

PERCEPTIONS OF URBAN ENVIRONMENT AND PHYSICAL ACTIVITY

Mirilia Bonnes
in collaboration with Giuseppe Carrus, Ferdinando Fornara, Alessandra Mauro, Elena Bilotta, Massimiliano Scopelliti, Marino Bonaiuto

DIPARTIMENTO DI PSICOLOGIA
DEI PROCESSI DI SVILUPPO
E SOCIALIZZAZIONE

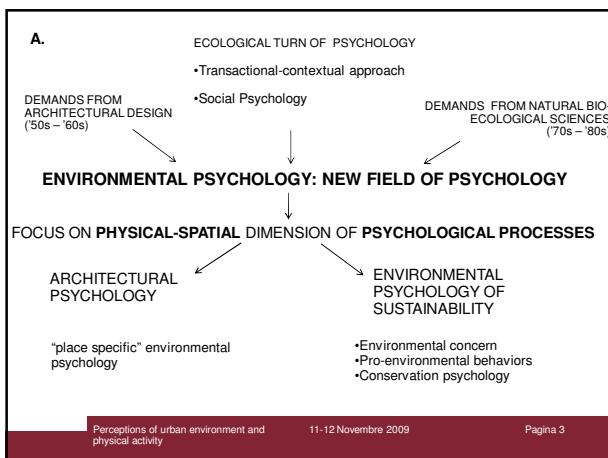
CENTRO INTERUNIVERSITARIO
DI RICERCA IN
PSICOLOGIA AMBIENTALE

SAPIENZA
UNIVERSITÀ DI ROMA

Key note lecture at 5° ANNUAL MEETING OF HEPA-EUROPE
- Health Enhancing Physical Activity - European network -
Organized by:
WHO-Europe (World Health Organization Regional Office for Europe) and Servizio Sanitario Regione Emilia Romagna
11-12 NOVEMBER 2009, BOLOGNA, ITALY

Summary of the presentation

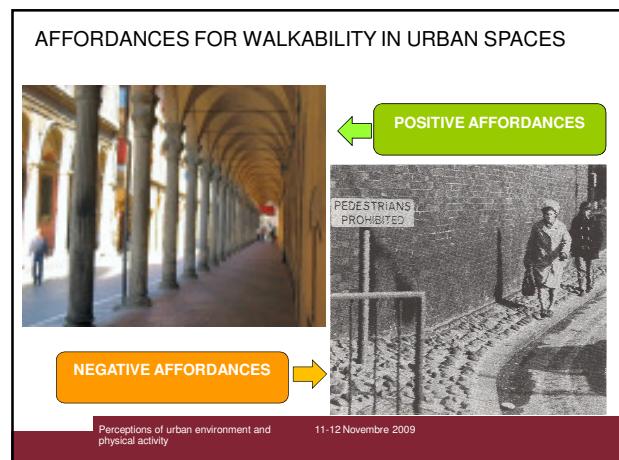
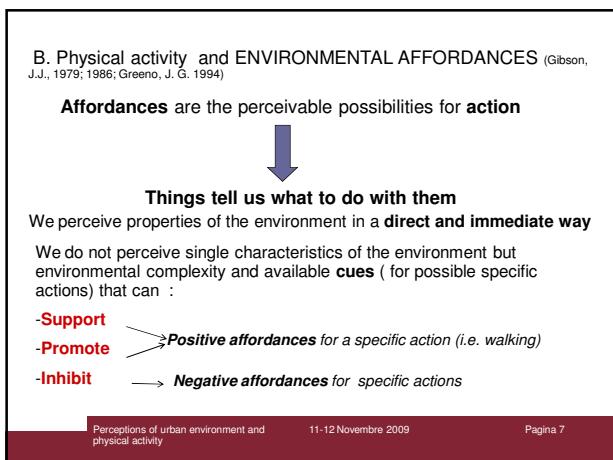
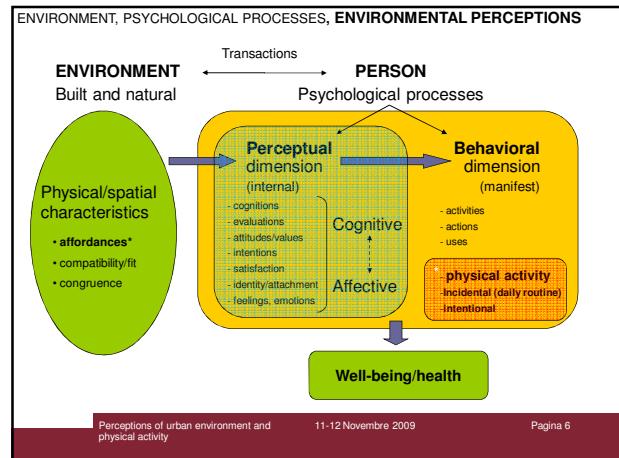
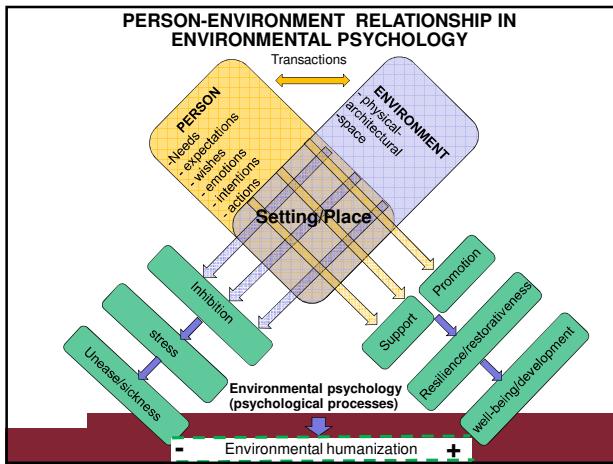
- A. General introduction: the Environmental Psychology perspective on the relationship among **urban spaces**, **environmental perceptions** and **people's physical activity**
- B. Environmental **affordances** of urban and green spaces for physical activity
- C. Some research lines on inhabitants' **urban environmental perceptions** and **green areas**



