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ORIGINAL ARTICLE

A Cross-Sectional Survey of Trend of Poppy Use as Folk Remedy for Children

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ABSTRACT

Objective: To assess the trend of poppy use as folk remedy for children at Mardan and surroundings.

Study design: Cross-sectional observational study.

Duration and Place of Study: This study was carried out from August 2019 to January 2020 at Mardan.

Material and Methods: A door to door survey of 500 families residing in Mardan, was carried out. Eligible families/households (having 0 – 12 years aged children) were selected randomly from all these locations of Mardan. A pre-test structured questionnaire proforma was formulated which contained information about trend of using poppy parts (pods) as a remedy for children. Chi square was applied to analyze qualitative variables and independent T test was applied to analyse quantitative variables. P value less than 0.05 was considered significant.

Results: Total 500 questionnaires were filled. Out of these, 250 belonged to urban/city areas (group A) and 250 from rural areas (group B). Out of 250 urban families, 93 (37.2%) families used poppy for their children in comparison to 226 (90.4%) families of rural areas. The research showed significantly more use of poppy for children in rural areas as compared to urban areas ($p=0.000$). People used poppy primarily for treating cough. There was strong association between education status of parents, poppy use being significantly more in children of uneducated parents ($p=0.000$).

Conclusion: Poppy is commonly used by people as household remedy to treat cough, fever and crying babies as folk remedy. Its use is more in rural areas as compared to urban areas.

Key Words: *Poppy, Cross-sectional, Survey, Therapy*

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INTRODUCTION

Poppy is derived from the Latin word Papaver. The history of poppy goes back to Roman and Greek times and evidence of growth has been found in Sumerian cultures.¹

This plant is a member of genus papaver (papaveracea) which consists of 80 herbs and

most famous one is Papaver somniferum, commonly known as opium poppy or bread-seed poppy belonging to the family papaveraceae.² Somniferous is a latin word meaning “sleep bringing”. These are annual herbs that are usually grown as ornamental flowers in gardens almost anywhere.

Different substances are obtained from the poppy plant that includes narcotic alkaloids, morphine and codeine, non-narcotic alkaloids iethebaine, noscapine and papaverine and non-alkaloids (sugar and meconic acid). A milky fluid is obtained by cutting the unripe pods of poppy plant just after the flowering occurs. This fluid is then dried up and called opium which has many properties and has long been used for medicinal and recreational purposes.³

Pain management and bringing comfort to the suffering has always been the main stay of medicine for both malignant pain, non-malignant pain and palliative care for improving quality of life. Morphine was the first alkaloid to be used for pain relief without loss of consciousness in 1800s.⁴ Besides being a potent pain killer opiates derived from poppy have many other medical benefits and are used as anti-diarrheal, anti-tussives, anti-spasmodic. In addition to other adverse effects, opiates are also found to cause early greying of hair, aging, chronic digestive disease, psychiatric and dental problems.⁵

Poppy seeds are commonly used in food items like bakery and are usually considered harmless although cases have been reported of poisoning due to overdose with complaints of tingling sensation in both arms and legs, miotic pupils and unconsciousness. Given first aid at once there is complete recovery.⁶ Poppy has been long used in home remedies against certain ailments like asthma, insomnia, fever, lowering blood sugar level, worms, sedation, haemorrhoids and kidney stones etc. Home brewed tea from poppy is a common practice in KPK and Afghanistan for cough suppression and has been known to be associated with respiratory depression if consumed in large quantities. Although there is not enough literature available on this use of poppy among people in our country but there have been many reported cases of poppy toxicity.⁶ Poppy opium has also been found to have certain antimicrobials properties against species of *Klebsiella*, *candida*, *Streptococcus epidermidis*, *Staphylococcus aureus*, *E coli*, *Pseudomonas aueruginosa* and *Proteus mirabilis*.⁷ There are misconceptions and false beliefs among the common people that chronic diseases such as diabetes mellitus and CVD can be prevented or treated by the use of opium when

it actually increases the risk of vascular events and heart failure. Moreover it interacts with drugs commonly used by heart patients such as warfarin and digoxin. It also affects the serum levels of ALT, AST, ALP, GGT, LDH and triglyceride levels. The deleterious effects of its use should be conveyed to the public due its incremental rise in abuse.⁸

