The effect of enclothed cognition on empathic responses and helping behaviour

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Abstract

Based on the enclothed cognition framework, we tested whether the physical experience of wearing a tunic and identifying it with a nursing scrub may enhance empathic and helping responding, compared to the solely physical experience of wearing the scrub or associating with its symbolic meaning. Results of Study 1 (United Kingdom; n = 150) showed that participants who wore a tunic and identified it with a nursing scrub reported higher empathic concern and helped more in a punctual scenario, compared to the other two conditions. Results of Study 2 (Spain; n = 100) supported findings from Study 1 and also showed that participants who wore a tunic and identified it with a nursing scrub volunteered more hours and showed higher response latency for altruistic motivation relevant words. Thus, the current research supports the enclothed cognition framework and shows that it also affects vicarious emotions and prosocial behaviour.

Keywords: enclothed cognition; clothing; empathic concern; helping.

The effect of enclothed cognition on empathic responses and helping behaviour

Research in psychology has extensively investigated the factors that may lead people to experience empathic concern and to help others (see Batson, 2011 for an overview). Although most research has been focused on the explicit regulation of these processes (Batson, 2011), some studies have shown that they can be changed through subtle priming techniques (Nelson & Norton, 2005). For instance, Macrae and Johnston (1998) showed that priming participants with helping-related words made them more likely to help someone to pick up spilled pens. In another study, Nelson and Norton (2005) showed that priming participants with the category *superhero* made them more likely to commit to future volunteering.

Early research on priming and prosocial responding focused on the effects of clothes. Namely, two studies showed that wearing a nursing uniform was linked to the reduced likelihood of administering electric shocks (Gergen, Gergen, & Barton, 1973; Johnson & Downing, 1979). Although these studies provided a good first step, their results did not determine whether the obtained effects were due to an increase in empathic emotional responding. Furthermore, these studies did not test whether their motivation to not administer the shocks was altruistic (i.e., the goal of helping was focused on increasing others' well-being) or egoistic (i.e, the goal of helping was focused on reducing one's own distress or receiving rewards). Finally, from these studies it is not possible to know whether the effects would be replicated if participants were only exposed to the primes (i.e., nursing uniforms), without actually having to wear them.

Recent research on the effect of clothes as primes conducted by Adam and Galinsky (2012) has shown qualitative differences between *wearing* and *seeing* an item of clothing when assigning a meaning to it. Results from their research showed that people wearing a

white coat *and* identifying it as a doctor's coat showed increased sustained attention, compared to those who just identified with the coat or who wore the coat but identified it as a painter's coat. Adam and Galinsky (2012) argue that their *enclothed cognition* framework is actually different from embodied cognition because the link between the physical experience and its symbolic meaning is indirect, as it is the item of clothing that carries the symbolic meaning not the actual physical experience of wearing the piece of clothing. A similar study showed that students wearing a white lab coat displayed higher attentional control towards problem solving (Van Stockum & De Caro, 2014). Overall, results from these two studies have shown that wearing and identifying a clothing item with a specific meaning may involve cognitive consequences. However, these previous studies have overlooked the emotional and behavioural consequences of the enclothed cognition framework.

The present research

Given the limitations of Johnson and Downing's study, in the present research we aimed to test the enclothed cognition framework on the emotional response and prosocial behaviour of individuals when wearing and/or identifying with a scrub. We chose a tunic or scrub as they are still predominately identified as belonging to the nursing field (Houweling, 2014). Thus, wearing a nursing tunic may be associated with the concepts of empathic concern, care, and prosocial behaviour. To confirm that people do indeed associate scrubs with these concepts, we conducted a pilot with 41 people (23 women, 18 men, age range from 19 to 36 years, M = 28.16; SD = 5.10) from the authors' institution participation pool system. Participants were shown the picture of a blue tunic (Appendix A) identical to the one used in the study. Participants rated the extent to which they associated the blue tunic with compassion, caring, and helping on a scale from 1 (not at all) to 5 (extremely). An association was considered to exist if it was rated significantly above the midpoint of the scale (Galinsky & Moskowitz, 2000). Results showed that participants held strong associations between the

tunic and the concepts of compassion (M = 3.75; SD = 1.09; t (40) = 6.33, p = .001), caring (M = 3.49; SD = 1.20; t (40) = 6.46, p = .001), and helping (M = 3.54; SD = 1.03; t (40) = 5.24, p = .001).

