Impact of intergenerational contacts on the performance of the elderly under stereotype threat : a comparative study of France and Indonesia

Arum Febriani

UNIVERSITE PARIS DESCARTES
Institut de Psychologie

Ecole Doctorale « Cognition, Comportements, Conduites Humaines » (ED 261)
Laboratoire de Psychologie Sociale : menaces et société (LPS – EA4471)

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Arum FEBRIANI

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Thesis Director: Pr. Rasyid Bo SANITIOSO

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Members of the jury:

Peggy CHEKROUN	Professor - Université Paris Ouest Nanterre La Défense (Rapporteur)
Olivier DESRICHARD	Professor - Université de Genève (Rapporteur)
Aïna CHALABAEV	Maître de conférences HDR - Université Grenoble Alpes
Rasyid Bo SANITIOSO	Professor - Université Paris Descartes (Thesis director)

For my mother,

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ABSTRACT

The present studies examined whether contacts with young people reduce the negative effects of stereotype threat (i.e., fear of confirming the negative stereotypes of one's own group) on the performance of the elderly in France and in Indonesia. The extent to which this is mediated by anxiety (performance anxiety and/or intergroup anxiety) and empathy (i.e., cognitive empathy, also called perspective taking, and/or affective empathy) as a function of cultural groups was also examined. Samples of elderly people in France and in Indonesia completed a task that was framed as a memory test (high-threat situation, given the stereotype of the elderly as forgetful in both countries) or a cognitive exercise (low-threat situation). Results showed that, in both countries, threat decreased the performance of the elderly, but only among those who had little positive contacts with young people outside the family. Among those who had more positive contacts, threat did not lower their performance. Contacts with you people within the family, such as grandchildren, also had similar buffering function among our French participants, but not among Indonesian participants. Results also revealed anxiety, but not empathy, as the mediating factor of the link between threat, contacts, and performance. Revealing the importance of culture, it was performance anxiety for the French *vs.* intergroup anxiety for the Indonesian elderly that mediated the effects of threat on performance. The discussion focuses on the differences in the nature of intergenerational contacts and in the self-perception of the elderly in the two countries.

Keywords: stereotype threat, intergenerational contacts, anxiety, the elderly, culture

RESUME

L'objet de cette thèse est de montrer que le contact avec les jeunes peut diminuer les effets délétères de la menace du stéréotype (i.e., la crainte de confirmer le stéréotype négatif de son propre groupe) sur la performance des personnes âgées, en France et en Indonésie. Dans les deux pays, les personnes âgées sont stéréotypées comme ayant de faibles capacités mnésiques. Nous examinons également les rôles médiateurs de l'anxiété (liée à la performance et/ou celle d'intergroupe) et de l'empathie (l'empathie cognitive, également appelée «perspective taking», et/ou l'empathie affective) dans le lien entre la menace et la performance, en fonction du groupe culturel auquel appartiennent ces personnes âgées. Les participants, des personnes âgées en France et en Indonésie, réalisaient une tâche présentée soit comme un test de mémoire (menaçant pour les personnes âgées) ou comme un exercice cognitif (non menaçant). Les résultats montrent que, dans les deux pays, la menace entraîne la diminution de la performance des participants par rapport à la tâche, particulièrement chez ceux qui ont peu de contacts positifs avec les jeunes en dehors de la famille. Parmi ceux ayant des contacts positifs, la menace ne réduit pas leur performance. Les contacts avec les jeunes au sein même de la famille, par exemple avec les petits enfants, entraînent également des meilleures performances chez les participants âgés en France, contrairement à ceux en Indonésie. Les résultats révèlent que l'anxiété, contrairement à l'empathie, est une variable médiatrice du lien entre la menace et la performance. Tout en révélant l'influence de la culture, l'anxiété liée à la performance chez les participants français *versus* l'anxiété intergroupe chez les participants indonésiens, explique la diminution des performances. La discussion se focalise sur les différences aussi bien dans la nature des contacts intergénérationnels que dans la perception de soi chez les personnes âgées dans ces deux pays.

