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Original Research Article

Perception and Awareness of Noise Pollution in General Population

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ABSTRACT:
This study examined the perception and awareness of general population in his/her respective house and working places due to emanating traffic noise on road as vehicular traffic grows manifolds. 93% subjects want to do something to make environment noise free. 74% faces the problem of lack of concentration due to emanating noise. 71% prefers quietness over noise. Approximately same number of people admits that noises were natural part of environment. 86% admitted that they were not able to ignore high levels of noise. 71% are found themselves not able to adjust to the continuously rising levels of noises. 72% feels that they found themselves helpless when they are not able to get rid of noise. 62% feel that inadequate rules were adding to the increasing noise levels. 245 (47.6%), 132 (25.6%) and 85 (16.5%) subjects were respectively fully Aware, adequately aware and somewhat aware of noise pollution.

Keywords: Perception, Awareness, Noise, Traffic

INTRODUCTION

The growing population, traffic chaos and noise pollution has adversely affected the environment and cleanliness. This has led to an increase in the noise pollution levels, more or less in all the parts of the country. The World Health Organization (WHO), 2011 states excessive noise seriously harms human physical and mental health. Consistent exposure to environmental noise of high degree badly reflect human health and on well-being. These effects have direct or indirect economic effects on society (A short literature study, 2015).There are sufficient evidences that constant exposure to high noise levels acts as a stressor. These stressors after a long time result in slowly developing diseases and other side-effects (Koushk, 2004). Chandigarh has topped the list of cities with the most number of vehicles per head in India. This traffic congestion leads to increase in noise pollution in the city. Especially the people living near market places, airport, and petrol-filling stations are largely exposed to and affected by the noise pollution. The lack of data, and consequently, awareness, makes people to worry about this problem. This study was done to report the sequential pattern of road traffic in different areas of Chandigarh.

MATERIALS AND METHODS

515 subjects whose establishments, like Commercial Business Centers, Government Offices, Private Organizations, are on roadside were interviewed. They have to work in their

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offices located on both sides of busy roads of the city and they were interviewed for attitudinal reactions by using the questionnaire. The study observed the awareness and alertness of common people in their own houses and working places because of noise pollution due to road traffic due to heavy traffic.

RESULTS AND DISCUSSION

478 (93%) subjects want to do something to make environment noise free. 382 (74%) faces the problem of lack of concentration due to emanating noise. 368 (71%) prefers quietness over noise. Approximately same number of people admits that noises were natural part of environment. 444 (86%) admitted that they were not able to ignore high levels of noise. 364 (71%) are found themselves not able to adjust to the continuously rising levels of noises. 371 (72%) feels that they found themselves helpless when they are not able to get rid of noise. 319 (62%) feel that inadequate rules were adding to the increasing noise levels.

Table1: Public responses about noise pollution

Responses against Statements		Can't Say	Agree	Disagree
Statement-1 Listening music helps me to concentrate.	Count	20	281	214
	Row N %	4%	55%	42%
Statement-2 I am ready to do something that makes environment quiet.	Count	18	478	19
	Row N %	3%	93%	4%
Statement-3 I can concentrate despite of high noise	Count	20	113	382
	Row N %	4%	22%	74%
Statement-4 I don't feel good when there is quiet all around.	Count	16	131	368
	Row N %	3%	25%	71%
Statement-5 Noise and sound are natural parts of environment and society.	Count	16	241	258
	Row N %	3%	47%	50%
Statement-6 Traffic noise is not disturbing.	Count	16	39	460
	Row N %	3%	8%	89%
Statement-7 It is easy for me to ignore high noise levels anywhere.	Count	22	49	444
	Row N %	4%	10%	86%
Statement-8 Over the period, I have become comfortable with high noise level.	Count	21	130	364
	Row N %	4%	25%	71%
Statement-9 When I can't get rid of high noise levels, I feel helpless.	Count	16	371	128
	Row N %	3%	72%	25%
Statement-10 Inadequate rules and regulations have made this problem worse.	Count	20	319	176
	Row N %	4%	62%	34%

Maximum subjects irrespective of their age, gender and educational qualification want to do something to make environment calm and quiet. (Table-1a)

