Author's response to reviews

Title: Trust increases euthanasia acceptance: A multilevel analysis using the European Value Study

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Author's response to reviews: see over
Dear Simona Giordano, Dear Danica Jose,

thank you very much for having the paper reviewed and reviewing the paper yourself, respectively.

I really appreciate the very helpful advice of all three reviewers and addressed each of their requests and recommendations (see below).

In the following, the relevant text passages are shown in italic; changes compared to the first version are highlighted in yellow. The lines given refer to the revised manuscript.

For the advised language corrections a professional editing-service has proof-read the manuscript and also rechecked for formatting according to BMC Medical ethics guidelines.

**Review 1 Simona Giordano**

- **Request 1:** Trust’ is now defined earlier in the text (line 43-52):

  *Using data from the European Value Study [8], the influences of three kinds of trust on euthanasia attitudes are examined: trust towards other people in general; trust in the health care system; and confidence in monitoring institutions such as the press and the state. Trust in other people in general covers the perception of a benevolent human nature: this is the belief that other people in the society will abide by common ethical rules [9] and will not deliberately or knowingly do other human beings avoidable harm, but, if possible, will look after their interests [10]. Trust in in the health care system refers to having confidence that ill people are provided with all the therapies they need, thereby making involuntary euthanasia due to financial reasons less likely [c.f. 11]. Finally, confidence in the press and the state, especially with regard to their abilities in terms of justice and impartiality, might be important, because both institutions should guarantee that no abuses of euthanasia take place [12, 13].*

- **Requests 3 and 4:** The terms 'individualists' (line 83/84) and 'authoritarians' (line 85/86) as well as 'moral relativism' (line 90-92) have now been defined as well:

  *In addition, Kemmelmeier et al. [18] liaised the pro-euthanasia-argument of self-determination by showing that individualists (people who value being unique and independent) had rather positive opinions with regard to euthanasia acceptability, and those with authoritarian mindsets (people who value strict discipline and order) had more negative attitudes. Especially noteworthy, Verbakel and Jaspers [19] tried to derive potential attitude correlates from the four main pro- and anti-euthanasia arguments—the right for self-determination, death with dignity, religiosity, and slippery slope fears—with the latter describing the fear of abuse and involuntary deaths [20]. They found that people consenting to moral relativism (deeming guidelines about what is good and evil to be context-specific instead of applying to everyone and to all circumstances, which is a kind of moral autonomy [21]), and also people living in countries with a high level of moral relativism, were more supportive of euthanasia.*

- **Request 2:** Referring to the question what is meant with ‘positive attitudes to euthanasia’ I added: ...whether individuals accept or oppose the moral and legal notion of euthanasia... in line 65. But it might be mentioned that in the survey, participants were asked for the moral acceptability of euthanasia. Other studies cited have sometimes also asked for moral acceptance, sometimes for supporting euthanasia to be legal, sometimes for both and sometimes they have just asked for „acceptance“ not defining of which kind. Although there is a theoretical difference (see line 534-536), usually both opinions are highly correlated.
Requests 5 and 6: As requested all rather discipline-specific methodological terms referring to multilevel analyses are explained or described without using the explicit terms (line 324ff, 414ff, endnote f):

Data were introduced into a multilevel analysis using SPSS mixed models. Multilevel analyses in general are advisable when there are two (or more) levels of analysis, with one level (here individual people) nested in level two aggregates (here countries). Using this research method allows us to exclude the variability between higher units (countries) when observing the variability of subordinate levels (individual people). Therefore it leads to more accurate results, when independent variables are to be analysed at both the individual and the country level [for a detailed description of multilevel analysis see 87].

As recommended for multilevel models [87], country level variables were mean-centred for the regression analysis, that is, the regression intercepts show the value for a country with average levels of trust, confidence in health care, religiosity, Protestantism, moral relativism and postmaterialism, and the regression coefficients of the five variables indicate the increase or decrease relative to this hypothetical mean country. Indicators at the individual level were not centred, to make the trust/not-trust-dummy-variable easier to interpret.

Turning to the explanatory significance of the models, it should be noted in advance that assessing absolute model fits and explanatory powers in multilevel models is much more complicated than in single-level regressions, since the commonly used R-square statistic cannot be applied directly because variance in the dependent variable can originate from variance between level-one units (individual people) as also from variance between level-two units (countries) (for a detailed discussion see 87). Therefore, the first thing to do is to analyse how much of the variance is attributed to which of the levels. This is done by looking at the so-called null model (the model with no independent variables only accounting for variation between countries), and calculating so called interclass correlation coefficients (ICC), which state how much of the variance in the dependent variable of interest is caused by variance between level two units, rather than by variance between level one units (individuals). In the current dataset it turned out that overall 19.4 per cent of the variance in euthanasia attitudes could be attributed to between-country difference; meaning the attitude toward euthanasia differed more between individual people within countries than between countries, but to a considerable extent a person’s euthanasia attitude is influenced by the country he or she lives in.

