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Individual Differences in Conceptions of Soul, Mind, and Brain

Marjaana Lindeman, Tapani Riekk, and Annika M. Svedholm-Häkkinen

Division of Cognitive Psychology and Neuropsychology, Institute of Behavioural Sciences, University of Helsinki, Finland

Abstract. We examined how people see the role of the brain, the mind, and the soul in biological, psychobiological, and mental states. Three clusters of participants were identified. The monists attributed biological, psychobiological, and mental processes only to the brain, the emergentists attributed the processes to the brain and to the mind, and the spiritualists attributed the processes to the brain, the mind, and the soul. Most participants attributed all states more to the brain than to the mind or soul. Beliefs, desires, and emotions were thought of as more likely to continue after death than other states, but belief in immortal souls was rare and only found among those who also held religious and paranormal beliefs. The results indicate that laypeople may see beliefs, desires, and emotions as both states of the mind, of the soul, and of the brain; that there are large individual differences in how the concept of the soul is understood, and that in lay conceptions, the idea that the processes of mind are processes of brain does not exclude supernatural brain-soul dualism.

Keywords: mind, soul, brain, afterlife, supernatural beliefs

People's high level of afterlife beliefs is often taken to indicate that people have a natural and universal tendency to separate the mind from the body and to believe in an immortal soul. The belief that mental processes can continue after the body has died is one expression of dualism. Dualism can take many forms but the common feature is the assumption that the mental and the physical (i.e., brain) are, in some sense, different kinds of things (Stanford Encyclopedia of Philosophy, 2012). Several scholars have characterized dualism as the default cognitive stance, a ubiquitous outlook of laypeople (Bering, 2006; Bloom, 2007; Forstmann, Burgmer, & Mussweiler, 2012; Jennings, 2004). However, little is known about how contemporary Western adults see the relationships between the soul, the mind, and the brain.

Earlier studies have shown that people believe that the processes most likely to survive death are emotions, desires, and epistemic processes, while biological or psychobiological states, such as feeling sleepy, are thought to cease (Astuti & Harris, 2008; Bek & Lock, 2011; Bering & Bjorklund, 2004; Harris & Giménez, 2005; Pereira, Faisca, & de Sa-Saraiva, 2012). Emotions, desires, and epistemic processes are states that we attribute to the human mind from early childhood (a review: Wellman & Gelman, 1998). Nonetheless, the same states are from school age also attributed to the brain, that is, to a part of the body (Corriveau, Pasquini, & Harris, 2005; Johnson & Wellman, 1982; Marshall & Comalli, 2012). These findings raise the

question: do people think, like scientists do, that the brain is most essential for the basic mental processes, or that some of these processes are independent of the brain and may continue after death, or something between these views?

Further, although the above studies indicate that it is the fundamental properties of the human mind that are believed to survive death, other studies indicate that people do not call the immortal part of a person the mind, but rather the soul (Richert & Smith, 2012). From this, researches have concluded that people distinguish between these two non-physical concepts: the soul and the mind (Astuti & Harris, 2008; Nichols, 2008). Thus, it has been suggested that besides the awareness that people have minds and bodies, the notion of an immortal soul is a third, universal intuition that human beings have about other human beings (Bering, 2006; Richert & Harris, 2008; Richert & Smith, 2012). This notion leads to the question of how people see the role of the soul, with respect to the mind and brain, in diverse human processes.

The present study was designed to address these issues by investigating the differences between people's beliefs about the brain, the mind, and the soul. The key research question was how Western adults conceive the necessity of the brain, the mind, and the soul for emotions, desires, beliefs, and for biological and psychobiological states. Because we believe it is fruitless to look for one answer that would apply to all participants, we examined what types of natural groups of individuals can be found as regards these

beliefs. To identify these groups, we used cluster analysis, which classifies participants into homogeneous groups by searching for patterns of variable combinations. The study was conducted with Finnish participants. Contrary to a rather common misunderstanding, Finland is not a secular country (church and state are not separated) and over 70% of polled Finns believe in God (Global Index of Religiosity and Atheism, 2012; The Church Institute, 2012), like people in the world in general do (Global Index of Religiosity and Atheism, 2012).

In particular, we expected that there would be meaningful differences in who believes in an afterlife. Because in everyday language, the very essence of the soul concept is a supernatural, immortal spirit, we expected that participants who attribute processes to the soul believe in an afterlife more than other participants do (Hypothesis 1). For the same reason, and based on earlier findings (Roazzi, Nyhof, & Johnson, 2013), we expected that participants who attribute processes to the soul have more religious and other paranormal beliefs than others (Hypothesis 2).

