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A crossover study to assess the effectiveness of helper skin tap technique on procedural pain among adult patients receiving intramuscular injection in government medical college and hospital sector-32 Chandigarh

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Abstract

Aim: The objective of the study was to assess the level of pain experienced during intramuscular injection using Helper skin tap and conventional technique.

Experimental approach: Quantitative research approach with cross-over design was used in the study along with systematic random sampling technique to select 40 subjects visiting GMCH, Chandigarh.

Major findings: The mean and standard deviation value of pain by Helper skin tap technique was 2.25 ± 1.006 and 0.63 ± 0.705 at 1 minute and 3 minutes respectively whereas by conventional technique, it was 3.68 ± 0.917 and 1.05 ± 0.815 at 1 minute and 3 minutes respectively. The 't' value was found to be 5.019.

Conclusion: The study concluded that the adults who had received intramuscular injection via Helper Skin Tap technique had experienced less pain as compared to conventional technique.

Keywords: Effectiveness, helper skin tap technique, conventional technique, pain, adults

Introduction

Helper skin tap technique involves simultaneous tapping the skin at the injection site several times while the needle is inserted and removed with the palmer aspect of the fingers of the dominant hand which provides muscle distraction and relaxation. It is a comprehensible intervention which aims to lower the procedural pain intensity during administration of injection by intramuscular route.

Materials and Methods

Research Approach: Quantitative research approach was used in the study. Sample size for the study was 40. Systematic Random Sampling was used to enroll study participants. Crossover Design (Randomized Control Trial) was used. Tools used were Wong Bakers FACES Rating Scale and Numerical Pain Rating Scale. Study was conducted at Orthopedics, Surgery and Medicine wards of GMCH-32, Chandigarh. Participants 18 years of age and above receiving at least two doses of Diclofenac 75mg/3ml intramuscular injection were included in the study. Participants were provided with complete information about the study and the consent was obtained priorly. Confidentiality of the subjects was maintained.

Description of Tool for Data Collection: Standardized scales were used to assess the pain level.

Part-A: Socio demographic data

Part-B: Wong-Baker FACES Rating Scale and Numerical Pain Rating Scale.

Plan for Data Analysis: The data analysis and interpretation was done according to objectives and by using descriptive & inferential statistics by SPSS software.

The level of significance was selected at $p \leq 0.05$. Data analysis was done by calculating mean, mode, median, standard deviation, percentage and frequency. Association between pain level and selected socio-demographic variables of adult patients of experimental and control group

receiving intramuscular injections was tested by using chi square test of significance. The analysis was carried out using statistical package for social science (SPSS) software version 26.

Results and Discussion

Table 1: Frequency and percentage wise distribution of subjects according to the socio demographic variables. N=40

Socio Demographic Variables	Frequency	%
Age (In Years)		
18-28	07	17.5
29-38	08	20.0
39-48	09	22.5
49-60	16	40.0
Gender		
Male	29	72.5
Female	11	27.5
Educational Status		
Not formally educated	06	15.0
Upto secondary	18	45.0
Upto higher secondary	04	10.0
Diploma	03	07.5
Graduate and above	09	22.5
Religion		
Hindu	31	77.5
Sikh	06	15.0
Muslim	02	05.0
Christian	01	02.5
Marital Status		
Married	30	75.0
Unmarried	09	22.5
Widow	01	02.5
Monthly Income (In Rupees)		
Nil	14	35.0
<10,000	07	17.5
11,000-20,000	12	30.0
21,000-30,000	04	10.0
31,000-40,000	02	05.0
41,000-50,000	01	02.5
Body Built		
Ectomorph	19	47.5
Mesomorph	10	25.0
Endomorph	11	27.5
Diagnosis of the Subject		
Orthopedics	19	47.5
Surgery	14	35.0
Medicine	07	17.5
Injection Site		
Left	18	45.0
Right	22	55.0

Table 1 depicts the Frequency and Percentage wise distribution of subjects according to the Socio Demographic Variables. Maximum numbers of subjects (40%) were in the age group of 49-60 years. Out of 40 subjects, 72.5% were male and 27.5% were female.

