

Differences in preparedness among managers and workers for a tobacco-free workplace policy and cessation services at their workplace: A situational analysis survey in six workplaces in India

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ABSTRACT

INTRODUCTION The benefits of smoke-free workplace policies are established. For effective policy formulation and implementation in workplaces, it is important to assess and understand the needs of the organization, disparities among the different categories of employees, and their perceptions regarding new policies. This study aimed to assess the readiness for a tobacco-free workplace policy among employees from six workplaces in India.

METHODS We conducted a cross-sectional observational study involving a survey of employees – managers and workers from six workplaces – from April 2016 to March 2020 among a sample of 1376 employees (464 managers and 912 workers). The survey was conducted face-to-face for workers and online for managers.

RESULTS The majority of managers, as well as workers, agreed

INTRODUCTION

Tobacco use is one of the leading causes of death globally and is associated with more deaths than those caused by HIV, TB and malaria combined. Tobacco use is related to deaths caused by ischemic heart disease, cerebrovascular disease, lower respiratory infections, chronic obstructive pulmonary disease, HIV/AIDS, diarrheal diseases, tuberculosis, and cancers of the trachea, bronchus or lungs¹. There were about a hundred million tobacco related deaths in the last century, and at current estimates there may be about one billion deaths this century. In spite of this, tobacco use is common due to its affordability, influence of marketing by the tobacco companies, lack of awareness about all its ill effects, and lack of strong policies against its use. that the organization should have a tobacco-free policy and that it will impact the employees' health. The prevalence of ever as well as current tobacco use was higher among the workers (50% and 33%, respectively) than the managers (27% and 11%, respectively). Of these, 49% of managers were smokers, while 80% of workers used smokeless products. While most of the managers (94%) and workers (97%) wanted to quit tobacco use, fewer managers were open to counselling support at the workplace (69% vs 94%). **CONCLUSIONS** Though the need for a tobacco-free workplace policy was expressed by most of the employees, there are differences among managers and workers in their attitudes towards the policy and their tobacco use behavior, which have to be considered while implementing the policy and offering cessation services.

The Global Adult Tobacco Survey (GATS)-2 for India reports that 267 million adults over the age of 15 years used tobacco, which included 199 million smokeless tobacco users, 100 million smokers, and 32 million dual users. The prevalence is higher among males (42%) and in rural areas (33%). The common smoking tobacco products used in India include bidis, cigarettes, and hookah, while the common smokeless products are khaini, gutkha and betel quid with tobacco².

Two-thirds of the population in India belongs to the working age group³. According to GATS-2, 30% of the population working in the organized sector (Government and non-governmental organizations) uses tobacco. More than 40% of these had made a quit attempt in the previous

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one year and were unsuccessful. About three-quarters of these attempts were unassisted². Workplaces are an ideal setting to reach a large proportion of this working population and encourage employees to be tobacco-free and provide cessation support for addressing nicotine dependence. Workplaces offer a unique opportunity to address employees' health and influence their tobacco use behaviour^{4,5}. A Cochrane review of studies on workplace interventions for smoking cessation affirms that workplace programs based on cessation strategies like individual counselling, group therapy, and NRT, help users to quit their habit⁶. Furthermore, an interventional study conducted in India among industry workers, reported that worksite-based intervention techniques are more effective than clinic-based interventions7. Workplace-based cessation interventions can range from mobile or web-based applications to comprehensive intensive interventions in which cessation support is provided to the employees and integrated with overall safety, health and well-being. However, evidence suggests that implementing a comprehensive and intensive cessation intervention has a greater impact8.

Article 14 of the WHO Framework Convention on Tobacco Control (WHO FCTC) emphasizes the need of implementing and promoting comprehensive tobacco cessation interventions and smoke-free policies within workplaces9. Smoke-free policies in the workplaces of several industrialized nations have reduced total tobacco consumption among employees by an average of 29%¹⁰. India was among the first few countries to enact a national law for tobacco control called the Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 (COTPA). The COTPA bans smoking in public places including indoor workplaces. However, the law does not impose restrictions on use of smokeless tobacco which is in fact consumed more than smoking. The prevalence of smokeless tobacco use (21%) in India is almost twice compared to that for smoking $(11\%)^2$. To reduce the overall tobacco burden in India, a focus on smokeless tobacco control is imperative¹¹. Establishing and enforcing comprehensive tobacco-free workplace policies and programs which include tobacco-cessation support for both smokers and smokeless tobacco users, is required.