Study 1

To test whether the enclothed cognition framework may affect vicarious emotional responses and helping behaviour we asked participants to either wear a tunic *and* identify it with a nurse's or a cleaner's tunic, or just identify it with a nursing tunic. Following the findings obtained from the enclothed cognition framework, we hypothesized that participants who wore the tunic *and* identified it with a nursing tunic would exhibit the highest levels of empathic concern and helping behaviour, and the lowest helping reaction times. Concerning personal distress we did not expect a priori differences between conditions because the emotional manipulation used in the study (i.e., break up story) did not contain any sign of physical distress, which previous literature has linked with a higher experience of personal distress than empathic concern (e.g., Batson, 2011; Davis, 1994). Given that null-effects may happen for different reasons (Branch, 2014) we decided to explore any possible patterns, as empathic concern and personal distress usually co-occur (Batson, 2011).

Method

Participants. One-hundred and fifty adults (120 women, 30 men; M_{age} = 22.11 years, SD = 1.74 years, age range 18 – 54 years) from southern England participated. Participants were recruited from a participant pool at the authors' institution (comprised of university students and people unrelated to the university) and took part either for course credit or £4.

Procedure. Participants were tested in separate cubicles, so they could not see each other. We controlled for closeness so participants in the same session did not know each other.

As a cover story, participants were told that they were taking part in a communication study. There were three different conditions. In the *wearing-a-nurse's-scrub condition*, participants were asked to wear a disposable blue scrub described as a hospital nurse's tunic. In the *wearing-a-cleaner's-scrub condition*, participants wore the same disposable blue scrub, but this time it was described as a cleaner's tunic. As a cover story, participants were told they had to wear the scrubs to minimize differences among participants during the communication process. In the *identifying-with-a-nurse's-scrub condition*, participants saw a disposable blue scrub described as a nurse's tunic displayed on the desk in front of them throughout the entire experiment. Participants in the three conditions were told that they had to write about a specific topic chosen randomly by the computer and that this information would be swapped between participants to evaluate participants' perceptions of others' communications. The manipulation used was a replication of Adam and Galinksy's (2012) Study 3. In fact, all participants in the wearing-a-nurse's-scrub and wearing-a-cleaner's-scrub conditions wrote an essay about their thoughts on the tunic (e.g., how the scrub would look on nurses/cleaners). Participants in the identifying-with-a-nurse's-scrub wrote an essay about how they identified with the scrub (e.g., how the scrub would represent them and would have a specific personal meaning).

Following this, participants put their writing into an envelope, which was ostensibly swapped with another participant. Thus, participants believed they had received what another participant had written. Actually, all participants received the same handwritten fictional communication taken from Batson et al. (2007) which described a break up story (see Appendix B). The gender of the sender was matched to the participant's (Batson, 2011; Davis, 1994).

Then, participants completed the Empathic Response Scale (Batson, Fultz and Schoenrade, 1987) to assess their emotional reaction towards the ostensibly other distressed

participant. The version used is formed by 12 emotional terms, with a 7-point Likert response format (from 1 = not at all to 7 = extremely). This scale was used to assess situational empathic concern (i.e., calculated by averaging participants' responses to the following terms: *warmth*, *softhearted*, *tenderness*, *moved*, *compassionate*, and *sympathetic*; α = .80 in this study) and personal distress (i.e., calculated by averaging participants' responses to the following terms: *upset*, *grief*, *sorrow*, *distressed*, *worried*, and *anxious*; α = .77 in this study). We assessed both emotional reactions separately as previous literature has found different effects on helping behaviour (Batson, 1991; 2011; Davis, 1994).