ENVIRONMENTAL PSYCHOLOGY: A DEFINITION
(Bonnes, Carrus, 2004, Environmental Psychology, Overview. *Encyclopedia of Applied Psychology, Vol. I* (801-814))

"Environmental psychology is that branch of psychology that studies the relationship between people psychological processes and socio-physical features of the built and natural environment, in order to enhance human well-being and to improve people-environment relations".

People (Person) - environment relations
psychological processes
socio-physical environment
built and natural environment
human well-being



AFFORDANCES FOR WALKABILITY IN GREEN AREAS

Perceptions of urban environment and physical activity 11-12 Novembre 2009 Pagina 9

C. Three main research lines (CIRPA) on environmental perceptions in urban environment and green areas

GENERAL AIMS
Understanding and monitoring residents perceptions, attitudes and behaviours towards the diverse aspects of the daily **urban environment**.

Particular attention to the "**natural/green component** of daily urban environment (neighborhood)

Environmental psychological research have widely documented a **positive effect of the individual experience of nature/green spaces**

- **preference** for natural scenes (Kaplan & Kaplan, 1989)
- **restorative/healthy effects** of exposure to nature (Hartig, Mang & Evans, 1991; Ulrich, 1968)
- development of individual and shared **environmental concern** (Fransson & Garling, 1999)
- positive affordances of urban green areas for **physical activity?**

Perceptions of urban environment and physical activity 11-12 Novembre 2009 Pagina 10

Fig.1 - Natural Reserves in the city of Rome

Perceptions of urban environment and physical activity 11-12 Novembre 2009 Pagina 11

C. Three main research lines (CIRPA) on environmental perceptions in urban environment and green areas

1. Expert vs. inhabitants evaluations of urban environmental quality (cf. Bonnes & Bonaiuto 1995; Bonnes, Uzzell, Carrus, Kelay, 2007)

2. Developing Indicators of Perceived Residential Environment Quality for Assessing Inhabitants' Residential Satisfaction ~ cf. Bonaiuto et al., 1999; Bonaiuto & Bonnes, 2002; Bonnes et al. 2005)

3. Resident's perceptions, attitudes and behaviours related to urban green areas - (cf. Bonnes, et al., 1999; Carrus, et al. 2003; Carrus et al., 2005, Laforteza et al. 2009)

METHOD
Multi-disciplinary and inter-disciplinary collaboration with other research groups: biologists (plant & animal ecologists), architects, urban planners

Support of local authorities: e.g., Rome Municipality, Lazio Region, etc .
Collaboration with Unesco-MAB Project n. 11 on **urban ecosystems** (MAB-Rome Project, since 80's)

Perceptions of urban environment and physical activity 11-12 Novembre 2009 Pagina 12

1) Expert vs. inhabitants evaluations of urban environmental quality

(cf. Bonnes & Bonaiuto 1995; Bonnes, Uzzell, Carrus, Kelay, 2007)

- The **congruence** between inhabitants' and experts' evaluations of the "quality" of **built** and **natural** urban environment can be **problematic** (Tab.1).

