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**Abstract**

Distributive justice reasoning in adolescence, regarding the allocation of scarce medical resources, has not been thoroughly studied yet. Present study aimed to explore adolescents’ preferences for organ allocation, the ethical principles that form bioethical judgments in adolescence, as well as the role of empathy and altruism in the formation of those judgments. One hundred fifty one adolescents (90 females) aged between 12 and 19 years old participated in the study. The participants were asked to suggest the criteria that should be considered in the construction of transplant waiting lists, to evaluate adults’ preferable criteria and to justify their judgments. Results indicate that *utilitarianism* and *egalitarianism* were both used to form allocation judgments. *Ingroup favouritism* was also observed. Age differences in adolescents’ preferences were witnessed, but no age effect were found regarding the principles that form participants’ judgments. Aspects of empathy and altruism seemed to associate with certain allocation criteria.

*Keywords:* adolescence, moral development, organ allocation, empathy, altruism, transplantations

**Introduction**

Despite people’s positive attitude towards organ donation, the number of organ donors remains low and falls short of covering the needs for transplants. Studies, that have been conducted in different countries about general public’s attitudes towards organ donation, consistently show that even though people think highly of organ donation and state willingness to donate organs, only few are registered organ donors (Banas, et al. 2013; Coad, Carter, & Ling, 2013; Tsavdaroglou et al., 2013).

Organ donation is an act that doesn’t refer directly to individuals. Organs are donated to society and thus, it is argued that society should be involved in the process of decision making about organ allocation (Browning & Thomas, 2001). Furthermore, public involvement in the discussion and formation of health policies about transplantations might empower people’s trust in the fairness of the systems and also enhance their awareness about organ donation (Ubel & Loewenstein, 1996). The knowledge about public’s preferences for organ allocation and the principles that these preferences are placed upon, could provide a democratic framework for resource allocation (Furnham, Hassomal & Mcclelland, 2002). Although campaigns and educational programs aiming to sensitise citizens about the importance of organ donation usually target to adolescents and young adults, judgments about organ distribution of these groups have not been studied thoroughly yet.

Organ distribution implies socio-moral issues, which elicit harm/care moral intuitions (Haidt, 2001). These concerns are associated with and also motivated by empathy (Haidt & Joseph, 2008). Empathy, on the other hand leads to altruistic behavior (Batson, 1991). Present study’s objectives were to explore adolescents’ preferences for organ allocation and the latent ethical principles that their preferences are formed upon. Moreover, we were keen on investigating the role of moral emotions, like empathy and altruism in the formation of those judgments, as well as the existence of any developmental differences between early and late adolescence.

**Who has the priority for transplantation?**

Organ allocation is an essential bioethical issue. The recipient would benefit, but the ones that would lose the priority may lose their lives, too. Besides medical grounds, decisions about allocation usually refer to socio-moral values and subsequently imply value judgments (Furnham et al., 2002). Organ distribution to a limited number of beneficiaries most often elicits comparative judgments about individuals’ worth. An individual’s life is evaluated in comparison to the lives of others (McMahan, 2002). Given these conditions, which criteria might be regarded as determining factors in setting priority for life?

Judgments about the allocation of scarce medical resources are mainly based either on *egalitarianism* or *utilitarianism* (Furnham & Ofstein, 1997). According to *egalitarianism*, all people should have equal access to public goods. *Waiting time in the list* is an example of criteria that usually derives from *egalitarianism*. On the other hand, *utilitarianism* elicits criteria which are thought to maximise the benefits for society. *Prognosis* and *medical need* are criteria that most often reflect *utilitarian principles*. However, most of the criteria might refer either to *egalitarianism* or *utilitarianism* (Furnham & Ofstein, 1997). For example, *recipient’s age* could be related with productivity and society’s welfare and therefore reflecting *utilitarian principles*. On the other hand, according to *fair innings*, people should have the opportunity for equal life-span (Schwappach, 2002).