Method

Participants and Procedure

The participants were Finnish volunteers ($N = 552$, 307 female, mean age 29.2 years, range 15–66). Their educational background varied from elementary school (6%) to finished university degrees (24%). Thirty-nine percent were working, 40.1% were full-time students and the rest were otherwise occupied. The participants were recruited via electronic student mailing lists and Internet discussion forums.

Measures

Continuity beliefs, that is, beliefs about whether various processes may survive death, were assessed with questions taken from Bering and Bjorklund (2004). All 21 items began with the phrase “When a person is dead, is she or he still able to...” (0 = no, 1 = yes). The subscales were biological processes (Cronbach's $\alpha = .76$), psychobiological processes ($\alpha = .90$), perception ($\alpha = .88$), desire ($\alpha = .95$), emotions ($\alpha = .90$), and beliefs ($\alpha = .95$). Both mean scores of these six subscales and a mean score of overall continuity beliefs ($\alpha = .94$) were used.

Next, the participants were presented with four scales to be used in other studies. These were two questionnaires about cognitive inhibition (Broadbent, Cooper, Fitzgerald, & Parkes, 1982; Wegner & Zanakos, 1994), a multiple choice prisoner's dilemma game (Goerg & Walkowitz, 2008), and the Portrait Values Questionnaire (Schwartz et al., 2001). After that, necessity beliefs were assessed. The participants were again presented with the same 21 processes and requested to indicate their views about the necessity of brain, mind, and soul in these processes.

An example item is: When a person is thirsty, it necessitates (a) brain (1 = *strongly disagree*, 5 = *strongly agree*); (b) mind (1 = *strongly disagree*, 5 = *strongly agree*); (c) soul (1 = *strongly disagree*, 5 = *strongly agree*). We calculated overall scores for the *necessity of brain* ($\alpha = .84$), *mind* ($\alpha = .93$), and *soul* ($\alpha = .97$), as well as separate scores for the necessity of each of these three entities for each of the six subscales.

Belief in immortality of the soul was assessed with a statement derived from Tobacyk's (2004) Revised Paranormal Belief Scale (RPBS): “The soul continues to exist though the body may die” (1 = *strongly disagree*, 5 = *strongly agree*). Other *paranormal beliefs* were measured on a 5-point scale with 16 items on psi, witchcraft, precognition, and superstition from the RPBS ($\alpha = .93$). *Religiosity* was assessed using 16 items from the Fetzer Brief Multidimensional Measure of Religiousness/Spirituality ($\alpha = .97$, Neff, 2006). The original scale includes 20 five-point items but four items were excluded because even atheists could agree with them (e.g., “I feel deep inner peace or harmony”).

Results

Continuity of Psychological and Psychobiological Processes

First, continuity beliefs were compared with paired-samples *t*-tests. Because the judgments for perception and emotions were at the same level, these variables were combined. The processes were assumed to continue after death in the following order: beliefs ($M = 0.28$, $SD = 0.42$), desires ($M = 0.26$, $SD = 0.42$), perception and emotions (pooled $M = 0.21$, $SD = 0.35$), biological processes ($M = 0.12$, $SD = 0.26$), and psychobiological processes ($M = 0.09$, $SD = 0.24$). The differences between these means were significant, *t*-values = 2.73–9.40, *p*'s < .01–.001.

Identifying Groups With Different Conceptions

To distinguish groups of people who attributed the processes differently to the soul, mind, and brain, a hierarchical cluster analysis was conducted with squared Euclidian distance and the Ward minimum variance clustering algorithm. The three-cluster solution was selected as the best fitting solution on the basis of the cluster content and because the next steps in the clustering process did not reveal important information. Table 1 shows the means of attributions among the participants in Cluster 1 (labeled as *monists*, $N = 41$), Cluster 2 (*emergentists*, $N = 247$), and Cluster 3 (*spiritualists*, $N = 264$).

