

DOES SOCIAL AWARENESS INTERVENTION INCREASE PRO-ENVIRONMENTAL BEHAVIOUR? AN OBSERVATIONAL STUDY

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Abstract

Pro-environmental behaviour is an indispensable feature for a habitable ecosphere. Thus, the discovery of the ways of enhancing pro-environmental behaviour is crucial. With this motive, the present study aimed to find out the impact of social awareness intervention (displaying cartoons and posters near the dustbin and cafeterias) on pro-environmental behaviour (here, throwing waste into a designated area/bin), where gender difference considered as an elementary factor. Data were gathered using observation (observation without intervention and observation with intervention) to get insight about how pro-environmental behaviour can be enhanced by social awareness. To generate more idea about the other influencing factors, semi-structured interview was utilized. A total number of 644 cases were observed and 35 interviews were taken. The results depicted significant effect of social awareness on pro-environmental behaviour (Wald = 25.496, df= 1, p<.001) but no significant effect of gender on pro-environmental behaviour (p = .920). The findings are implementable to improve the pro-environmental behaviour among the Bangladeshi population with basic literacy. Future studies can be conducted using experimental design to gather more precise information about the ways of increasing pro-environmental behaviour.

Keywords: Social awareness, Pro-environmental behaviour, Gender difference, Environment friendly Behaviour, Waste management

Introduction

Our dear planet “earth” is being exploited by our everyday behaviour (Kim & Hall, 2019). Most of the time, we are not even aware about this exploitation (Eze, 2020).

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The acute climate change in last few decades is giving us alarming notification to have deeper thought regarding this issue (Panno et al., 2018; Tabi, 2013). Although human-being is an inevitable part of the environment, unfortunately, instead of taking care of the nature, we are indulging in destructive behaviours (Steg & Vlek, 2009). Such as- using toxic elements to make daily essential products, not using designated areas to throw our waste (instead, throwing waste here and there), not using environment-friendly product and so on (Stikvoort et al., 2020; Ting & Cheng, 2017; Brick & Lai, 2018).

The environmental psychologists and scientists have put conscious effort to find a possible solution for saving our planet (Afsar et al., 2016; Balunde et al., 2019; Barbaro & Pickett, 2016; Bolderdijk et al., 2013). With this attempt, the creation of the term “pro-environmental behaviour” happened which refers to be engaged in such kind of behaviour that is environment-friendly (Chase & Levine, 2018). Pro-environmental behaviour refers to the action which decrease environmental pollution and increase sustainability, for example: recycling, reusing, avoiding toxic elements and so on (Chin et al., 2018; Wi & Chang, 2019). Pro-environmental behaviour has crucial positive impact on the level of pollution, climate change and global warming (Eze, 2020). Hence, a plethora of studies were dedicated to enquire how pro-environmental behaviour can be increased and established among the general population (Wang & Mangmeechai, 2021; Farrow et al., 2017; Fu et al., 2020; Lange et al., 2018).

Pro-environmental behaviour can be explained by the value-belief-norm theory, the theory of planned behaviour, and the norm activation model (Han, 2015; Han et al., 2015). The theories imply how our attitude, awareness and social-norm can regulate our behaviour, also the pro-environmental behaviour (Han, 2015). Pro-environmental behaviour is an intricate topic to understand (Olya & Akhshik, 2019). Even, some recent studies have uncovered the association of pro-environmental behaviour with COVID-19 and how such behaviour can lower the rate of COVID-19 (O'Connor & Assaker, 2021; Ramkissoon, 2020). Also, workplace can be moderated by pro-environmental behaviour (Unsworth et al., 2013). Pro-environmental behaviour can be manipulated by several factors such as- spirituality, appropriate intervention and environmental awareness (Rezapouraghdam et al., 2018; Unsworth et al., 2013; Yang et al., 2021; Zibarras & Coan, 2015).