Finally, participants completed three trials and three rounds of the Zurich Prosocial Game (ZPG; Leiberg, Klimecki & Singer, 2011), which is an indirect measure of prosocial behaviour. In the game, each participant navigated a virtual character along a path to reach a treasure within a pre-specified time; each treasure was worth a chocolate bar. Each participant played ostensibly with the participant from whom they had received the communication; however, all participants played with a computer-simulated participant. To reduce demand effects participants were told that the aim of the game was to get the maximum number of points in order to win chocolate bars. Players in the game did not strive for the same treasure and used different paths; therefore, there was no competition in the game. The players were equipped with red and blue keys that opened gates of corresponding colours that could fall on the paths. When a player was trapped in front of a gate and did not have the respective key, the other participant could use her/his keys (if s/he had one of the correct colours) to open the gate for the other player (see Appendix C for a screenshot of the game). The frequency of opening the gate for the other player was the measure of prosocial behaviour in the ZPG and it did not depend on the other player's helping. Therefore, the game provided a dichotomous measure of helping (i.e., yes vs. no) and a continuous measure (i.e., reaction time for helping the other participant). Participants played three trials of the

game in the no help condition (i.e., trial in which neither the participant nor the other player is in need of help), so they could become familiar with the game and learn the rules. After that, participants played three rounds of the game in a random order; namely, two rounds of the no help condition, which serve as a baseline and a round of the reciprocity unfair game (i.e., game in which the participant can help the other player after the other player has not helped him/her before). Thus, our analyses were focused on comparing the differences conditions in this latter game. After playing the game, participants received the correct number of chocolate bars they had won depending on the number of points gained during the game. Finally, participants were fully debriefed about the aims of the study. Three participants showed suspicion and were replaced (two participants from the *wearing-a-cleaner's-scrub condition* and one participant from the *wearing-a-nurse's-scrub condition*).

Results and Discussion

Emotional reactions. We submitted the scale of empathic concern to a one-way ANOVA, which yielded a significant main effect for the experimental condition; F (2,147) = 16.51, p = .001, η^2 =.19. Namely, participants in the wearing-a-nurse's tunic condition reported higher empathic concern, followed by participants in the identifying-with-a-nurse's tunic, and participants in the wearing-a-cleaner's tunic conditions (see Table 1). To conduct post-hoc comparisons Bonferroni statistic was chosen to control for multiple comparisons, as it is a conservative test and has more power when the number of comparisons are small (Field, 2009). Post-hoc comparisons with Bonferroni statistic revealed that participants in the three experimental conditions were significantly different from each other (ps = .001). Concerning personal distress, there was no effect for the experimental condition; F (2,147) = 2.48, p = .09, η^2 = .03 (see Table 1).

Helping behaviour. Overall, 51.3 % of participants helped the ostensibly other participant regardless of their experimental condition in the reciprocity unfair game. When analysing by the experimental condition, 88% of participants in the wearing-a-nurse's tunic condition helped, compared to the 50% of participants in the identifying-with-a-nurse's tunic condition, and 16% of participants in the wearing-a-cleaner's tunic condition; $\chi^2_{(2)} = 51.93$, $p = .001$.

When analysing reaction time for helping, overall, participants showed an average reaction time of 1797.27 milliseconds (*SD* = 1306.66). When analysing the effect of the experimental condition, results showed there were significant differences between groups (F (2, 108) = 10.14, $p = .001$, $\eta^2 = .16$). Thus, participants in the wearing-a-nurse's tunic condition were faster to help compared to participants in the identifying-with-a-nurse's tunic condition and compared to participants in the wearing-a-cleaner's tunic condition (see Table 1). Post-hoc comparisons with Bonferroni statistic showed that all groups were significantly different form each other (*ps* = .001).

Finally, we conducted a mediation analysis to test the effect of empathic concern in the relationship between wearing a nurse's scrub and helping behaviour (Table 2). Given that the pattern of significance for individual paths in mediation is not pertinent to estimate if the indirect effect is significant (Hayes, 2009, 2013), we tested the mediation of empathic concern, in the effect of experimental condition on helping behaviour. To that aim, we used PROCESS (Hayes, 2013), a software for path-mediation analysis. In order for mediation to occur, the bootstrap confidence interval (CI, onwards) should not comprise the value of zero (Hayes, 2009, 2013).