* For the **green features** of the residential environment congruence is particularly **weak** (even negative correlations).

* **Natural scientists** assign particular value to the **bio-physical naturalness** of urban green, while **inhabitants** assign particular value to its **maintenance, accessibility** and **stability** through the time

Tab.1 Rank correlation coefficients between **expert's** and **inhabitants'** evaluations of the **quality** of the residential environment (N = 461) In a specific neighbourhood of Rome (Bonnes, Bonaiuto, 1995)

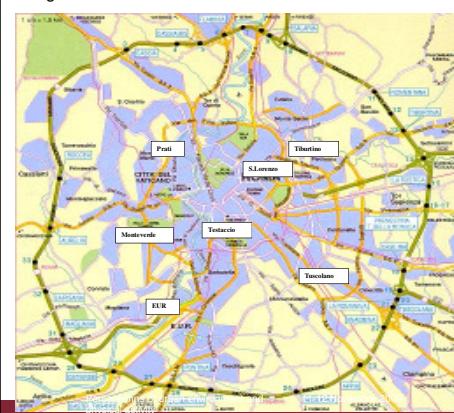
Features of the urban environment	Spearmann r_s coefficient
Built environment	
Spatial density	.543 (n.s.)
Population density	.600 (n.s.)
Tertiarisation	.090 (n.s.)
Functional centrality	.771 (n.s.)
Natural environment	
Flora and vegetation quality	-.429 (n.s.)
Endowment of green areas	-.429 (n.s.)
Accessibility to urban public green areas	-.660 (n.s.)

2) Developing Indicators of Perceived Residential Environment Quality for Assessing Inhabitants' Residential Satisfaction - cf.

Bonaiuto et al., 1999; Bonaiuto & Bonnes, 2002, Bonaiuto, Fornara & Bonnes, 2006)

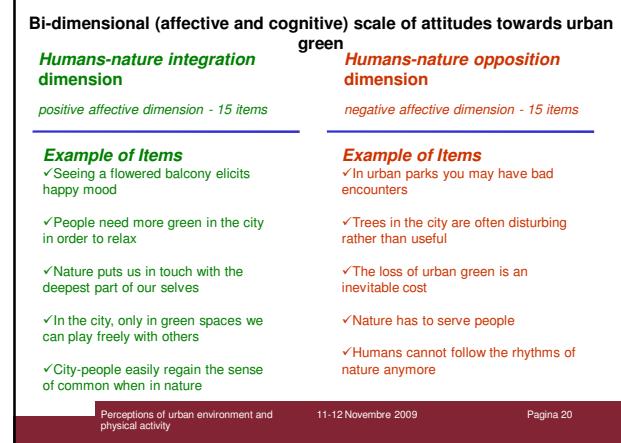
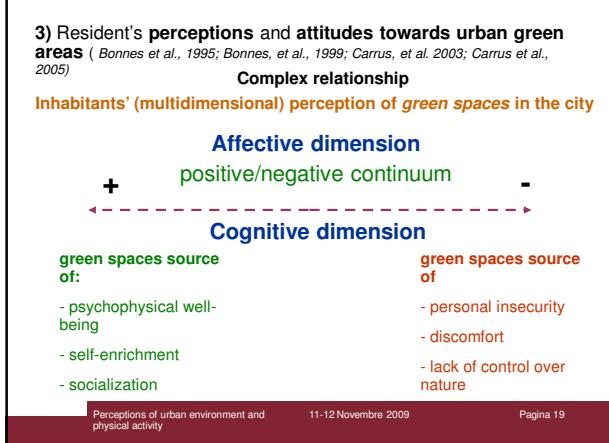
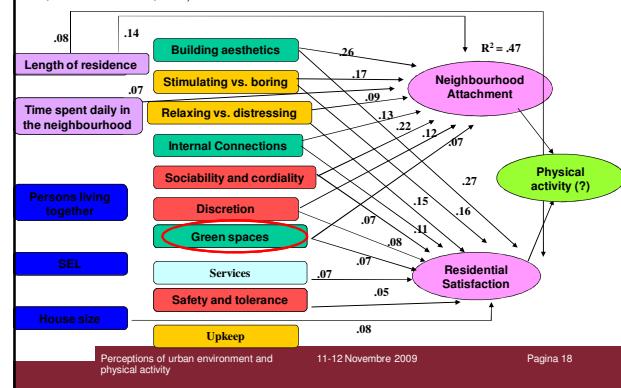
- Inhabitants' satisfaction/dissatisfaction with the urban residential (neighborhood) environment have a **multidimensional character**
- Development of **standard** subjective indicators of **perceived residential environment quality** (PREQ), which can be reliably measured, covering all main features of the residential environment: spatial-architectural features, social, functional, contextual (Fig. 3; Tab. 3)
- The presence of green areas in the neighbourhood is a **significant positive predictor** of people's residential satisfaction and neighbourhood attachment(Tab. 3)
- Assessing inhabitant's residential satisfaction with related residential experiences (i.e. residential attachment, multiplace activities, ecc...)...
- ... and related physical activity ?