To compare how the clusters conceived the necessity of the brain, the mind, and the soul for all processes, we conducted a three-way repeated-measures ANOVA with the cluster as the dependent variable and the entity (brain,

Table 1. The three participant groups' views on the extent to which biological and psychological processes necessitate brain, mind, or soul (1 = no, 5 = yes)

	Monists	Emergentists	Spiritualists	All
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Overall				
Brain	4.92 (0.19)	4.86 (0.24)	4.68 (0.45)	4.78 (0.37)
Mind	1.28 (0.41)	3.95 (0.75)	4.24 (0.54)	3.89 (0.98)
Soul	1.03 (0.10)	1.22 (0.39)	3.62 (0.76)	2.35 (1.35)
Biological processes				
Brain	4.78 (0.40)	4.69 (0.49)	4.63 (0.55)	4.67 (0.51)
Mind	1.28 (0.47)	3.18 (1.09)	3.55 (0.86)	3.22 (1.11)
Soul	1.00 (0.04)	1.18 (0.38)	2.98 (1.07)	2.05 (1.21)
Psychobiological processes				
Brain	4.91 (0.40)	4.89 (0.34)	4.69 (0.60)	4.80 (0.47)
Mind	1.18 (0.32)	3.54 (1.13)	3.94 (0.90)	3.58 (1.22)
Soul	1.00 (0.04)	1.14 (0.33)	3.13 (1.10)	2.08 (1.28)
Perception				
Brain	4.97 (0.21)	4.97 (0.13)	4.81 (0.47)	4.92 (0.32)
Mind	1.12 (0.28)	3.52 (1.26)	3.86 (0.98)	3.53 (1.30)
Soul	1.00 (0.00)	1.13 (0.34)	3.18 (1.21)	2.12 (1.35)
Desires				
Brain	4.98 (0.10)	4.85 (0.45)	4.57 (0.75)	4.74 (0.60)
Mind	1.34 (0.57)	4.51 (0.72)	4.62 (0.58)	4.34 (1.08)
Soul	1.01 (0.09)	1.24 (0.54)	4.00 (0.93)	2.55 (1.59)
Emotions				
Brain	4.94 (0.22)	4.85 (0.43)	4.52 (0.80)	4.73 (0.60)
Mind	1.44 (0.63)	4.47 (0.73)	4.66 (0.49)	4.35 (1.04)
Soul	1.06 (0.31)	1.29 (0.59)	4.23 (0.80)	2.67 (1.64)
Beliefs				
Brain	4.93 (0.24)	4.89 (0.29)	4.71 (0.49)	4.82 (0.39)
Mind	1.39 (0.55)	4.46 (0.73)	4.58 (0.56)	4.31 (1.04)
Soul	1.07 (0.21)	1.37 (0.66)	4.04 (0.78)	2.63 (1.53)

mind, and soul) as the independent variable. The interaction of cluster \times entity was significant, $F(4, 1096) = 570.45$, $p < .001$, $\eta_p^2 = .701$, indicating that the clusters differed significantly in their judgments. As Table 1 shows, the most important between-group differences were that the emergentists regarded the mind as more necessary overall than the monists did, $F(1, 286) = 498.25$, $p < .001$, $\eta_p^2 = .635$, and that the spiritualists regarded the soul as more necessary overall than the emergentists and monists did, $F(1, 550) = 2320.86$, $p < .001$, $\eta_p^2 = .808$.

Within-group comparisons showed that all groups regarded the brain as more necessary overall than the mind: The differences were significant for the monists, $F(1, 40) = 2295.58$, $p < .001$, $\eta_p^2 = .983$, for the emergentists, $F(1, 246) = 382.24$, $p < .001$, $\eta_p^2 = .608$, and for the spiritualists, $F(1, 263) = 158.61$, $p < .001$, $\eta_p^2 = .376$. Similarly, the mind was seen as more necessary overall than the soul by the monists, $F(1, 40) = 16.62$, $p < .001$, $\eta_p^2 = .293$, by the emergentists, $F(1, 246) = 2739.68$, $p < .001$, $\eta_p^2 = .918$, and by the spiritualists, $F(1, 263) = 203.82$, $p < .001$, $\eta_p^2 = .437$.