Results showed that there was a significant indirect effect or mediation of empathic concern on the effect of experimental condition on helping behaviour, $b = -.31$, CI [-.72, -

.062]. The proportion of maximum observed indirect effect was K^2 = .112, 95% CI [.031, .225], which constitutes a small size effect (Preacher & Kelley, 2011).

Overall, results from this study showed that participants who wore the nursing tunic and identified it with a nursing scrub reported higher empathic concern towards the other participants and exhibited more helping behaviour in quicker time.

Study 2

Although Study 1 allowed us to test the enclothed cognition framework and its effect on empathic responding and helping behaviour it presented several limitations. Firstly, we did not include the condition *identifying-with-a-cleaner-tunic*. Secondly, helping behaviour did not involve a high cost of resources for participants (e.g., time); therefore, we cannot really ensure that it was due to altruistic motivation. Finally, we did not assess the motives underlying such helping behaviour, which again led to a lack of clarification as to whether people helped for altruistic or egoistic reasons. In order to overcome all these limitations, we conducted Study 2.

In order to assess participants' motivations we used an emotional stroop task, previously used by Batson et al. (1988), in which participants were presented with neutral words and words related to altruistic and egoistic motivation and were asked to identify the colour of the word (blue or red). In Batson and colleagues' study, those who helped for altruistic reasons showed a higher latency to those words related to altruistic motivation, as the other's well-being was more salient. Thus, if people's helping is altruistically motivated when presented with altruism-related words it will take them longer to respond because these words will be relevant for them and therefore their processing will be slower (e.g., Lusher, Chandler, & Ball, 2004). Given that the nursing tunic was identified in the pilot study with the concepts of compassion and caring, which are other-oriented emotions (Batson, 2011), we

expected that participants in the wearing-a-nurse-tunic condition would exhibit higher latency for the words related to altruistic motivation, followed by participants in the identifying-with-a-nursing-tunic, participants in the wearing-a-cleaner-tunic, and identifying-with-a-cleaner-tunic conditions. We did not expect any differences for the neutral words or the words related to an egoistic motivation. Furthermore, in line with the findings of Study 1, we expected that participants in the wearing-a-nurse-tunic condition would report higher levels of empathic concern and would help more, followed by participants in the identifying-with-a-nursing-tunic, participants in the wearing-a-cleaner-tunic, and identifying-with-a-cleaner-tunic conditions.

Method

Participants. One-hundred adults (59 women, 41 men; M_{age} = 25.11 years, *SD* = 6.73 years, age range 18 – 43 years) from a middle city in Spain accepted to collaborate in the study. Participants were recruited at one of the authors' institution. Approximately 84% of the people asked to take part in the study accepted to collaborate.

Procedure. As in the previous study, participants were tested in separate cubicles. As a cover story they were told they were participating in a study about communication, and that in the first part of the study they would be asked to write about a certain topic, whereas in the second part they would be asked to read and assess an ostensible article to be included in a university magazine. There were four different conditions. In the wearing-a-nurse's-scrub condition, participants were asked to wear a disposable blue scrub described as a hospital nurse's tunic. In the wearing-a-cleaner's-scrub condition, participants wore the same disposable blue scrub, but this time it was described as a cleaner's tunic. In the identifying-with-a-nurse's-scrub condition, participants saw a disposable blue scrub described as a nurse's tunic displayed on the desk in front of them throughout the entire experiment. Finally,