Research projects that address priority decisions to general public found that people seem to believe that an equal access to scarce medical resources is more significant than maximum social benefit (Ubel & Loewenstein, 1996). On the contrary, other studies reveal that given only some demographic information about the patients, people are able to make value judgments about the priority in a recipients’ list (Furnham, Ariffin & McClelland, 2007). More specifically, a review of these studies reveal that apart from *better prognosis* (Browning & Thomas, 2001), other factors that are considered as significant criteria for allocation are *recipient’s age* (Browning & Thomas, 2001; Dolan & Shaw, 2004; Neuberger, Adams, MacMaster, Maidment, & Speed, 1998) and *the number of dependants* (Browning & Thomas, 2001; Dolan & Shaw, 2004). Other criteria that are often discussed for their importance are *the time waiting for a transplant* (Browning & Thomas, 2001; Dolan & Shaw, 2004; Neuberger et al., 1998) and *medical urgency* (Dolan & Shaw, 2004; Irving et al., 2013), as well as *patient’s responsibility for the illness* (Furnham et al., 2002). Criteria such as *gender* (Furnham et al., 2002), *social status* (Mooney, Jan & Wiseman, 1995), *income* (Neuberger et al., 1998) and *nationality* (Furnham et al., 2002) were also found to have some impact on allocation judgments. The above criteria were discussed in different studies, thus it is difficult to assess them according to their importance.

**Distributive justice reasoning and moral emotions during adolescence**

The lack of transplants raises a question that could have many possible answers: Which is the fairest way to distribute the available organs? One could choose a recipient and justify their choice based on a plethora of criteria (Veatch, 2002). These criteria derive from distributive justice principles considering that they constitute judgments about the fairest way to allocate societal goods to people. Though adolescence is characterised by significant changes in social and moral development, changes in distributive justice reasoning during adolescence have not been studied sufficiently yet. Research on allocation of financial rewards reveals that distributive justice reasoning continues to develop during adolescence (McGillicuddy-De Lisi, De Lisi & Van Gulik, 2008). While *egalitarianism* seems to decrease, *utilitarianism* and *altruism* increase. However, other research showed that even young children have a sophisticated repertoire of different modes for allocating resources that they use in different contexts (e.g. Pnevmatikos, 2010). Furthermore, *ingroup bias* seems to play a significant role in adolescents’ preferences. With their choices, adolescents tend to favour ingroup members (Fehr, Glätzle-Rützler & Sutter, 2013).

Moreover, moral emotions are considered as an essential motive for moral behavior that could motivate both judgments of justice and judgments of care (Keller et al, 2004). Moral emotions involve the cognitive ability to take another person’s perspective (Malti, Gasser & Gutzwiller- Helfenfinger, 2010). According to Davis (1983) *perspective taking* (i.e. the ability to take other people’s perspective) alongside with *fantasy* (i.e. the degree to which one relates with fictional characters), *empathic concern* (i.e. the concern for other people) and *personal distress* (i.e. the anxiety that someone could feel for other people’s experiences) are the cognitive and emotional aspects of empathy. These aspects though distinct, are interdependent. Thus, the changes in perspective taking could affect the other aspects of empathy. Furthermore, *perspective taking*, *empathic concern* and *personal distress* are qualities of empathy which also relate to the development of altruistic behavior (Hoffman, 1976). During adolescence empathy and altruism continue to develop (Carlo, Hausmann, Christiansen & Randall, 2003; Choudhury, Blakemore & Charman, 2006; Van der Graaff et al., 2014).

**The Present Study**

The present study’s objectives were to explore adolescent’s preferences for organ allocation, their distributive justice reasoning and the potential role of empathy and altruism in the formation of adolescents’ judgments, as well as the existence of any developmental differences between early and late adolescence.

Based on previous research in distributive justice reasoning, we hypothesised that adolescents would consider in a greater extent *utilitarian principles* and subsequently criteria that derive from *utilitarianism*, such as *the degree of medical urgency* or *family obligations*, than “equal access” criteria, like *time waiting for a transplant*. Furthermore, we assumed that their preferences may differ in early and late adolescence. As socio-moral values and *perspective-taking* skills continue to develop during adolescence (Choudhury et al., 2006; Van der Graaff et al., 2014), we assumed that late adolescents’ preferences would depict in a greater extent the concern for society’s welfare. Additionally, we hypothesised that this concern would also be reflected in their justifications about their judgments.