Supporting Hypothesis 1, spiritualists had higher overall continuity beliefs ($M = 0.35$, $SD = 0.35$) than monists ($M = 0.01$, $SD = 0.05$), $F(1, 303) = 39.86$, $p < .001$,

$\eta_p^2 = .116$, or emergentists ($M = 0.06$, $SD = 0.18$), $F(1, 509) = 142.86$, $p < .001$, $\eta_p^2 = .219$. Spiritualists also believed more ($M = 3.52$, $SD = 1.37$) in the immortality of the soul than monists ($M = 1.15$, $SD = 0.52$), $F(1, 303) = 119.94$, $p < .001$, $\eta_p^2 = .284$, and emergentists ($M = 1.47$, $SD = 0.99$), $F(1, 509) = 369.52$, $p < .001$, $\eta_p^2 = .421$. In percentages, 56% of the spiritualists agreed or strongly agreed that the soul is immortal. The corresponding figure for monists was 0%, and for emergentists 6.9%. Even those spiritualists who agreed that the soul is immortal, regarded the brain as more necessary than the mind, $F(1, 148) = 57.46$, $p < .001$, $\eta_p^2 = .280$, and the mind as more necessary than the soul, $F(1, 148) = 76.11$, $p < .001$, $\eta_p^2 = .340$.

Supporting Hypothesis 2, spiritualists had more paranormal beliefs ($M = 2.07$, $SD = 0.72$) than monists ($M = 1.22$, $SD = 0.14$), $F(1, 303) = 57.23$, $p < .001$, $\eta_p^2 = .159$, and emergentists ($M = 1.39$, $SD = 0.44$), $F(1, 509) = 59.36$, $p < .001$, $\eta_p^2 = .245$. Spiritualists were also more religious ($M = 2.65$, $SD = 1.07$) than monists ($M = 1.20$, $SD = 0.41$), $F(1, 302) = 72.63$, $p < .001$, $\eta_p^2 = .194$, and emergentists ($M = 1.34$, $SD = 0.58$), $F(1, 508) = 219.00$, $p < .001$, $\eta_p^2 = .363$. For the correlations between these and other variables in the study, see Table 2.

Table 2. Correlations between the variables

	1	2	3	4	5	6
1. Overall continuity beliefs						
2. Belief in immortal soul	.74***					
3. Paranormal beliefs	.53***	.67***				
4. Religiosity	.68***	.76***	.56***			
5. Necessity of brain	-.22***	-.25***	-.25***	-.17***		
6. Necessity of mind	.20***	.30***	.24***	.28***	.04	
7. Necessity of soul	.50***	.70***	.55***	.67***	-.18***	.40***

Note. *** $p < .001$ (two-tailed).

Demographics of the Cluster Members

The proportion of females in the spiritualists cluster was higher (74.4%) than among the emergentists (39.4%) or among the monists (36.6%), $\chi^2(1) = 69.64$, $p < .001$. In addition, religious affiliations, $\chi^2(12) = 83.18$, $p < .001$, the field of study among the university student participants, $\chi^2(34) = 57.60$, $p = .007$, and the field of work among those who were working, $\chi^2(38) = 68.33$, $p = .002$, differed across the clusters. Because these demographic variables had large numbers of categories, the frequencies in most cells were very small. To avoid type II error, we did not conduct specific comparisons but below we illustrate some of the differences that stand out between the clusters.

Monists (70%) and emergentists (60.1%) more often had no religious affiliation than the spiritualists (24.5%). The most common affiliation among all clusters was Christian. Among those emergentists and spiritualists who were university students, the most common faculty was behavioral sciences (22.1 and 27.3%, respectively); the spiritualists also studied in the faculty of social sciences more often (16.7%) than other participants. Among those monists who were university students, 63.6% studied at the faculty of science (compared to 9% of the spiritualists and 47% of the emergentists). The most common field for spiritualists who were working was education (9.2%) whereas the most common field of work for monists and emergentists was technology (22.7% and 29.3%, respectively). The clusters did not differ in age, $F(2, 549) = 0.39$, $p = .68$, in completed education, $\chi^2(12) = 8.36$, $p = .76$, in field of study in vocational school, $\chi^2(14) = 20.44$, $p = .10$, in the number of years the university student participants had been studying, $\chi^2(10) = 7.63$, $p = .67$, or whether the cluster members were students or working, $\chi^2(12) = 14.09$, $p = .30$.

Discussion

It is often assumed that laypeople intuitively separate the mind and the body and that the idea of an immortal soul is natural. The present results qualified these generalizations and identified important individual differences in conceptions about the afterlife and the mind-body distinction.

Supporting the arguments of Bering and Bjorklund (2004) and Bloom (2007), the processes that our participants believed to continue after death were beliefs, emotions, perceptions, and desires. Biological and psychobiological processes were more often believed to cease at death. These findings are in line with earlier results obtained with children and adults from Madagascar, Spain, Portugal, the UK, and the US (Astuti & Harris, 2008; Bek & Lock, 2011; Bering & Bjorklund, 2004; Harris & Giménez, 2005; Pereira et al., 2012).