Poppy opium is easily available in our country. It is grown sporadically in rural areas. Local shops especially those dealing with herbs and herbal medicines (Pansaar stores) keep it for selling as herbal item. The research has been conducted to evaluate the trends of use of poppy flowers/pods and seeds as household remedy for various purposes in Mardan and its surroundings.

MATERIAL AND METHODS

The research was carried out in Mardan, Pakistan from August 2019 to January 2020. A structured questionnaire was formulated which contained questions about trend of using poppy pods as a remedy for children. Permission was taken from local ethical committee before start of research. It was a door to door survey. We surveyed 500 families randomly in Mardan. 250 families residing in Mardan city were chosen, while 250 residing in rural areas in suburbs of Mardan district (Kaatlang, Shehbaz Garhi, Garhi Kapoora, Takht Bhai and Rustam) were selected for survey. We used multi-stage random sampling technique. For acquiring sample of households of Mardan city and randomly sampled neighbouring blocks of Mardan city. All those houses with children from 0–12 years of age were selected. Similarly, we selected 250 eligible families/households in rural areas of Mardan i.e Kaatlang, Shehbaz Garhi, Garhi Kapoora and Rustam (50 households/families with 0-12 years aged children in each of these villages). The data included number of children in family (0-12 years), whether they give poppy to children or not, reason/purpose of giving poppy to children, frequency of using poppy and season of using it. If children are given poppy; in which form it is prepared, who advised to give poppy, were the parents/caregivers were using poppy themselves as well, have they ever encountered any adverse effect of poppy use,

education status of parents (both father and mother), employment status of parents and socioeconomic status.

The questionnaire was distributed randomly among the patients and attendants visiting Mardan Medical Complex and CMH Mardan from August 2019 to January 2020. All the individuals who were residents of district Mardan (city & villages) and surroundings were included in the study. Residents of Mardan city were included in group A and those of rural areas in group B. Data was also compared in two groups, group A and group B. Only those parents (cases) were included and questionnaire was filled by those who consented for the study. Researchers filled the questionnaires for illiterate parents.

All the data was entered in SPSS 21 (statistical package for social sciences). Chi square was applied to analyze qualitative variables and independent t test was applied to analyse quantitative variables. Percentages were used to express frequencies. P value less than 0.05 was considered significant.

RESULTS

Total 500 questionnaires were filled i.e. 500 families were surveyed. Out of which, 250 belonged to urban/city areas (group A) and 250 from rural areas (group B). The questions asked and the response of families has been summarized in table 1 below. There were total 1731 children from 0–12 years age group in 500 selected families.

Out of 250 families of urban areas who participated in research, there were 743 children with mean 2.97 ± 1.23 children per family and out of 250 families of rural areas who participated in research, there were 988 children with mean 3.95 ± 1.82 children per family in 0 to 12 years age group. Out of 250 urban families, 93 (37.2%) families used poppy for their children in comparison to 226 (90.4%) families of rural areas. This shows significantly more use of poppy for children in rural areas ($p=0.000$). People used poppy primarily for treating cough (46.7%) followed by relieving crying children (26.6%),

