

# Should Animal Welfare Be Included in Educational Programs? A Case Study in Eight European Union Countries.

**Niloofar Pejman<sup>a\*</sup>, Zein Kallas<sup>b\*</sup>, Lourdes Reig<sup>b</sup>, Antonio Velarde<sup>c</sup>, María Moreno<sup>c</sup>, Diego Magnani<sup>c</sup>, Vicky Protopapadaki<sup>c</sup>, Vytautas Ribikauskas<sup>d</sup>, Daiva Ribikauskienė<sup>e</sup>, Antoni Dalmau<sup>c</sup>**

a Institute for Research in Sustainability Science and Technology (IS-UPC), Polytechnic University of Catalonia, Barcelona, Spain

b Centre for Agro-food Economy and Development, CREDA-UPC- IRTA, Castelldefels, 08860, Spain

c Institute of Agri food Research and Technology- IRTA. Animal Welfare Subprogram, Monells, 17121, Spain

d Veterinary Academy, Lithuanian University of Health Sciences, A. Mickevičiaus g. 9, LT-44307 Kaunas, Lithuania

e Kauno Kolegija / University of Applied Sciences, Pramonės pr. 20, LT-50468 Kaunas, Lithuania

## 1. INTRODUCTION

- Animal Welfare (AW) EDUCATIONAL PROGRAMS** aim to promote positive attitudes of future generations towards animal production systems.
- In the majority of the schools and universities, AW aspects **are not** formally included in general education curricula.
- Education can be considered as either a **PRIVATE** good or a **PUBLIC** good .
- Understanding the relative importance** of AW in educational programs is important.

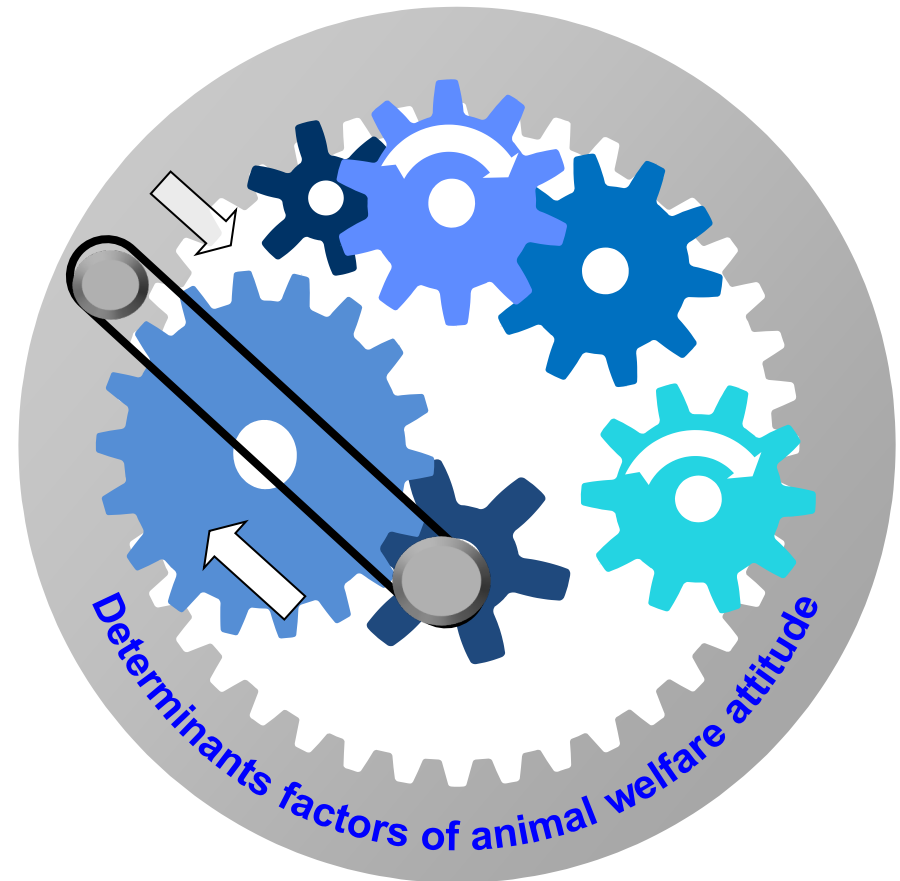
## 2. LITERATURE REVIEW

**2.1. INDIVIDUAL'S INFORMATION & KNOWLEDGE LEVEL** (Harper et al., 2001  
Schröder et al., 2004)

**2.2. ANIMAL SPECIES** (Driscoll et al., 2010; Bradley  
et al., 2020)

**2.3. COUNTRIES & CULTURE** (Bernard et al., 2009;  
Carlsson et al., 2007).

**2.4. SOCIO DEMOGRAPHIC** (Bayarri et al., 2012)



## Main objectives

### 3. OBJECTIVES

Whether secondary and university students in the majors not related to AW issues believe that the AW concept should be included in their educational programs