Mots-clés : menace du stéréotype, contacts intergénérationnels, anxiété, personnes âgées, culture

L'impact des contacts intergénérationnels sur la performance des personnes âgées en situation de menace du stéréotype : Etude comparative France – Indonésie

Introduction

Cette thèse porte sur la menace du stéréotype qui correspond à la crainte qu'un individu peut ressentir lorsqu'il risque de confirmer, par sa performance ou son comportement, le stéréotype négatif associé à son groupe (Steele & Aronson, 1995). Cette crainte entraine une performance moindre qui confirme le stéréotype de départ. Nous avons examiné ce phénomène chez les personnes âgées (PA) en France et en Indonésie. En particulier, nous avons examiné des facteurs modérateurs et médiateurs du lien entre la menace du stéréotype et ses effets délétères sur la performance. Dans un premier temps, nous avons recueilli les stéréotypes des PA dans ces deux pays. Ensuite, nous avons examiné l'impact de ces stéréotypes sur la performance sur des tâches de mémoire chez des PA en France et en Indonésie. En effet, dans les deux pays, les PA sont stéréotypés comme ayant une capacité mnésique faible. Nous avons mis en évidence l'effet modérateur du Contact Intergénérationnel (ou contacts avec les jeunes) sur les effets de la menace sur la performance des PA. Nous avons également examiné les rôles médiateurs de l'anxiété (performance et intergroupe) et de l'empathie (cognitive, également appelée la prise de perspective ou « *perspective taking* », et affective) dans ce lien, en présence ou absence de contacts intergénérationnels et en fonction du groupe culturel auquel appartiennent ces PA.

Des études précédentes ont démontré que la menace du stéréotype peut avoir des conséquences négatives sur la performance des PA. Lorsqu'une tâche est présentée aux PA comme mesurant la capacité mnésique ou cognitive, leur performance est moins bonne comparée à la performance de celles à qui la tâche n'est plus présentée comme une mesure des capacités mnésiques (Chasteen, Bhattacharyya, Horhota, Tam, & Hasher, 2005; Eich, Murayama, Castel, & Knowlton, 2014; Hess, Emery, & Queen, 2009). Nous avons testé cette idée en France et en Indonésie, complétant ainsi la littérature empirique qui jusqu'alors était principalement basée sur les recherches réalisées dans des contextes culturels dits occidentaux (par exemple, la Royaume Uni, les États-Unis). Pourtant la question du vieillissement touche autant les sociétés occidentales que les non occidentales telle que l'Indonésie.

Après avoir étudié les effets de la menace du stéréotype, il nous est important d'identifier des facteurs qui peuvent moduler ces effets. La recherche précédente démontre que des PA ayant de nombreuse interactions positives avec des jeunes ne subissent pas (ou à un moindre degré) l'impact négatif de la menace du stéréotype (Abrams et al., 2008; Abrams, Eller, & Bryant, 2006; Crisp & Abrams, 2008). Plus précisément, Abrams et al. (2006) montrent que pendant le test cognitif, des PA qui ont beaucoup d'interactions positives avec des jeunes ressentent moins d'anxiété en comparaison avec celles qui ont moins d'interactions. Cela malgré les informations qu'on leur donne concernant la diminution de la capacité cognitive en fonction du vieillissement et le fait que leurs performances seront mises en comparaison avec celles des jeunes, pour induire la menace. Il en ressort que le résultat des PA qui ont plus d'interactions positives avec des jeunes est meilleur que celui de celles qui ont moins d'interactions.

Afin de comprendre comment le contact intergénérationnel modère les effets de la menace sur la performance des PA, nous avons examiné les variables médiatrices suivantes : l'anxiété de performance (la peur d'échouer à un test pouvant avoir des conséquences négatives sur la perception ou l'estime de soi d'un individu), l'anxiété intergroupe (la peur liée aux interactions, réelles ou imaginées, avec des membres d'un exogroupe), l'empathie cognitive ou la prise de perspective (la capacité de prendre la perspective de quelqu'un d'autre) et l'empathie affective ou plus simplement appelée l'empathie (la capacité à comprendre et à partager l'état d'émotion de quelqu'un d'autre).

