provider. Nursing interns in due time will be managing patients in emergency situations. Hence, dental education is needed in order to ensure suitable treatment to the patients posing with such emergencies. The present study shows the awareness in management of an avulsed tooth among nursing interns. Hence the survey was done to estimate the proper knowledge and awareness with reference to the emergency management of traumatic dental injuries among nursing interns in School of Nursing, K.A.P.V. Govt. Medical College, Trichy, with the help of a questionnaire with 12 elements with regard to clinical circumstances and awareness of dental trauma and tooth avulsion gathered from 160 intern nurses.

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BACKGROUND

Dental trauma is one of the critical oral health problems and can lead to more distress and pain. It varies from a minor enamel chip to extensive maxillofacial injury including the supporting structures.[1] There is no dental problem that may have a greater psychological impact for the parents and the children than the loss or breakage of teeth. Primary and permanent teeth are not only important for aesthetics, but also for phonetics, good psychological and mental health.[2] The studies revealed that most of the dental accidents were occurred primarily at home and then in school. The most severe dental damage is avulsion of tooth. The most important factor in deciding the prognosis of a replanted tooth is the viability of the periodontal ligament which is left on the root prior to replantation.[3] Medical management can be complicated and includes the application of number of diagnostic supports and treatment procedures. Proper intervention can play a major role in improving the prognosis of traumatic tooth.[4] The prediction depends on the most correct and immediate emergency management and perfect advice which may often be the duty of nursing interns who are in emergency management.

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Gender- n (%)	
Female	179 (100%)
Age Group (years)- n (%)	
<25 Years	171 (95.53%)
>25 Years	08 (4.47%)
Months of Internship- Experience - n (%)	
18 Months	89 (49.7%)
30 Months	90 (50.27%)

Table 1. Demographic Characteristics

Sl. No.	Questions	Response	n (%)
1.	Have you come across an accident where a tooth was 'knocked out' (avulsed)	Yes	73 (45.6%)
		No	87 (54.4%)
2.	Do you know about the mouth guards that are used to prevent the teeth	Yes	131 (81.8%)
		No	29 (18.2%)
3.	Have you received advice on what to do when a permanent tooth was knocked out in an accident	Yes	86 (52.8%)
		No	74 (47.2%)
4.	Would you like to attend an educational programme on management of dental trauma	Yes	127 (78.6%)
		No	23 (21.4%)
5.	Can a primary tooth (milk teeth) be replaced back	Yes	54 (33.7%)
		No	71 (44.37%)
		Don't know	35 (21.93%)
6.	Do you think it is important to have an educational programme in 'Management of Dental Trauma'	Yes	149 (93.00%)
		No	07 (4.5%)
		Don't know	04 (2.5%)
7.	Are you satisfied with your knowledge on the management of dental trauma	Yes	126 (78.65%)
		No	30 (18.85%)
		Don't know	04 (2.5%)
8.	How urgent do you feel that a dentist's opinion is needed	Immediate	34 (21.34%)
		Within 30 min	43 (26.96%)
		Within few hrs	70 (43.82%)
		Before next day	07 (4.375%)
		Others	06 (3.53%)
9.	What would you do if the 'knocked out' tooth was covered with dirt	Scrub the tooth to remove the dirt	20 (12.3%)
		Rinse with tap water	84 (52.32%)
		Wash with sterile saline	40 (24.7%)
		Wash with hydrogen peroxide	10 (7.15%)
		Would do nothing	06 (3.53%)
10.	What would you do if the 'knocked out' tooth was broken	Still put back the tooth into the socket	26 (16.4%)
		Take the broken tooth to the dentist	88 (55.05%)
		Would not be concerned about the broken piece	38 (23.5%)
		Do not know	08 (0.05%)
		Other, please state	0.0 (0.0%)
11.	How would you keep the tooth till you reach the Dentists	Ice	44 (27.5%)
		Tap water	05 (3.125%)
		Wet hand kerchief	59 (36.875%)
		Sterile saline	22 (13.75%)
		Cotton pad	18 (11.25%)
		Child's mouth	00 (0.00%)
		Any aseptic solution	03 (1.875%)
		Milk	05 (3.125%)
		Other, please state___	04 (2.5%)
12.	If you come across a child with an avulsed tooth what would you do	Refer the child immediately to the dentist	32 (20.22%)
		Put back the teeth back into the socket and rush to the dentist	6 (3.53%)
		Wash the child's mouth with tap water and take the tooth in the wet cloth	122 (76.25%)