Majorly, 77.5% were Hindu, 15% were Sikh, 5% were Muslim and remaining 2.5% were Christian. Most of the subjects (75%) were married.

Majority of the subjects which constituted 47.5% had ectomorph body built, 25% had mesomorph body and 27.5% had endomorph body built.

45% were educated upto secondary, 22.5% were graduated, 15% were not formally educated, 10% received education up to higher secondary and the rest 7.5% studied diploma.

Most of the subjects (47.5%) had diagnosis related to orthopaedic, 14% had surgical diagnosis and 17.5% had a medical diagnosis. Almost half of the population (55%) had injection site on the right site while the other half (45%) in the left site.

Table 2: Level of pain among subjects receiving intramuscular injection using Helfer skin tap technique and conventional technique. N=40

Pain level	Helfer skin tap technique				Conventional technique			
	1 minute		3 minutes		1 minute		3 minutes	
	n	%	n	%	n	%	n	%
No pain	00	00	20	50	00	00	12	30
Mild pain	35	87.5	20	50	19	47.5	28	70
Moderate pain	05	12.5	00	00	21	52.5	00	00

Table 2 represents Level of pain among subjects receiving Intramuscular Injection using Helfer skin tap technique and conventional technique. Out of 40 subjects, 87.5% had mild pain and just 12.5% had severe pain on receiving IM injection by Helfer skin tap technique within 1 minute of intervention. Half of the subjects (50%) of the subjects had no pain and the other half of the subjects (50%) had mild

pain on receiving IM injection by Helfer skin tap technique within 3 minutes of intervention. Out of 40 subjects, 52.5% had moderate pain whereas 47.5% had mild pain on receiving IM injection by conventional technique within 1 minute of intervention. 70% had mild pain and 30% had no pain on receiving IM injection by conventional technique within 3 minutes of intervention.