Among several studies on pro-environmental behaviour, a review study on 85 primary cases depicted that pro-environmental behaviour can be amplified if interventions are applied in an effective way (Grilli & Curtis, 2021). A study conducted among

students stated guilt feeling as a mediator factor in undertaking pro-environmental behaviour (Harding et al., 2018). Whereas another study determined the sense of pride as an essential factor behind pro-environmental behaviour no guilt feeling (Bissing-Olson et al., 2016). Similar findings derived from other studies where moral values, social norm, attitude and behavioural control examined to be important factors for initiating and continuing pro-environmental behaviour (Moser, 2015; Bamberg & Möser, 2007; Chen et al., 2018; Culiberg & Elgaaied-Gambier, 2016; Díaz et al., 2020; Esfandiar et al., 2020; Esfandiar et al., 2019). The affiliation between social and personal factors with pro-environmental behaviour was unearthed in many other studies as well (Gifford et al., 2014, Kollmuss & Agyeman, 2002, Kulin & Sevä, 2021, Wu, et al., 2021). For example, Meleady et al. (2017) claimed self-surveillance or self-awareness to be significant for engaging in pro-environmental behaviour. On the other hand, Meyer (2015) appealed the significance of education for involving in pro-environmental behaviour.

Among various factors, social awareness was revealed to be connected with pro-environmental behaviour (Hoang-Tung et al., 2016; Wijaya et al., 2020; Zhang et al., 2014). Social awareness can be defined as the aptitude of recognizing the norms and ethics that exist in a given society and followed by the members of the society (Wijaya et al., 2020). The gender differences regarding pro-environmental behaviour also gained attention of many researchers (Gifford et al., 2014). Many studies depicted that female are more pro-environmental than male (Wallhagen et al., 2018; Nordfjærn & Rundmo, 2019; Sánchez et al., 2016). Such as, Wallhagen et al. (2018) did an observational cross-sectional survey study on 58 (male= 39 and female=19) urban design professionals (aged between 20-70 years) who were from Sweden and other European countries. They found that female tend to put more importance on environmental aspects than male. Conversely, Workman et al. (2017) retained contradictory findings by a survey study on 225 Korean college students and 221 U.S. college students and found no gender difference for pro-environmental behaviour.

In current research, it is aimed to inquire about the credibility of social awareness intervention on pro-environmental behaviour. Also investigate the gender difference in terms of pro-environmental behaviour. Here, social awareness intervention was given through displaying cartoons and posters near the dustbin and around cafeterias. The cartoon and posters were developed by the researchers in Bangladeshi culture on the basis of Tolman's theory of sign learning that denotes visual stimulus can be associated with behaviour modification (Yilmaz, 2011). In this study, pro-environmental behaviour refers to throw waste into a designated area/bin.

Rationale of the study

As there only a few literatures available on pro-environmental behaviour in the context of Bangladesh (Sahabuddin et al., 2021), the present study intended to unearth the impact of social awareness on pro-environmental behaviour among people of Bangladesh. This study will help to profound the theoretical knowledge and increment practical application on real world so that pro-environmental behaviour can be increased among the Bangladeshi population with basic literacy. In addition, gender difference on pro-environmental behaviour received further investigation to clarify contradictory results.

Objectives

The study was designed to avail the following information:

- To assess the impact of social awareness intervention on pro-environmental behaviour
- To resolve the contradictory findings of gender difference regarding pro-environmental behaviour.

Method

Design

The study followed an observational design, participants were observed naturally at two phases:

Phase 1: Without implementing posters and cartoons,

Phase 2: Through presenting posters and cartoons.

To acquire qualitative information about associated factors, semi structured interview was implemented.

Ethical Consideration

Ethical guidelines (such as, confidentiality) for observational study were retained from the very beginning of the study to the very end (Wang & Xie, 2011).

Participants

University students (young adults) were observed from different areas of Dhaka City, Bangladesh. 644 cases were selected for observation by using incidental sampling technique. Among them 35 students (due to saturation effect) were selected for semi structured interview by using purposive sampling technique

(Mason, 2010). Participant's demographical information was collected during semi-structured interview.

Field Materials

The following field materials were applied in the study:

- i) A self-made questionnaire judged by experts for semi-structured interview,
- ii) Paper made posters and cartoons displayed in front of dustbin to increase awareness in observation with intervention phase (samples shown in Figure 1).