L'hypothèse de cette recherche est que les contacts positifs avec les jeunes diminuent l'anxiété (i.e., l'anxiété liée à la performance et/ou l'anxiété intergroupe) et augmentent l'empathie (i.e., la prise de perspective et/ou l'empathie affective) chez les PA qui sont en situation de menace du stéréotype. Autrement dit, nous proposons *un modèle de modération médiée* sur le lien entre la menace du stéréotype et la performance chez les PA : le contact modère les effets de la menace sur l'anxiété et/ou l'empathie ; tandis que l'anxiété et /ou l'empathie joue un rôle médiateur entre la menace et la performance.

La culture, en particulier en ce qui concerne *'self-construal'* (la construction de soi), est un facteur qui peut influencer la perception et la réaction à la menace du stéréotype chez les individus. Dans la culture individualiste comme en France, les individus ont tendance à avoir *un soi plus indépendant*, alors que dans la culture collectiviste comme en Indonésie ils auront *un soi plus interdépendant* (Markus & Kitayama, 1991). Le premier met en avant l'importance des caractéristiques personnelles pour définir le soi, alors que le second se focalise sur l'importance du

groupe pour se définir. La manière de définir le soi implique une différence sur la façon dont les individus perçoivent la menace du stéréotype (la menace de soi ou la menace du groupe, Wout, Danso, Jackson, & Spencer, 2008) ainsi que sur les facteurs qui pourraient jouer un rôle dans leurs réactions. Des PA indonésiennes par exemple peuvent la percevoir comme une menace pour le groupe (i.e., la peur de contribuer par ses performances au stéréotype négatif de son groupe en en étant un mauvais représentant), alors qu'en France, des PA la perçoivent comme une menace pour le soi (i.e., la peur de confirmer le stéréotype pour soi-même). En conséquence, sous la menace du stéréotype, les PA françaises s'angoissent plus sur leur performance qui peut avoir des conséquences négatives sur leur perception de soi. En revanche, parmi les PA indonésiennes, la menace du stéréotype pourrait entraîner la tendance à accroitre l'anxiété intergroupe plutôt que l'anxiété liée à la performance.

Une série d'études ont été menées en vue de répondre aux questions mentionnées ci-dessus. Tout d'abord, nous avons recueilli les stéréotypes des PA en Indonésie et en France en interrogeant des jeunes indonésiens et français pour qu'ils puissent décrire leurs perceptions des PA (*études 1A et 1B*).

Nous nous interrogeons ensuite sur les effets de la menace du stéréotype et du contact intergénérationnel sur la performance des PA en France et en Indonésie. Nous avons conduit des expériences afin d'examiner l'idée que le contact intergénérationnel au sein ou en dehors de la famille peut réduire les effets de la menace du stéréotype à travers deux mécanismes : la réduction de l'anxiété et l'augmentation de l'empathie. Dans une première expérience (*études 2A et 2B*) nous avons examiné le rôle d'anxiété ; dans une seconde (*études 3A et 3B*), nous avons

étudié celui de l'empathie dans son rapport avec la menace, le contact et la performance sur des tâches de mémoire.

Chapitre 2 : Les stéréotypes de personne âgée ou du vieillissement en France et en Indonésie (Etudes 1A-France & 1B-Indonésie)

Dans en premier temps, nous avons examiné les stéréotypes associés aux PA en France et en Indonésie. Nous avons donc recueilli (1) le contenu et la valence des stéréotypes des PA et (2) les sous-catégories qui constituent ces stéréotypes, chez les jeunes français et indonésiens. Nous nous attendons à ce que les stéréotypes mesurés chez les Français et chez les Indonésiens soient similaires dans leurs contenus et soient plutôt négatifs, excepté en ce qui concerne le « respect » envers les PA. En effet, la culture indonésienne, axée sur le principe de « *filial piety* », prescrit que les PA sont à respecter et à honorer (Suardiman, 2001).

Participants (Etudes 1A-France et 1B-Indonésie)

Les participants étaient 66 étudiants (10 hommes and 56 femmes, âgés en moyenne de 22.29 ans) à l'Université Paris Descartes, France et 78 étudiants (27 hommes and 51 femmes, âgés en moyenne de 21.81 ans) à l'Universitas Gadjah Mada, Indonésie.