Moreover, we were interested in exploring the extent to which empathy and altruism, could affect adolescents’ decisions for the priority in the waiting list. Research has showed that there is a relationship among prosocial behaviour, empathy and altruism (Eisenberg & Fabes, 1990). Thus we hypothesised that higher level of empathy and altruism may lead adolescents to choices that depict their concern about peoples’ welfare. On the contrary, participants with lower level of empathy and altruism may not consider the same criteria as important enough to set priority for life.

**Method**

**Participants**

One hundred fifty one adolescents participated in this study (90 females), aged between 12 and 19 years old. The participants were selected from Greek public schools and their participation in the study was voluntary. In order to explore the differences between early and late adolescence, participants were allocated to two groups. The allocation was based on their level of education. The first group (early adolescents) was junior high school students (68 students) with average age 13.24 years (*SD*=0.8) and the second group (late adolescents) was high school students (83 students) with average age 16.05 years (*SD*=0.75).

**Procedure**

Data were collected in schools following the international and national standards of ethics and after parents’ consent. Students were examined in the framework of focus groups in their classrooms. Each focus group consisted of 6-9 students of the same classroom. Discussion in a focus group context was chosen as an appropriate method because it could be cognitively and emotionally stimulating, especially among young people (Peterson-Sweeney, 2005). Furthermore, the issues that arise in bioethics involve current scientific knowledge and complex ethical dilemmas. According to Bowie, Richardson & Sykes (1995) focus group is a suitable method to explore peoples’ views on complex issues as it gives the opportunity to listen to other’s arguments and reflect on the issue. Additionally, it is argued that group discussion could enhance social perspective about the discussed issues (Bowie et al., 1995).

During the focus groups, adolescents were presented with a short story that informed them about the lack of available transplants, as well as transplantation implications (see Appendix). The story and the accompanying questions were devised and tested in different age groups in a smaller preliminary study. Participants were encouraged to ask questions and discuss with the group. Afterwards, they were asked to individually answer to two questions about the distribution of available organs, the IRI (Interpersonal Reactivity Index, Davis, 1980) for the assessment of empathy and the Questionnaire for Altruism (Ma & Leung 1991). The scales, dilemmas and the accompanying questions were given in written format.

**Measures**

**Who has the priority for transplantation?**

Students were initially asked to write down the recipients’ categories that should have priority in a transplantations’ waiting list and to justify their suggestions. Next, they were presented with a given list of criteria that were found to be significant for adults. The list included the following criteria: *age*, *gender*, *proximity*, *social status*, *financial status*, *work*, *family status* and *waiting time in the list*. Adolescents were asked to choose the criteria they agree with, to evaluate them and justify their choices.

**Assessment of empathy.** The *Interpersonal Reactivity Index* (Davis, 1980) was used for the assessment of empathy. The 28-item scale explores four components of empathy that consist the four subscales of *IRI*: *perspective taking scale* (α=.58), *fantasy scale* (α=.69), *empathic concern scale* (α=.63) and *personal distress scale* (α=.63). Cronbach’s alphas for *IRI* in previous studies with adolescents and young adults, ranged between .55 – .76 (Fernández, Dufey & Kramp, 2011; Mestre, Samper, Frías, & Tur, 2009).

**Assessment of altruism.** Adolescents’ altruistic orientation was explored through a questionnaire, based on *Child Altruism Inventory* (Ma & Leung, 1991). *Child Altruism Inventory* (α=.70) is a self-reported, 24-item questionnaire that explores normative and empathic aspects of altruism and therefore was considered as suitable for the present study (for example: *“I* *would persuade classmates not to fight and quarrel”)*. For the present study, the questionnaire was adapted to Greek. Three items from the original scale (i.e. numbers 1, 14 & 23) were removed from the analyses, in order to increase the internal consistency of the scale (α=.72).