To design and implement any effective health promotion program in workplaces, it is recommended to conduct a thorough assessment of the organization, organizational policies, understand the disparities among the different categories of employees, understand their willingness and perceptions regarding new policies or health interventions^{12,13}. Evidence suggests that there are clear differences among blue-collar and white-collar employees regarding tobacco use habits. Blue-collar workers tend to have high smoking rates and are less likely to quit their habit^{14,15}. Studies have shown that effective smoking cessation workplace interventions are those that have considered these differences while designing health promotion interventions^{13,16-18}. However, the literature regarding tobacco use disparities among different occupational categories in the Indian context is scarce. Furthermore, to the best of our knowledge, formative research to understand the organizational and employees' needs and perceptions on tobacco cessation workplace programs or tobacco-free workplace policies, has not been conducted in India.

With this background, we aimed to assess the readiness for a tobacco-free workplace policy among employees of six workplaces in India. The specific objectives were to assess and compare among the managerial employees and workers: 1) self-reported tobacco use behavior; 2) perspectives and attitudes regarding implementation of a tobacco free workplace policy and provision of cessation services at their workplace; 3) knowledge about effects of tobacco; and 4) predictors of ever and current tobacco use.

METHODS

Study design

We conducted a cross-sectional observational study that involved a survey of employees from six workplaces conducted during April 2016 to March 2020.

Study setting

General setting

India, with a population of over 1.3 billion people is the second most populous country in the world. India is a low-middle-income country with nearly a US\$3 trillion economy¹⁹. With 522 million workers, the Indian labor force is the second largest in the world. The service sector makes up 55.6% of GDP, the industrial sector 26.3% and the agricultural sector 18.1%²⁰.

The workplaces included in this study were located in the states of Maharashtra and Uttar Pradesh. Maharashtra, with Mumbai as its capital, is the leading industrial state of the country. Maharashtra contributes 13% of the national industrial output and almost INR 31.98 trillion (US\$430.62 billion) Gross State Domestic Product is contributed by industry²¹. Uttar Pradesh, the most populated state of India, is the second-largest economy in India after Maharashtra, with an estimated gross state domestic product of INR 21.74 trillion (US\$294.90 billion)²².

The prevalence of tobacco use in Maharashtra and Uttar Pradesh is 27% and 36%, respectively, among people aged >15 years with smokeless tobacco being the predominant form. The smokeless tobacco prevalence in Maharashtra is 24% whereas smoking prevalence is 4%. Similarly, the smokeless tobacco prevalence in Uttar Pradesh is 29% and smoking is $14\%^2$.

Specific setting

The study was conducted in six different workplaces in urban and rural areas of Maharashtra and one workplace in rural Uttar Pradesh – a shipping terminal of a cement

manufacturing company, a corporate head office of a large group of companies, a roofing-material manufacturing unit, an electronic manufacturing unit, a material-handling equipment manufacturing unit, and a research and development unit of a large pharmaceutical company. The workplaces were selected purposively. We approached the workplaces through organizational contact in a phased manner. The managements of these workplaces were sensitized about the 'Tobacco-free workplace challenge' supported by the Clinton Global Initiative and those who agreed to be a part of the initiative were recruited for the study. The tobacco dependence treatment program initiated by Narotam Sekhsaria Foundation in collaboration with Salaam Bombay Foundation is called LifeFirst. This is being implemented in various settings including hospitals, primary healthcare centers, charitable trust clinics, workplaces and schools. As a part of the 'Tobacco-free workplace challenge' supported by the Clinton Global Initiative, LifeFirst conducted a situational analysis among all employees of the six workplaces before implementing the tobacco-free workplace policy project which aimed to develop, implement and monitor a tobacco-free workplace policy for these workplaces using the 'Smokefree in a box' toolkit²³.