Procédure

La même procédure a été utilisée en France et en Indonésie**.** Les participants devaient écrire des mots ou des phrases qui leur venaient spontanément à l'esprit en pensant aux PA. Le nombre de réponses et le temps pour répondre n'était pas limité.

Résultats et Discussion (Etudes 1A-France et 1B-Indonésie)

Au total, les participants ont généré 893 énoncés (mot ou phrase) liés aux PA. En moyenne, les participants français ont généré 6.65 énoncés (*SD* = 2.26), tandis que les participants indonésiens en ont généré 5.82 (*SD* = 2.67). Ces énoncés ont ensuite été codés selon leurs valences par deux juges indépendants. Conformément à nos attentes, les résultats ont montré que les stéréotypes des PA en France et en Indonésie comprenaient tous deux un mixte d'énoncés positifs et négatifs. Toutefois, les énoncés négatifs étaient plus nombreux que les énoncés positifs, que ce soit en France ou en Indonésie. Ces résultats ont également montré que les stéréotypes des PA incluaient principalement des traits physiques et cognitifs négatifs tels que maladif, oublieux et sénile.

Les réponses ont par la suite été groupées en sous-catégories par des juges indépendants. Ces groupements ont révélé six sous-catégories qui se distinguent entre autres sur leur valence : (1) le ralentissement et (2) les états affectifs négatifs (tous deux de valence négative) ; (3) grand - parent parfait, (4) vieillissement actif, et (5) conservateur (de valence positive) ; (6) les signes physiques de vieillissement (de valence neutre). Ces sous-catégories étaient partagées parmi les Français et les Indonésiens. Ces résultats sont cohérents avec les sous-catégories obtenues dans des études antérieures (Hummert, Garstka, Shaner, & Strahm, 1994).

Chez les jeunes indonésiens, à la différence des jeunes français, nous avons identifié une sous-catégorie « respect » dans le stéréotype des PA. Un pourcentage des participants indonésiens a spontanément listé que les PA sont des 'modèles' et qu'ils devraient être respectés par les jeunes générations. Cette sous-catégorie pourrait être liée à la valeur de « *filial piety* » mentionnée plus haut qui caractérise la

culture indonésienne (et celle de la plupart des pays d'Asie de l'Est, voir Liu, Ng, Loong, Gee, & Weatherall, 2003). Il est toutefois important de souligner que cette valeur semble décroitre parmi nos jeunes participants indonésiens : seulement 20% ont spontanément mentionné le mot 'respect' lorsqu'ils pensent à des PA. Ces changements de valeurs culturelles peuvent être dus en partie à l'influence de la culture étrangère, en particulier de la culture occidentale. D'autre part, ces changements de valeurs pourraient être expliqués par la modernisation croissante de l'Indonésie, modernisation qui se traduit par des changements sociaux et économiques rapides modifiant par la même le mode de vie. Par conséquent, les connaissances et expériences passées des PA n'ont plus de valeurs aux yeux des jeunes et sont perçues comme étant inadaptées à leur société (par exemple, ancien, inadaptable, incompétent, voir Heng & Yazdanifard, 2013 ; North & Fiske, 2015). De fait, les PA sont alors moins respectées.

Chapitre 3 : L'impact des contacts intergénérationnels sur la performance des personnes âgées en situation de menace du stéréotype: les rôles médiateurs de l'anxiété de performance et l'anxiété d'intergroupe (Etudes 2A-France & 2B-Indonésie)

Ces études (Etudes 2A et 2B) ont comme objectifs d'examiner l'impact modérateur du contact intergénérationnel ou contacts avec des jeunes dans le lien entre la menace du stéréotype et la performance des PA, en France et en Indonésie. Nous nous attendions à ce que les contacts intergénérationnels positifs atténuent ou éliminent les effets négatifs de la menace sur la performance. En outre, nous nous attendions à ce que les effets modérateurs des contacts intergénérationnels soient médiatisés par l'anxiété de performance et l'anxiété intergroupe. En contraste avec

les PA qui ont plus des contacts positifs avec des jeunes, celles qui ont moins des contacts positifs devraient ressentir plus d'anxiété (performance et intergroupe) ce qui entraîne une moins bonne performance sur des tâches de mémoire.