Determinants factors affecting the decision toward the education of AW

Analysing respondents' understanding of animal welfare-related issues

Students' concerns regarding the welfare of farmed animals species

Students' opinions towards the use of animals in different activities

Students' Subjective and objective knowledge level towards AW

Students' opinions regarding the current level of AW regulation in their country

Students' opinions if AW regulations should be more restrictive

Socio-economic characteristics

**case study 1**

**United kingdom**

**Case study 2**

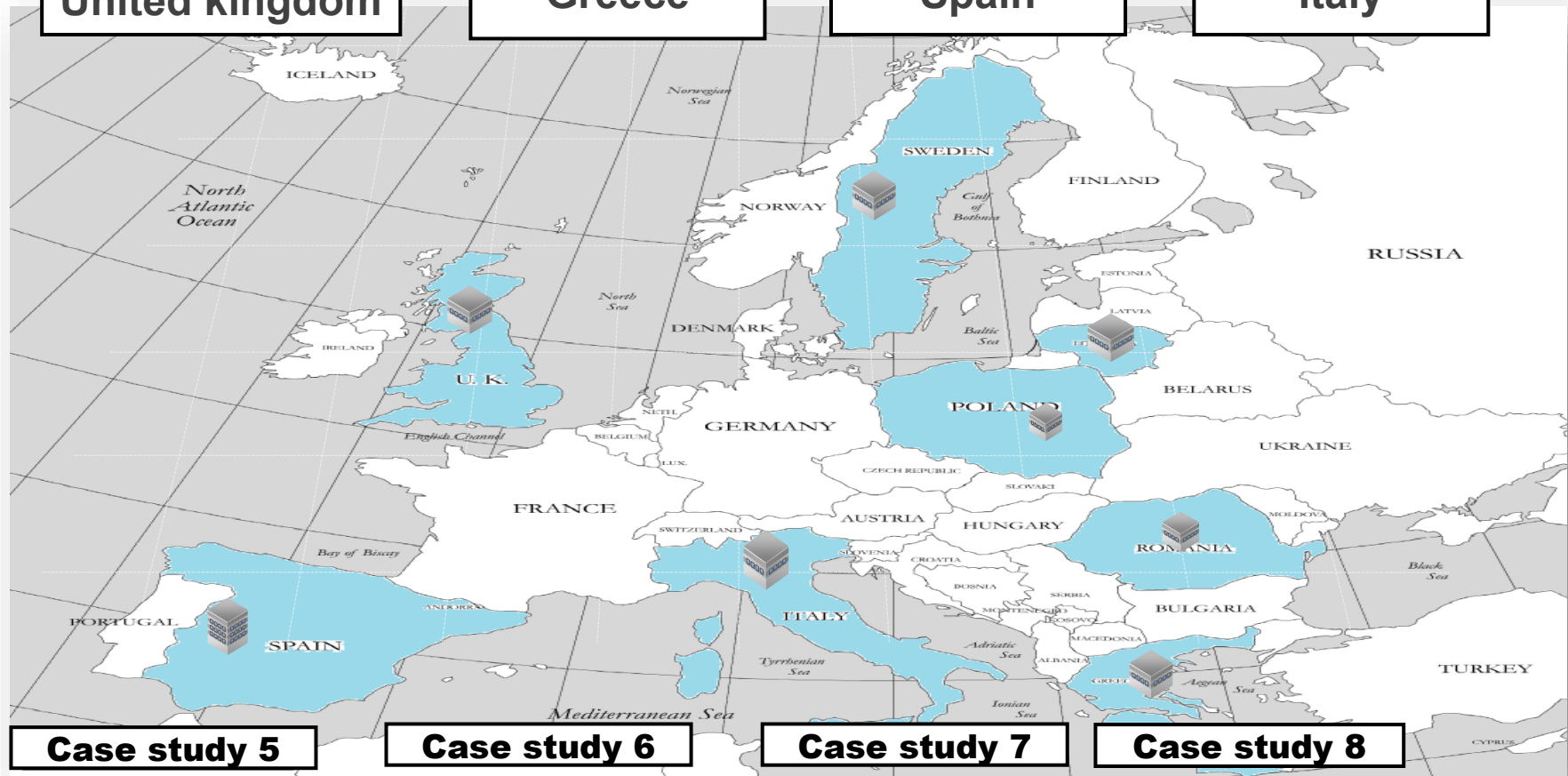
**Greece**

**Case study 3**

**Spain**

**Case study 4**

**Italy**



**Case study 5**

**Sweden**

**Case study 6**

**Poland**

**Case study 7**

**Lithuania**

**Case study 8**

**Romania**

## 4. DATA COLLECTION & SAMPLE SIZE

### Methodology

#### Target population

- University & Secondary students

#### Data collection

- Semi-structured Questionnaire(Face to Face)
- A quota sampling approach was selected
- The criteria used to establish the sampling quotas were the following: gender, age, rural and urban regions with north, centre and South location by country

#### Sample size

- With 3,881 respondents composed of 1,952 secondary and 1,929 university students

DATA belongs to  
EDUCAWEL Project  
“Study on Education and  
Information Activities on  
Animal Welfare”  
Financed by the EU  
commission

## 5. METHODOLOGY

### Respondents' Opinions Regarding Whether AW education Should Be Included in Curricula?

- Respondents were directly asked if AW concept and issues should be taught in their curriculum and they were asked to respond with a **YES** or **NO** answer.
- **A BINOMIAL LOGISTIC REGRESSION** (logit model)
- In our case, the **response variable (Y)** has a value of **1** if a respondent answers “**YES**” for implementing AW in the curriculum of schools and university and a value of **0** if a respondent answers “**NO**”.
- This model quantifies the **increase** or **decrease** in the probability of answering **YES** for education of AW when the **independent variable** increase by **unit one**.

### Main objectives

Whether consumers and citizens believe that the current European regulations regarding animal welfare should be more restrictive?

### Determinants factors affecting of animal welfare attitude

Analysing  
respondents'  
understanding  
of animal  
welfare-related  
issues

- **Conventional Qualitative Content.**