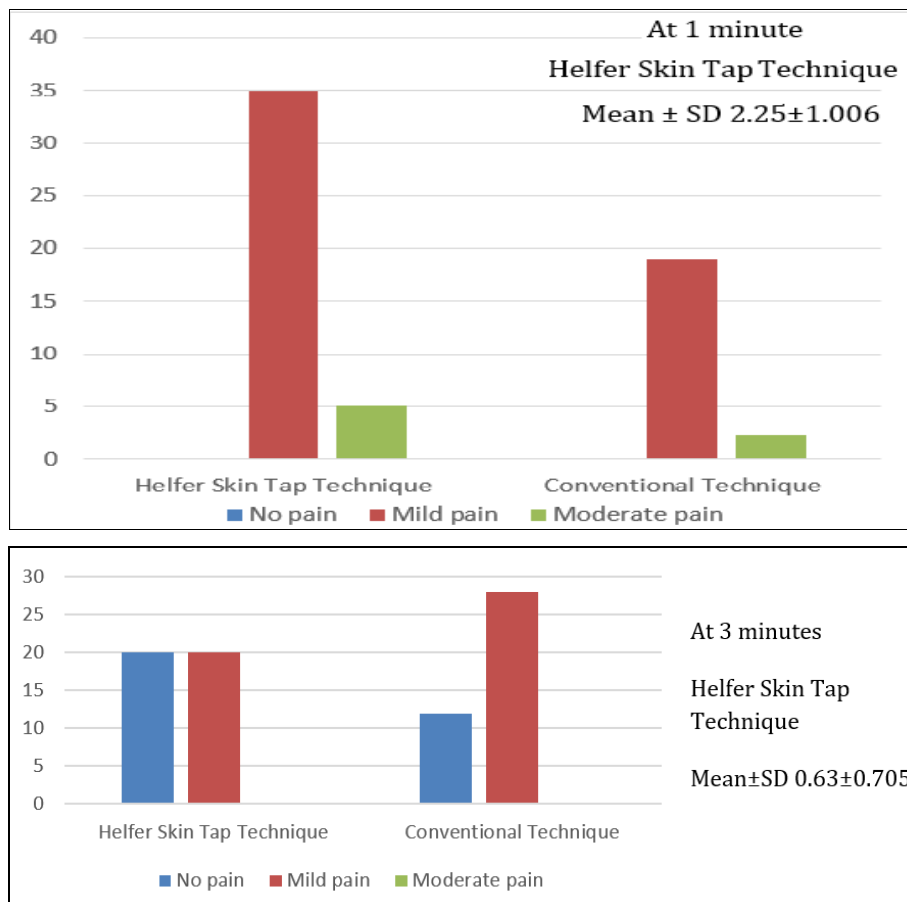


Fig 1: Level of pain among subjects receiving intramuscular injection using Helfer skin tap technique and conventional technique

Table 3: Comparison of pain score in experimental and control group using Wong Baker Faces Pain Rating Scale during intramuscular injection among adults by Helfer skin tap technique with conventional technique. N=40

Pain Scale	Mean± SD	SEM	t value
Wong Baker Faces Pain Rating Scale Value by Helfer skin tap technique	2.50±.599	.095	- 5.019
Wong Baker Faces Pain Rating Scale Value by conventional technique	2.98±.357	.059	5.019
Wong Baker Faces Pain Rating Scale Value by Helfer skin tap technique with conventional technique	0.47±.599	.95	5.019

The mean and standard deviation by Helfer Skin Tap technique is 2.50±.599. The standard error mean is 0.95. The mean and standard deviation by Conventional technique is 2.98±.357. The standard error mean is 0.59. The mean

and standard deviation by Helfer skin tap technique with conventional technique is 0.47±.599 and standard error mean is 0.95. The ‘t’ value was found to be 5.019.

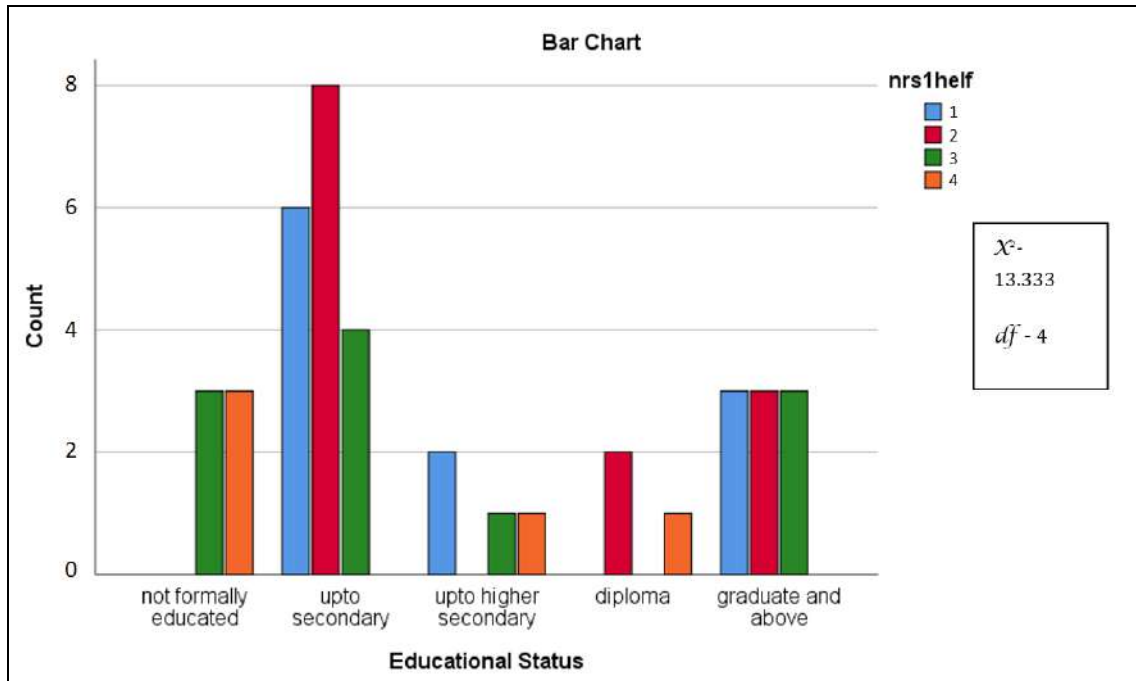
Table 4: Association between Socio Demographic Variables with Numerical Pain Rating Scale Value by Helfer skin tap technique. N=40