En prenant compte des facteurs culturels (surtout en ce qui concerne la construction de soi de l'individu), expliqué plus haut, nous nous attendions à ce que le rôle médiateur de l'anxiété de performance et celle intergroupe varie entre des PA françaises et indonésiennes. Parmi des PA françaises qui ont tendance à se perçevoir comme des individus uniques et à se définir par des caractéristiques qui leur sont propres (le soi indépendant), l'effet modérateur du contact intergénérationnel peut être médiatisé davantage par l'anxiété de performance. Parmi des PA indonésiennes qui devraient se définir plutôt par leurs groupes d'appartenance (le soi interdépendant), les effets des menaces et des contacts sur la performance seront davantage médiatisés par l'anxiété intergroupe.

Participants (Etudes 2A-France et 2B-Indonésie)

Ces études ont été réalisées en passations individuelles sur des PA en France et en Indonésie. L'échantillon français comprend 13 hommes et 27 femmes (âgés en moyenne de 69.85 ans), alors que celui d'indonésien comprend 15 hommes et 25 femmes (âgés en moyenne de 69.30 ans).

Procédures et matériels (Etudes 2A-France et 2B-Indonésie)

Dans ces études, les participants ont été répartis aléatoirement à la condition *menace* ou à la condition *non-menace/menace faible*. Dans un premier temps, les participants devaient compléter le test de mémoire de WAIS 4e édition (*Wechsler Adult Intelligence Scale-Fourth Revised)*. Les participants devaient écouter des séquences de chiffres, présentées une par une à haute voix par l'expérimentatrice.

Les participants devaient par la suite et pour chaque séquence, répéter les chiffres dans l'ordre ainsi qu'ils ont été présentés, puis dans l'ordre inverse et enfin dans l'ordre croissant. Il y avait en total 48 séquences de chiffres. Un score de 1 est attribué à chaque fois que les participants ont correctement rappelé les chiffres dans l'ordre demandé. L'étendue des scores attribués aux participants était donc de 0 à 48. Dans la condition 'menace', la tâche a été présentée comme un test de mémoire et pour laquelle leur performance sera mise en comparaison avec celle des jeunes. Dans la condition 'non-menace', la 'tâche' a été présentée comme un exercice dont le but est de révéler les stratégies qu'un individu utilise pour la compléter.

Une fois la première tâche complétée, nous avons demandé aux participants de répondre à des questionnaires sur l'anxiété de performance, l'anxiété intergroupe et les contacts intergénérationnels (avec des jeunes au sein ou en dehors de la famille). Pour mesurer les contacts avec des jeunes en dehors de la famille, nous avons demandé aux participants d'indiquer (1) le nombre de contacts positifs et des contacts négatifs qu'ils ont eu avec des jeunes pendant la semaine dernière (2) combien d'amis jeunes ils ont et (3) combien de leurs amis âgées ont des jeunes comme amis. Afin de mesurer les contacts au sein de la famille, nous avons demandé aux participants d'indiquer (1) combien de petits-enfants ils ont et à quelle fréquence ils les rencontrent par semaine et (2) comment ils qualifient leurs relations avec leurs petits-enfants, allant de négatives à positives. De plus, nous avons demandé aux participants de remplir des questionnaires supplémentaires pour mesurer leur estime de soi collective, leur perception d'être respecté par les jeunes et de leur qualité de vie. Enfin, les participants ont complété les questionnaires évaluant leur santé, ainsi que leurs caractéristiques sociodémographiques.

Résultats et Discussion (Etudes 2A- France et 2B-Indonésie)

Les résultats montrent que la menace du stéréotype diminue la performance mnésique chez les PA en France et en Indonésie. Conformément aux attentes, les participants en condition menace ont une moins bonne performance sur la tâche, que celles en condition de non-menace, en France (*Ms* = 20.75 et 23.90, respectivement, $F(1,38) = 4.86$, $p < .05$) et en Indonésie (*Ms* = 18.20 et 21.25, respectivement, $F(1,38) = 7.11$, $p < .05$).