Table 2. Prior Exposure Related to Avulsion of Teeth

It is important to ensure the knowledge and practices of nursing interns at hospitals those with nearby contact with patients.[5] The international survey shows that there exists the lack of knowledge of nursing interns at the emergency center associated with immediate emergency management of dental trauma. Hence this study includes the nursing interns and providing information is one of the possible ways to increase the awareness of dental first aid.[6-23] Nursing interns play substantial role in the department of emergency and they are in first line health-care service at once following the dental trauma. Before planning information disputes, it is necessary to assess the knowledge level of nursing interns. The focus of this study was to evaluate nursing interns' awareness of the emergency management of traumatized primary and permanent teeth with the help of questionnaire in a sample of 179 nursing interns from School of Nursing, K.A.P.V. Govt. Medical College, Trichy.

Table 1 shows the demographic Characteristics of the survey which includes gender, and experience of the nursing interns respectively. Totally 179 dental interns are expected to participate in the survey and the questionnaire is distributed. The data is debugged and while debugging the 19 respondents are removed from the analysis and the total 160 responses are considered for the survey. Table 1 shows the number of respondents and corresponding percentages. Table 2 shows the 12 components of the questionnaire to analyse the knowledge and prior exposure to avulsion of teeth among the nursing interns. Table 2 also shows the division of responses in each component and the number of respondents and corresponding percentages for each division of response in each questionnaire for the total of 160 respondents.

METHODS

A descriptive and cross-sectional study with a quantitative approach among nursing interns of second year and third year students was conducted in School of Nursing, K.A.P.V. Govt. Medical College, Trichy. Prior Permission obtained to conduct the review in school of nursing, K.A.P.V. Government Medical College, Trichy. The study period was from January 2019 to March 2019. Acknowledgment of all participants has been obtained and strict confidentiality was guaranteed to participants and maintained throughout the process of study. The total sample size was 179 female interns which represented the above-mentioned college. The queries in the questionnaire are modified from the queries used in previous courses of study. The questionnaire consists of 12 queries and it was in English language. It comprises of queries on demographic and professional data consisting gender, age, earlier experience with management of tooth avulsion, undertaken formal training/ gained knowledge on the management of avulsed teeth by participating an educational program on "management of dental trauma" and if they would differentiate primary teeth from permanent teeth and queries targeted at evaluating the knowledge and attitude of nursing interns on the effective management of dental traumatic injuries. All collected questionnaires analysed using SPSS 21.0 after cleaning all the data obtained during the study from 179 nursing interns and the Pearson's Chi-square test was adapted to evaluate the associations between the independent variables and knowledge related to avulsion management among the nursing interns. The collected data is evaluated using descriptive statistics. Cronbach's alpha is calculated to analyse the internal consistency of the analysis. Cronbach's alpha is a reliability coefficient used to measure the correlation between the answers given by the interns in the framed questionnaire. Alpha value close to 1.0 indicates that all components in the questionnaire measure the true score and that there exist no error items.

RESULTS

A total of 179 nursing interns actively participated in the study and returned back the completed questionnaires on the same day. The first part contained about the demographic features and earlier exposure relevant to the avulsion tooth for analysis. All the respondents were Female and 95% (152 nursing interns) were between the age of 18 to 21 years and 5% (8 nursing interns) were between the ages of 25 to 28 years. Total 100% are the nursing interns of second and third year of the above-mentioned college. In the analysis of the internal consistency, the Cronbach Alpha result (Table 3) for the total score is 0.907 with twelve items in the questionnaire (Table 2) and three components in Table 1.