Table 1a: Willingness to work for environment

		I am ready to do something that makes environment quiet		
		Can't Say	Agree	Disagree
Age Group	**Less than 20 years**	3	48	2
		6%	91%	4%
	20-40 years	8	275	11
		3%	94%	4%
	40-60 years	5	98	3
		5%	92%	3%
	Above 60 years	2	57	3
		3%	92%	5%
Gender	**Male**	6	188	7
		3%	94%	3%
	Female	12	290	12
		4%	92%	4%
Educational qualification	**Not Disclosed**	0	16	0
		0%	100%	0%
	Matric	0	15	0
		0%	100%	0%
	10+2	4	80	2
		5%	93%	2%
	Graduate	3	115	6
		2%	93%	5%
	PG	10	189	9
		5%	91%	4%
	Doctorate	1	63	2
		2%	95%	3%

Table 1b: Pearson Chi-Square Tests

		I am ready to do something that makes environment quiet
Age Group	Chi-square	2.170
	df	6
	Sig.	0.903
Gender	Chi-square	0.302
	df	2
	Sig.	0.860
Educational qualification	Chi-square	6.224
	df	10
	Sig.	0.796
Results are based on nonempty rows and columns in each innermost sub-table.		

Table-1b shows chi square test results. Chi square test here has been used to examine if there is a difference in opinions of subjects based on their age group, gender and educational qualification. Chi square values have been found to be insignificant in all the three demographic characteristics. Thus, it can be established that everyone, irrespective of age, gender or educational background, is ready to do something to make the environment quiet.

Tables 2a, 2b &2c depict the timings of noise around the homes and work place of the subjects. The high noise time lies between 12pm to 12am and the highest noises are observed by the subjects at 12am. The noise levels are higher during night time that that of the day time. Subjects, who either doing jobs or studying, feel that 12pm to 5pm is the duration of loud noises and 5pm being the noisiest time. (Table 8a)

Table 2a: Time of the day does you experience noise pollution at your Home

Time of the day do you experience noise pollution at your Home					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**4 AM**	8	1.6	1.6	1.6
	5 AM	1	0.2	0.2	1.7
	7 AM	37	7.2	7.2	8.9
	8 AM	73	14.2	14.2	23.1
	9 AM	112	21.7	21.7	44.9
	10 AM	31	6.0	6.0	50.9
	11 AM	51	9.9	9.9	60.8
	12 PM	22	4.3	4.3	65.0
	1 PM	2	0.4	0.4	65.4
	2 PM	13	2.5	2.5	68.0
	3 PM	8	1.6	1.6	69.5
	5 PM	7	1.4	1.4	70.9
	6 PM	20	3.9	3.9	74.8
	7 PM	17	3.3	3.3	78.1
	8 PM	14	2.7	2.7	80.8
	9 PM	6	1.2	1.2	81.9
	10 PM	3	0.6	0.6	82.5
	12 AM	6	1.2	1.2	83.7
	No Problem	84	16.3	16.3	100.0
	Total	**515**	**100.0**	**100.0**	

Table 2b: Time of the night does you experience noise pollution at your Home

Time of the night do you experience noise pollution at your Home					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**2 AM**	4	0.8	0.8	0.8
	4 AM	3	0.6	0.6	1.4
	8 AM	8	1.6	1.6	2.9
	9 AM	1	0.2	0.2	3.1
	10 AM	9	1.7	1.7	4.9
	11 AM	4	0.8	0.8	5.6
	12 PM	2	0.4	0.4	6.0
	1 PM	5	1.0	1.0	7.0
	4 PM	4	0.8	0.8	7.8
	5 PM	13	2.5	2.5	10.3
	6 PM	36	7.0	7.0	17.3

	7 PM	49	9.5	9.5	26.8
	8 PM	118	22.9	22.9	49.7
	9 PM	111	21.6	21.6	71.3
	10 PM	30	5.8	5.8	77.1
	11 PM	11	2.1	2.1	79.2
	12 AM	19	3.7	3.7	82.9
	No Problem	88	17.1	17.1	100.0
	Total	**515**	**100.0**	**100.0**	

Table 2c: Time of the day do you experience noise pollution at your Workplace / Educational Institution