participants in the identifying-with-a-cleaner's-scrub condition saw the same disposable blue scrub but this time it was described as a cleaner's tunic. Participants in all conditions were told that depending on the topic, randomly assigned by the computer, they may have to wear the scrub during the study. Actually, participants in both wearing conditions were asked to wear the scrub, whereas participants in the identifying conditions were not asked to wear it but look at it and describe it. As in the previous study, participants in the wearing-a-nurse's-scrub condition and wearing-a-cleaner's-scrub condition were asked to write an essay about their thoughts on the tunic, whereas participants in the identifying-with-a-nurse's-scrub and identifying-with-a-cleaner's-scrub were asked to write an essay about how they identify with the scrub. After that, participants were told that they would read an article about a real story to be included in a university magazine. The article (taken from Batson, Coke & McDavis, 1978) described the story of, a student (Maria/Juan Gonzalez; matched with the participant's gender, female and male respectively) who has lost her/his parents in a car accident and is struggling to graduate on time to get a job in order to keep custody of her/his siblings. Then, participants completed the same emotional questionnaire used in Study 1 in its Spanish version (Oceja & Jimenez, 2007) to assess their levels of empathic concern (α = .80) and personal distress (α = .82). Then, participants were handed a letter signed by the director of the study, in which they were given the unexpected opportunity to help Maria/Juan. The aid consisted of completing forms requesting financial support for Maria/Juan the following week. It was made explicitly clear that participating in the study in no way involved an obligation to help. After they read the letter, participants were provided with a form and an envelope. If they were willing to help Maria/Juan with their time they had to sign the form, providing their contact data (name, telephone, and e-mail), and indicating the number of hours –in a range from 1 to 5 hours– they wished to volunteer. If they did not want to volunteer, they just left the form blank and put it into the envelope. Finally, participants were

asked to complete on the computer an emotional stroop task based on the one used by Batson et al. (1988). Namely, participants were asked to identify the colour of the word presented on the computer as fast as they could by pressing X for blue and M for red. Words related to egoistic motivations or focused on the reward were *nice*, *proud*, *honor*, and *praise*. Words related to altruistic motivations or focused on the victim were *loss*, *needy*, *adopt*, and *tragic*. Neutral words were *pair*, *clean*, *extra*, and *smooth*. Each word was presented twice in a random order with a different colour (either blue or red). After completing this task, participants were fully debriefed about the study. Five participants showed suspicion and were replaced (one participant in the wearing-a-nursing-tunic condition, one participant in the wearing-a-cleaner-tunic condition, two in the identifying-with –a-nursing tunic condition, and one in the identifying-with –a-cleaner tunic condition).

Results and Discussion

Emotional reactions. We submitted the scale of empathic concern to a univariate ANOVA, which yielded a significant main effect for the experimental condition; F (3, 96) = 12.11, p = .001, η^2 = .31 Post-hoc comparisons with Bonferroni statistic showed that participants in the wearing-a-nurse's tunic reported higher empathic concern, followed by participants in the identifying-with-a nursing tunic, in the wearing-a-cleaner's tunic, and identifying-with-a-cleaner's tunic conditions (see Table 3). Post-hoc comparisons with Bonferroni statistic showed that participants in the wearing-a-nurse's tunic condition were significantly different from the other three groups (ps = .01). Participants in the wearing-a-cleaner's tunic and identifying-with-a-cleaner's tunic conditions differed from the other two groups (ps = .02) but they were not significantly different from each other (ps = .12). Concerning personal distress, there was no effect for the experimental condition; F (3, 96) = 1.17, p = .32, η^2 = .10 (see Table 3).

Helping behaviour. Overall, 42% of participants helped Maria/Juan regardless of their experimental condition. When analysing by the experimental condition, 64% of participants in the wearing-a-nurse's tunic condition helped, compared to the 44% of participants in the identifying-with-a-nurse's tunic condition, 32% of participants in the wearing-a-cleaner's tunic condition and 28% of participants in the identifying-with-a-cleaner's tunic condition; $\chi^2_{(3)} = 8.05$, $p = .04$.

With those participants who agreed to help Maria/Juan, we calculated the amount of time they volunteered to help. Regardless of the experimental condition, participants agreed to help 2.05 hours (SD = .91). When analysing the effect of the experimental condition, results showed there were significant differences between groups (F (3, 96) = 4.33, p = .007, η^2 = .86). Thus, participants in the wearing-a-nurse's tunic condition volunteered more hours, compared to participants in the identifying-with-a-nurse's tunic condition, participants in the wearing-a-cleaner's tunic condition, and participants in the identifying-with-a-cleaner's tunic condition (see Table 3). Post-hoc comparisons with Bonferroni statistic showed that participants in the wearing-a-nurse's tunic condition differed significantly from participants in the other three conditions (ps = .001). The other three conditions were not significantly different from each other (ps > .58).