Cronbach's Alpha	N of Items
0.907	15

Table 3. Cronbach's Alpha

Frequency distributions and percentages were analysed for all the answers in the 12 components of the questionnaire and are given below. Table 4 shows the gender of the respondent and indicates all the respondents are females.

Sl. No.	Gender	Frequency	Percent
1.	Female	160	100.0
	Total	**160**	**100.0**

Table 4. Gender of The Respondents

Table 5 shows the age of the respondent. Here 152 respondents belong to age group below 25 and only 8 members above 25.

Sl. No.	Age	Frequency	Percent
1.	<25	152	95.0
2.	>25	8	5.0
	Total	**160**	**100.0**

Table 5. Age of The Respondents

Table 6 shows the training period for the Respondent. Here 89 respondents receive 18 months of training and 71 respondents receive 30 months of training.

Sl. No.	Training Period in Months	Frequency	Percent
1.	18	89	55.6
2.	30	71	44.4
Total		**160**	**100.0**

Table 6. Training Period for The Respondents

Table 7 indicates whether the respondents come across knocked out tooth. Here 73 respondents come across knocked out tooth and 87 respondents say they didn't come across knocked out tooth.

Sl. No.	Have you Come Across an Accident Where a Tooth was 'Knocked Out' (Avulsed)	Frequency	Percent
1.	Yes	73	45.6
2.	No	87	54.4
	Total	**160**	**100.0**

Table 7. Coming Across Knocked Out Tooth

Table 8 indicates awareness of mouth guards that are used to prevent the teeth. Here 131 respondents aware of mouth guards, 29 respondents don't know about mouth guards.

Sl. No.	Do you Know About the Mouth Guards That are Used to Prevent the Teeth	Frequency	Percent
1.	Yes	131	81.9
2.	No	29	18.1
Total		**160**	**100.0**

Table 8. Response on Mouth Guards

Table 9 indicates awareness of what to do when a permanent tooth was knocked out in an accident. Here 86 persons responded that they received advice regarding management of knocked out permanent teeth, 74 persons responded that they have not received any advice.

Sl. No.	Have you Received Advice on What to do When a Permanent Tooth was Knocked Out in an Accident	Frequency	Percent
1.	Yes	86	53.8
2.	No	74	46.3
Total		**160**	**100.0**

Table 9. Advice on What to Do When A Permanent Tooth Was Knocked Out in An Accident

Table 10 indicates willingness to an educational programme on management of dental trauma. Here 127 respondents said that they attended educational programme on management of dental trauma, and 33 respondents said that they don't want to attended educational programme on management of dental trauma.

Sl. No.	Would you Like to Attend an Educational Programme on Management of Dental Trauma	Frequency	Percent
1.	Yes	127	79.4
2.	No	33	20.6
Total		**160**	**100.0**

Table 10. Attending Educational Programme on Management of Dental Trauma

Table 11 indicates whether the respondents were aware of replacement of milk teeth. Here 54 respondents aware of replacement of the milk teeth, 71 respondents are not aware of replacement of milk teeth and 35 respondents answered don't know.

Sl. No.	Can a Primary Tooth (Milk Teeth) be Replaced Back	Frequency	Percent
1	Yes	54	33.7
2	No	71	44.37
3	Don't Know	35	21.93
Total		**160**	**100.0**

Table 11. Response on Replacement of Milk Teeth

Table 12 indicates the importance of educational programme on management of dental trauma. Here 149 respondents said that educational programme on management of dental trauma is important, 7 respondents said that the educational programme on management of dental trauma is not important, and 4 respondents answered don't know.

