

Pet Ownership & Family Health : A Cross - Sectional Pilot Study.

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ABSTRACT

Introduction : Ample scientific evidence support the contention that pet-ownership has favorable effects on human health which include physical, mental, social and psychological well being of its possessor. However, few studies also reported adverse effects of pets, particularly on children below 12 years of age. The present study was undertaken among 136 pet's owner families and 78 non-pet owner families in an urban set-up in the city of Mumbai. The objective of the study was to construe a preliminary report on pet's ownership and its relationship with overall health of the family. The health of the entire family was assessed using three-health parameters viz- 1) Multidimensional Health Questionnaire (MHQ), 2) Minor Health Problems (MHP), and 3) General Social Survey Questionnaire (GSSQ). A list of health assessment questionnaire was distributed among participants of both the groups and their response was obtained in the form of health score. The result was analyzed using standard statistical tests and the level of significance was calculated for each health parameter separately.

Results: There was significant difference in MHQ score between pet's owners and non-pet's owners, mean \pm SEM (7.44 ± 0.18 Vs 6.55 ± 0.24), $p = 0.003$. There was no significant difference between pet's owners and non-owners in MHP score. On the contrary, pet-owners scored less as compared to non-pet owner indicating low susceptibility to disease among pet owners. Mean \pm SEM (2.32 ± 0.10 Vs 2.61 ± 0.18), $p = 0.10$. The social development score showed highly significant difference between pet's owners and non-pet owners (5.30 ± 0.16 Vs 4.33 ± 0.26), $p = 0.0008$. Incidence of sudden death before 50 years of age was higher among non-pet owner, although, it was not statistically significant (RR=0.5735, Odds ratio=0.55).

Conclusions: The results indicated that pet's ownership has positive effects on overall health of the family. On social development front, highly significant difference between pet-owner and non-pet owner families was found which means pet-ownership enables a person to have very positive social outlook towards life. Consequently, this might help him in better interactions with fellow citizens. The present study also negates the contention that pet-owners are more prone to infectious and allergic diseases. As a matter of fact, pets keeping seem to decrease incidence of minor illnesses in the family as evident from lower scores on MHP in pet-owners.

Introduction

Health of an individual depends on a multitude of factors - internal as well as external - which ultimately leads to either a physically fit, mentally sound, socially compatible and psychologically stable person or physically unfit, mentally depressed, socially unacceptable and psychologically unstable individual. Internal factors are primarily controlled by genetic constitution of an individual and cannot be manipulated easily while external factors have a great deal of influence on over all health of a person and are amenable through easy means. There are many studies indicating health benefits of keeping pets in the house. In one of the studies, it has been shown that pet-owners have low levels for plasma triglycerides,

circulating cholesterol and systolic blood pressure, all indices of cardiovascular health^[1]. In 1982, *Friedman et al*^[2] reported that there was a better survival rate in pet owners recovering from coronary bypass operations than in non-pet owners^[2]. *James Serpell*,^[3] in 1991 reported that pet acquisition has positive effects on human health and behavior and that in some cases these effects are relatively long term^[3]. Contrary to these reports, few studies have reported adverse effects of pets on human health, especially children and make them vulnerable to allergic reactions, infectious diseases and worm infestations^[4,5]. The present study was undertaken to construe a preliminary report on 'pets and its relationship with overall health of the family'. The health of the entire family was assessed using three health assessment parameters - 1) Multidimensional Health Questionnaire (MHQ); 2) Minor Health Problems (MHP) and 3) General Social Survey Questionnaire (GSSQ) [APPENDIX- 1]. The study was conducted in the city of Mumbai between January to April 2006.

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Methodology

The study was a comparative cross-sectional and pilot one in which sample representation consisted of randomly selected pet-owning families (H/O pet owning for > matched 1 year) and an control group of non-pet owning families. The sample was drawn from all socio-economic strata. The two groups were matched in terms of area of residence, socioeconomic status and family size. A list of questionnaire containing multiple questions on three 'health assessment parameters' was given to each family head to obtain relevant information about all family members. Information was obtained on all three parameters from all family members above 20 years of age. Those below 20 years were asked to give information only on MHP. An assistant was made available, should it be required to fill up the form. Family head was also asked to provide preliminary information like residential address, Gross annual income of family, Family size and pet keeping behavior. Only those families, who provided all the required details about whole family, were included for quantitation data is expressed as Mean \pm SEM analysis.