Nous avons ensuite testé les effets de modération de contacts intergénérationnels. L'analyse a montré une interaction significative entre la menace et le contact avec des jeunes en dehors de la famille, tant en France ($b = .82$, $t(36) = 2.18$, $p < .05$) qu'en Indonésie ($b = 2.44$, $t(36) = 2.40$, $p < .50$). Cela a indiqué que le contact avec des jeunes en dehors de la famille joue un rôle modérateur. Par ailleurs, nous avons trouvé que les effets de modération de contacts sont médiatisés par l'anxiété. En accord avec notre hypothèse, ces effets sont médiatisés par l'anxiété de performance pour les PA françaises (*effet* = .41, IC = entre .068 et 1.019) et par l'anxiété de intergroupe pour les PA indonésiennes (*effet* = 1.03, IC = entre .037 et 2.590).

Les résultats montrent donc que les contacts intergénérationnels atténuent les effets néfastes de la menace sur la performance des PA, en France et en Indonésie. Cependant, dans les deux pays, nous avons trouvé que seulement les contacts intergénérationnels avec des jeunes en dehors de la famille jouent un rôle modérateur. Le contact avec des jeunes au sein même de la famille ne joue pas un rôle modérateur dans le lien entre la menace et la performance des PA aussi bien en France qu'en Indonésie.

Les résultats révèlent que les contacts avec des jeunes en dehors de la famille modèrent les effets de la menace sur la performance à travers l'anxiété. Autrement dit, les effets de la menace sur la performance sont médiatisés par l'anxiété qui, à son tour, est modérée par les contacts intergénérationnels. Pour les PA avec moins des contacts positifs, la menace semble accroitre leur anxiété et, en conséquence, diminue leur performance sur la tâche de mémoire. Pour les PA qui ont plus de contacts positifs avec des jeunes, la menace diminue ou n'augmente pas leur anxiété et leur performance est semblable à celle en situation de non-menace.

Une différence importante à travers des deux cultures concerne le type d'anxiété qui médiatise les effets. Chez les PA françaises, il s'agit de l'anxiété liée à la performance ; en contraste, chez les PA indonésiennes, il s'agit de l'anxiété intergroupe. Autrement dit, étant en situation de la menace du stéréotype, les PA françaises ressentaient plus de l'anxiété liée à leur performance sur le test, , tandis que les PA indonésiennes ressentaient plus d'anxiété liée aux interactions avec des jeunes.

Cette différence sur l'anxiété ressentie entre les PA françaises et indonésiennes peut être expliquée, entre autres, par des différences culturelles liée à la construction de soi des individus de culture individualiste *vs* collectiviste. Les PA françaises auront tendance à se définir comme des individus uniques (une construction de soi indépendant) ce qui peut les amener à avoir la crainte de confirmer le stéréotype négatif de leur groupe pour soi (i.e., Je crains de confirmer pour moi même le stéréotype négatif de mon groupe). Cette crainte pour soi augmentera l'anxiété de performance plus que celle intergroupe. En revanche, une construction de soi plus interdépendante chez les PA indonésiennes peut les amener

à craindre que leur performance contribue au stéréotype négatif de leur groupe et qu'elles soient de mauvaises ambassadrices pour leur groupe. Cette perception de la menace peut augmenter davantage l'anxiété intergroupe associée aux interactions avec des membres d'un autre groupe, en l'occurrence des jeunes.

Nos résultats montrent également que l'estime de soi collective modère les effets de la menace du stéréotype sur la performance des PA en Indonésie, mais pas chez les PA en France. Parmi les PA indonésiennes, plus l'estime de soi collective est élevée, moins leur performance est diminuée par la menace. Encore, nous pouvons considérer que les PA indonésiennes perçoivent la menace comme une menace pour le groupe (*vs.* pour le soi chez les PA françaises). Cela suggère que l'estime de soi collective joue un rôle important pour les PA indonésiennes, contrairement aux PA françaises pour qui l'estime de soi personnelle est probablement plus importante comme facteur de leur performance.