Sl. No.	Do you Think it is Important to Have an Educational Programme in 'Management of Dental Trauma'	Frequency	Percent
1.	Yes	149	93.1
2.	No	7	4.4
3.	Don't Know	4	2.5
Total		**160**	**100.0**

Table 12. Important to Have an Educational Programme in 'Management of Dental Trauma'

Table 13 indicates the satisfaction of knowledge on management of dental trauma. Here 126 respondents said that they are satisfied with their knowledge on management of dental trauma, 30 respondents said that they are not satisfied with their knowledge on management of dental trauma, and 4 are neutral about their knowledge received on management of dental trauma.

Sl. No.	Are you Satisfied with Your Knowledge on the Management of Dental Trauma	Frequency	Percent
1.	Yes	126	78.8
2.	No	30	18.8
3.	Don't Know	4	2.5
Total		**160**	**100.0**

Table 13. Satisfied with Your Knowledge on The Management of Dental Trauma

Table 14 indicates the actions to be taken if a child is with avulsed tooth. Here 32 respondents say they immediately contact the dentist, 6 respondents say they place the avulsed tooth in the socket, 122 respondents said that they wash the child's mouth before reaching the dentist.

Sl. No.	If you Come Across a Child with an Avulsed Tooth What Would You Do?	Frequency	Percent
1.	Refer the child immediately to the dentist	32	20.0
2.	Put back the teeth back into the socket and rush to the dentist	6	3.8
3.	Wash the child's mouth with tap water and take the tooth in the wet cloth	122	76.3
Total		**160**	**100.0**

Table 14. Child with Avulsed Tooth

Table 15 indicates the urgency for the dentist opinion. Here 34 respondents said that they will immediately contact the dentist, 43 respondents said that they will contact within 30 minutes, 70 respondents said that they will contact within few hours, 7 said that they will contact the next day only, 6 said that they have no idea on contacting of the dentist.

Sl. No.	How Urgent do you Feel That a Dentist's Opinion is Needed	Frequency	Percent
1.	Immediate	34	21.3
2.	Within 30 min.	43	26.9
3.	Within Few Hrs	70	43.8
4.	Before Next Day	7	4.4
5.	Others	6	3.8
Total		**160**	**100.0**

Table 15. Urgency for Dentist Opinion

Table 16 indicates the steps to be taken when the knocked-out teeth covered with dirt. Here 20 respondents say they scrub the dirt teeth, 81 respondents said that they rinse with tap water, 41 respondents said that they use saline to clean, 12 respondents said that they clean the dirt teeth with hydrogen peroxide, and 6 respondents said that they do nothing with dirt teeth.

Sl. No.	What Would you Do if the 'Knocked Out' Tooth was Covered With Dirt	Frequency	Percent
1.	Scrub the tooth to remove the dirt	20	12.5
2.	Rinse with tap water	81	50.6
3.	Wash with sterile saline	41	25.6
4.	Wash with hydrogen peroxide	12	7.5
5.	Would do nothing	6	3.8
	Total	**160**	**100.0**

Table 16. 'Knocked Out' Tooth was Covered with Dirt

Table 17 indicates the steps to be taken when the knocked-out teeth was broken. Here 26 respondents said that they place the tooth in the socket even if it is broken, 87 respondents said that they contact the dentist, 38 respondents said that they don't consider the broken tooth, 9 respondents said that they don't know about the action over the broken tooth.

Sl. No.	What would You do if the 'Knocked Out' Tooth was Broken	Frequency	Percent
1.	Still put back the tooth into the socket	26	16.3
2.	Take the broken tooth to the dentist	87	54.4
3.	Would not be concerned about the broken piece	38	23.8
4.	Do not know	9	5.6
	Total	**160**	**100.0**

Table 17. Knocked Out Tooth was Broken

Table 18 indicates how to keep the teeth till reaching the dentist. Here 44 respondents said that they keep the teeth in ice, 5 respondents said that they keep the teeth in tap water, 59 respondents said that they keep the teeth in wet hand kerchief, 22 respondents said that they keep the teeth in saline, 19 respondents said that they keep the teeth in cotton, 3 respondents said that they keep the teeth in aseptic solution, 5 respondents said that they keep the teeth in milk, 3 respondents said that they go for other options.