**Data analysis.** In order to identify the recipient’s categories that were preferable to adolescents, participants’ suggestions were categorised according to the criterion that they were referring to. Ten categories emerged from participants’ responses. Two independent raters classified the participants’ suggestions into the ten categories with high inter-rater agreement (Cohen’s kappa =.97, *p*<.001). Moreover, the two independent raters categorised the participants’ justifications according to the ethical principles (i.e. *egalitarianism*, *utilitarianism,* *ingroup favouritism*) they reflected, (Cohen’s kappa =.94, *p*<.001). In both cases the inter-rater agreement was increased to 100% after discussion with the authors.

Participants, based on their scores (+/-1 SD) in the *Questionnaire for Altruism*, as well as the four *IRI*’s subscales, were categorised in three levels (high, medium, low) of *altruism*, *perspective taking*, *fantasy*, *empathic concern* and *personal* *distress*.

**Results**

**Adolescents’ preferences for organ allocation**

Qualitative analysis of students’ suggestions revealed ten categories that participants regarded as important for organ allocation. *Age* was considered as an important criterion by 72.8% of the participants along with *the degree of medical urgency*, which was suggested by 48.3% of them. *Organ donors* were suggested by the 23.2%. Other criteria that could potentially contribute to the decision about priority are *waiting time in the list* (19.9%), *family status* (17.9%) and *proximity* (13.9%). Less popular suggestions were *financial status* (8.6%), *transplant utilisation* (7.3%), *social status/authority* (6.6%) and *gender* (2%).

Qualitative analysis was also employed in order to identify the ethical principles that influence adolescents’ justifications. Three principles were identified: *egalitarianism*, *utilitarianism* and *ingroup favouritism*. More specifically, 45.9% of the participants stated that transplants should be distributed considering the maximum benefit for society (for example: *“young people would change the world”*) and 44.6% thought that organ allocation should be based on fairness and equality (for example: *“First come first served. We should be fair.”*). Finally, 9.5% of adolescents’ judgments were based on *ingroup favouritism* (for example: *“friends and family come first”*).

**Developmental Differences in adolescents’ preferences**

Pearson’s chi square test was used in order to reveal differences between early and late adolescents. Despite the fact that *age* was the most popular among the suggested factors, it seems to be more popular among early adolescents (82.4%) than late adolescents (65.1%), *χ*2(1)=5.65, *p*<.05. Another criterion more frequently suggested by early (11.8%) than late adolescents (3.6%) is *better transplant utilisation, χ*2(1)=3.68, *p*=.054.

On the other hand, late adolescents seemed to consider factors that aren’t popular among early adolescents. Among high-school students, 10.8% suggested *social status/authority*, in contrast to 1.5% of junior high-school students who suggested this criterion, *χ*2(1)=5.3, *p*<.05. Likewise, 37.3% of high-school students suggested *organ donors* should have priority for transplantation, but only 5.9% of junior high-school students agreed with this suggestion, *χ*2(1)=20.79, *p*<.05. Finally, *financial status* was also a more considerable criterion for high-school students (13.3%) than junior high-school students (2.9%), *χ*2(1)=5.05, *p*<.05. For the suggestion of *the degree of medical urgency*, *waiting time in the list*, *family status*, *proximity* and *gender*, there were no significant age differences.

**The role of empathy and altruism in adolescents’ preferences**

In order to identify the possible differences in the suggested criteria among the three levels of each empathy subscale (*perspective taking*, *fantasy*, *empathic concern*, *personal distress*) and of altruism, Pearson’s chi square tests were conducted. The level of *fantasy*, *perspective taking* and *altruism* were significantly associated with the suggestion of certain criteria. Significant associations between adolescents’ preferences and levels of *empathic concern* as well as *personal distress* were not witnessed. Low level of *fantasy* was found to be negatively associated with the suggestion of *age,* *χ*2(2)=9.54, *p*<.05, A.S.R.=-2.9, and positively associated with *the degree of medical urgency* as an important criterion, *χ*2(2)=7.26, *p*<.05, A.S.R.=2.3. On the other hand, high level of *perspective taking* was negatively associated with the suggestion of *the degree of medical urgency,* *χ*2(2)=8.26, *p*<.05, A.S.R.=-2.5. Furthermore, *altruism* was found to associate with the suggestion of *social status/authority*, *χ*2(2)=8.94, *p*<.05. *Social status/authority* was a more popular criterion among students with low level of *altruism* (A.S.R.=2.8), than among students with medium level of *altruism* (A.S.R.=-2.5).