Variables	Mean±SD	Df	X ²	p value
AGE (In Years)	2.85±1.145	3	1.941	0.58
Educational status	2.78±1.423	4	13.333	0.01 ^S
Religion	1.33±.694	3	7.607	0.05 ^S
Monthly Income (In Rupees)	2.40±1.336	5	3.755	0.58
BMI	2.18±.594	2	3.229	0.19

*p value significant at ≤0.05

Out of the selected Socio Demographic Variables, the Educational Status, and Religion was found to have significant association (0.05) on pain score of adult during

Intramuscular Injection with Numerical Pain Rating Scale Value by Helfer skin tap technique at 0.05 level of significance.

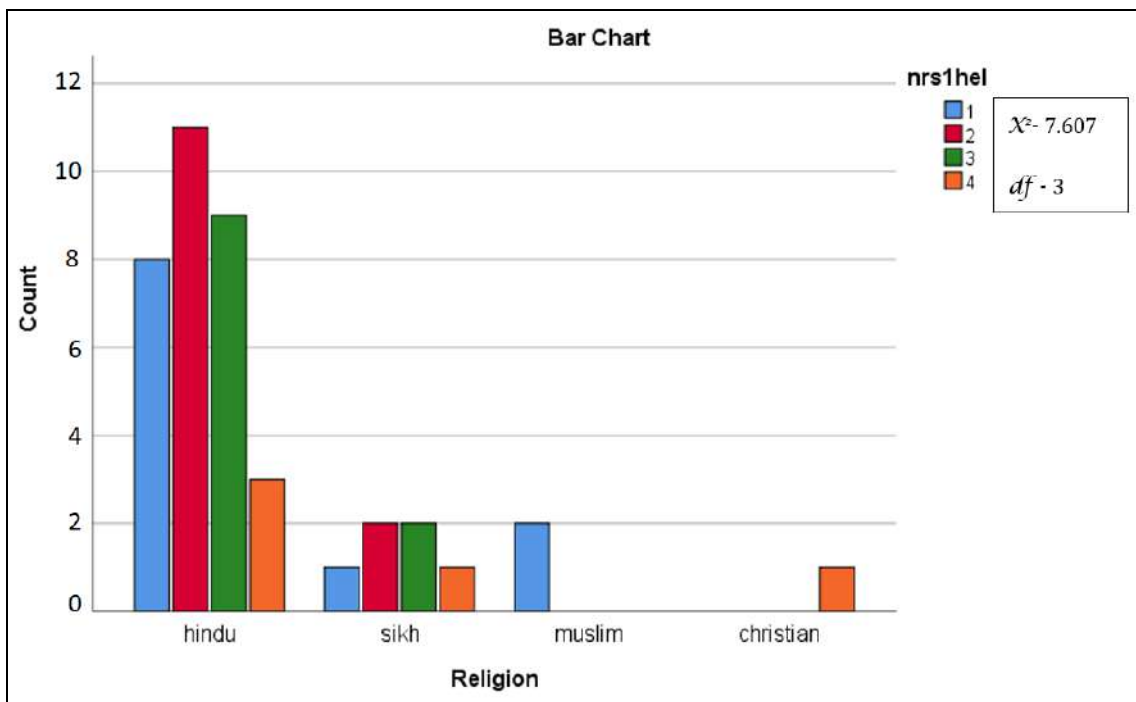


Educational Status * Nrs1Helfer Crosstabulation

Count

Educational Status	Nrs1Helfer				Total
	1	2	3	4	
Not formally educated	0	0	3	3	6
Upto secondary	6	8	4	0	18
Upto higher secondary	2	0	1	1	4
Diploma	0	2	0	1	3
Graduate and above	3	3	3	0	9
Total	11	13	11	5	40