Sl. No.	How would You Keep the Tooth Till You Reach the Dentists	Frequency	Percent
1	Ice	44	27.5
2	Tap water	5	3.1
3	Wet hand kerchief	59	36.9
4	Sterile saline	22	13.8
5	Cotton pad	19	11.9
6	Any aseptic solution	3	1.9
7	Milk	5	3.1

8	Child Mouth	-	-
9	Others	3	1.9
	Total	**160**	**100.0**

Table 18. How to Keep the Tooth Till you Reach the Dentists

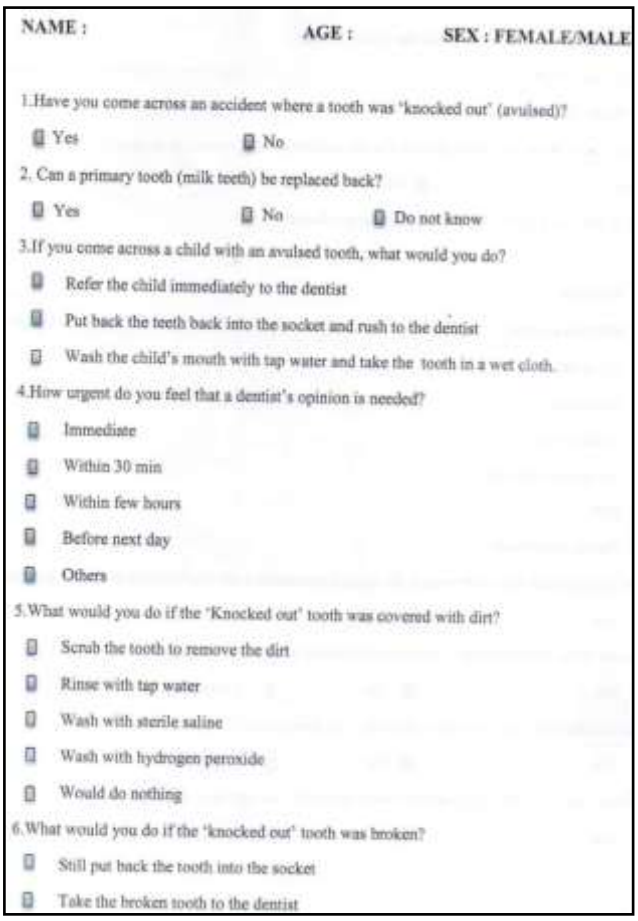
DISCUSSION

The survey conducted from January 2019 to March 2019 and the detailed analysis reveals that the questions 8, 9, 10 and 11 are the most important questions in the well framed questionnaire (Table 2). The analysis shows that the response 'Immediate' is the correct answer for the question number 8 (Table 2). The correct respondents for the above question are only 34 (21.34%). Also, from the analysis, the response 'Rinse with tap water' is the correct answer for the question number 9 (Table 2). The correct respondents for the above question are only 84 (52.32%). Also, from the analysis, the response still put back the tooth in socket is the correct answer for the question number 10 (Table 2). The correct respondents for the above question are only 26 (16.4%) and the next best option is 'Child's Mouth' for question number 11. There are no respondents for the above question (Table 18). From these four important elements / Components 8, 9, 10 and 11 it is concluded that the knowledge level of managing avulsed tooth among the nursing interns needs to be improved by all means of available training/ education in order to enhance their awareness.