Chapitre 4 : L'impact des contacts intergénérationnels sur la performance des personnes âgées en situation de menace du stéréotype: le rôles médiateurs de la prise de perspective et de l'empathie (Etudes 3A-France & 3B-Indonésie)

Les études de 3A (France) et 3B (Indonésie) visaient à tester si la prise de perspective (*perspective taking*) et l'empathie jouent également un rôle médiateur dans le lien entre la menace du stéréotype et la performance des PA, en tenant compte de l'effet modérateur du contact intergénérationnel. La littérature existante suggère que l'augmentation du nombre et de la qualité des contacts avec les membres d'un autre groupe mène à des améliorations des capacités de prise de perspective et d'empathie (Aberson & Haag, 2007; Harwood, Hewstone, Paolini, & Voci, 2011). En outre, quand la capacité de prise de perspective augmente, l'anxiété

intergroupe diminue. Compte tenu de ces relations, nous proposons que les effets modérateurs des contacts intergénérationnels soient médiatisés par la prise de perspective et l'empathie. Lorsque l'on induit une menace du stéréotype, les PA qui ont le plus de contacts positifs avec des jeunes seront capables d'adopter la perspective des jeunes ainsi que les émotions que les jeunes ressentent. Cette prise de perspective et empathie entraînent également un soi 'étendu' (*expanded self*) qui incluent autrui dans la perception de soi d'un individu, y compris l'auto-efficacité perçue. Par conséquent, cela peut entraîner une meilleure performance sur la tâche de mémoire chez les PA sous menace du stéréotype par le biais de la réduction de l'anxiété (intergroupe ou performance) ou de l'augmentation de l'auto-efficacité perçue.

Participants (Etudes 3A-France et 3B-Indonésie)

Les participants étaient des PA âgées entre 61 et 79 ans. L'échantillon français comprend 15 hommes et 25 femmes (âgés en moyenne de 69.13 ans), alors que celui indonésien comprend 12 hommes et 28 femmes (âgés en moyenne de 68.55 ans).

Procédures et matériels (Etudes 3A-France et 3B-Indonésie)

Dans ces études, la procédure utilisée était identique à celle employée dans les études 2A et 2B. Les participants étaient répartis de manière aléatoire selon deux conditions expérimentales : *menace* (la tâche a été présentée comme un test de mémoire et il leur a été précisé que leur performance sur le test sera mise en comparaison avec celle des jeunes) ou *non-menace/menace faible* (la tâche a été présentée comme un exercice afin de révéler les stratégies qu'un individu utilise pour la compléter). Ensuite, les participants étaient invités à réaliser un test de mémoire de

chiffres de WAIS 4e édition (*Wechsler Adult Intelligence Scale-Fourth Revised).* Les participants devaient écouter des séquences de chiffres et les répéter dans le même ordre, dans l'ordre inverse, et en ordre croissant.

Une fois ces tâches réalisées, les participants répondaient à une série de questionnaires afin de mesurer la prise de perspective, l'empathie et les contacts intergénérationnels (avec des jeunes en dehors et au sein de la famille, voir études 2A et 2B). Nous avons également demandé aux participants de remplir des questionnaires supplémentaires pour mesurer leur perception d'être respectés par les jeunes et leur qualité de vie (pour les PA françaises et indonésiennes) et leur estime de soi personnelle/individuelle (seulement pour les PA françaises). Enfin, nous avons demandé aux participants d'évaluer leur état de santé sur une échelle de 1 (faible) à 5 (excellent) et d'indiquer leurs caractéristiques sociodémographiques.

Résultats et Discussions (Etudes 3A-France et 3B-Indonésie)

Comme dans les études précédentes (Etudes 2A et 2B), les résultats montrent que la menace du stéréotype impacte la performance mnésique des PA en France et en Indonésie. Les participants placés dans la condition menace ont obtenu de moins bons résultats au test de mémoire de WAIS que ceux dans la condition non menace, en France (*Ms* = 19.50 et 23.60, respectivement, $F(1,37) = 6.78$, $p < .05$) et en Indonésie (*Ms* = 18.10 et 21.40, respectivement, $F(1,38) = 4.89$, $p < .05$).

