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### Awareness level of modern families regarding environment conservation and their concern for it through adopting green home norms

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#### Abstract

The present study was undertaken to know the awareness level of modern families about changes in environment, their opinions about the causes of pollution, impact of deteriorating environment on health and their concern to conserve the energy in homes, planting trees and other personal efforts to conserve environment. The study was conducted in three smart cities of Punjab viz. Amritsar, Jalandhar and Ludhiana. One hundred and fifty houses, fifty from each city built after 2015 were selected from posh localities. Data were collected through structured schedule. Result revealed that majority of respondents (54%, 57% and 58%) perceived a lot of deterioration in the quality of air, water and soil. Majority (86%) of respondents opined that their housing and life style related practices are not responsible for environment degradation, rather they (53.33%) blamed agricultural practices, the most, for it. Only (10.67%, 9.33%, 6.67%) respondents had detailed knowledge about the cause of various types of pollution others just had superficial knowledge. Majority (52%) of the respondents did not report any serious effect of various type of pollution on their health though eighty six per cent respondents reported slight depression due to deteriorating environment. Almost all the respondents had experienced the positive role of indoor and outdoor plants in improving the quality of environment. On the whole majority of respondents were not having precise knowledge about causes of environmental degradation hence not much motivated to express it through their sustainable habits and green home practices sustainable habits and green home practices. Eight six and eighty eight per cent respondents had just preliminary knowledge about conserving energy and pollution caused by use of household chemicals respectively.

**Keywords:** Green home norms, awareness level and environment conservation

#### Introduction

Environmental awareness is required to evoke the necessity and responsibility of humans to respect, protect, and preserve the natural world from its anthropogenic afflictions. Our physical environment is fragile and indispensable so fixing the responsibility for the problems that threaten it is direly required. Awareness is the first step towards a change followed by resultant acceptance. Awareness leads to enlightened conscience, forming independent will, further leading to creative imagination to refine one's life style in accordance with the sustaining capacity of the surrounding environment. Awareness enables a person to get out of one's conventional mind set and initiate action in the desired direction. It is the greatest agent of change to champion a cause. Environmental destruction is the result of a flaw in the modern world's belief system, in which they believe that their actions lack consequences. So it is imperative to awaken the masses for a cause which is very much in their domain. Environmentally aware population can contribute a lot through their modified ways of life towards environment conservation. This is alarming to note that some of the natural resources will run out at the pace we are using them. Construction of buildings and their use by the inmates leaves a visible carbon foot print. So a turn towards green buildings, as far possible, is almost inescapable now. Green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction. So the present study was conducted to assess the awareness level of those people, who are affording a lavish life style in their posh houses at the cost of our

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Environment, regarding the deteriorating environment and their role in arresting it.

### Research methods works

The study was conducted in three smart cities of Punjab viz. Ludhiana, Jalandhar and Amritsar. B.R.S Nagar, Sarabha Nagar, Raj Guru Nagar, Dayal Nagar and Aggar Nagar Colony areas from Ludhiana were selected. Urban Estate-phase I, Urban Estate-phase II, Model Town, Dashmesh Nagar, Ashok Nagar and Joti Nagar areas were selected from Jalandhar. Dream city, Model Town, Holy City, New Amritsar and Ranjit Avenue localities were selected from Amritsar. Data were tabulated for systematic analysis. According to the objective appropriate tables were formulated

for moving towards the conclusions. Statistical tool applied were: frequencies and percentage.

### Research Findings and Discussion

The level of awareness of the respondents regarding deteriorating environment and their concern for preserving it.

#### Level of the perception

Knowledge and awareness level of an individual about the phenomena and severity of change in any system motivates him/her to contribute for the betterment of that system. Perception of respondents about the level of change in the environment was studied and relevant data presented in table 1.