CONCLUSIONS

Knowledge related to emergency management of tooth avulsion is important for first line health care service provider. Nursing interns in due time will be managing patients in emergency situations. Hence, dental education is needed in order to ensure suitable treatment to patients posing with such emergencies. The present study evaluates the awareness regarding management of an avulsed tooth among nursing interns. Hence the survey was done to estimate the proper knowledge and awareness with reference to the emergency management of traumatic dental injuries among nursing interns in School of Nursing, K.A.P.V. Govt. Medical College, Trichy with the help of a questionnaire with 12 elements with regard to clinical circumstances and awareness of dental trauma and tooth avulsion gathered from 160 intern nurses. The reliability of the surveyed items was tested using Cronbach's alpha coefficient and the frequency distributions and percentages were examined for each item. After the survey, the answers to questions 8, 9, 10 and 11 reveal the inadequate knowledge and awareness among nursing interns. The knowledge level of managing avulsed tooth among the nursing interns needs to be improved in order to enhance their knowledge.

Appendix


NAME : AGE : SEX : FEMALE/MALE

1.Have you come across an accident where a tooth was 'knocked out' (avulsed)?

Yes No

2. Can a primary tooth (milk teeth) be replaced back?

Yes No Do not know

3.If you come across a child with an avulsed tooth, what would you do?

Refer the child immediately to the dentist

Put back the teeth back into the socket and rush to the dentist

Wash the child's mouth with tap water and take the tooth in a wet cloth.

4.How urgent do you feel that a dentist's opinion is needed?

Immediate

Within 30 min

Within few hours

Before next day

Others

5.What would you do if the 'Knocked out' tooth was covered with dirt?

Scrub the tooth to remove the dirt

Rinse with tap water

Wash with sterile saline

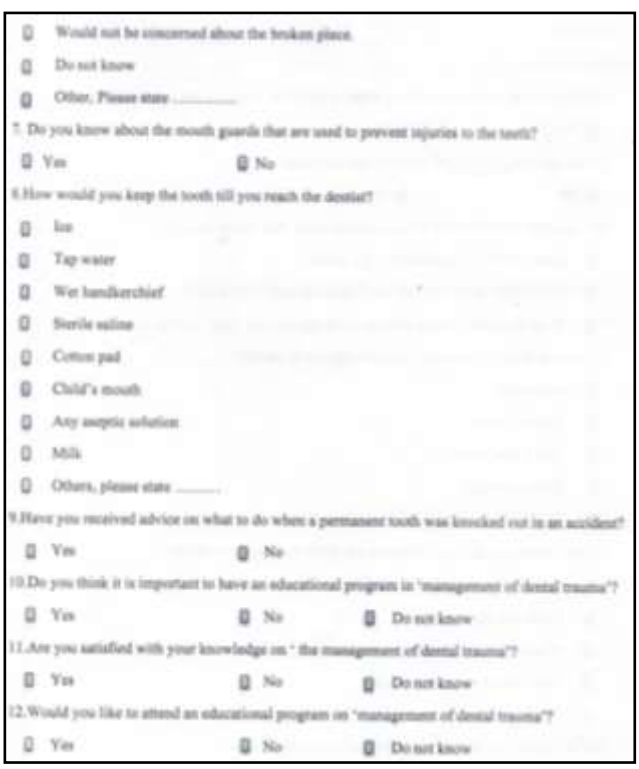
Wash with hydrogen peroxide

Would do nothing

6.What would you do if the 'knocked out' tooth was broken?

Still put back the tooth into the socket

Take the broken tooth to the dentist


Would not be concerned about the broken piece

Do not know

Other, Please state .....

7. Do you know about the mouth guards that are used to prevent injuries to the teeth?

Yes No

8.How would you keep the tooth till you reach the dentist?

Ice

Tap water

Wet handkerchief

Sterile saline

Cotton pad

Child's mouth

Any aseptic solution

Milk

Others, please state .....

9.Have you received advice on what to do when a permanent tooth was knocked out in an accident?

Yes No

10.Do you think it is important to have an educational program in 'management of dental trauma'?

Yes No Do not know

11.Are you satisfied with your knowledge on ' the management of dental trauma'?

Yes No Do not know

12.Would you like to attend an educational program on 'management of dental trauma'?

Yes No Do not know

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