- **Open question was introduced.**
- **Respondents were asked 'What do you think animal welfare means?'**

AW.

systems.

**HETEROGENEITY**  
of PARTICIPANTS  
regarding AW  
policies.

### Main objectives

Whether consumers and citizens believe that the current European regulations regarding animal welfare should be more restrictive?

### Determinants factors

Understand the  
**DRIVEN-  
DEFINITION  
OF AW.**

Identify  
Students'  
concerns  
regarding the  
welfare of  
farmed animals  
species

- Respondents were asked (How much they worry about the welfare of animal species)?
- Using an **11-point Likert-type scale** ranging from 0 (not concerned at all) to 10 (I am completely concerned).

systems.

- Respondents were asked about their opinions regarding the alternative use of animals using an **11-point Likert-type scale** ranging from 0 (absolutely disagree) to 10 (absolutely agree).

### Main objectives

Do you believe that the current European regulations regarding animal welfare should be more restrictive?

### Factors affecting of animal welfare attitude

Understand the  
**DRIVEN-  
DEFINITION  
OF AW.**

Identify and  
compare the  
**SUBJECTIVE &  
OBJECTIVE  
INFORMATION**  
level towards  
AW.

Identify the  
**Students'**  
opinions  
towards the use  
of animals in  
different  
activities

Identify  
perceptions  
towards the  
current level of  
animal welfare  
standards

**HETEROGENEITY**  
of **PARTICIPANTS**  
regarding **AW**  
policies.

### Main objectives

- For **subjective knowledge**: Respondents were asked (How much informed do you think you are about animal welfare regulations?)
- **11-point Likert-type scale** ranging from 0 (participants do not have any knowledge) to 10 (participants have absolute knowledge).
- For **objective knowledge**: Respondent knowledge was measured by **identify eight issues that are** currently regulated in a policy framework from a group of 13 proposed statements about different aspects of AW.

nt European regulations regarding  
restrictive?

mal welfare attitude

DEFINITION  
OF AW.

INFORMATION  
level towards  
AW.

different animal  
production  
systems.

Identify  
subjective and  
objective  
knowledge  
levels

Analysing their  
concerns regarding  
animal welfare of  
specific animal  
species.

- **A Descriptive Analysis** was applied
- Respondents were asked about their perceptions about the current level of animal welfare (p) using **an 11-point Likert-type** scale ranging from 0 (very low) to 10 (very high).

