Plastic Pollution in Albania: Survey on Citizen's Perceptions and Attitudes

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Abstract

Plastics are polymers synthesized from petrochemicals or from biomass raw materials. In recent decades, worldwide plastics production has increased exponentially. An estimated 8.3 billion tons of plastic have been produced worldwide resulting in an estimated 6.3 billion tons of plastic waste disposed in landfill or discarded into the natural environment. Plastic is widely used: is inexpensive, durable, resource efficient and easily attainable. The article makes some preliminary observations based on questionnaire data distributed through probability stratified random sampling method between November 2021 and July 2022. The data provides some useful insights into citizens perceptions and attitudes about plastic pollution. Majority of respondents agree on the fact that plastic pollution is harmful to the environment (94%). Additionally, 77.1% of respondents agree both on the fact that nature conservation activities are necessary and successful if community or citizens are involved. Strategies which can be used to reduce plastic pollution need to provide further incentives for public participation. An example is using citizen science, to address and mitigate plastic pollution both at local and national level.

Keywords: plastic pollution, survey, public participation, citizen science, Albania

Introduction

Plastic pollution is generated by the unsustainable use and disposal of plastic products in modern society, threatening economies, ecosystems, and human health (Prata et al. 2019). The possible risks of microplastics to the health of humans, ecosystems and animals are an increasing concern because they have been detected in human food, the air, and drinking water (Barboza et al. 2018; Gasperi et al., 2018;

Nikiema et al. 2020; Kirstein, Gomiero & Vollersten, 2021; Nikiema & Asiedu 2022). For example, aquatic plastic pollution is entirely due to humans (Pahl, Richter & Wyles, 2020). During the COVID-19 pandemic it is estimated that more than eight million tons of pandemic associated plastic waste have been generated globally, with more than 25,000 tons entering the global oceans (Peng et al.2021).

According to World Wordlife Fund (WWF) Albania is considered one of the most problematic countries with the highest percentage of untreated plastic waste, 73%. According to World Bank (2021) approximattely 65% of marine waste in Albania are synthetic polymers and 58.5% are found along the coast because of the improper waste disposal. Recently, according to a pioneer study in Albania, microplastic pollution in Kune-Vain lagoonary complex was confirmed (Aliko et al. 2022). Given rising concern over plastic pollution, on April 26, 2018, with the decision of the Council of Minister no.232 " For some changes and additions to the Decisions of the Council of Ministers no.177, dated 6.3.2012 "On plastic packaging and their waste" the Albanian government tried to reduce plastic pollution by the introduction of plastic bag charges. The government required that the new plastic material should have no less than 55 percent raw material from recycling or bio-degradable material, which dissolve in the environment and do not remain as a toxic residue. Pricing policy is considered an effective way to reduce plastic bag use (Jakovcevic et al. 2014; Monast and Virdin, 2022). Empowering local communities to actively participate in sustainability efforts is considered very important. Additionally, risk perception of plastic pollution can be improved by the utilization of citizen science which is considered of great value for informing evidence-based policy aimed to address and reduce plastic pollution (Syberg et al. 2018; Nelms et al. 2022).

Materials and methods

Separate visits were conducted from November 2021 to July 2022 as part of the sampling efforts in six major cities in Albania (Tiranë, Durrës, Vlorë, Shkodër, Lushnje and Lezhë). A face-to-face survey was conducted with randomly selected people (N= 947). Within the scope of the survey, 41 questions were directed to participants under three sections: 1- Demographic data, 2- Perceptions and attitudes about plastic pollution, 3- Citizen participation. Statistical Analysis Data was gathered in MS Excel spreadsheet and analyzed using SPSS version 22 software. All assumptions were tested and met using SPSS. A p value of less than 0.05 was considered statistically significant.

Results and discussions

As mentioned, the number of respondents is 947. 60.8% of the respondents are female (F= 576) and 39.2 % male (M= 371). Most of them are young, aged 16 years old to 24 years old (45.3 %) (Table 1). Most of respondents are from Tirana, the capital city of Albania.