**Table 1:** Distribution of respondents according to their perception about changes in environment, (N=150)

Parameters	Perception about change in environment		
	Somewhat (F%)	Quite a lot (F%)	Too much (F%)
<b>Level of increase of pollution</b>			
Air pollution	4(2.67)	65(43.33)	81(54.00)
Water pollution	9(6.00)	55(36.67)	86(57.33)
Soil pollution	7(4.67)	59(39.33)	84(56.00)
Noise pollution	15(10.00)	77(51.33)	58(38.67)
Health problem have increased	9(6.00)	74(49.33)	67(44.67)
Change in extreme temp. in different season	17(11.33)	78(52.00)	55(36.67)

(Figure in parentheses depicts percentage)  
150 no. of respondents

The examination of data reveals that majority of the respondents(54%,57.33%,56%) were finding the level of air, water and soil pollution alarmingly high respectively and were found to be geared up for their efforts for protecting the environment. Some of the respondents (38.67%) reported the menace of noise pollution due to traffic and high pitch of music during social events. About forty nine per cent respondents perceived the level of health problems due to

environmental impact 'quite high', whereas fifty two per cent respondents informed that the change in extreme temperature in both the season was quite evident and disturbing.

#### Level of opinion

Actions originate from opinions. So what were the opinions of respondents about the causes of environmental pollution were enquired about of and relevant data presented in table 2.

**Table 2:** Distribution of respondent according to their opinion about the causes of pollution

Cause of pollution	Ranking given by respondents				
	1 F(%)	2 F(%)	3 F(%)	4 F(%)	5 F(%)
Agricultural operations	80(53.33)	70(46.67)	0(0.00)	0(0.00)	0(0.00)
Industry	50(33.33)	79(52.67)	20(13.33)	1(0.67)	0(0.00)
Housing	0(0.00)	0(0.00)	1(0.67)	114(76)	35(23.33)
Transportation	20(13.33)	1(0.67)	129(86.00)	0(0.00)	0(0.00)
Consumptive style of living	0(0.00)	0(0.00)	0(0.00)	35(23.33)	115(76.67)

(Figure in parentheses depicts percentage)  
150 no. of respondents

Majority of respondents (53.33%) found agricultural operations, especially burning of straw as the main culprit of air pollution followed by exhaust from industrial house chimneys and disposal of effluents in water streams (52.67%). Respondents (86%) opined that exhaust from vehicles during transportation was the third major cause of pollution.

#### Level of awareness

A deep knowledge of an issue prompts action in the mind of an individual to work for it. The level of awareness of respondents about the causes of different types of pollution was studied and presented in table 3.

**Table 3:** Distribution of respondents according to their level of awareness of major causes of pollution

Causes	Level of awareness			
	Don't Know (F%)	Heard About (F%)	Know Somewhat (F%)	Know in detail (F%)
<b>Air pollution</b>				
The combustion of coal, oil, gas for generating electricity	2(1.33)	51(34.00)	91(60.67)	6(4.00)
Burning gasoline, diesel for transportation	0(0.00)	4(2.67)	138(92.00)	8(5.33)
Emissions from various industrial processes	0(0.00)	89(59.33)	51(34.00)	10(6.67)
Emission from harmful chemicals from household materials	21(14.00)	84(56.00)	37(24.00)	8(5.33)
Smoke from crackers	0(0.00)	99(66.00)	49(32.67)	2(1.33)
Use of pesticides in agriculture	0(0.00)	65(43.33)	80(53.33)	5(3.33)
<b>Water pollution</b>				
Release of Industrial waste into water bodies	5(3.33)	81(54.00)	60(40.00)	4(2.67)
Release of untreated Sewage and waste water	31(20.00)	64(42.67)	50(33.33)	5(3.33)
Marine dumping	14(9.33)	60(40.00)	68(45.33)	8(5.34)
Excessive use of Chemical fertilizers and pesticides in agriculture	0(0.00)	53(35.33)	90(60.00)	7(4.67)
Presence of underground heavy metals	2(1.33)	76(50.67)	66(44.00)	6(4.00)
On-site sanitation systems	20(13.33)	75(50.00)	51(34.00)	4(2.67)
Eutrophication	116(77.33)	30(20.00)	3(2.00)	1(0.67)
Accidental spills	18(12.00)	75(50.00)	53(35.55)	4(2.67)
<b>Soil pollution</b>				
Direct discharge of industrial wastes to the soil	19(12.67)	53(35.33)	72(48.00)	6(4.00)
Discharge of sewage sludge	14(9.33)	83(55.33)	44(29.33)	9(6.00)
Landfill and illegal dumping	2(1.33)	94(62.67)	47(31.33)	7(4.67)
Construction activities	10(6.67)	83(55.33)	46(30.67)	11(7.33)
Some Agricultural practices	6(4.00)	83(55.33)	47(31.33)	14(9.33)
Accidental spills	16(10.67)	73(48.67)	52(34.67)	9(6.00)
<b>Noise pollution</b>				
Industrial sources	10(6.67)	81(54.00)	49(32.67)	10(6.67)
Transport vehicles	0(0.00)	45(30.00)	89(59.33)	16(10.67)
Household appliances	44(29.33)	92(61.33)	10(6.67)	4(2.67)
Agricultural machinery	2(1.33)	109(72.67)	37(24.67)	2(1.33)
Construction works	1(0.67)	92(61.33)	54(36.00)	3(2.00)
Public functions	0(0.00)	81(54.00)	62(41.33)	7(4.67)

