

Research Article

The Effect of Pesticides on Child Gender and the Level of Sexual Activities in People Exposed –IRAN

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Abstract

IMPORTANCE Today, chlorine and phosphorus pesticides are widely used in the agricultural industry. Farmers and workers who produce these pesticides in factories are strongly exposed to these pesticides.

OBJECTIVE We aimed to investigate the effects of phosphorus and chlorine toxins on the birth rate, type of child sex and sexual desire of workers in the face of these toxins and compare it with workers in other factories who are not exposed to phosphorus and chlorine pesticides.

DESIGN, SETTINGS & METHODS the research tool was the questionnaire. The questionnaire distributed between workers of two different factories was distributed in the first factory of workers 8 - 10 hours a day in the face of chlorine and phosphorus pesticides. In the second factory workers were not exposed to pesticides. The questionnaire was prepared with the cooperation of a physiologist consultant. Its validity and reliability were obtained with the help of experts. This questionnaire had two parts. In the first part, questions related to demographic and social characters Data analysis was performed using SPSS statistical software version 26.0 (IBM Corp). The significance level was set at $\alpha = .05$, and all tests were 2-tailed. The original scores of the 4 measurement tools were not normally distributed and so are presented as medians with interquartile ranges (IQRs). The nonparametric Mann-Whitney U test and Kruskal-Wallis test were applied to compare the severity of each symptom between 2 or more groups, tics and in the second part, questions related to sexual activity and sexual desire were asked.



RESULTS *The results show that there is no significant difference between the sons and daughters of two factories (p value=0.08). The comparison of sexual activities in the two factories indicates that there is a significant difference in the number of sexual activities between the two factories. Employees of the control factory had sexual activity twice a week and employees of the phosphorous pesticides factory more than 4 times a week (p value=0.001). Sexual activity in employees who were exposed to chlorine pesticides did not show a significant difference with the control factory (p value= 0.06).*

Introduction

Today, chlorine and phosphorus pesticides are widely used in the agricultural industry (1). Farmers and workers who produce these pesticides in factories are strongly exposed to these pesticides. these pesticides, In addition to physical effects, also have sexual and psychological effects on people (2). Pesticides have a wide effect on sexual behaviors, blood sex hormone levels, libido, Sex, sperm count, semen, miscarriage and genetic abnormalities (3). Each toxin acts on these parameters through its separate mechanism. For example, DDT is a type of chlorine insecticide and reduces sexual desire and sexual behaviors through mechanisms other than estradiol receptors (4). Chlorine is a chlorine insecticide that rapidly reduces sexual desire and sexual behavior through norepinephrine in the hypothalamus (5, 6, 7). These pesticides first delay sexual behavior, then reduces and finally eliminates it (8, 9). Methoxy chloride is another pesticide that reduces workers' sexual behavior by lowering blood testosterone (10, 11). Workers who are in contact with insecticides have reduced sperm count and sperm motility. Heavy metals, solvents, and other chemicals also reduce fertility by reducing sperm count or libido in men (11,12, 13).

In this study, we aimed to investigate the effects of phosphorus and chlorine toxins on birth rate, type of child sex and sexual desire of workers in the face of these toxins and compare it with workers in other factories who are not exposed phosphorus and chlorine pesticides.

Methods

Study Design

In this study, the research tool was the questionnaire. The questionnaire distributed between workers of two different factories was distributed in the first factory of workers 8 - 10 hours a day in the face of chlorine and phosphorus pesticides. In the second factory workers were not exposed to pesticides. the questionnaire was prepared with the cooperation of a physiologist consultant. Its validity and reliability were obtained with the help of experts. This questionnaire had two parts. In the first part, questions



related to demographic and social characteristics and in the second part, questions related to sexual activity and sexual desire were asked.

The questionnaires were distributed in two categories. The first group was distributed among married people and the second group was distributed among single people. The difference between the two questionnaires was that in the second category questionnaire, in addition to the items mentioned in the first questionnaire, the rate of masturbation per week was also added. The reason for removing the question of masturbation from the married group was based on the hypothesis that married men probably do not masturbate for religious-cultural reasons.

The questionnaire was privately handed down to the workers in a confidential envelope. The workers were reassured that their information would remain confidential to the researcher.