Study population

The total number of employees in these six workplaces was about 3400, including managers and workers, regular as well as contractual staff, which were contacted to participate. A total of 1376 employees (464 managers and 912 workers) finally participated in the survey. The study included all employees of the six workplaces who consented to answer the survey questionnaire. We used the following operational definitions²⁴: 'Worker', defined as any person employed in any establishment to do any manual, unskilled, skilled, technical, operational, clerical or supervisory work other than managerial or administrative work; and 'Manager', any person employed in a managerial or administrative capacity.

Data collection and analysis

Based on the brief set of questions in the guideline²³, a semistructured questionnaire was drafted and approved by the management and core committee at each worksite. The survey was conducted as individual face-to-face interviews by trained staff of the LifeFirst team for workers, and as online forms for managers and staff with access to official e-mails and internet. As the locations of these workplaces were different and spread out, the survey was conducted in a phased manner. The online survey was designed using the 'SurveyMonkey' platform where data are collected at the backend and can be exported as MS Excel sheets for analysis. Data on sociodemographic characteristics, employment details, types and products of tobacco used, willingness to quit with acceptability of a cessation service at their workplace, the need for a tobacco-free workplace policy, and knowledge about harmful effects of tobacco, were collected.

Ethics

A written informed consent was obtained from the employees before the face-to-face interviews and online consent was obtained for the online survey. Ethical approval for the study was obtained from the Joint Ethics Committee of Narotam Sekhsaria Foundation and Salaam Bombay Foundation. This data were maintained and stored in password protected computers accessed only by the authors. De-identified survey findings were shared with the management of the workplaces.

Statistical analysis

Frequencies (n) and proportions (%) were used to express results of our specific objectives while a multinomial logistic regression model was used to report objective data. A χ^2 test was used to assess associations. Data collected face-to-face were entered into MS Excel format while the SurveyMonkey data were exported to MS Excel format and all data were analyzed using STATA® (version 16.0 Copyright 1985-2019 StataCorp LLC)²⁵.

Table 1. Characteristics of employees among employees who participated in the tobacco-free workplace situational analysis survey, in six workplaces in India, April 2016 to March 2020, segregated by role (N=1376)

Characteristics	Manager	Worker	Total
	n (%)	n (%)	n (%)
Total [§]	464 (33.7)	912 (66.3)	1376 (100)
Gender***			
Male	369 (79.5)	908 (99.6)	1277 (92.8)
Female	95 (20.5)	4 (0.4)	99 (7.2)
Age (years)***			
15-24	11 (2.4)	86 (9.4)	97 (7.0)
25-34	110 (23.7)	232 (25.4)	342 (24.9)
35-44	158 (34.1)	236 (25.9)	394 (28.6)
45-54	137 (29.5)	281 (30.8)	418 (30.4)
≥55	37 (8.0)	72 (7.9)	109 (7.9)
Missing data	11 (2.4)	5 (0.5)	16 (1.2)
Tenure with the organization (years)***			
<5	140 (30.2)	284 (31.1)	424 (30.8)
5-10	113 (24.4)	156 (17.1)	269 (19.5)
11-15	50 (10.8)	35 (3.8)	85 (6.2)
16-20	62 (13.4)	109 (12.0)	171 (12.4)
>20	98 (21.1)	324 (35.5)	422 (30.7)
Missing data	1 (0.2)	4 (0.4)	5 (0.4)

§ Row percentages. ***p<0.001. **p<0.05. *p<0.10.



Table 2. Tobacco use behavior and cessation need among employees who participated in the tobaccofree workplace situational analysis survey, in six workplaces in India, April 2016 to March 2020, segregated by role (N=1376)

Characteristics	Manager	Worker	Total	
	n (%)	n (%)	n (%)	
Tobacco use***				
Never user	335 (72.2)	454 (49.8)	789 (57.3)	
Ever user	129 (27.8)	458 (50.2)	587 (42.7)	
Status of tobacco use***				
Current	49 (10.6)	304 (33.3)	353 (25.7)	
Former	78 (16.8)	154 (16,9)	232 (16.9)	
Never	337 (72.6)	454 (49.8)	791 (57.7)	
Type of tobacco use***				
Smokeless	20 (40.8)	242 (79.6)	262 (74.2)	
Smoking	24 (49.0)	38 (12.5)	62 (17.6)	
Both	5 (10.2)	17 (5.5)	22 (6.2)	
Missing data	0	7 (2.3)	7 (1.9)	
Intention to quit				
Yes	46 (93.9)	294 (96.7)	340 (96.3)	
No	3 (6.1)	10 (3.3)	13 (3.7)	
Need of cessation services***				
Yes	34 (69.4)	288 (94.7)	322 (91.2)	
No	12 (24.5)	6 (2.0)	18 (5.1)	
Missing data	3 (6.1)	10 (3.3)	13 (3.7)	