(Figure in parentheses depicts percentage)  
150 no. of respondents

The perusal of data reveals that majority of the respondents i.e. 92%, 60%, 53.33% had just a casual knowledge about burning gasoline, diesel for transportation, the combustion of coal, oil, gas for generating electricity and use of pesticides in agriculture as a cause of air pollution respectively. Only one to seven per cent respondents knew good detail about the various causes of air pollution. Majority of the respondents (60%) were found to be somewhat aware about the excessive use of chemical fertilizers and pesticides in agriculture, but more than half of the respondents were there who had a poor knowledge about the various causes of water pollution and maximum respondents did not know about the eutrophication. Most of the respondents (62.67%, 55.33%, 55.33%) were found to be heard about the landfill and illegal dumping, some

agricultural practices and construction activities. Only a few respondents knew somewhat or in detail about the various causes of soil pollution. Majority of the respondents (72.67%) blamed the agricultural machinery to generated the noise pollution. Only few respondents were there who had good knowledge about the various causes of noise pollution. There were poor per cent of respondents who know in detail about the major causes of pollution i.e (10.67%, 9.33%, 6.67%).

#### Level of impact

Deteriorating environment is impacting human health in many ways, Data were collected to check the experience of the respondents about the impact of changing environment on their psychological and physical health and presented in table 4.

**Table 4:** Distribution of respondents according to their experience of impact of deteriorating environment on the their health

Impact on health	Level of impact of deteriorating environment on their health			
	No Impact F(%)	Little F(%)	Moderate F(%)	Acute F(%)
<b>Psychological health</b>				
Insomnia	72(48.00)	40(26.67)	28(18.67)	10(6.67)
Depression	1(0.66)	130(86.67)	19(12.67)	0(0.00)
<b>Physical health</b>				
Asthma	148(98.67)	0(0.00)	2(1.33)	0(0.00)
Allergies	55(36.67)	25(16.67)	70(46.67)	0(0.00)
Cancers	150(100.00)	0(0.00)	0(0.00)	0(0.00)
Skin diseases	43(28.67)	40(26.67)	67(44.67)	0(0.00)

(Figure in parentheses depicts percentage)  
150 no. of respondents

The perusal of data revealed that psychological health of most of the respondents has not yet been much impacted with little signs of depression and Insomnia in case of 86.67% and 26%, 67% respondents. Whereas more serious effects on physical health in the form of asthma (98.67% respondents facing different levels of asthma attacks during crop residue burning times) was reported. Incidentally, none of the respondents reported Skin diseases (26.67%). Some respondents had moderate health issues level like allergies (46.67%) and skin diseases (44.67%) because of pollution and their bodies is not

adapting. Only 6.67 per cent respondents were suffering from acute insomnia.