Participants

The Census method was used to determine the number of participants in the study. In this study, the researchers conducted their research on all people. In both factories, this questionnaire was secretly distributed among all workers in coded envelopes. In the first factory (where workers are exposed to toxins) 70 questionnaires were completed and in the second factory (where employees are not exposed to toxins) 40 questionnaires were completed. This questionnaire was given to male workers only.

Outcomes and Covariates

Our focus was on the behaviors and sexual activities of male workers.

In this method, demographic data such as job, place of work, gender, age, level of education and work shifts were asked and two questionnaires were used. In this questionnaire, demographic information such as age, place of work, and date of marriage was asked.

TABLE 1- Second category questionnaire

Age	PLACE OF WORK	Date of marriage	Sexual desire (1-7)	Date of birth of the first child	Date of birth of the second child	Date of birth of the third child	work experience	The rate of masturbation per week	Willingness to marry (if single)



Statistical Analysis

Data analysis was performed using SPSS statistical software version 26.0 (IBM Corp). The significance level was set at $\alpha = .05$, and all tests were 2-tailed. The original scores of the 4 measurement tools were not normally distributed and so are presented as medians with interquartile ranges (IQRs). The nonparametric Mann-Whitney U test and Kruskal-Wallis test were applied to compare the severity of each symptom between 2 or more groups.

Results

Demographic Characteristics

In this study, the subjects were compared in both factories. All participants in both factories were male. The number of married people in the control factory was 98% and in the pesticide factory was 93%. The work experience in the control factory was over 20 years and in the main factory was 10 years. Also, the number of children in the control factory was higher. (**Table 2**).

Table 2- Demographic Characteristics

Number of children	Marital status (%)		Gender (%)		Average work experience (years)	
	single	married	men	women		
2.1	7	93	100	0	10	Pesticide factory
6	2	98	100	0	20	Control factory

The severity of Measurements and Associated Factors

The results show that there is no significant difference between the sons and daughters of the two factories (p value=0.08). The comparison of sexual activities in the two factories indicates that there is a significant difference in the number of sexual activities between the two factories. Employees of the control factory had sexual activity twice a week and employees of the phosphorous pesticides factory more than 4 times a week (p value=0.001). Sexual activity in employees who were exposed to chlorine pesticides did not show a significant difference with the control factory (p value= 0.06).

Discussion

The results of this study show that the more people are exposed to higher concentrations of phosphorus pesticides, the more their sexual activity increases significantly, while the more people are exposed to chlorinated pesticides, the more they change their activities. Their sexual activity was not observed. Their sexual activity did not show a significant difference with the control factory.



Pesticides have a wide effect on sexual behaviors, blood sex hormone levels, libido, Sex, sperm count, semen, miscarriage and genetic abnormalities. Each toxin acts on these parameters through its separate mechanism. For example, DDT is a type of chlorine insecticide and reduces sexual desire and sexual behaviors through mechanisms other than estradiol receptors. Chlorine is a chlorine insecticide that rapidly reduces sexual desire and sexual behavior through norepinephrine in the hypothalamus. This toxin first delays sexual behavior then reduces and finally eliminates it. Methoxychloride is another toxin that reduces workers' sexual behavior by lowering blood testosterone. Workers who are in contact with insecticides have reduced sperm count and sperm motility. Heavy metals, solvents, and other chemicals also reduce fertility by reducing sperm count or libido in men.

Contrary to previous studies that have found that phosphorus depletion reduces sexual activity, this study indicates an increase in sexual activity in exposed individuals.

Limitations

This study has several limitations. First, it was limited in scope. All participants were men. Second, according to the culture of our country, people do not talk about sexual issues openly. Third, not all employees were interested in completing the questionnaire.

Conclusion

Contrary to previous studies that have found that phosphorus depletion reduces sexual activity (14,15, 16) this study indicates an increase in sexual activity in exposed individuals. The main reason for this difference is probably related to the chemical formula of pesticides, which affects people's sexual behavior.

Due to the effects of pesticides on sexual activity, sexual desire and sex hormones can be used through the use of advanced protectors in factory devices to prevent pesticide leakage out, change the production process and the basis of the chemical formula of pesticides affecting sexual behavior. Protective strategies such as the distribution and mandatory use of filtered masks and the use of personal monitoring devices, informing and educating staff about the effects of the pest in people who are exposed to it reduce its effects on people in the face.

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