Understand the  
**DRIVEN-  
DEFINITION  
OF AW.**

**OBJECTIVE  
INFORMATION**  
level towards  
AW.

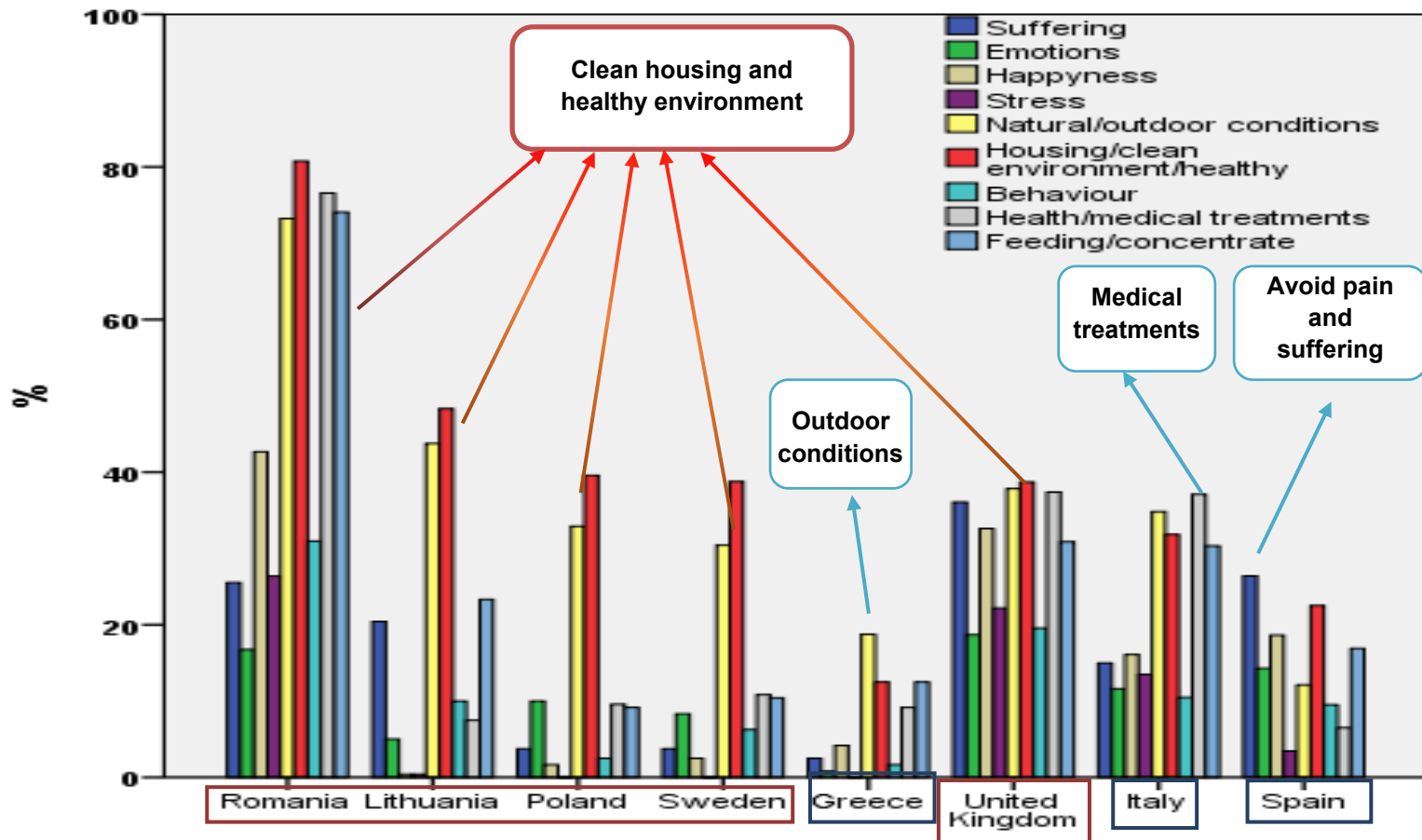
**OF AW** for  
different animal  
production  
systems.

regarding AW  
should be more  
**RESTRICTIVE**

Students' opinions  
regarding the  
current level of AW  
regulation in their  
country