#### Level of awareness

Awareness about the problem is the first step for combating it. So data were collected to assess the level of awareness of respondents about the contribution of various household products like air fresheners, household cleaners, polishing agents, detergents, insect repellents and refrigerants in polluting the environment and their efforts to avoid the use of harmful chemicals.

**Table 5:** Distribution of respondents according to their level of knowledge about contribution of pollution by the use of household use of products

Household Product	Level of awareness			
	Don't know (F%)	Know the constituent chemicals of the product F(%)	Know general impact of Chemical on health/env. F(%)	Do efforts to avoid use of harmful chemicals F(%)
Air fresheners	76(50.00)	9(6.00)	46(30.67)	19(12.6)
Household Cleaners	123(82.00)	12(8.00)	15(10.00)	0(0.00)
Polishing agents	129(86.00)	7(4.67)	14(9.33)	0(0.00)
Detergents	90(60.00)	9(6.00)	51(34.00)	0(0.00)
Insect repellents	40(26.67)	8(5.33)	71(47.33)	31(20.67)
Refrigerants	0(0.00)	30(20.00)	41(27.33)	80(53.33)

(Figure in parentheses depicts percentage)  
150 no. of respondents

The perusal of data reveals that only a few respondents knew about the chemical constitution of various products like air fresheners (6%), household cleaners (8%), polishing agents (4.67), detergents (6%), insect repellents (5.33%) and refrigerants (20%). Majority of the respondents don't know about the constituent chemicals of the household products and general impact on health or environment for example household cleaners (82%), polishing agents (86%), detergents (60%) and air fresheners (50%). Some of the respondents

know about the general impact of chemical on health or environment and only few respondents made efforts to avoid use of harmful chemicals which is presented in table 5.

#### Level of awareness

The data were collected to check the awareness level of the respondents regarding the role of the plants in conserving environment.

**Table 6:** Distribution of respondents according to their level of awareness about role of plants in conserving environment

Role of plants	Level of awareness		
	Heard about F(%)	Experienced the effect F(%)	Know good detail F(%)
<b>Outdoor plants</b>			
Reduce carbon dioxide levels	0(0.00)	111(74.00)	39(26.00)
Increase humidity causes rain	0(0.00)	129(86.00)	21(14.00)
Reduce level of certain pollutants	0(0.00)	133(88.66)	17(11.33)
Keep air temperature down	0(0.00)	139(92.67)	11(7.33)
Prevent soil erosion	0(0.00)	89(59.20)	61(40.67)
Reduce stress level	15(10.00)	125(83.33)	10(6.67)
Absorb noise	3(2.00)	129(86.00)	18(12.00)
<b>Indoor plants</b>			
Lends pleasing surrounding	0(0.00)	140(93.33)	10(6.67)
Help to detoxify the air	0(0.00)	119(79.00)	31(20.67)
Provide oxygen	0(0.00)	0(0.00)	150(100.00)
Reduce air pollution by absorbing capacity	0(0.00)	140(93.33)	10(6.67)

(Figure in parentheses depicts percentage)  
150 no. of respondents

The data revealed that almost all respondents were aware of the role of plants in reduce carbon dioxide levels, increase humidity causes rain, reduce level of certain pollutants, keeping the air temperature down, prevent soil erosion, reduce the stress level, absorb noise, lends pleasing surrounding, help to detoxify the air, provide oxygen, reduce air pollution by absorbing capacity. The perusal of data reveals that only a few respondents were having the good knowledge about the role of plants like reducing carbon dioxide levels (26%), increasing humidity causes rain (14%), reducing level of certain pollutants (11.33%), keeping air temperature down

(7.33%), prevent soil erosion (40.67%), reduce stress level (6.67%), absorb noise (12%), lends pleasing surrounding (6.67%), help to detoxify the air (20.67%) and reduce air pollution by absorbing capacity (6.67%). Majority of the respondents had experienced that the role of indoor plants helps to reduce the indoor air pollution by absorbing capacity followed by almost all the respondents were aware about the role of indoor plants i.e. lends pleasing surrounding (93.33%) and helps to detoxify the air (79.33%). Whereas, 20.67 per cent of the respondents had detail knowledge about the role of indoor plants which helps to detoxify the air and reduce air

pollution by absorbing capacity (6.67%). Some of respondents were not aware, which is presented in table 6.