Table 1. Demographic data

		Respondent	Percentage
Gender	**Female**	576	60.8%
	Male	371	39.2%
Age group	**16-24**	429	45.3%
	25-34	224	23.7%
	35-44	127	13.4%
	45-54	100	10.6%
	>55	67	7.1%
Education	**1st to 9th grade**	71	7.5%
	High school	280	29.6%
	Bachelor's degree	325	34.3%
	Master's degree	246	26.0%
	PhD	25	2.6%
Working status	**Unemployed**	360	38.0%
	Part-time	148	15.6%
	Full time	409	43.2%
	Retired	30	3.2%

When perception and attitudes about plastic bags were examined (Section 2), it was found that majority of participants (70.2 %) use plastic bags in market and grocery shopping and agree with the fact that plastics is harmful to the environment (Table 2). Risk perception of plastic pollution is high.

Table 2. Relationship between plastic usage behavior and its effect on the environment

		I think plastic is harmful for the environment					
		Agree		***Disagree***		***NR***	
I use plastic bags in market and grocery shopping	***Agree***	664	70.2%	8	0.8%	29	3.1%
	Disagree	126	13.3%	6	0.6%	2	0.2%
	NR	106	11.2%	1	0.1%	4	0.4%

When I buy anything, I take care that the packaging is plastic or not	***Agree***	164	17.3%	1	0.1%	4	0.4%
	Disagree	503	53.2%	7	0.7%	26	2.7%
	NR	229	24.2%	7	0.7%	5	0.5%
I sort my garbage in the house	***Agree***	238	25.2%	5	0.5%	3	0.3%
	Disagree	548	57.9%	9	1.0%	24	2.5%
	NR	110	11.6%	1	0.1%	8	0.8%

This cognitive dissonance is explained by the fact that plastic is easily accessed and despite regulatory law, is still spread in everyday life.

In terms of membership/volunteerism to nature conservation associations, participants were found not especially to be very fond of it. There is both a satisfactory degree on the need of active participation in nature conservation and being an environmentalist (48.3%) (Table 3).

Table 3. Relationship between citizens engagement and pro environmental perceptions.

		Nature conservation activities without citizen's participation are unsuccessful					
		Agree		***Disagree***		***NR***	
In general, I consider myself as an environmentalist	***Agree***	457	48.3%	31	3.3%	66	7.0%
	Disagree	74	7.8%	9	1.0%	24	2.5%
	NR	223	23.6%	19	2.0%	43	4.5%
I actively participate in nature conservation activities	***Agree***	208	22.0%	18	1.9%	25	2.6%
	Disagree	296	31.3%	30	3.2%	51	5.4%
	NR	250	26.4%	11	1.2%	57	6.0%
Nature conservation activities are necessary	***Agree***	729	77.1%	52	5.5%	112	11.8%
	Disagree	4	0.4%	2	0.2%	6	0.6%
	NR	19	2.0%	5	0.5%	15	1.6%

In addition, there is a high degree on the need of nature conservation activities involving citizens (77.1%). Although our respondents are not actively participating in nature conservation activities, they are somehow willing to get involved.

Conclusions

This is the first study to provide useful insights into Albanian citizen's perceptions and attitudes of plastic pollution. Our results suggest that respondents have both a high awareness on plastic pollution and a firm belief on participation. Based on these results, we believe that future plastic pollution mitigation strategies in Albania should take in consideration engagement such as frequent/ constructive dialogue between citizens and local government and the utilization of citizen science to rise participation. Engagement and participation of citizens are seen as key factors in addressing and mitigating the negative effects of plastic pollution both at a local and national level. In addition, we recommend the use of communication strategies involving possible health and touristic advantages for citizens to guide societal response on plastic's negative health and environmental impact.

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References

[1] Aliko,V., Goga Beqiraj, E., Qirjo, M., et al. (2022). Plastic invasion tolling: First evaluation of microplastics in water and two crab species from the nature reserve lagoonary complex of Kune-Vain, Albania. *Science of The Total Environment*. https://doi.org/10.1016/j.scitotenv.2022.157799.