Time of the day do you experience noise pollution at your Workplace / Educational Institution					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**8 AM**	4	0.8	0.8	0.8
	9 AM	54	10.5	10.5	11.3
	10 AM	108	21.0	21.0	32.2
	11 AM	115	22.3	22.3	54.6
	12 PM	46	8.9	8.9	63.5
	1 PM	1	0.2	0.2	63.7
	2 PM	26	5.0	5.0	68.7
	5 PM	6	1.2	1.2	69.9
	No Problem	148	28.7	28.7	100.0
	Total	**515**	**100.0**	**100.0**	

Table 3: Aware of Noise Pollution

Aware of Noise Pollution		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Prefer Not to Say**	13	2.5	2.5	2.5
	Fully Aware	245	47.6	47.6	50.1
	Adequately Aware	132	25.6	25.6	75.7
	Somewhat Aware	85	16.5	16.5	92.2
	Not Much Aware	40	7.8	7.8	100.0
	Total	**515**	**100.0**	**100.0**	

Table 3a: Problem of noise pollution in your area

Problem of noise pollution in your area		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Yes**	353	68.5	68.5	68.5
	No	129	25.0	25.0	93.6
	Don't Know	22	4.3	4.3	97.9
	Missing Data	11	2.1	2.1	100.0
	Total	**515**	**100.0**	**100.0**	

Table 3b: Noise annoy you on daily basis

Noise annoy you on daily basis		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	305	59.2	59.2	59.2
	No	190	36.9	36.9	96.1
	Missing Data	20	3.9	3.9	100.0
	Total	515	100.0	100.0	

Table 3c: Degree of annoyance

Degree of annoyance		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	39	7.6	7.6	7.6
	1.0	23	4.5	4.5	12.0
	2.0	10	1.9	1.9	14.0
	3.0	14	2.7	2.7	16.7
	4.0	14	2.7	2.7	19.4
	5.0	38	7.4	7.4	26.8
	6.0	36	7.0	7.0	33.8
	7.0	95	18.4	18.4	52.2
	8.0	88	17.1	17.1	69.3
	9.0	38	7.4	7.4	76.7
	10.0	20	3.9	3.9	80.6
	Irrelevant	12	2.3	2.3	82.9
	Missing Response	88	17.1	17.1	100.0
	Total	515	100.0	100.0	

Table 3d: Noise increased in one last year

Noise increased in one last year		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	349	67.8	67.8	67.8
	No	69	13.4	13.4	81.2
	Can't Say	6	1.2	1.2	82.3
	Missing Data	91	17.7	17.7	100.0
	Total	515	100.0	100.0	

Table 3e: Increase in the flow of traffic for the last one year

Increase in the flow of traffic for the last one year		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	452	87.8	87.8	87.8
	No	37	7.2	7.2	95.0
	Don't Know	23	4.5	4.5	99.4
	Missing Data	3	0.6	0.6	100.0
	Total	515	100.0	100.0	

245 (47.6%), 132 (25.6%) and 85 (16.5%) subjects were respectively fully aware, adequately aware and somewhat aware of noise pollution (Table-3). While 353 (68.5%) admit that noise pollution was a problem in their residing area (Table-3a) yet 305 (59.2%) were continuously annoyed by the noise (Table 3b) and maximum subjects experience high degrees of annoyance (Table-3c). 349 (67.8%) mentioned that noise had been increasing for the last one year (Table 3d). 452 (87.8%) cited increasing traffic a reason for noise pollution in their area (Table-3e).

52 (10.1%) complained against neighbors for being noisy while 82 (15.9%) themselves asked the neighbors to curtail their noise without complaining but maximum 381 (74%) never complained against neighbors though they make noise (Table-4) and 344(66.8%) of the subjects were aware about the rules and regulations against noise pollution and permitted levels of noise in their areas (Table-5) and 352 (68.3%) discussed with neighbours about the ill effects of noise pollution at some point of time.