Motivation underlying helping behaviour. Before testing possible differences in reaction time (milliseconds) between the different experimental conditions, we checked whether there were differences in reaction time between colours for each group of words. Results showed that there were no differences between words presented in blue (M = 693.95, SD = 87.18) and red (M = 689.31, SD = 73.25) for egoistic motivation related words (t (99) = -.39, p = .71). There were also no differences in reaction time between words presented in blue (M = 724.17, SD = 111.21) and red (M = 729.13, SD = 102.68) for altruistic motivation related words (t (99) = 0.38, p = .71). Finally, there were also no differences in reaction time

between blue (M = 677.44, SD = 71.20) and red (M = 694.66, SD = 80.27) for neutral words (t (99) = 1.54, p = .13).

Given that there were no differences between the two colours, we averaged the responses to both of them for the different groups of words. Results showed no significant differences between conditions for the neutral words (F (3, 96) = .59, p= .62, η^2_p = .02) and the egoistic motivation relevant words (F (3, 96) = .59, p= .62, η^2_p = .02) (see Table 3). However, there were significant differences between conditions for the altruistic motivation relevant words (F (3, 96) = 20.04, p = .001, η^2_p = .39). Participants in the wearing-a-nurse's tunic condition showed higher latency in their response, compared to participants in the identifying-with-a-nurse's tunic condition, participants in the wearing-a-cleaner's tunic condition, and participants in the identifying-with-a-cleaner's tunic condition (see Table 3). Post-hoc comparisons with Bonferroni statistic showed that participants in the wearing-a-nurse's tunic and identifying-with-a-nurse's tunic conditions differed significantly from participants in the other two conditions (ps = .001). Furthermore, participants in the wearing-a-cleaner's tunic condition and participants in the identifying-with-a-cleaner's tunic condition did not differ from each other (p = .98).

Discussion

Our research aimed to test the enclothed cognition framework shown by Adam and Galinsky (2012) on vicarious emotional responses and helping behaviour. In both studies, we showed that wearing and identifying a scrub with a nursing tunic led participants to experience higher empathic concern. Therefore, as suggested by the enclothed cognition framework, wearing and identifying a tunic with a nurse's scrub may activate the concepts of compassion and caring, which may explain the differences between conditions in the levels of empathic concern. This is further supported by the fact that there were also no differences in

the level of personal distress depending on the experimental condition. Thus, wearing *and* feeling identified with a nursing scrub only enhanced other-oriented vicarious feelings.

Regarding helping behaviour, we obtained the same pattern in Studies 1 and 2. Participants who wore and identified the tunic as a nursing scrub helped significantly more. This effect was not sensitive to the cost of the action, as participants in the wearing-a-nursing-tunic condition helped significantly more than the other conditions when helping consisted of an immediate action (i.e., helping the ostensibly other participant through using one's own keys in a game; Study 1) or a long term action (i.e., volunteering to help an ostensible student the following week; Study 2). Although our results are consistent with previous findings from social priming on prosocial behaviour (e.g., Johnson & Downing, 1979), our research goes one step further as it shows that the mere exposure to the prime (scrub) did not provoke the highest empathic concern rates and helping behaviour. This happened instead when wearing a clothing item, and more importantly, attributing a caring meaning to it. Although previous findings on the topic were discussed in terms of feeling identified with the nursing field, our results take this further and show that mere identification (i.e., participants in the identifying-with-a-nurse's tunic) is not as powerful as *wearing and identifying* the piece of clothing with a specific meaning. As Adam & Galinksy (2012) suggested while embodied cognition looks at the physical experience that has inherent symbolic meaning, in enclothed cognition the physical experience and the symbolic meaning are two independent factors. According to the embodied cognition framework, one would not have expected differences between participants who wore a supposed nurse's scrub and participants who wore a supposed cleaner's scrub as they had the same physical experience. Thus, they should have reported the same levels of empathic concern and exhibited the same levels of helping behaviour, because the meaning supposedly emerges from the physical experience. However, in our study we found that participants in both conditions in spite of

having the same physical experience (wearing a scrub) did show differences in their emotional reaction and helping behaviour. Thus, as suggested by the enclothed cognition framework in order for the clothes to have an impact on people's cognition, feelings, and behaviour one needs to wear *and* attribute a meaning to that specific item of clothing. In our research, participants in the *wearing-a-nursing-tunic* condition had the physical experience of wearing a scrub but also identified it with a nursing tunic that may activate the concepts of compassion, caring, and helping, therefore affecting their emotional experience and their helping behaviour.