[2] Barboza, L. G. A., Vethaak, D., Lavorante, B.R.B.O., et al. (2018). Marine microplastic debris: An emerging issue for food security, food safety and human health. Marine Pollution Bulletin,133, 336-348. https://doi.org/10.1016/j.marpolbul.2018.05.047.

[3] Geyer, R., Jambeck, J. R., Lavender Law, K. (2017). Production, Use, and Fate of All Plastics Ever Made. Science Advances, 3, 7, e1700782. https://doi.org/10.1126/sciadv.1700782

[4] Gasperi, J., Wright, S.L., Dris, R., et al. (2018). Microplastics in air: Are we breathing it in? Current Opinion in Environmental Science & Health, 1, 1-5. https://doi.org/10.1016/j.coesh.2017.10.002.

[5] Gündoğdu, S., Yesilyurt, I., Erbaş, C. (2018). Survey on awareness and attitudes of citizens regarding plastic pollution in Hatay/Samandağ Turkey. Proceeding of International Marine and Freshwater Sciences Symposium MARFRESH218, 18-21 October, Kemer, Antalya.

[6] Jakovcevic, A., Steg, L., Mazzeo, N., et al. (2014). Charges for plastic bags: Motivational and behavioral effects, Journal of Environmental Psychology, 40, 372-380. https://doi.org/10.1016/j.jenvp.2014.09.004.

[7] Kirstein, I.V., Gomiero, A., Vollertsen, J. (2021). Microplastic pollution in drinking water. Current Opinion in Toxicology, 28,70-75. https://doi.org/10.1016/j.cotox.2021.09.003.

[8] Monast, J. J., Virdin, J. (2022). Pricing Plastics Pollution: Lessons from Three Decades of Climate Policy. Connecticut Law Review. 524.

[9] Nelms, S.E., Easman, E., Anderson, N., et al. (2022). The role of citizen science in addressing plastic pollution: Challenges and opportunities. Environmental Science & Policy,128,14-23. https://doi.org/10.1016/j.envsci.2021.11.002.

[10] Nikiema, J., Asiedu, Z. (2022). A review of the cost and effectiveness of solutions to address plastic pollution. Environmental Science and Pollution Research, https://doi.org/10.1007/s11356-021-18038-5.

[11] Nikiema, J., Mateo-Sagasta, J., Asiedu, Z., Saad, D., Lamizana, B. (2020). Water pollution by macroplastics and microplastics: A review of technical solutions from source to sea. United Nations Environment Programme (UNEP), Nairobi Accessed 26 October 2022.

[12] Pahl, S., Richter, I., Wyles, K. (2020). Human perceptions and behavior determine aquatic plastic pollution. In: Stock, F., Reifferscheid, G., Brennholt, N., Kostianaia, E. (eds) Plastics in the Aquatic Environment - Part II. The Handbook of Environmental Chemistry, vol. 112. Springer, Cham. https://doi.org/10.1007/698_2020_672.

[13] Peng, Y., Wu, P., Schartup. A.T., et al. (2021). Plastic waste release caused by COVID-19 and its fate in the global ocean. Proceedings of the National Academy of Sciences, 118, 47 (e2111530118). https://doi.org/10.1073/pnas.211153011

[14] Prata. J.C., Patricio Silva, A.L., Da Costa, J.P., et al. (2019). Solutions and integrated strategies for the control and mitigation of plastic and microplastic pollution. International Journal of Environmental Research and Public Health, 16(13): 2411. https://doi.org/10.3390/ijerph16132411

[15] Syberg, K., Hansen, S.H., Christensen, Th.B., Khan, F. R. (2018). Risk perception of plastic pollution: Importance of stakeholder involvement and citizen science. In: Wagner, M., Lambert, S. (eds) Freshwater Microplastics. The Handbook of Environmental Chemistry, vol 58. Springer, Cham. https://doi.org/10.1007/978-3-319-61615-5_10