**Adolescents’ evaluation of adults’ preferences**

Adolescents’ evaluations of adults’ preferences and the principles from which they derived are presented in the Table 1 below. Examples of adolescents’ justifications are presented in the Table 2.

Insert Table 1 here

Insert Table 2 here

Nonparametric Kruskal-Wallis and Mann-Whitney tests were used in order to explore the possible role of empathy and altruism in adolescents’ evaluations. *Perspective taking*, *personal distress* and *altruism* were significantly associated with the evaluation and justification of certain criteria. *Fantasy* and *empathic concern* weren’t related with adolescents’ evaluations and justifications. More specifically, nonparametric Kruskal-Wallis showed significant difference between *perspective taking* levels in *age* evaluation, *χ*2(2)=6.12, *p*<.05. Students with medium level of *perspective taking*, tend to evaluate the criterion of *age* higher (*M*=7.61, *SD*=2.68) than students with high (*M*=6.83, *SD*=3.21) and low (*M*=6.52, *SD*=3.44) level. On the other hand, adolescents’ *altruistic orientation* influenced the evaluation of *social status,* *χ*2(2)=9.26, *p*<.05. Students with high level of *altruism* tend to evaluate *social status* higher (*Μ*=2, *SD*=3.12) than students with medium (*Μ*=0.59, *SD*=1.85) and low level (*Μ*=0.06, *SD*=0.24). Regarding *financial status*, nonparametric Mann-Whitney test showed difference between participants with high and low level of *altruism* in their evaluations of *financial status,* *U*=135, *p*<.05. Adolescents with high level of *altruism* tend to evaluate higher *financial status* (*Μ*=3.05, *SD*=3.46) than students with low level (*Μ*=0.94, *SD*=2.23).

Concerning students’ justifications for their evaluations, Person’s chi square tests revealed statistically significant differences between *personal distress* levels and the principles that justified *gender* as a factor that should be considered in organ allocation, *χ*2(4)=11.429, *p*<.05. More specifically, students with medium level of *personal distress* tend to justify their evaluation based on each gender’s contribution to society (A.S.R.=2). The level of *personal distress* also related with students justifications about *financial status* evaluation, *χ*2(4)=12.283, *p*<.05. Adolescents with high levels of *personal distress* justified their evaluation of financial status based on *egalitarianism* (A.S.R.=3.4), in contrast to adolescents with medium levels of *personal distress* (A.S.R.= -2.3).

**Discussion**

In the present study we attempted to explore adolescents’ preferences for organ allocation. Results indicate that for adolescents the most essential factor for the distribution of available organs was *recipient’s age*. Other popular criteria were *the degree of medical urgency*, *organ donors*, *waiting time in the transplantation list*, *family status* and *proximity*. *Financial* and *social status*, *gender*, as well as *transplant utilisation* were the least popular suggestions.

Most of the factors that adolescents suggested are consistent with the criteria found to be important for adults (Browning & Thomas, 2001; Dolan & Shaw, 2004; Furnham et al., 2002; Neuberger et al., 1998). This consistency in public preferences could reflect an early presence of social norms and values that are strong enough to shape citizens’ attitudes towards fair distribution of scarce medical resources. Furthermore, it should be noted that adolescents seemed to avoid bias against social categories. Discriminations based on *gender*, *social* and *financial criteria* were found to be unpopular. In contrast, *ingroup bias* seemed to be more apparent. Out of the participants, 9.5% stated that *“You sympathise more with the people you know. It isn’t right, but it’s true”.*

Respecting age differences in adolescents’ suggestions, early adolescents considered *age* and *transplant utilisation* in a greater extent than late adolescents. On the other hand, *social categories* were suggested more often by late adolescents. Social criteria usually derive from *utilitarianism*, but also imply a wider social perspective and thus may be suggested more often in late adolescence.