cough & cry (13.4%) fever (8.1%) and diarrhoea (5.0%) in descending order as shown in table below. Majority of people gave poppy after boiling poppy pods in water (61.7%). Less commonly, children were given poppy after boiling in tea (23.5%) and after grinding poppy pods/pieces mixed in water (14.7%). Poppy was used chiefly in winters (79.3%) both in urban and rural areas, less commonly was used in summers (9%) or throughout the year (11.2%). Poppy was mainly used by people whenever there was need/requirement i.e. when the child had cough, fever or child was unable to sleep or cry (70.4%). Few also used it fortnightly followed by weekly and 2.9% families were even using it daily as shown in table 1. Most of the families thought that poppy is useful (66.6%). When enquired about side-effects of poppy, majority of respondents (63.8%) replied that there are none. Parents were chief teachers of the caregivers who advised them/taught about use of poppy followed by quacks and relatives. According to majority of respondents (373), poppy is commonly available and sold for household use at local pansaar stores both in urban and rural areas. Only few cases got it from poppy plants grown in fields/lawns. Out of 500 families under research, 219 parents do not use poppy for themselves, but 204 families (both parents) use poppy themselves as a folk remedy. Out of these 204 families, mainly rural areas parents use it; 190 versus 14 families, $p=0.000$. Other socioeconomic and education status information of all the families under research is shown in table 1.

There was strong association between education status of parents, poppy use was significantly more in children of uneducated parents ($p=0.000$) as shown in table 2. Poppy use was significantly more in children of self-employed fathers and house-wife mothers, $p=.001$ and $p=0.000$. Similarly, poppy use for children was high in poor and middle class families, however rich/wealthy are also using it as remedy for their children as shown below.

TABLE 1: Response of people about trend of poppy use for children

Question/Information		Group A (250 families)	Group B (250 families)	Total (500 families)	p value
No of Children in city & rural areas in 0 – 12 years age range (Mean)		743 (42.9%) 2.97+1.23 250 families	988 (57.0%) 3.95+1.82 250 families	1731 3.46+1.62 500 families	0.000
Whether children are given poppy?		Yes 93 (37.2%) families	Yes 226 (90.4%) families	Yes 319 families	0.0.000