Statistical Analysis

For the purpose of calculation, response of participant to each question was obtained in the form of either "Yes" or "No". A score of "0" or "1" was assigned to each question such that higher score for MHQ and GSSQ indicated positive impact on health while higher score for MHP indicated greater susceptibility to disease [APPENDIX-2]. Composite score for individual health parameter for each member was calculated. Health status of family was expressed as median values of composite score for each health variable. Unpaired "t" test and Fisher's exact probability tests were used for statistical analysis. All statistical tests for differences were two-tailed with $\alpha = 0.05$ & 'p' < 0.05 was considered as statistically significant.

Results

Complete data was available for 136 pet-owner families and 78 non-pet owner families. There was no significant difference in two groups with respect to family size. (4.706 ± 0.162 Vs 4.705 ± 0.262), 'p' > 0.05 N.S).

Health assessment parameters: (Table 1, Fig. 1)

Table no. 1: Family scores on individual health parameters among pet-owners and non-pet owners Mean \pm SEM

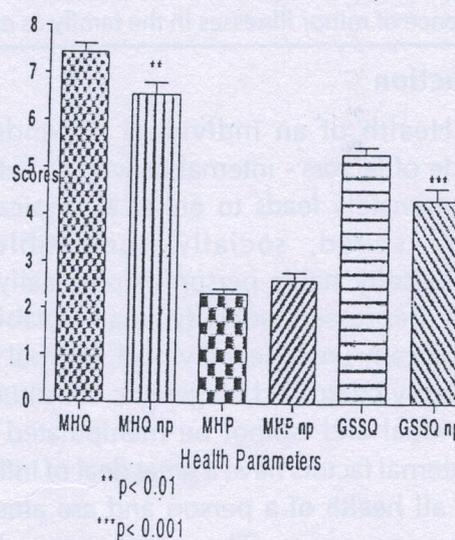
Variable	Pet ownership (n=136)	Non Pet ownership	"p" value (n=78)	Test of Significance
MHQ	7.44 \pm 0.18	6.55 \pm 0.24**	0.0034	Unpaired "t" Test
MHP	2.32 \pm 0.10	2.61 \pm 0.18	0.1001	-do-
GSSQ	5.30 \pm 0.16	4.33 \pm 0.26***	0.0008	-do-
Sudden death before 50 yrs.	6/136	6/78	0.3614	Fisher's exact 'test

MHQ = Multidimensional Health questionnaire
MHP = Minor Health Problems
GSSQ = General Social Survey Questionnaire
* = Relative Risk = 0.5735 and Odds ratio = 0.55

MHQ

The mean score on MHQ was higher in pet-owner families than non-pet owner families and it was statistically significant. (p = 0.003). This indicates better family health among pet-owning families compared to non-pet owning families.

Fig 1
Graph showing the effect on the mean score \pm SEM in pet ownership and non pet ownership families on Health parameters



MHP

Mean score on MHP was lower in pet-owner families than in non-pet owner control group. (p = 0.10). However, it was not significant. This indicated that pet owners are not increasingly susceptible to minor diseases as compared to non-pet owners. On the contrary, lower score among pet-owners indicates their less susceptibility to minor health problems.

GSSQ

The mean score on GSSQ was higher in pet-owners and difference was highly significant as compared to non-pet owner control group. Mean \pm SEM (5.30 ± 0.16 Vs 4.33 ± 0.26), $p = 0.0008$. This indicated positive social development among pet-owners.

Sudden Death before 50 years

Although, There was no significant difference between pets owners and non-pet owners in terms of a family member dying suddenly before reaching 50 years, there is about 1.5 times higher risk of a non-pet owner meeting this eventuality as compared to pet-owner. RR = 0.5735, Odds ratio = 0.55

Discussion

Human and animal interactions existed since time immemorial. It is well known fact that pets are useful companion to man. They provide emotional and psychological support at the time of crisis. However, this is possible only when pets are treated like a part of the family. In the present study, we identified families where pet-keeping was their hobby. In other words, pet keeping for these families was an urge rather than compulsion. An identical group of families without pets acted as control. The two groups were identical with respect to family size, total family's annual income and Residential locality. Any difference in health assessment parameters in the two groups was largely due to their pets keeping behavior.

Analysis of Results

Mean score on MHQ of pet owning families was significantly different from non-pet owning group. Multidimensional Health Questions is an instrument, which measures health status of family from many different perspectives including physical, social, psychological and emotional aspects. A significant difference in this parameter implies that there is strong correlation between pet ownership and good health.