Concerning the underlying motivation of helping behaviour, results from Study 2 showed that participants only differed in their response latency for altruistic motivation relevant words. As expected, participants in the wearing-a-nursing-tunic condition showed higher response latency than the other conditions. This means that the ostensible other student's well-being was more salient for those participants in the wearing-a-nurse-tunic condition. Therefore, this suggests they helped mainly for altruistic reasons. This is also supported by the fact that participants in the wearing-a-nurse-tunic condition showed the highest rates of empathic concern, which previous literature has mainly linked to an altruistic motivation (Batson, 2011).

Although our experimental design in Study 2 has maximized internal validity to assess participants' motivations, future research may benefit from other experimental designs with higher external validity. In this regard, future studies may use Batson's classical paradigm (Batson, 2011) where manipulating the difficulty of escaping from the situation (e.g., seeing the victim after being given the chance to help) to assess whether helping is altruistic. Hence, if altruism is leading participants' helping behaviour one should not expect a decrease when it is easy to escape from the situation (as people are concerned about the

other's well-being). Therefore, we would expect no differences in the level of helping for participants in the wearing-a-nursing-tunic condition regardless of the difficulty of escaping.

Overall, our results supported the enclothed cognition framework showing the importance of considering two independent factors (wearing and identifying a specific meaning) when analysing the effect of clothes on the wearer's psychological functioning. Furthermore, it showed that the effect may be extended to other psychological domains and could affect people's emotions, motivations and behaviours. It is then possible that it ultimately affects people's perception of the other's need, as the empathic emotional experience is highly influenced by the observer's appraisal (Wondra & Ellsworth, 2015). Although our results showed that wearing and identifying a tunic with the nursing field led to higher prosocial responding, there are reasons to believe that the duration of this effect may not last long as people may habituate to the prime through wearing it (e.g., Rieth & Huber, 2010). However, the obtained results highlight the importance of studying further the enclothed cognition framework in other domains (e.g., moral reasoning), as it may entail positive consequences for interpersonal functioning.

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Table 1

Descriptive Statistics for the Dependent Variables in Study 1

	Wearing a nurse's scrub	Wearing a cleaner's scrub	Identifying with a nurse's scrub
Empathic concern	5.30 (.71)[a]	4.26b (1.06)[b]	4.68 (.93)[c]
Personal distress	3.31 (1.11)[a]	2.84 (1.19)[a]	2.96 (.96)[a]
Helping Reaction time in milliseconds	1051.36 (1047.88)[a]	2368.16 (1452.43)[b]	1972.30 (1419.67)[c]

Note: N = 50 per condition. Values range from 1 to 7. Rows with different superscripts indicate statistically significant differences at $p < .01$.

Table 2

Regression Analysis Study 1

Predictor of helping behaviour	*B*	SE	*β*	*t*	*p*
Empathic concern	-.55	.09	-.51	-6.22	.001
Experimental condition	-.02	.01	-.31	-3.26	.002

Table 3

Descriptive Statistics for the Dependent Variables in Study 2

	Wearing a nurse's scrub	Wearing a cleaner's scrub	Identifying with a nurse's scrub	Identifying with a cleaner's scrub
Empathic concern	5.29 (.58)[a]	4.03 (1.11)[c]	4.68 (.82)[b]	4.06 (.81)[c]
Personal distress	3.19 (1.18) [a]	2.80 (1.22) [a]	3.28 (1.24) [a]	2.78 (1.12) [a]
Hours of helping	1.52 (1.41)[a]	.60 (1.01)[b]	.84 (1.14)[b]	.48 (.82)[b]
Neutral words	674.01 (41.08)[a]	695.59 (50.61)[a]	685.71 (56.55)[a]	688.89 (55.64)[a]
Egoistic motivation relevant words	683.19 (56.67)[a]	686.36 (43.27)[a]	695.81 (45.26)[a]	701.14 (67.04)[a]
Altruistic motivation relevant words	808.35 (69.29)[a]	683.71 (68.42)[c]	736.40 (83.45)[b]	678.14 (42.34)[c]

Note: N = 25 per condition. Rows with different superscripts indicate statistically significant differences at $p < .01$.