Figure 1: Samples of Cartoons and Posters used in the study

Procedure

Data were collected using 'use trace', here in the form of sold-out coffee cup at university cafeterias. Coffee cup counted inside dustbin considered as pro-environmental behaviour and outside dustbin considered as non-pro-environmental behaviour. Using time sampling frame, the study continued for two weeks in two phases; first week observation without any intervention and second week observation with intervention (displaying cartoons and posters near the dustbin and cafeterias). Data has been collected on the spot through observing natural behaviour of the students before and during giving social awareness intervention through the cartoons and posters. In the without intervention phase, natural behaviour about dustbin use was observed. The same behaviour was observed in the intervention phase. The field work was completed after collecting observational data for seven days in each phase. During the second phase, a semi-structured interview

was applied to gather additional information about the factors influencing pro-environmental behaviour. Here, participants were asked to suggest the ways of increasing the use of dustbin and give opinion regarding the nature of the task “throwing waste outside the dustbin”.

Statistical analyses

The analysis of the study was accomplished using binary logistic regression, as dependent variable (pro-environmental behaviour) was binary, and the explanatory variables (social awareness and gender) were categorical (Stoltzfus, 2011). Content analysis was implied for qualitative data obtained from semi-structured interview.

Results

The result was acquired by using binary logistic regression (enter method) to find out the impact of social awareness (in terms of intervention) and gender on pro-environmental behaviour. The model of logistic regression was significant, as the value of chi-square (χ^2) was 27.435 ($p < .001$). The Hosmer and Lemeshow test was non-significant ($p = .706$); it suggests that our model was a good fit to the data. The Nagelkerke R^2 value was .072 and it indicates that the model explains 7.2% variance in maintaining pro-environmental behaviour. Table 1 presented the logistic regression coefficient (β), Wald statistic, and Odds Ratio ($\text{Exp}(\beta)$) for each of the two predictors. It indicates significant effect of intervention on pro-environmental behaviour (Wald = 25.496, $df = 1$, $p < .001$), but no significant effect of gender on pro-environmental behaviour. The Odds Ratio for intervention indicates that people who were under intervention $(1 - 0.327) \times 100 = 67.3\%$ higher odds of becoming socially obedient compared to those who did not get any intervention.

Table 1: Effect of Social Awareness Intervention and Gender on Pro-environmental Behaviour

Variable	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>p</i>	<i>Exp(B)</i>	95% <i>CI</i> for <i>Exp(B)</i>
(Intercept)	2.037	.207	100.516	1	.000	7.946	
Intervention	-1.117	.221	25.496	1	.000	.327	.212-.505
Gender	-.021	.213	.010	1	.920	.979	.645-1.485

Note. N = 601. Coding independent variable, Intervention: Without intervention = 1.000, With intervention = 0.000 (Reference category). Coding dependent variable, Pro-environmental behaviour: Disobedience = 0.000, Obedience = 1.000

Table 2: Perspectives of Interviewees about Throwing Waste outside the Dustbin

Throwing waste outside the dustbin perceived as	Frequency
Crime	33
Unawareness	14
Lack of family practice	9
Harmful for environment	9
Nothing but laziness	4
Situational effect	3
Insufficient number of dustbins	2
It creates bad impression	1

Table 3: Perspectives of Interviewees about the ways of Increase the Use of Dustbin

Ways suggested to increase the use of dustbin	Frequency
Make people aware about it	31
Use of penalties	7
Activity of organizations and young generations	5
Taking proper steps by the govt.	3
Placement of dustbins in proper position	2

Table 2 shows that, most of the participants seem to consider throwing waste outside the dustbin as crime or unawareness of people. Table 3 indicates that, most of the interviewees are considering awareness and punishment as most important ways of increasing dustbin uses. Some suggestions for growing awareness in this regard are being showed in figure 2.