On GSSQ, highly significant difference between pet-ownership and non-pet ownership families was found. GSSQ is a measure of social attitude of the person. Higher scores in this parameter indicated positive social outlook of a person towards life. Consequently, this will not only

keeps a person cheerful but also improves his interactions with others.

Mean score on MHP did not differ significantly in two groups meaning that there was no increased vulnerability to minor health problems in pet-owning families as compared to non-pet owning control group. As a matter of fact, lower score in MHP indicated positive influence of pet-ownership on human health. Our results are contrary to the previously reported studies where it was shown that there is increased vulnerability to allergic and infectious diseases due to pet acquisition. The reason cited was unhygienic activities of pets and lack of cleanliness. Interestingly, a recent report published in 2006 indicated that an excessively hygienic environment is likely to be responsible for increased incidence of allergies and autoimmune diseases^[6]. This is probably due to the fact that exposure to natural environments early in life helps train the body to respond appropriately to harmless microbes and other substances. In all probability, pet-keeping may reduce incidence of minor illnesses but required more studies to support this assumption.

In this study, family members aged above 20 years were evaluated on all three-health parameters but those below 20 years were evaluated only on minor health problems. This was done for the following reasons: 1) a person below 20 years is not expected to understand strategy of MHQs and GSSQs. Their response to these questions may not reflect actual status of their health which ultimately affects the overall result of the study and 2) Children are more susceptible to pet's related diseases. Thus, prevalence of diseases in the family is likely to be truly reflected by inclusion of all members for this health parameter.

Whether pets affect human health adversely or favorably is a debatable question. Ample scientific evidence support the contention that pet-ownership has favorable effects on human health but some studies also reported adverse effects of pet-ownership. In some of these studies, pet-ownership was used as therapeutic intervention to alleviate disabilities and depression associated with old age^[7,8]. Pet acquisition in all such cases was a necessity rather than desire. The observed

References:

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APPENDIX-1: List of Health Assessment Questionnaire

I. MHQ⁴: Answer following questions either YES or NO

- I feel anxious when I think about my health.
- I know immediately when I'm not feeling physically well
- I think about my physical health the majority of the time.
- If I were to become ill, then I'm to blame for not taking good care of myself.
- I am disappointed about the quality of my physical health.
- I have the ability to take care of any health problems that I may encounter.
- When it comes to my own physical health requirements, I ask for what I need.
- I believe that the future status of my physical health will be positive.
- It's really important to me that I keep myself in proper physical health.
- If I were ill, my recovery would depend on how I myself deal with the problem.
- I am pleased with how well I handle my own physical health.
- I am very satisfied with the status of my physical health.
- I will be able to avoid any illnesses, if I just take care of myself.

Score: Q1 - Q5 YES = 0, NO = 1
 Q6 - Q13 YES = 1, NO = 0
 Minimum Score = 0, Maximum Score = 13

⁴ Questions adapted from Multidimensional Health Questionnaire for research purposes by William E. Snell, Department of psychology, SE Missouri State University

II. MHP⁵: Place tick mark against any of the following health problems you have suffered

During last month:

- Headaches
- Bad back
- Painful Joints
- Calf muscle pain
- Difficulty in sleeping;
- Trouble with eyes
- Trouble with ears
- Constipation
- Acidity or indigestion
- Cold / Flu / Hay fever
- Sinus trouble or Catarrhal
- Persistent cough
- Breathlessness
- Palpitations
- Fainting or Dizziness
- Anxiety
- Depression
- Difficulty in Concentrating
- Kidneys or Bladder trouble
- Generalized tiredness

Scoring: Score of '1' for each tick mark.

Minimum Score = 0, Maximum Score = 20

⁵: Questions adapted from Cox, BD et al. The health and life style survey: London: Health Promotion Trust, 1967.

III. GSSQ⁶⁶: Answer following questions either YES or NO

- I am satisfied with quality of housing with respect to dampness, heating, condition of exterior, noise etc.
- I feel safe and secure at most of the places during day as well as night.
- I am satisfied with my current standard of living.
- I am satisfied with my education and skills to meet work-demand.
- I have easy access to health services.
- I am satisfied with my job.
- I have equal respect for other culture, faith, religion etc.
- I always get help from friends, neighbors in times of crisis.
- I am satisfied with public services of Government and civic bodies.
- I am satisfied with amount of leisure time.

Scoring: For YES '1' and for NO '0'

Minimum Score = 0, Maximum score = 10

⁶⁶: Questions adapted from General Social Survey Content Evaluation Update 2005 ww.stats.govt.nz