***p<0.001. **p<0.05. *p<0.10.

RESULTS

In the six workplaces where the situational analysis was conducted, the survey was answered by 1376 employees – 464 managers and 912 workers (852 face-to-face and 524 online). Among them, 93% were male, 60% were aged 35–54 years, 31% had worked for <5 years and an equal proportion had worked for >20 years. The managerial employees comprised 34% of the total employees. Table 1 provides the sociodemographic description of the employees segregated by their role in the workplace (managers and workers).

Table 2 describes the tobacco use behavior and cessation need among the managers and workers of the six workplaces. The prevalence of ever as well as current tobacco use was higher among the workers (50% and 33%, respectively) than the managers (28% and 11%, respectively). Among current tobacco users, smokeless tobacco use was predominant in the workers (80%) while majority of the managers were Table 3. Awareness of and attitude towards tobacco related workplace policy and knowledge about harms of tobacco among employees who participated in the tobacco-free workplace situational analysis survey, in six workplaces in India, April 2016 to March 2020, segregated by role (N=1376)

Items	Manager	Worker	
	n (%)	n (%)	
Aware of existing policies that relate to tobacco at worksite***			
Yes	271 (58.4)	634 (69.5)	
Satisfied with the existing policy relating to tobacco***			
Yes	240 (88.2)	597 (94.3)	
Organization should have a tobacco-free workplace policy**			
Yes	464 (98.7)	868 (95.1)	
Supportive towards tobacco- free workplace***			
Supportive	82 (18.8)	293 (62.1)	
Very supportive	351 (80.7)	156 (33.2)	
Supporting someone trying to quit tobacco use			
Yes	375 (93.5)	139 (92.1)	
Tobacco-free workplace policy has an impact on employee's health***			
Yes	439 (93.8)	887 (97.4)	
Tobacco related diseases known to respondents***			
<3	213 (45.6)	868 (95.0)	
≥3	255 (54.4)	45 (5.0)	

***p<0.001. **p<0.05. *p<0.10.

smokers (49%). Among the current tobacco users who wanted to quit, the need for cessation counselling services within the workplace was higher among the workers than managers (95% and 69%, respectively). The role of the employees was associated with their tobacco use behavior, current status, type of tobacco use and need for cessation service at the workplace.

Table 3 provides details of the knowledge and attitude of managers and workers towards tobacco and tobaccofree workplace policy. Almost all the managerial employees (99%) as well as workers (95%) agreed that their organization should have a tobacco-free workplace policy and would be supportive of the policy when implemented (100% and 95%, respectively). However, more workers



Table 4. Logistic regression coefficients predicting the relative odds of ever use and current use of tobacco among employees who participated in the tobacco-free workplace situational analysis survey, in six workplaces in India, April 2016 to March 2020, segregated by role (N=1376)

Variables	Relative odds of ever tobacco use AOR (95% CI)		Relative odds of current tobacco use AOR (95% CI)	
	Manager	Worker	Manager	Worker
Gender				
Male ®	1	1	1	1
Female	0.76 (0.4–1.42)	NA	0.64 (0.23-1.74)	NA
Age (years)				
15-24 ®	1	1	1	1
25-34	0.80 (0.14-1.64)	2.73 (1.54-4.85)***	0.70 (0.07-7.16)	1.97 (1.01–3.86)**
35-44	1.68 (0.3–9.4)	3.48 (1.89-6.4)***	1.65 (0.17–15.78)	3.10 (1.55-6.22)***
45–54	1.51 (0.26-8.79)	4.17 (2.17-8.0)***	0.90 (0.09–9.38)	4.47 (2.15-9.30)***
≥55	1.39 (0.21-8.98)	3.06 (1.42-6.6)***	0.40 (0.03-6.02)	2.09 (0.88-4.98)*
Years in organization				
<15 years ®	1	1	1	1
≥15 years	1.69 (0.97–2.93)*	1.70 (1.11-2.62)***	1.39 (0.62–3.16)	1.48 (0.94–2.33)*
Tobacco related diseases known to respondents				
<3 ®	1	1	1	1
≥3	0.74 (0.47-1.12)	0.61 (0.32-1.16)	0.31 (0.15-0.63)***	0.48 (0.22-1.06)*