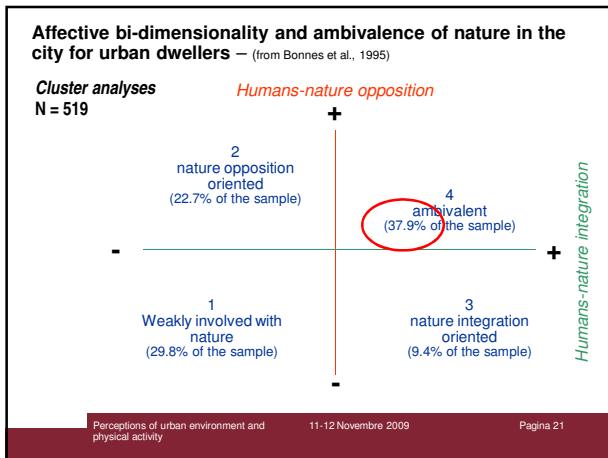
Fig. 3 - The 7 diverse districts considered for tool validation



Tab 2 - <dimensions (11 scales) of Perception of Residential Environmental Quality				
Generative criterion	Scale	Factor	N Items	Alfa
Architectural/town-planning features SPACE	Visual space	1 Architectural and town-planning spaces	3	.92
		2.1 Building density	8	.92
		3.1 Building volume	6	.89
	Practice space	4.2 Internal practicability	8	.80
		5.2 External connections	6	.78
	3 Green spaces	6.3 Green areas	10	.80
Social relations features PEOPLE	4 People and social relations	7.4 Discretion	8	.81
		8.4 Safety and tolerance	8	.82
		9.4 Sociability and cordiality	8	.80
Punctual and In-network Services SERVICES	5 Welfare services	10.5 Social-health services	6	.81
		11.5 Education services	6	.73
	6 Cultural-recreational services	12.6 Sport services	8	.87
		13.6 Socio-cultural activities	8	.81
	7 Commercial services	14.7 Commercial services	8	.86
	8 Transport services	15.8 Public transport	8	.82
Context Features CONTEXT	9 Pace of life	16.9 Relaxing vs. distressing	8	.88
		17.9 Stimulating vs. boring	8	.84
	10 Environmental health	18.10 Cleanness	8	.92
	11 Maintenance & care	19.11 Macro- & micro-upkeep	12	.85
Place Attachment	Neighbourhood attachment	1. Neighbourhood attachment	8	.85

Tab.3 - **Multiple Regression models predicting neighbourhood attachment and residential satisfaction in various Italian towns (N= 1488)** (cl. Bonaiuto et al., 1999; Bonaiuto & Bonnes, 2002)





RESULTS AND IMPLICATIONS

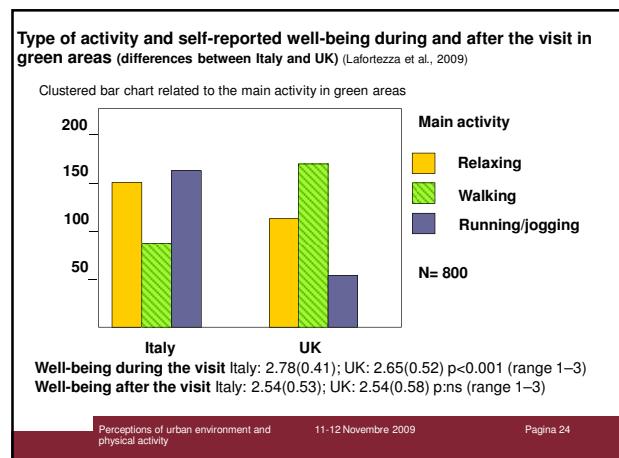
- ✓ Inhabitants' relationship with urban green areas is tendentially complex and often **ambivalent**
- ✓ Designing and managing urban green spaces should carefully take into account the possible **negative affects/perceptions** of inhabitants toward these spaces (according to their residential needs) such as:
 - ❖ personal insecurity vs **security**
 - ❖ personal un-comfort vs **comfort**
 - ❖ personal lack of environmental control vs **control**
- ✓ Each urban green area should be carefully **designed, managed** and **assessed**, also according to these **inhabitants' needs** and **perceptions**
- ✓ **green areas and physical activity?**