### Level of concern

The conservation of the environment has increasingly become a vital concern. People need to take interest in being "green". So data were collected to assess the level of awareness of the respondents about the practices like putting off the air conditioner and bear hot weather, prefer to travel by public

transport, go for shopping with due arrangement to avoid use of plastic bags, refrain from using plastic(use and throw) crockery, prefer to keep family celebrations simple, prefer to share special feelings with others through gestures or digital messages rather than gifts, avoid wrapping of gifts with non-biodegradable materials and dispose household waste after due segregation and believe in the philosophy of re-use and recycle with a concern to save environment.

**Table 7:** Distribution of respondents according to their level of concern about conserving environment through their efforts

I follow the following practices with a concern to save environment	Level of concern		
	Always F(%)	Sometimes F(%)	Never F(%)
Put off the air conditioner and bear hot weather	6(4.00)	62(41.33)	82(54.66)
Prefer to travel by public transport	4(2.67)	70(46.67)	76(50.67)
Go for shopping with due arrangement to avoid use of plastic bags	39(26.00)	83(55.33)	28(18.67)
Refrain from using plastic (use and throw) crockery	15(10.00)	86(57.33)	49(32.67)
Prefer to keep family celebrations simple	7(4.67)	109(72.67)	34(16.00)
Prefer to share my special feelings with others through gestures or digital messages rather than gifts	3(2.00)	94(62.67)	53(35.33)
Avoid wrapping of gifts with non-biodegradable materials	3(2.00)	19(12.67)	128(85.33)
Dispose household waste after due segregation	7(4.67)	85(56.67)	58(38.67)
Servicing electric appliances regularly to conserve energy	0(0.00)	150(100.00)	0(0.00)
Attend any green consumerism awareness organization and camp	0(0.00)	4(2.67)	146(97.33)

(Figure in parentheses depicts percentage)

150 no. of respondents

The data revealed that majority of respondents were never efforts to conserve their environment for example putting off the air conditioner and bear hot weather (54.66%), prefer to travel by public transport (50.67%) and avoid wrapping of gifts with non-biodegradable materials (85.33%). Respondents, "sometimes" put off the air conditioner and bear hot weather (4%), prefer to travel by public transport (2.67%), go for shopping with due arrangement to avoid use of plastic bags (26%), refrain from using plastic(use and throw) crockery (10%), prefer to keep family celebrations simple (4.67%), prefer to share my special feelings with others through gestures or digital messages rather than gifts (2%), avoid wrapping of gifts with non-biodegradable materials (4.67%). Only few respondents were always efforts to conserve their environment like putting off the air conditioner and bear hot weather (4%), prefer to travel public transport (2.67%), go for shopping with due arrangement to avoid use of plastic bags, refrain from using plastic( use and throw) crockery (10%), prefer to keep family celebrations simple (4.67%), prefer to share special feelings with others through gestures or digital messages rather than gifts, avoid wrapping of gifts with non-biodegradable materials, dispose household waste after due segregation. Some (4.67%) of the respondents made efforts sometime to conserve their environment, which is presented in table 7.

### Conclusion

On the basis of above finding it can be concluded that very few respondents were there who kept detail knowledge, otherwise majority of respondents had somewhat knowledge regarding deteriorating environment. Majority of the respondents were using household products but they were not aware of the constituent chemicals and general impact of chemicals on health, those who were aware they didn't showed any efforts to give avoidance to that products. The outcomes suggest that lack of awareness is the major drawback to deteriorating the environment and respondents blamed to the agricultural operation to cause pollution.

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