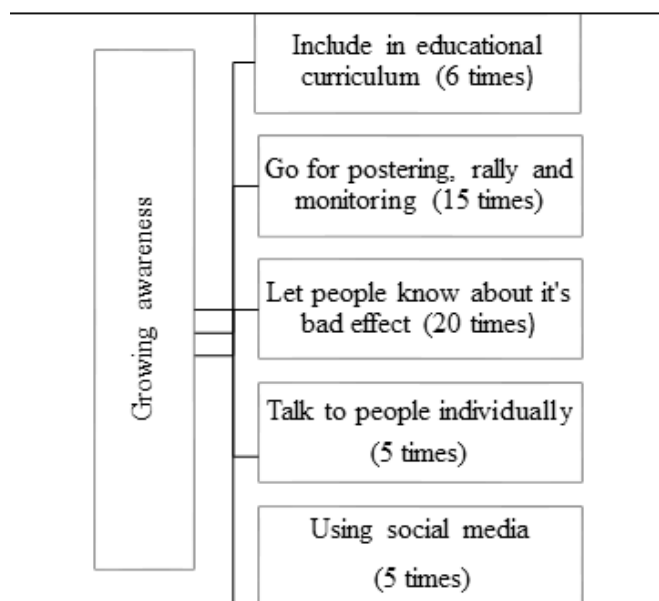


Figure 2: Suggestions from the Interviewees to Make People Aware

Discussion

The present study endeavoured to uncover the factors influencing pro-environmental behaviour. Social awareness and gender were operated as predictors on the basis of theoretical background and literature review. The observation involved 644 cases. However, 43 cases of missing information were excluded from final analysis. The results of this study are consistent with previous studies and exhibited significant effect of social awareness intervention on pro-environmental behaviour (Hoang-Tung et al., 2016, Zhang et al., 2014, Wijaya et al., 2020). Whereas the results portrayed no significant gender difference on pro-environmental behaviour which contradicts with past literatures (Wallhagen et al., 2018, Nordfjærn & Rundmo, 2019, Sánchez et al., 2016), but complies with the findings of Workman et al. (2017). As the interaction between intervention and gender was not significant, it was not comprised in the final result section. Although the findings of the current literature disclosed significant impact of social awareness intervention on pro-environmental behaviour, this statistical model can explain the pro-environmental behaviour partially. It indicates the influence of other factors on pro-environmental behaviour and social awareness alone cannot explain the increase in pro-environmental behaviour. The qualitative data derived from semi-structured interview helped explaining pro-environmental behaviour in the context of Bangladesh. The primary intention of such analysis was to find out the viewpoint

of the participants regarding pro-environmental behaviour. The data also explained possible reasons and required actions for enhancing pro-environmental behaviour.

The qualitative data exposed the point of views of the interviewees about pro-environmental behaviour (here, using dustbin). Most of the interviewees regarded throwing waste outside the dustbin as a crime and unethical deed and claimed that making people aware should be the finest solution. However, future studies can be carried out using in-depth interview to detect why the interviewees mentioned throwing dirt outside the dustbin as crime and gain operational definition of the word "crime". The perspective can be elucidated by the value-belief-norm theory, as according to the theory, activation of norm is dependent on individuals' consideration of adverse impact of not maintaining own values (Han, 2015). The interviewees pointed out, the ways of making people aware can be enhanced education (Meyer, 2015), posters, rally, emphasis on its' bad effect, speak to people individually and through social media which can be explained in terms of norm activation model that denotes normative message can enhance pro-environmental behaviour (Han et al., 2015). The interviewees emphasized that poster and cartoons can be helpful for increasing dustbin uses and other pro-environmental behaviour. However, as per the findings, the use of poster and cartoons to increase pro-environmental behaviour is only one aspect of intervention. Future studies can include other influencing factors for intervention that has come forward by the interview, such as, implementation of laws, punishment and fines, organizational and governmental actions with proper placement of dustbins. Interviewees also pointed out that the lack of education from families or family socialization as a crucial reason behind not maintaining pro-environmental behaviour. This perspective of the interviewees can be explicated by the theory of planned behaviour which depicts our behaviour is regulated by the context (Han, 2015). Family socialization can be another factor of intervention for further studies.

It was naturalistic observation. In addition, the semi-structured interview aided to gain knowledge about other explanatory factors. However, the qualitative data is not free from social desirability response bias due to the use of self-report technique (Dalton & Ortegren, 2011). Despite having few limitations, the findings of the study are highly implementable for increasing pro-environmental behaviour in real-life setting because of mundane realism and practicability (Onder, 2013). Further studies should be carried out in future to conclude the role of gender differences on pro-environmental behaviour. The individuals who will be observed can be interviewed in future to gain more in-depth perspectives. Experimental method can be used in future to precisely judge the impact of social awareness and other factors on pro-environmental behaviour.

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