AOR: adjusted odds ratio; adjusted for gender, age, years in organization, and diseases known. NA: not applicable. ***p<0.001. **p<0.05. *p<0.10. ® Reference categories.

were aware (70%) and satisfied (94%) with the existing rules related to tobacco use in their workplace compared to the managers (58% and 88%, respectively). The awareness about diseases due to tobacco use was higher among the managerial staff, with 54% of them knowing more than three diseases while only 5% of the workers reported this.

Table 4 provides the details of logistic regression coefficients predicting the relative odds of ever use and current use of tobacco among managers and workers. The logistic regression model for predicting the effect of demographic factors on the likelihood of being a tobacco user among the managers showed that only having worked for ≥15 years in the organization was a predictor of ever use (AOR=1.69; 95% CI: 0.97-2.93) and having knowledge of <3 diseases was a predictor of not being a current tobacco user (AOR=0.31; 95% CI: 0.15-0.63). Among the workers, older age was related to tobacco product use in the age categories of 25–34, 35–44, 45–54 and ≥55 years (all p<0.001) and having worked in the organization for ≥ 15 years (AOR=1.70; 95% CI: 1.11-2.62) were predictors of ever tobacco use. Current tobacco use among workers was associated with increased age in all age categories (all p<0.01), as was the number of years in the organization (AOR=1.48; 95% CI: 0.94–2.33). Having knowledge of <3 diseases was protective of current tobacco use (AOR=0.48; 95% CI: 0.22-1.06).

DISCUSSION

The study findings suggest that the majority of the employees felt that there was a need of tobacco-free workplace policy within their organization and believed that a tobacco-free workplace policy will have a positive impact on their health. The study shows the need and readiness of the organizations to implement a tobacco-free workplace policy. However, the study also brings forth clear differences among managers and workers, with regard to tobacco use prevalence, patterns, knowledge and attitudes which can be considered while implementing tobacco-free workplace policies or tobacco cessation program in workplaces. The study findings contribute to the limited evidence available for Indian workplaces and employees with regard to tobacco related interventions.

In our study, tobacco use was higher among the workers than the managers. Current tobacco use among workers was three times that among managers, which is consistent with existing literature. The National Institute for Occupational Safety and Health (NIOSH) also reported a higher smoking rate among the blue-collar workers²⁶. A detailed US Surgeon General Report highlights the differences in tobacco use among the US adult workforce. According to the report, 50% of the blue-collar male workers currently smoked compared to 26% of white-collar male workers and the higher smoking rate among blue-collar workers was identified as an area of concern²⁷. The report also stated that blue-collar workers are less likely to make a guit attempt in comparison to white collar workers. Another study conducted among the US adult workforce, reported that 39% of the current smokers among blue-collar workers intended to quit compared to 46% of white-collar current smokers¹⁴. In contrast, our study results show that the intention to quit among current tobacco users within the workplaces was high overall (96.3%) with a marginally higher intent among the workers (96.7%) than the managers (93.9%). Furthermore, the results highlight that the felt need for cessation services within workplaces was high among the workers. These findings emphasize the need for further studies in Indian context for better understanding of the Indian workplaces and the target population.

The study findings also highlight the difference in type of tobacco used among the two categories of employees. Smokeless tobacco use was predominant in the workers whereas smoking was more common among managers. Few aspects can account for this difference. First, smokeless tobacco can be used discreetly at the shop floors without the need for breaks, and getting permission for tobacco break would be difficult for the workers. Second, price can be one of the probable reasons for preferring smokeless tobacco. In India, the price of one packet of cigarettes is much higher than one pouch of smokeless tobacco²⁸. A study conducted in Mumbai, India, to understand the social disparities in tobacco use reported that among men, smokeless tobacco use was higher in unskilled and service workers compared to professionals and skilled employees²⁸. Therefore, comprehensive tobacco-free workplace policies are required which not only have smoking restrictions but also include smokeless tobacco.