## 6. RESULTS & DISCUSSION

### Animal welfare understanding of secondary and university students



## AW Concerns Regarding Different Animal Species

Country	Romania		Italy		Spain		Greece		Lithuania		United Kingdom		Poland		Sweden		
	U	S	U	S	U	S	U	S	U	S	U	S	U	S	U	S	
Laying hens	6.23	5.56	5.84	5.63	6.26	6.45	5.69	5.51	4.35	5.00	4.97	4.10	4.25	4.37	4.42	4.80	
Milk cows	6.67	5.98	6.36	6.59	6.79	7.27	6.41	5.94	4.79	5.34	4.41	4.01	3.87	4.51	4.35	4.72	
Beef for meat	6.31	5.72	6.74	6.82	6.95	7.28	6.75	6.51	5.26	5.44	4.97	4.81	4.23	4.67	4.66	4.57	
Broilers for meat	5.57	6.39	5.85	6.90	6.58	7.15	6.29	6.47	4.66	5.05	4.29	5.18	3.65	5.02	3.77	5.19	
Pigs for meat	5.95	6.73	6.57	7.47	6.65	7.38	6.53	6.47	5.17	5.57	4.36	4.59	4.23	5.06	5.31	5.10	
Goats for milk/meat	5.59	4.45	6.11	5.92	6.52	6.88	5.90	6.11	4.97	5.10	4.66	4.57	3.78	3.83	3.73	3.98	
Rabbits for meat	6.48	4.96	6.46	6.60	6.71	6.19	6.83	6.13	5.60	5.37	4.95	4.97	4.67	4.17	5.30	4.38	
Sheep for milk/meat	5.54	5.20	6.03	6.55	6.62	6.23	6.54	6.25	5.14	5.11	4.57	4.66	3.84	4.25	3.52	4.62	
Laboratory animals	4.61	3.53	5.76	5.96	6.96	6.35	7.36	8.06	5.45	5.74	6.01	5.89	5.06	5.58	5.49	4.90	
Opinions regarding the level of animal welfare in their countries	4.87	4.93	5.23	5.24	4.59	5.62	3.95	4.00	5.14	5.79	6.23	6.35	5.66	4.63	5.61	5.25	
Opinions if AW regulations should be more restrictive (%)	Yes	76.2	78.5	74.2	22.6	79.4	18.0	90.4	8.8	85.4	25.0	69.6	31.6	60.4	37.5	82.5	20.4
	No	23.8	21.5	25.8	77.4	20.6	82.0	9.6	91.3	14.6	75.0	30.4	68.4	39.6	62.5	17.5	79.6

## The agreement level of secondary & university students' opinions regarding the animal uses

	Romania		Italy		Spain		Greece		Lithuania		United Kingdom		Poland		Sweden	
	U	S	U	S	U	S	U	S	U	S	U	S	U	S	U	S
Do you agree with using animals for entertainment or sports?	7.14 ±2.703	5.69 ±3.593	4.08 ±2.910	3.72 ±3.386	3.84 ±3.150	4.06 ±3.341	2.23 ±2.782	2.00 ±2.511	7.27 ±2.814	4.82 ±3.391	3.98 ±3.123	3.34 ±3.032	7.06 ±3.177	5.70 ±3.635	6.70 ±2.993	4.63 ±3.201
Do you agree that animals are used for work?	6.10 ±3.113	4.90 ±3.501	6.35 ±2.424	4.75 ±3.217	5.59 ±2.733	4.85 ±2.919	5.20 ±3.040	3.97 ±3.107	7.36 ±2.556	4.87 ±3.226	6.46 ±2.795	4.83 ±3.107	7.08 ±3.168	4.65 ±3.689	6.18 ±3.303	4.84 ±3.360
Do you agree with killing animals when they are seriously injured or ill?	6.87 ±3.29	5.22 ±3.98	7.61 ±2.128	5.29 ±3.450	6.90 ±2.207	5.01 ±3.549	6.99 ±2.664	3.94 ±3.169	7.03 ±2.900	4.18 ±3.440	7.00 ±2.869	4.74 ±3.184	7.61 ±2.983	4.26 ±2.978	7.31 ±2.868	4.12 ±2.890
Do you agree that medical experiments use animals to improve human health?	6.36 ±3.192	4.72 ±3.642	6.12 ±3.187	4.54 ±3.417	4.97 ±3.016	5.32 ±3.121	5.28 ±3.240	4.79 ±3.487	5.06 ±3.385	4.42 ±3.448	5.44 ±2.959	3.97 ±3.083	4.96 ±3.549	3.75 ±3.407	2.95 ±2.761	3.08 ±2.497
Do you agree with observing animal behavior in a research experiment?	4.88 ±3.272	4.31 ±3.504	5.43 ±3.230	3.79 ±3.468	5.36 ±3.238	6.48 ±2.883	4.15 ±3.267	3.52 ±3.385	5.00 ±3.447	6.04 ±3.399	5.79 ±2.987	4.70 ±3.184	4.13 ±3.672	3.92 ±3.776	5.40 ±3.159	4.85 ±3.186
Do you agree with increasing animals' health or disease resistance by genetic changes?	4.26 ±3.564	4.33 ±3.597	6.00 ±3.043	5.87 ±3.237	3.91 ±3.156	4.24 ±3.207	4.61 ±3.388	4.54 ±3.410	4.21 ±3.288	5.64 ±3.372	4.19 ±2.890	4.25 ±2.939	3.64 ±3.481	3.82 ±3.617	3.11 ±2.650	2.97 ±2.813
Do you agree with inflicting pain or injury on animals as part of cultural traditions?	2.01 ±2.861	2.62 ±3.221	1.37 ±2.346	1.39 ±2.580	1.09 ±2.249	1.36 ±2.713	0.75 ±1.769	0.81 ±2.189	0.76 ±2.061	1.18 ±2.580	1.25 ±2.194	1.76 ±2.516	1.63 ±3.023	1.05 ±2.519	0.70 ±1.249	0.86 ±2.048
Do you agree with testing cosmetics or household products on animals?	3.20 ±3.069	2.76 ±3.208	2.74 ±2.841	2.28 ±3.052	1.91 ±2.593	3.37 ±3.013	1.50 ±2.475	1.78 ±2.796	2.30 ±3.017	2.08 ±2.836	2.48 ±2.582	2.14 ±2.583	2.40 ±3.186	1.44 ±2.682	1.82 ±2.215	1.23 ±1.680