Table 4: Complaint about neighbor being too noisy

Complaint about neighbor being too noisy		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	52	10.1	10.1	10.1
	No, But Tried to	82	15.9	15.9	26.0
	Never	381	74.0	74.0	100.0
	Total	**515**	**100.0**	**100.0**	

Table 5: Rules and regulations regarding noise

Rules and regulations regarding noise		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	344	66.8	66.8	66.8
	No	65	12.6	12.6	79.4
	Don't Know	87	16.9	16.9	96.3
	Missing Data	19	3.7	3.7	100.0
	Total	**515**	**100.0**	**100.0**	

Table 5a: Conversation with Neighbours about the Noise Pollution Affecting Community

Conversation with Neighbours about the Noise Pollution Affecting Community		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mostly	27	5.2	5.2	5.2
	Frequently	36	7.0	7.0	12.2
	Sometimes	137	26.6	26.6	38.8
	Rarely	152	29.5	29.5	68.3
	Never	163	31.7	31.7	100.0
	Total	**515**	**100.0**	**100.0**	

The sources of noise may differ according to day-to-day activities. These may be emanating from residences like loudspeaker, various ceremonies, automobiles, domestic instruments like mixers, grinders etc. These noises may be arising from commercial events like vendor shouts, automobiles, marriages,

machinery etc., industrial activities like generator sets, boilers, plant operations, trolley movement, transport vehicles, pumps, motors etc. The sites were selected depending upon their location in the city. It is found that noise level is exceeded the permissible limit prescribed by CPCB.

Traffic congestion, indiscriminate use of horns by vehicles and unawareness regarding noise level restriction are the key factors leading towards increase in noise level (Gandhi et al, 2019).

Noise can be reduced by following measures. 1) Introduction of alternate fuelled vehicles like CNG/LPG. 2) Placement of Sign board along with specification of noise limit. 3) Educating the people: public awareness of the hazards of noise should be aroused. Also peoples should be made aware regarding the Legislation to Control Noise Pollution 4) Plantation should be encouraged in all areas. 5) Construction of porous roads should be encouraged (Jaimin, 2016).

SUGGESTIONS

Peoples should be made aware regarding the Legislation to Control Noise Pollution. Public Suggestions were taken to control the noise pollution

- Marriage palaces must not be situated in residential area.
- Good quality silencers must be used in vehicles. Silencers must be checked timely.
- Prohibit the use of heavy vehicles in educational areas / hospitals.
- There should be fixed the time to use the speakers in residential area in daytime.
- Use light vehicle and car pool can be effective. Use public buses for regular up down.
- Old vehicles should be banned and check the noise in vehicles and bullet sound (crackers.)
- People should aware of rules and regulations regarding noise pollution.
- To control the noise pollution, unnecessary use of horns should be banned without any reason. Horns must be banned around hospitals and educational institutions.
- Eradication of heavy noise producing vehicles.
- Avoid playing loud music at home. Use of speakers in low base.
- Go green by planting more green plants to absorb noise.
- Regularly check noise levels in the environment.
- Use earplugs. Lower the volume. Control noise level near sensitive areas.
- Avoiding use of pressure horns. Avoiding use of horns near hospitals and educational institutions.
- To give orders that everybody should have rare mirrors in their vehicles to avoid non-stop sound of horns.
- General awareness is important.
- Street dogs' number should be less in locality. Municipal Corporation should take strict action for preventing noise pollution caused by animals.
- If there is some family functions, heavy sound systems should not be used. Avoid speakers at home.
- Use of bicycles instead of heavy vehicles.
- Law breaker rule fee should be applied. Strict action and imposing heavy fines can work.
- Control the unpleasant sounds of TV volumes, music, marriages, temple sounds.
- Close the clubs early at night so that drunk people do not disturb at night time.
- Stop the DJ in late night especially in exam months.
- There should be strict rules for the sounds in marriages.
- Community centres and marriage halls must be sound proof.
- Turn off sound producing appliances at home. Follow the limits of noise levels. Silence machines should be used on households.
- No DJ parties in localities, society or colony. Adequate rules and regulations must be there. Spread awareness through campaigning.
- Imposition of decibel limit on noise make by fairs, religious places etc.
- Unnecessary shouting of vendors.
- Construction activities should be done with noiseless machines.
- Traffic in a peak hours needs to be controlled in a better way.

- Students to attract girls with their vehicle on high speed, loud horns and music.
- Fastening scooters and small vehicles should be banned. They must be checked.

CONCLUSION

Number of vehicles are increasing in the all the cities. There must be very strict implementation rules against noise pollution. The resident welfare associations as well as business associations must be incorporated to make people aware about the ill-effects of noise pollution.

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