The study findings also indicate a difference in awareness levels about tobacco and the existing policies among the workers and managers. Overall, the results show that there was low awareness about harms of tobacco in both categories. However, it was lower among the workers, with only 5% of them being aware about three or more diseases caused by tobacco. Interestingly, low awareness was one of predictors of current use for both the categories of employees. A survey conducted for the managerial staff of 580 companies in China, reported that 90% of them were unaware about harmful effects of tobacco use²⁹. Awareness about harms of tobacco is important for cessation and prevention³⁰. Currently, prevention and awareness programs for tobacco use are scarce³¹. The results suggest that sensitization of all the employees should be one of the initial and important steps while implementing the tobacco-free workplace program. The awareness sessions should be inclusive of all - workers and managers, tobacco users and non-users. A qualitative study conducted in India to understand the facilitators and barriers to implement a workplace tobacco cessation program identified awareness

sessions for all the employees as one of the core components of the program³².

In addition, there were differences regarding the knowledge of existing tobacco-related policies within the organization. Workers were more aware about the existing policies than the managers. One of studies on workplace tobacco cessation programs conducted in India, reported that the management employees felt that the programs like tobacco cessation are meant only for the workers and not for them⁵. This can be the reason for the low interest and low awareness among managers regarding tobacco-free workplace polices. Developing a communication plan which is suited to different types of employees and addresses the different attitudes regarding the policy, is important for the success of implementing tobacco-free workplace policies.

Limitations

A limitation of the study was that tobacco use was selfreported and hence subject to reporting bias, and the survey was conducted within the workplace which may have led to some bias in reporting (social desirability bias). Evidence suggests that biochemical verification increases the scientific rigor compared to self-reporting; however, it also has its own drawbacks. Hence the cost, feasibility, duration of abstinence etc. have to be considered while choosing between the two³³. Additional limitations include its cross-sectional design which limits any causal associations and the use of two different data collection sources (online and face-to-face), which may have introduced additional variability.

CONCLUSIONS

Comprehensive tobacco-free workplace policies and cessation services are required by the employees. However, there are differences among managers and workers in their attitudes towards the policy and their tobacco use behavior which should be considered during implementation. Tobacco-free workplace policies and cessation interventions have to be tailored according to the diverse needs of different types of employees. Since there is practically no information currently available on how to plan such interventions in India, further research including longitudinal studies is required to explore and understand psychological factors and effective implementation strategies for tobacco-control interventions at workplaces.

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CONFLICTS OF INTEREST

The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. The authors declare that they have no competing interests, financial or otherwise, related to the current work. H. A. Gupte reports that the study was conducted as part of the LifeFirst program, implemented by the Narotam Sekhsaria Foundation. G. Mandal reports that the study was conducted as part of LifeFirst Program implemented by Salaam Bombay Foundation. Additionally, H. A. Gupte reports that, since the initial planning of the study, the Narotam Sekhsaria Foundation received a grant from the Clinton Global Initiative to implement the Tobacco-Free Workplace Program as part of the Worksite Challenge. Furthermore, he reports that, in the past 36 months, the Narotam Sekhsaria Foundation has been a subgrantee of the Dana-Farber Cancer Institute for the research study titled 'Adapting and Evaluating a Brief Advice Tobacco Intervention in High-Reach, Low-Resource Settings in India'. This project is funded by the National Cancer Institute (NCI), USA, under the National Institutes of Health (NIH), USA (R01 CA230355).

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ETHICAL APPROVAL AND INFORMED CONSENT

Ethical approval was obtained from the Joint Ethics Committee of Narotam Sekhsaria Foundation and Salaam Bombay Foundation (Approval number: JEC/NSF-SBF/2016/02; Date: 8 March 2016). Participants provided informed consent.

DATA AVAILABILITY

The data supporting this research are available from the authors on reasonable request.

PROVENANCE AND PEER REVIEW

Not commissioned; externally peer reviewed.