Knowing this, the final model (model 5) explained about eight per cent of the within-country variance in euthanasia attitudes, and 84 per cent of the between-country variance. Comparing model 3 with the null model furthermore showed that about one third of the initial between-country differences in euthanasia attitudes were explained by the individual level variables included (model 3), and, as such, were compositional effects rather than real country characteristics. Very important for the study was the finding that individual level trust variables (model 1) accounted for only about 2 per cent of within-country differences in euthanasia attitudes, thereby having rather little impact. However, the two country level trust variables introduced in model 4 turned out to be highly relevant for explaining between-country differences in euthanasia acceptance, since they explained half of the between-country variance which had remained after the inclusion of all individual level variables (model 3). Further model fits for comparing the different models like deviance and Akaike’s Information Criterion (AIC) can be derived from table 3. These criteria should not be interpreted absolutely, but only for the purpose of selecting the model that fits best by searching for the lowest values. As can be seen, independent of the criterion used, each model is able to improve the data fit.
Notably, many of the independent variables might have been correlated, which could have biased the results, but including all variables seemed theoretically appropriate. Furthermore, multicollinearity was not an empirical problem, since the variance inflation factor (VIF) ranged from 1.02 to a maximum of 3.90, thereby being below any critical value [115]. The VIF gives evidence of the magnitude of collinearity by analysing how much of the variance in one independent variable can be explained by the other independent variables, and how far this inflates the standard error of that variable’s regression coefficient. It is disputable from which factor onwards collinearity is problematic, but usually only VIF higher than 10 are considered critical [115].

Requests 7 and 8: Finally, the fact that confidence in the health care system increased as well as decreased euthanasia acceptance – depending on whether the cultural climate of trust or a single persons’ level of confidence is considered – is explained in more detail (line 472ff and 512ff):

To explain the negative effect of individual level confidence in the health care system is less straightforward. The negative effect was contrary to the reasoning provided in the introduction since trust in the health care system was assumed to increase acceptance of euthanasia. However, it might indeed also be reasonable that trust decreases euthanasia acceptance. To clarify, on the one hand it was assumed that trust increases euthanasia acceptance, because trust should render fear of abuses less likely. On the other hand believing the health care system does not provide adequate care might as well shed a more positive light on euthanasia, as euthanasia might become more desirable in times of serious illness, if no adequate health care is available [c.f. 90]. This connection is one that some proponents of palliative care have also been drawing, namely those who expect better palliative care (as part of the health care system) to render the need for euthanasia less necessary [91]. Both effects have been found in the current study—a cultural climate of confidence in health care was related to more permissive euthanasia attitudes, but regarding differences between individual people, low confidence was related to slightly more permissive euthanasia attitudes (notably after having removed cross-country differences from the individual level due to using multilevel analysis). Hence, it seems that confidence in the health care system plays a different role at the country level than at the individual level. As already suggested in the introduction, a cultural climate of trust might shape euthanasia attitudes rather unconsciously through public debates, with the media paying no heed to risks and the potential slippery slope, so that those risks are not salient to the citizen. At the individual level however, the slightly negative effect of health care confidence on euthanasia attitudes might rather be attributable to conscious perceptions of health care confidence.

Similarly, further studies should clarify why confidence in the health care system has a different effect at the country level and at the individual level, such that people living in countries with a culture of high health care trust have much more positive attitudes toward euthanasia, while within the countries people who have confidence in the health care system are less in favour of euthanasia acceptance than people with less confidence, and whether the effect at the country level is indeed moderated by the valence of media reports and public debates as considered in the introduction. Ideally, a longitudinal study should be conducted to shed some more light on the causal relationships.
Review 2 Iain Brassington

- Minor revision 1: Regarding the legal safeguards in countries where euthanasia has been legalized (line 125ff) a remark is added that these procedures are not a universal necessity having to be adopted in every country, which is going to legalize euthanasia.

Notably, the specific procedures mentioned in the text (second physician, review committee) can indeed be found in all three countries that have already legalized euthanasia so far (regarding Assisted Suicide much more variance in the legal procedures can be found, e.g., between the US-states and Switzerland or Germany).