Figure 1. **Subjective Knowledge level**  
(University Students)

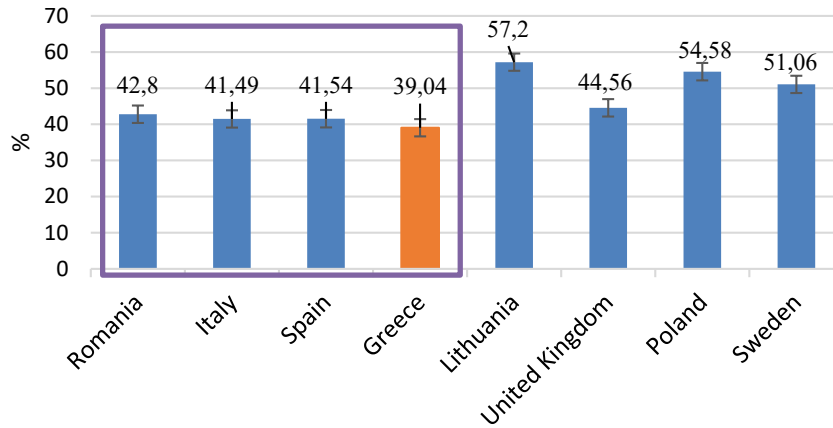


Figure 2. **Subjective Knowledge level**  
(Secondary Students)

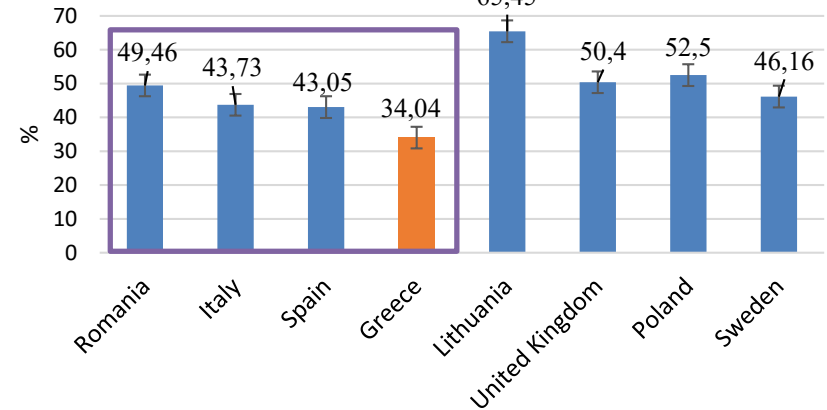


Figure 3. **Objective knowledge level**  
(University Students)