Appendix A

Blue Tunic used in the Study

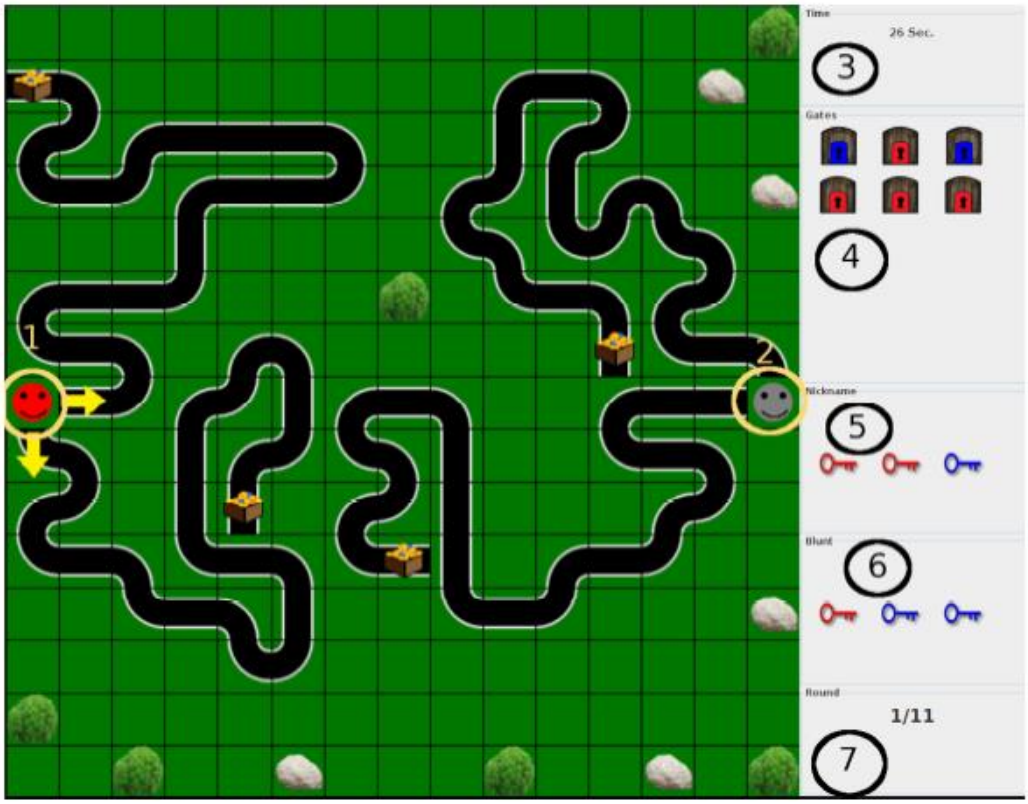
Appendix B

Emotion Manipulation used in the Study taken from Batson et al. (2007)

"I'm supposed to write about something interesting that's happened to me lately. Well, I don't know if this is interesting, but the only thing that I can seem to think of is that two days ago I broke up with my boyfriend (girlfriend). We've been dating since year 7 and have been really close. It's been great being at the university together. I thought he (she) felt the same way, but I guess that things have changed. Now he (she) wants to date other people. He (She) says that he(she) still cares a lot about me, but he (she) doesn't want to be tied down to just one person. I've been kind of upset. It's all I think about. My friends all tell me that I'll meet other men (women) and all I need is for something good to happen to cheer me up. I guess they're right, but so far that hasn't happened".

Appendix C

Screenshot of the Zurich Prosocial Game (Leiberg et al., 2000)



Note: Participant's character was always number 1. The ostensibly other participant's character was always number 2.