Regarding the distributive justice principles that adolescents referred to in their justifications, participants based their justification both on *utilitarianism* (45.9%) and *egalitarianism* (44.6%). On the contrary, previous research on adolescents’ distributive justice reasoning, concerning financial rewards, has found that *egalitarianism* decreases in adolescence, while *utilitarianism* becomes more apparent (Fehr et al., 2013). This difference may reflect the importance of the context in the principles that adolescents refer to (Pnevmatikos, 2010). In the context of organ allocation, the dilemmas concern decisions about life and death. On the one hand, transplants are considered as limited societal goods and their distribution should maximise the benefits for society (Neuberger, 2003). On the other hand, equal access to these goods is an essential aspect of the field of transplantations (Douglas, 2003). Thus, adolescents seemed to consider equal access and maximum social benefit as equally important aspects of organ distribution. Additionally, 9.5% of participants’ justifications reflected ingroup favouritism. Ingroup bias in adolescence was also witnessed by Fehr et al. (2013).

 Concerning the role of moral emotions in adolescents’ preferences and justifications, empathy and altruism were associated with the choice and justification of certain criteria. *Altruism* was associated with *social* *categories*, namely *social* and *financial status*. More specifically, the participants who suggested that people with authority and high social status should have the priority, had low altruistic orientation. On the contrary, participants with high altruistic orientation evaluated adults’ suggestion to distribute transplants to poor people and the working class higher than students with medium and low altruistic orientation. This behaviour could reflect the greater concern for less fortunate people.

Finally, *fantasy* and *perspective taking* were the components of empathy that were associated with the suggestion of *age* and *the degree of medical urgency*. These components consist the cognitive aspect of empathy and reflect the tendency to see things from other perspectives (Davis, 1980). Thus, they may mediate in the choice of criteria. *The degree of medical urgency* was negatively associated with high level of *perspective taking* and positively associated with low level of *fantasy*. This association might indicate that participants with low levels of *fantasy* could not imagine, apart from medical, any other important factors that could contribute to organ allocation decisions. On the contrary, students with high level of *perspective taking*, might be sensitive to criteria other than medical. Furthermore *personal distress*, was associated with the principles that justify adolescents’ choices. Participants with high level of *personal distress* referred more often to egalitarianism, indicating that the higher the anxiety about other people’s experiences is, the higher the need for equality becomes. However, it should be mentioned, as a limitation of the present study, that the level of empathy and altruism might be affected by the discussion in focus groups and thus reflect more participants’ current emotional state rather than a general trait.

In conclusion, adolescents tend to refer both to *egalitarianism* and *utilitarianism* when they justify their preferences for organ allocation. It is argued that transplants are limited societal goods and their distribution should regard the greater benefit for society. However, what consists maximum benefit for society could be interpreted in many ways. This possibility of many interpretations could lead to bias and comparisons regarding individuals’ social worth. Considering that beliefs about an unjust allocation system are deterrent to organ donation (Peters et al., 1996), *utilitarianism* in organ allocation could enhance people’s distrust in distribution policies. Starting from this point, educational programs and health care policies that wish to promote organ donation and target to adolescents may consider the extent to which adolescents refer to *utilitarianism* when they argue about organ allocation and try to give prominence to equal access principles instead. An *egalitarian* framework in organ distribution may strengthen citizens’ involvement in organ donation.

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Appendix

Who Should Have the Priority for Transplantation?

Organ donors are few, waiting lists are long and the anxiety to find an available transplant is excruciating. Transplantees are in danger to be infected or even die because of the implications that could arise in the process of transplantation.

If you were responsible to compile a list of people that need organ transplantation, which recipients’ categories would you suggest to have priority in this list and have the transplantation surgery first?