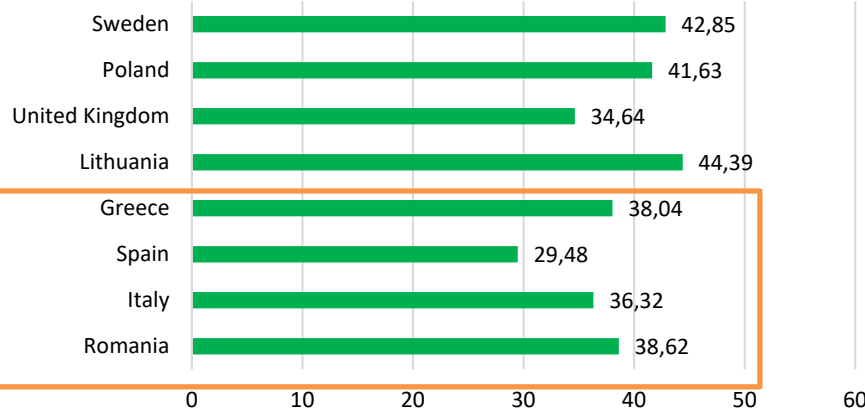
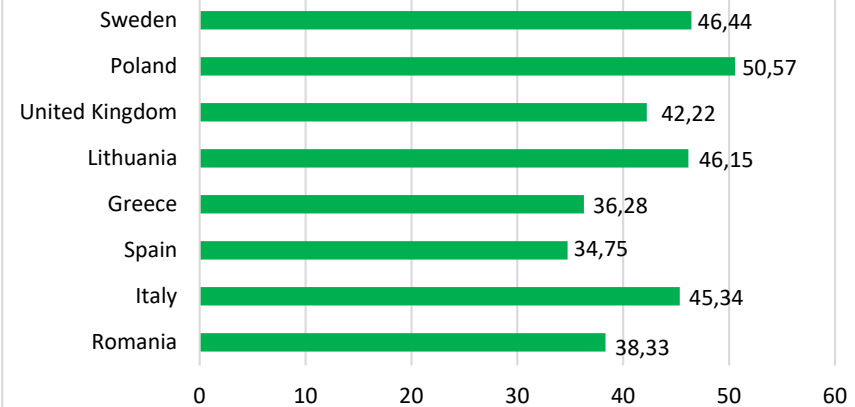


Figure 4. **Objective knowledge level**  
(Secondary Students)



## Respondents' Opinions Regarding Whether AW education Should Be Included in Curricula

Figure 9. Should Animal welfare issues be included in your educational programs? (Secondary Students)

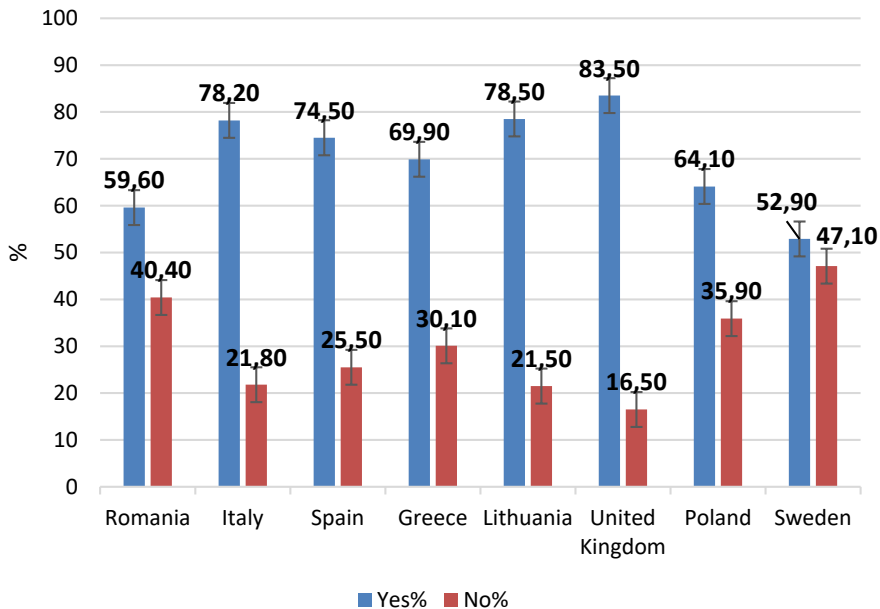
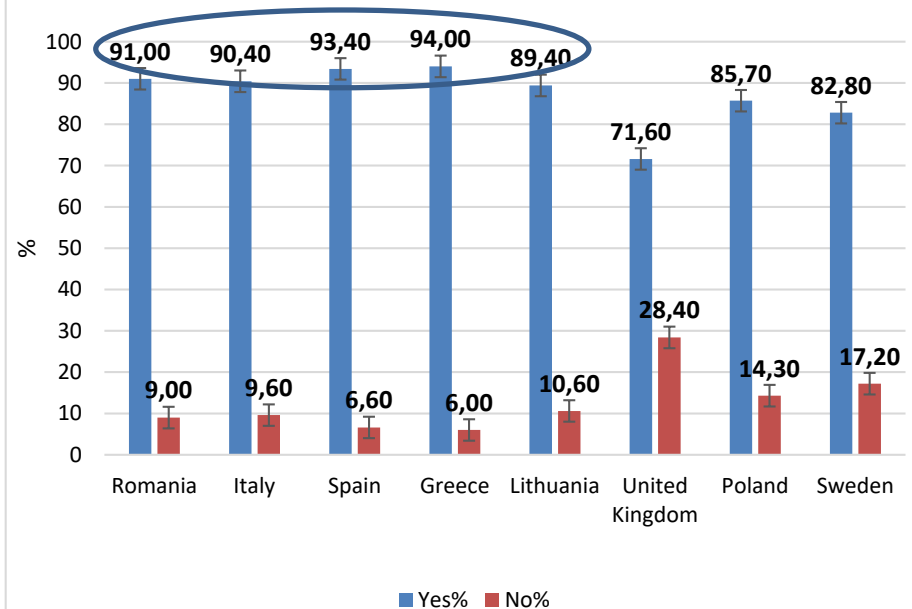