		No 157 (62.8%) families	No 24 (9.6%) Families	No 181 families	
Reason of giving poppy	Cough	41 (27.5%)	108 (72.4%)	149 (46.7%)	0.000
	Cry	28 (32.9%)	57 (67.0%)	85 (26.6%)	
	Cough & cry	16 (37.2%)	27 (62.7%)	43 (13.4%)	
	Fever	7 (26.9%)	19 (73.0%)	26 (8.1%)	
Method of preparing poppy for children	Diarrhoea	1 (6.6%)	15 (93.7%)	16 (5.0%)	0.000
	Poppy pods boiled in water	50 (25.3%)	147 (74.6%)	197 (61.7%)	
	Poppy pods boiled in tea	31 (41.3%)	44 (58.6%)	75 (23.5%)	
Season of giving poppy	Poppy pods ground and mixed with water	12 (25.5%)	35 (74.4%)	47(14.7%)	0.000
	Winter	65 (25.5%)	189 (74.4%)	254 (79.3%)	
Frequency of giving poppy	Summer	9 (31.0%)	20 (68.9%)	29 (9.0%)	0.000
	Throughout year	19 (52.7%)	17 (47.2%)	36 (11.2%)	
	When there is need	60 (26.7%)	164 (73.2%)	224 (70.4%)	
Whether poppy was useful or not	Once fortnightly	18 (48.6%)	19 (51.3%)	37 (11.6%)	0.000
	Once weekly	13 (27.0%)	35 (72.9%)	48 (15.0%)	
	Daily	02 (22.2%)	07 (77.7%)	09 (2.9%)	
Any side effects noted or knowledge of	Yes, was useful	100 (30.0%)	233 (69.9%)	333 (66.6%)	0.000
	No, it was not useful	31 (100.0%)	0 (0.0%)	31 (6.2%)	
	Dont know	119 (87.5%)	17 (12.5%)	136 (27.2%)	
Who advised/told to use poppy	Yes	23 (92.0%)	2 (8.0%)	25 (5.0%)	0.000
	No	94 (29.4%)	225 (70.5%)	319 (63.8%)	
	Don't know	133 (85.2%)	23 (14.7%)	156 (31.2%)	
Where did you get poppy for using as remedy	Parents	70 (28.9%)	172 (71.0%)	242 (70.5%)	0.000
	Quacks	22 (48.8%)	23 (51.1%)	45 (13.1%)	
	Relatives/friends	16 (28.5%)	40 (71.4%)	56 (16.3%)	
Any death occurred because of poppy, in relatives, neighbours etc	Shop,pansaar	173 (46.3%)	200 (53.6%)	373 (74.6%)	0.000
	Grown in lawn/field	10 (20.0%)	40 (80.0%)	50 (10.0%)	
	Dont know	67 (87.0%)	10 (12.9%)	77 (15.4%)	
Whether poppy is used by parents themselves or not?	Yes	1 (16.6%)	5 (83.3%)	6 (1.2%)	0.000
	No	100 (30.3%)	230 (69.6%)	330 (66.0%)	
	Don't know	149 (90.8%)	15 (9.1%)	164 (32.8%)	
	Used by father	17 (48.5%)	18 (51.4%)	35 (7.0%)	
Education status of father	Used by mother	14 (33.3%)	28 (66.6%)	42 (8.4%)	0.000
	Used by both parents	14 (6.8%)	190 (93.3%)	204 (40.8%)	
	No one uses poppy	205 (93.6%)	14 (6.3%)	219 (43.8%)	
Education status of father	Uneducated	50 (22.6%)	171 (77.3%)	221 (44.2%)	0.000
	Undermatic	61 (64.8%)	33 (35.1%)	94 (18.8%)	
	Matric	56 (63.6%)	32 (36.3%)	89 (17.8%)	
	Above matric	83 (86.4%)	13 (13.5%)	96 (19.2%)	