Fig 2: Association between Educational Status and Numerical Pain Rating Scale Value by Helper skin tap technique was found to be significant (p value 0.01)



Religion * nrs1helper Crosstabulation						
Count						
		Nrs1Helper				Total
		1	2	3	4	
Religion	Hindu	8	11	9	3	31
	Sikh	1	2	2	1	6
	Muslim	2	0	0	0	2
	Christian	0	0	0	1	1
Total		11	13	11	5	40

Fig 3: Association between Religion and Numerical Pain Rating Scale Value by Helper skin tap technique was found to be significant (p value 0.05)

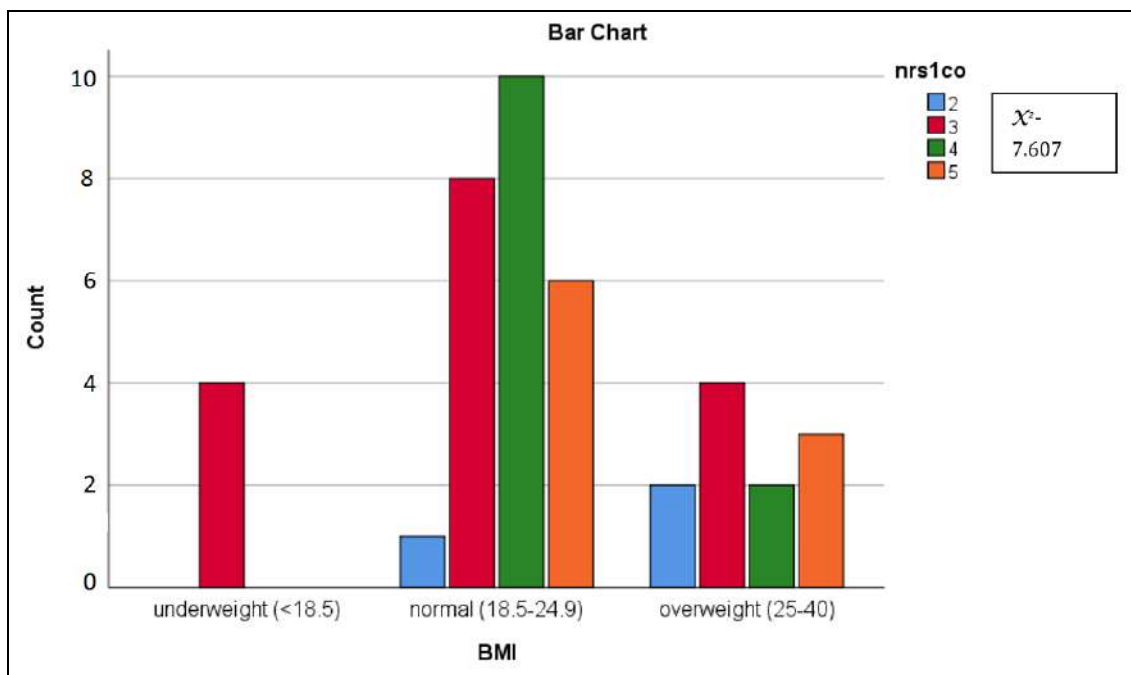
Table 5: Association between Socio Demographic Variables with Numerical Pain Rating Scale Value by conventional technique. N=40

Variables	Mean±SD	Df	X ²	P value
Age (In Years)	2.85±1.145	3	2.052	0.56
Monthly Income (In Rupees)	2.40±1.336	5	3.671	0.59
BMI	2.18±.594	2	5.966	0.05^s

*p value significant at ≤0.05

Out of the selected socio demographic variables, the body mass index (BMI) was found to have significant association (0.05) on pain score of adult during intramuscular injection

with numerical pain rating scale value by conventional technique at 0.05 level of significance.