Perceptions of urban environment and physical activity 11-12 Novembre 2009 Pagina 22

Some recent research findings on self-reported well-being, frequency of visit and physical activity in urban green areas
(Laforetza, Carrus, Sanesi, Davies, 2009)

- **General goal:** investigate the perceived personal well being related to urban green areas frequentation (during hot season)
- Comparative study in different geographical regions: Northern (U.K.) and Mediterranean (Italy)
- **Focus on** frequency of visit and amount of physical activities in urban green areas
- N=800 (400 in Italy, 400 in UK), distributed in three cities (Milan, Bari and Gateshead)

Perceptions of urban environment and physical activity 11-12 Novembre 2009 Pagina 23

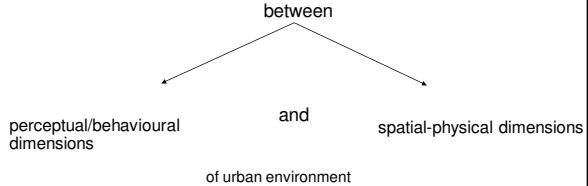


CONCLUSIONS

- Inhabitants' **environmental perceptions** about urban areas can be reliably and validly measured through **psychological standardized tools** covering different features of people-environment relations
- These tools and methods can be **used as a support**, within a **multi-disciplinary collaboration** context, for urban design and decision making (e.g. Bonaiuto, Fornara Bonnes, 2002)

CONCLUSIONS

Systematic links can be found out, assessed and monitored



In order to improve design and management of urban spaces for inhabitants' benefits and well-being

including their physical activity

Main references

- Bechtel R.B. & Churchmann A., 2002. *Handbook of Environmental Psychology*. New York: Wiley.
- Bonaiuto, M., Fornara, F., Bonnes, M. (2006). Perceived residential environment quality in middle- and low-extension Italian cities. *Revue Européenne de Psychologie Appliquée*, 56, 23-34.
- Bonnes & Bonaiuto 1995; Expert and layperson evaluation of urban environmental quality: the "natural" versus the "built" environment. In Y. Guerrier, N. Alexander, J. Chase, M. O'Brien (Eds.), *Values and the Environment: A Social Science Perspective* (pp. 151-163). New York: Wiley.
- Bonnes M., Carrus G., 2004. Environmental Psychology, Overview. *Encyclopedia of Applied Psychology*, Vol.I (801-814)
- Bonnes, M., Bonaiuto, M., Aiello, A., Carrus, G. (1999). Scientists' and Local Residents' Evaluation of Natural Features of the Environment in the Roma Area. In I. Eisto, T. Hokkanen, M. Ohman, A. Repola (Eds.), *Local Involvement and Economic Dimension in Biosphere Reserve Activities*. Helsinki: Academy of Finland.
- Bonnes, M., Carrus, G., Fornara, F., Passafaro, P., Bonaiuto, M. (2005). Percezioni ambientali e biodiversità a Roma, nell'ambito del Programma MAB dell'Unesco. In *Atti del Convegno Lincei, 218, Convegno "Ecosistema Roma", Roma, 14-16 aprile 2004* (pp. 459-478). Roma: Bardi.
- Bonnes M., Uzzell D., Carrus G., Kelsey T., 2007. Inhabitants' versus experts' assessment of environmental quality for urban sustainability. *Journal of Social Issues*, 63, 59-78
- Carrus G., Fornara F., Bonaiuto M., & Bonnes M., 2003; Percezione e valutazione delle aree verdi nella città di Roma. In R. Baroni, S. Falchero (a cura di), *Psicologia Ambientale e dintorni: ricordo di Mimma Peron* (pp. 265-270). Padova: CLEUP.
- Gibson, J.J., 1979. *The Ecological Approach to Visual Perception*. Hillsdale (NJ): Lawrence Erlbaum.
- Laforteza R., Carrus G., Sanesi G., Davies C., 2009. Benefits and well-being perceived by people visiting green spaces in periods of heat stress. *Urban forestry & urban greening*, 8(2009):97-108