Education status of mother	Uneducated	118 (34.7%)	222 (65.2%)	340 (68.0%)	0.000
	Undermatric	63 (78.7%)	17 (21.2%)	80 (16.0%)	
	Matric	44 (84.6%)	8 (15.3%)	52 (10.4%)	
	Above matric	25 (89.2%)	3 (10.7%)	28 (5.6%)	
Job status father	Jobless	12 (46.1%)	14 (53.8%)	26 (5.2%)	0.415
	Self-employed	213 (49.3%)	219 (50.6%)	432 (86.4%)	
Job status mother	Employee	25 (59.5%)	17 (40.4%)	42 (8.4%)	0.011
	House wife	219 (48.0%)	237 (51.9%)	456 (91.2%)	
	Self-employed	16 (64.0%)	9 (36.0%)	25 (5.0%)	
Socioeconomic use	Employee	15 (78.9%)	4 (21.0%)	19 (3.8%)	0.000
		59 (26.5%)	163 (73.4%)	222 (44.4%)	
		149 (70.2%)	63 (29.7%)	212 (42.4%)	
		42 (63.6%)	24 (36.3%)	66 (13.2%)	

TABLE 2: Association of using poppy for children with socioeconomic, education and job factors

Factors	Categories	Group A	Group B	Total	P value
Education status of father	Uneducated	208 (94.1%)	13 (5.8%)	221 (44.2%)	p=0.000
	Undermatric	68 (73.3%)	26 (27.6)	94 (18.8%)	
	matric	33 (37.5%)	55 (62.5%)	89 (17.8%)	
Education status of mother	Above matric	83 (86.4%)	13 (13.5%)	96 (19.2%)	p=0.000
	uneducated	273 (80.2%)	67 (19.7%)	340 (68%)	
	undermatric	30 (37.5%)	50 (62.5%)	80 (16%)	
Job status father	matric	10 (19.2%)	42 (80.7%)	52 (10.4%)	p=0.000
	Above matric	25 (89.2%)	3 (10.7%)	28 (5.6%)	
	Jobless	19 (73.0%)	7 (26.9%)	26 (5.2%)	
Job status mother	Self-employed	284 (65.7%)	148 (34.2%)	432(86.4%)	p=0.0001
	Employee	16 (61.5%)	26 (38.4%)	42 (8.4%)	
	House wife	307 (67.3%)	149 (32.6%)	456 (91.2%)	
Socioeconomic use	Self-employed	8 (32.0%)	17 (86.0%)	25 (5%)	p=0.000
	Employee	4 (21.0%)	15 (78.9%)	19 (3.8%)	
	Poor	166 (74.7%)	56 (25.2%)	222 (44.4%)	
Socioeconomic use	Middle class	123 (58.0%)	89 (41.9%)	212 (42.4%)	p=0.000
	Rich	30 (45.4%)	36 (54.5%)	66 (13.2%)	

DISCUSSION

Poppy is commonly used as folk remedy for various purposes like cough, cry, diarrhoea etc.⁹ It is a source of morphine, a potent narcotic alkaloid.³ Chronic use of poppy can cause addiction as well as predispose to various diseases and ailments.⁸

Thousands of cases of lethal intoxication of infants and children with opium have been reported since antiquity. Poppy has been used for human infants for cough, diarrhoea, pain and somnolence for more than three millennia.¹⁰ Even in England, in the 19th century, infant drinks mixed with poppy extracted opium was used to calm crying babies.¹¹ Use of opium (poppy extract) has been recommended by ancient thinkers and physicians such as Galen and Avicenna. The International Hague Convention forced countries

to implement laws to curtail opium in 1912, which greatly decreased poppy growth resulting in decline of cases of infantile and pediatric opium toxicity worldwide.¹⁰ People, however are still using opium poppy for infants and children in our country. Cases of opium toxicity after household use as folk remedy for cough, diarrhoea and for calming/soothing crying babies are of serious concern for health providers and community. Respiratory depression, miosis and unconsciousness are three chief signs of acute morphine toxicity or overdose of poppy opium.

In our research we have seen that people commonly use poppy pods for mainly cough and cry in infants and children. Less commonly, they also misuse it to treat fever and diarrhoea as well. In our study we saw, the trend of using poppy as remedy for children was significantly higher in rural areas as compared to urban areas. Majority

of people used poppy for treating cough (both rural and urban), less commonly parents misused it to calm a crying baby/child or a as somnolent. Poppy was used mainly in winters or whenever there was requirement according to parents. In winter, pediatric airway diseases are common so the use of poppy for cough is more in winters as compared to summers. There was also significantly high usage in families where fathers and mothers were uneducated or under matric as compared to those who were matriculate or above, both in urban and rural areas. Use of poppy was also seen significantly more in poor and middle class families frequency of poor and middle class is significantly more than rich in our society, however wealthy/rich also use it to treat coughing and crying children. Poppy is easily available at Pansaar stores in our areas but few grow in lawns/fields at small scale. Few respondents also mentioned deaths of few children in near relatives or acquaintances, which is alarming.

Professor Uppul reported 22 cases of poppy poisoning admitted in Lady Reading Hospital Peshawar in 1979, out of which 40% died.¹² There have been other reports of poppy intoxication owing to overdose of poppy among children, given by parents as folk remedies.¹³ There is no published data showing use of poppy parts (pods) for treating cough, fever or as somnolent for crying babies in our country. This research is of great public health importance. We have highlighted the gross misuse of this dangerous herb at public level, we suggest banning sale of poppy at any store for public and raise awareness among people to stop use of poppy as a household remedy through public awareness campaigns.

CONCLUSION

Poppy is commonly used by people as household remedy to treat cough, fever and crying babies. Its use is more in rural areas as compared to urban areas. We suggest banning sale of poppy at any store for public and raise awareness among people to stop use of poppy as a household remedy through public awareness campaigns.

Conflict of interest: None.

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