BMI * nrs1conv Crosstabulation						
Count						
		Nrs1Conv				Total
		2	3	4	5	
BMI	Underweight (<18.5)	0	4	0	0	4
	Normal (18.5-24.9)	1	8	10	6	25
	Overweight (25-40)	2	4	2	3	11
Total		3	16	12	9	40

Fig 4: Association between BMI and Numerical Pain Rating Scale Value by conventional technique was found to be significant (p value 0.05)

Conclusion

The study was aimed to assess the effectiveness of Helper skin tap technique on procedural pain among adult patients receiving intramuscular Injection in Government Medical College and Hospital Sector 32 Chandigarh. Consent was taken from the patients and pain was assessed during

procedure and after the procedure. Data was recorded in a data recording sheet. Validation of procedures was done by experts. A pilot study was conducted prior to the study for assessing feasibility of the study. Study subjects were selected using systematic random sampling technique. Inferential and descriptive statistics were used to analyze the

data. Study finding provides the statistical evidence which indicates that level of pain among subjects receiving intramuscular injection using Helfer Skin Tap Technique was lesser than the subjects receiving IM injection by Conventional Technique. The researchers concluded the inferences from the study were valuable for nursing services, education, administration and research.

Conflict of Interest

Not available

Financial Support

Not available

References

- Javier J, Polania G, Sunil M. Intramuscular Injection. National Library of Medicine; c2022. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK556121/> [accessed 12th May 2022]
- Arora S. Helfer's Skin Tap Technique for IM Injection Pain. International Journal of Nursing Science Practice and Research. 2015;2(1)19-20. Available from: <https://nursing.journalspub.info/index.php?journal=IJN-SPR&page=article&op=view&path%5B%5D=79> [accessed 5th June 2022]
- Neupane U. A Study to Assess the Effectiveness of Helfer Skin Tap Technique on the Level of Pain During Intramuscular Injection Among Adults in a Selected Hospital, Bangalore. 2019;9(1). Available from: https://www.ijhsr.org/IJHSR_Vol.9_Issue.1_Jan2019/IJHSR_Abstract.016.html [accessed 21st January 2022]
- European Pain Federation. International Association for the Study of Pain; c2022. Available from: <https://europeanpainfederation.eu/european-pain-forum/> [accessed 7th September 2022]
- Sharma B. Helfer Skin Tap Technique For The IM Injection Pain Among Adult Patients.2020. Available from: <https://nrfninechd.com/> [accessed 16th April 2022]
- Helfer JK. Clinical Issues Painless Injections Helfer Skin Tap Technique Nurse Educator; c2000. p. 6. Available from: <https://pubmed.ncbi.nlm.nih.gov/16646179/> [accessed 3rd July 2022]
- Helfer JK. Painless injections: Helfer skin tap technique. J Surg Surgical Res. 2021;7(1):17-19. Available from: <https://dx.doi.org/10.17352/2455-2968.000129> [accessed 29th January 2022]
- Semwal R, Harshmani N. A Study to Assess the Effectiveness of Helfer Skin Tap Technique on the Level of Pain Reduction During Intramuscular Injection among Orthopaedic Patient of Pandit Deen Dayal Upadhyaya (Coronation) Government Hospital Dehradun, Uttarakhand Int. J of Adv. Res. 2021;9(12). Available from: [https://www.journalijar.com/article/39375/a-study-to-assess-the-effectiveness-of-helfer-skin-tap-technique-on-the-level-of-pain-reduction-during-intra-muscular-injection-among-orthopaedic-patient-of-pandit-deen-dayal-upadhyaya-\(coronation\)-government-hospital-dehradun-uttarakhand/](https://www.journalijar.com/article/39375/a-study-to-assess-the-effectiveness-of-helfer-skin-tap-technique-on-the-level-of-pain-reduction-during-intra-muscular-injection-among-orthopaedic-patient-of-pandit-deen-dayal-upadhyaya-(coronation)-government-hospital-dehradun-uttarakhand/) [accessed 14th September 2022]