The participants were also asked how they attribute the above mental, psychobiological, and biological processes to the brain, the mind, and the soul. The smallest cluster of participants, the monists, attributed all processes only to the brain; 45% of the participants (the emergentists) attributed the processes to the brain and the mind, and only the spiritualists (48%) attributed the processes to the brain, the mind, and the soul. Half of the spiritualists agreed that the soul is immortal. The spiritualists also believed in the continuity of the processes after death, and they had more religious and other paranormal beliefs than other participants, as hypothesized. Unlike the monists and the emergentists, the spiritualists were more often females, affiliated with a specific religion, they studied behavioral and social sciences and worked in the field of education. These demographic characteristics are similar to those obtained for both religious and other paranormal believers (reviews: Irwin, 2009; Miller & Hoffmann, 1995; Vyse, 2014), bolstering the notion that an immortal soul is a salient conception not only for religious believers but also for people who believe in other paranormal phenomena or superstitions, such as telepathy or horoscopes.

As a whole, these findings have three implications. First, all three participant clusters endorsed the view that the brain is the most necessary entity for all mental, psychobiological, and biological processes. Even those spiritualists who believed that the soul is immortal gave the highest necessity rating to the brain. These results imply that in contrast to scholarly mind-body discussions, in lay conceptions the idea that mental processes are processes of brain does not exclude supernatural brain-soul dualism, but both views can coexist side by side. These findings extend earlier observations that have shown that scientific and supernatural conceptions can coexist, for example concerning magic

spells (Subbotsky, 2001), sickness (Legare & Gelman, 2008), and death (Astuti & Harris, 2008). In sum, whereas several researchers have underscored that mind-body dualism is a pervasive and universal lay theory, our results point out that even dualists can think, like scientists do, that mental processes are functions of the brain.

Second, as the emergentists and the spiritualists agreed that both the brain and the mind are needed for mental and other processes, and yet saw the role of the mind in a different way than the role of the brain, they can be characterized as dualists. Accordingly, a vast majority of the present participants (93%) were dualists. However, only a third of them (i.e., 56% of the spiritualists and 6.9% of the emergentists) accepted that people can think and feel even after death. This type of dualism where the mind and the body are seen as fundamentally separate entities is called radical or Cartesian dualism (Stanford Encyclopedia of Philosophy, 2012). Around two thirds of the present dualists, in turn, might be characterized as property dualists as they did not believe in immortality and yet they considered that there is some kind of ontological distinction between the mind and the brain. The results highlight the variability in laypeople's dualism and indicate that lay dualism should not be equated with radical dualism and afterlife beliefs, as has often been done.

Third, besides cultural differences (Roazzi et al., 2013), there are large individual differences in how the concept of the soul is understood. Only half of all participants viewed the soul as important for mental or biological processes, and only half of them believed that the soul is immortal. Accordingly, the belief that people have immortal souls may not be a universal intuition (cf., Richert & Smith, 2012), but rather the soul is an idea that only supernatural believers conceive of as being immortal, some others see it as a useless concept altogether, and yet others may interpret the soul differently, probably as something like the core of individual personality which ceases at death.

The present results must be considered tentative given that the study was conducted in only one country (Finland), where the soul concept might be understood differently than, say, in America. In addition, as a reviewer rightly pointed out, the questions about the necessity of the soul, the mind, and the brain were problematic: For example, the necessity of the mind may mean different things for individuals who separate the mind from the brain and for individuals who consider these concepts to be the same. Moreover, persons who do not believe in a soul and persons who do believe in a soul, but who believe that the soul dies with the body, may give the same answer to the item "The soul continues to exist though the body may die." Although we were here able to differentiate these two groups of participants, future studies should use less ambiguous questions.

In conclusion, the results do not contradict the argument that people have a natural tendency to separate the mind from the body. However, the results indicate that lay dualism does not exclude the understanding that the brain is necessary for mental processes. The results also point out that strong generalizations about dualism, afterlife beliefs, and people's conceptions about the soul are unwarranted. They may not be a part of our shared human nature, but

outlooks whose deeper understanding requires research on individual differences.

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Marjaana Lindeman

Division of Cognitive Psychology and Neuropsychology
 Institute of Behavioural Sciences
 University of Helsinki
 PO Box 9
 00014 Helsinki
 Finland
 E-mail marjaana.lindeman@helsinki.fi