Notably, countries that have legalised euthanasia have established safeguards to prevent the slippery slope from occurring. For example, in Belgium, Luxemburg, and the Netherlands it is legally required that at least two physicians have to confirm that the wish to die is voluntary and well-considered, and in all three countries a review committee has to audit granted euthanasia cases post hoc [12, 38, c.f. 39]. Establishing legal requirements of due care is not in general a necessity, but surprisingly, the prevention of euthanasia’s slippery slope has only been looked at from this perspective of formal control [e.g. 40].

- Minor revision 2: The mentioned linguistic slips have been corrected and a native speaker checked the manuscript.

- Discretionary revision: The cause/ correlation aspect of the work has been addressed in more depth in the discussion (line 472ff and 512ff as well as line 520ff).

For line 472ff and 512ff as see above, Review 1, bullet point 5.

Line 520ff: Notably, a longitudinal study would also be worthwhile for looking at possible trust-euthanasia-loops, in terms of thinking not only of the effect of trust on euthanasia acceptance, but also the effect of euthanasia practices on trust. This reversed relationship would seem interesting as well, since prior to the current study the euthanasia-trust-debate had been pursued on exactly that reversed relationship, i.e. on potential decreases in trust (especially regarding trust in physicians) because of euthanasia [97-99]. The (still) high levels of trust in the health care system in Belgium, Luxemburg, and the Netherlands might suggest that legalisation has not eroded trust. However, social climates of trust need a long time to change [61]. It would be a worthwhile, although lengthy, endeavour to clarify how trust and euthanasia attitudes and practice, respectively, shape each other, and whether the potential negative, positive, or non-existing effect of legal euthanasia on trust depends on the initial levels of trust.

Review 3 Joachim Cohen

- Discretionary revision abstract: Line 17: The direction of the association between trust and euthanasia is given now by having added ‘positively’ to ‘linked’. I did not want to use causal language since a causal relationship in the direction of trust to euthanasia attitudes cannot be taken for sure in this paper (see discussion):

It was shown that the level of trust in a country was strongly positively linked to euthanasia attitudes, both for general trust and for confidence in health care.
• Discretionary revisions introduction: The reference to limiting life-sustaining medical treatment has been skipped, while the two recommended references have been (line 183 and line 192, respectively):

An anecdotal comparison of studies from trust research with studies on end-of-life-attitudes indicates that countries with a liberal attitude toward euthanasia, i.e. Scandinavian countries [19, 49, 59, 60], indeed also exhibit high trust levels [e.g. 61]. In contrast, in countries with low trust, a rather conservative stance toward euthanasia can be observed (e.g. in Eastern Europe).

…

Similarly, they have proposed a pro-assisted-dying opinion in the medium to high trust countries of Australia [66], the USA [67], Canada [68], Britain [69, 70] and Belgium [c.f., 71].

• Discretionary revisions methods: As mentioned and shown above, the term moral relativism is explained (Review 1, bullet point 2) and all statistical terms are explained now (Review 1, bullet point 4).

• Discretionary revision results: Results that were in the text but not in the tables before have now also been added to the tables.

• Discretionary revision tables: Table – use of bold: Bold face was indeed thought of to denote variables of interest and it was just a mistake that some main variables were not printed in bold. I have removed the bold face in the whole table.

• Discretionary revisions Discussion: As mentioned above (Review 1, bullet point 5), the contradictory effect of confidence in health care at the individual and the country level was put a finer point on (line 472ff and 512ff).

Furthermore, as recommended the potential reversed effect of euthanasia practice on trust is mentioned and reflected on in the discussion (line 520ff; see Review 2, bullet point 3).

The section about social capital was stripped-down (line 506ff):

Concerning the strong country effect of general trust explicitly, a detailed look might also be given to potential explanations in light of social capital theory, since trust can also be understood as a constituent part—or at least a very closely linked consequence or antecedent—of social capital [85], and high levels of trust and social capital at the country or community level have been shown to decrease crime and fear of crime [86-88]. In the same way, a culture of trust might decrease slippery slope fears. In terms of social capital theory, a culture of trust also goes together with solidarity between people [89] which might also reduce the likelihood of pressure being applied to make a societal slippery slope request for euthanasia less likely to happen [90]. Looking at the reported effects from the view of social capital theory might in addition explain the unexpected negative interaction effects between country level trust and individual level trust, since the social capital literature has found not only reinforcement effects (as initially assumed), but also compensatory effects [91] go together with solidarity between people [93] and to decrease crime, and fear of crime [94-96].
I hope that all recommendations of all three reviewers have been met. If not, of course further clarifications would be possible.

Kind regards,

Vanessa Köneke