- Shah S, Saleena Dr, Narayanan A, Asha M. "Effect of Helfer Rhythmic Skin Tap Technique on Procedural Pain Among Patients Receiving Intramuscular Injection: A Quasi-Experimental Study." Manipal Journal of Nursing and Health Sciences. 2017;2(1):4. Available from: <https://impressions.manipal.edu/mjnhs/vol2/iss1/4> [accessed 22nd April 2022]
- Cherian A. Effectiveness of Rhythmic Skin Tapping on Pain during Intramuscular (IM) Injection among Male Adults in a Selected Hospital at Mangalore. Int. J Nur. Edu. and Research. 2017;5(1):91-98. Available from: <https://ijneronline.com/AbstractView.aspx?PID=2017-5-1-20> [accessed 5th January 2022]
- Mohamed Soliman HM, Hassnein AA. Efficacy of Helfer Skin Tapping Technique on Pain Intensity as Perceived by the Patients Receiving Intramuscular Injection. 2016;6(2):12-22. Available from: <https://nursingdidactics.com/index.php/ijnd/article/view/1825> [accessed 29th February 2022]
- Tanoj P. A Study to Assess the Effectiveness of Helfer Skin Tap Technique on Pain Associated with Intramuscular Injection Among Adult Patients in Selected Hospitals of Navi Mumbai. 2021;5(9). Available from: https://www.researchgate.net/publication/352378261_A_Study_to_Assess_the_Effectiveness_of_Helfer_Skin_Tap_Technique_on_Pain_Associated_with_Intramuscular_Injection_Among_Adult_Patients_in_Selected_Hospitals_of_Navi_Mumbai [accessed 8th January 2022]
- Abhija PV. A Study to Evaluate the Effectiveness of Heifer Skin Tap Technique on Pain Associated with Intramuscular Injection Among Hospitalized Adults in Selected Hospital at Coimbatore; c2015. Available from: <http://repository-tnmgrmu.ac.in>. Pdf A Study To Evaluate The Effectiveness of Helfer Skin Tap Technique [accessed 6th April 2022]
- Neupane U. A Study to Assess the Effectiveness of Helfer Skin Tap Technique on the Level of Pain During Intramuscular Injection Among Adults in a Selected Hospital, Bangalore. 2019;9(1). Available from: https://www.ijhsr.org/IJHSR_Vol.9_Issue.1_Jan2019/IJHSR_Abstract.016.html [accessed 21st January 2019]
- Shajitha NR. A Study to Assess the Effectiveness of Helfer Skin Tap Technique on Pain Perception Among Patients Receiving Intramuscular Injection in Selected Hospital at Kanyakumari District; c2018. Available from: <http://repository-tnmgrmu.ac.in/11727/> [accessed 7th October 2022]
- Dhanalakshmi T. Effectiveness of Helfer Skin Tap Technique on Perception of Pain during IM Injection among Post-Operative Adult Orthopedic patients. Master's thesis, Sacred Heart Nursing College, Madurai; c2017. Available from: <http://repository-tnmgrmu.ac.in/351/> [accessed 11th February 2022]
- Bhuvanewari G, Thulasiya V. Assess the Effectiveness of Helfer Skin Tapping Techniques on Pain during Vaccination Intramuscular Injection among the Infants in Primary Health Centre Neamam. Research J. Pharm. and Tech. 2018;11(6):2599-2602. Available from: <https://rjptonline.org/AbstractView.aspx?PID=2018-11-6-82> [accessed 11th June 2022]
- Kaur G, Manpreet KG, Jicy S. A Study to Assess the Effectiveness of Helfer Skin Tap Technique on Pain Level among Patients Receiving I/M Injection at Selected Hospitals of Amritsar, Punjab. 2016;1(2).