Figure 10. Should Animal welfare issues be included in your educational programs? (University Students)



### Analyse factor affecting the agreement with more restrictive regulations

	<b>B</b>	<b>Sig.</b>	<b>Exp(B)</b>
<b>Students' type</b> (University students=1, School students=0)	1,219	0.000	3.385
<b>Subjective Knowledge level about AW?</b> (0 non informed to 10 very informed)	0.007	0.000	1.007
<b>Objective Knowledge level</b> (The percentage of correct answer of respondents)	0.005	0.038	1.005
<b>Concerns regarding the AW of beef cattle for meat production</b> (0= I am not worried to 10= I am completely worried).	0.057	0.001	1.058
<b>Concerns regarding the AW of Pigs for meat production</b> (0= I am not worried to 10= I am completely worried).	0.034	0.038	1.035
<b>Concerns regarding the AW of Laboratory animals</b> (0= I am not worried to 10= I am completely worried).	0.079	0.000	1.082
<b>Students' opinions if AW regulations should be more restrictive</b> (1=Yes, 0=No)	0.538	0.000	1.69
<b>Italy (1= Italy, 0= Others)</b>	0.343	0.014	1.409
<b>Sweden (1 = Sweden, 0 = Others)</b>	-0.692	0.000	0.501
<b>Do you agree that medical experiments use animals to improve human health? (0=absolutely disagree to 10 totally agree)</b>	-0.028	0.037	0.972
<b>Gender (1= female 0= male)</b>	0.291	0.001	1.337
<b>Correct classification</b>		78.90 %	
<b>Hosmer and Lemeshow Test (Sig.=0 .05)</b>			

## 7. CONCLUSION

- **University students** in a **southern EU country (Italy)** exhibited significant agreement to the implementation of AW programs in their curriculum compared to a **northern EU country (Sweden)**.
- Results showed that **university students** place higher values to **support** AW educational programs in their curriculum compared to **secondary student's** roles.
- Respondents with a high level of **subjective and objective** knowledge, **women**, and those who perceive that **AW regulations should be more restrictive** for the welfare of **beef cattle, pigs, and laboratory animals**, were more **likely to accept** AW education.
- Students who agree that **medical experiments** that use animals to **improve human health** were **less likely to accept** to include AW education in their studies 'programs.

- Results highlight the importance of teaching AW concept as a comprehensive teaching tool at universities and schools' programs as it may constitute a starting point for a more sustainable society toward improving animal living conditions, mainly in the *Mediterranean countries in secondary schools*.
- This study highlights to policymakers the importance of **implementing and monitoring** more **restrictive regulations** toward the education of AW along with informed teachers that will enable students to enhance ethical understandings of animal sentience.

**Thank You For Your**

---

**Attention**