- Available from: <https://nursing.journalspub.info/index.php?journal=IJETN&page=article&op=view&path%5B%5D=155> [accessed 6th February 2022]
19. Sivapriya M. A Study to assess the Effectiveness of Helper Skin Tap Technique on Pain During Intramuscular Injection Among Neonates Born in Labor Room of a selected Tertiary Level Hospital, UP, International journal of scientific research. 2018;7(12). Available from: [https://www.worldwidejournals.com/international-journal-of-scientific-research-\(IJSR\)/article/a-study-to-assess-the-effectiveness-of-helper-skin-tap-technique-on-pain-during-intramuscular-injection-among-neonates-born-in-labour-room-of-a-selected-tertiary-level-hospital-up/MTc0NDM=?is=1&b1=565&k=142](https://www.worldwidejournals.com/international-journal-of-scientific-research-(IJSR)/article/a-study-to-assess-the-effectiveness-of-helper-skin-tap-technique-on-pain-during-intramuscular-injection-among-neonates-born-in-labour-room-of-a-selected-tertiary-level-hospital-up/MTc0NDM=?is=1&b1=565&k=142) [accessed 15th May 2022]
 20. Negi P. Effectiveness of Helper Skin Tap Technique on Pain Reduction During Intramuscular Injection Among Infants. 2019;4(3):34-39. Available from: https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.ijarnd.com/manuscripts/v4i3/V4I3-1146.pdf&ved=2ahUKEwiZ14q3mbn2AhWyyIsBHdGjDgA4ChAWegQIBhAB&usg=AOvVaw17VgsX6OJ1KT0G_o1aVK1D [accessed 6th April 2022]
 21. Şefikadilek G, Gülden K, Pelin C. Effect of Helper skin tap technique on pain associated with intramuscular injection among adult: A randomized controlled study. 2020;10(2). Available from: <https://doi.org/10.15520/ijnd.v10i02.2820> [accessed 23rd February 2022]
 22. Elisha M, Ina T. Effectiveness of Helper's Skin Tap Technique Versus Routine Technique on Pain Reduction among Patient's Receiving Intramuscular Injections. 2019;11(1). Available from: https://www.google.com/url?sa=t&source=web&rct=j&url=https://medicopublication.com/index.php/ijone/article/download/4504/4240/8444&ved=2ahUKEwiunun2vbv2AhVp8XMBHfi6Czo4ChAWegQIChAB&usg=AOvVaw3zkrQAVr-B2Or1Uf_k3vBX [accessed 4th March 2019]
 23. Nishanthini R, Muthamilselvi G, Gomathy R. A Study to Evaluate the effectiveness of Helper Skin Tap Technique on Pain Reduction Associated With Intramuscular Injection Experienced by the Adult Patients who are Attending Injection OPD at AVMC & H, Puducherry. 2020;10(1). Available from: <http://www.joics.org/ics-2316PDF> [accessed 21st June 2020]
 24. Dimpleshree K, Ramasambasivan R. Effectiveness of Helper skin tap technique on pain experience among the patients receiving intramuscular injection. 2020;8(1). Available from: <https://www.indianjournals.com/Mobile/SearchResult.aspx?query=1&mode=gen> [accessed 13th January 2022]
 25. Shridhar G, Natekar S, Pateel S. Effectiveness of Skin Tap Technique on Level of Pain during IM Injection among Adult Clients in Orthopaedic Wards at HSK Hospital and Research Centre Bagalkot, Karnataka. 2019;4(2). Available from: <https://www.google.com/url?sa=t&source=web&rct=j&url=https://ijisrt.com/wp-content/uploads/2019/02/IJISRT19FB46.pdf&ved=2ahUKEwiByZmUyrv2AhV6UGwGHRrIBoQ4HhAWegQIBhAB&usg=AOvVaw0oE4ODQKgZZ2edQH8kRJhj> [accessed 18th February 2019]
 26. Jyoti Smriti A. To assess the efficacy of Helper Skin Tap Technique on reducing intramuscular injection pain among adult patients; c2020. Available from: <https://nrfninechd.com/helper-skin-tap-technique-for-the-im-injection-pain-among-adult-patients/> [accessed 20th April 2020]

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