Les résultats montrent ensuite que les contacts intergénérationnels peuvent diminuer les effets négatifs de la menace du stéréotype sur la performance des PA en France et en Indonésie. Dans la condition menace, des PA qui ont beaucoup de contacts positifs avec des jeunes obtiennent de meilleures performances que celle qui ont moins de contacts positifs. Autrement dit, la performance des PA qui ont

beaucoup de contacts positives avec des jeunes n'était pas, ou moins, influencée par la menace du stéréotype. Parmi des PA françaises, les deux types de contacts (avec des jeunes au sein et en dehors de la famille) diminuent l'impact de la menace du stéréotype. Il y a des interactions significatives entre la menace et le contact avec des jeunes en dehors de la famille, $b = 3.52$, $t(35) = 2.38$, $p < .05$, ainsi que entre la menace et le contact avec des jeunes au sein de la famille, $b = 2.22$, $t(35) = 2.49$, $p < .05$. En contraste, chez les PA indonésiennes, conformément aux résultats obtenus de l'étude 2B, seul le contact avec des jeunes en dehors de la famille modérait les effets de la menace sur leur performance ($b = 2.97$, $t(35) = 2.26$, $p < .50$). Le contact avec des jeunes au sein de la famille ne modérait pas les effets de la menace chez les PA indonésiennes car la plupart d'entre elles avaient de bons et fréquents contacts avec leurs petits-enfants.

Nous avons supposé que les effets modérateurs du contact intergénérationnel seraient médiatisés par la prise de perspective et de l'empathie. Cependant, les résultats que nous avons obtenus, tant en France qu'en Indonésie, ne confirment pas l'hypothèse testée : la prise de perspective et l'empathie ne servent pas de médiatrices dans la relation entre la menace, les contacts, et la performance. Notre modèle de modération médiée n'est donc pas vérifié.

Concernant la prise de perspective, nous pensons que cette absence de résultats peut s'expliquer par l'existence de liens entre cette variable et l'état de santé (auto-évalué par les participants). Nous mettons en évidence que ces deux variables sont corrélées positivement : Les PA en bonne santé auront une meilleure capacité de la prise de perspective que celles en moins bonne santé. Ces résultats vont dans le sens de précédentes études qui indiquent que la capacité de la prise de perspective est

plus encline à être influencée par la santé et à diminuer avec l'âge (Bailey, Henry, & von Hippel, 2008; Bailey & Henry, 2008; Khanjani et al., 2015; Pratt, Diessner, Pratt, Hunsberger, & Pancer, 1996). En effet, cette capacité nécessite plus de ressources cognitives, telles que la mémoire de travail et la mémoire à long terme, qui ont tendance à décroître avec l'âge.

A la différence de la prise de perspective, la capacité d'empathie peut augmenter avec l'âge et l'expérience (Khanjani et al., 2015; Sze, Gyurak, Goodkind, & Levenson, 2012; Ze, Thoma, & Suchan, 2016). Nos résultats montrent aussi que les PA françaises et indonésiennes avaient un niveau d'empathie très élevé. Ce manque de variabilité au niveau de l'empathie peut expliquer en partie pourquoi nous n'avons pas pu mettre en évidence le rôle médiateur de l'empathie affective. Nous avons observé que parmi les participants en conditions menace et non menace, le contact intergénérationnel positif menait à une augmentation de l'empathie pour les jeunes. Donc, contrairement à la littérature sur le contact intergroupe qui suggère que les individus ont tendance à ressentir de l'empathie pour les personnes défavorisées ou les minorités (Vorauer & Quesnel, 2016), nos études montrent que les PA peuvent ressentir de l'empathie pour les jeunes ou la majorité. Cela peut être particulier au groupe des PA : en effet, malgré le fait que les jeunes représentent actuellement un exo groupe pour ces PA, elles étaient toutes jeunes (donc, membres de l'exo-groupe) d'antan. En outre, comme le propose Magai (2000) : des expériences interpersonnelles accumulées toute au long de la vie des PA peuvent augmenter leurs capacités de comprendre et de ressentir les expériences affectives d'autrui.

Discussion Générale

Ce travail de thèse portait sur la menace du stéréotype et ses effets sur la performance des PA dans deux pays ayant deux cultures différentes, à savoir la France et l'Indonésie. Ces deux pays représentent respectivement la culture individualiste et collectiviste (Triandis, 1995). Deux objectifs principaux ont guidé ce travail. Nous avons proposé (1) d'examiner les contacts intergénérationnels comme facteur pouvant modérer les effets de la menace du stéréotype, et (2) d'examiner les rôles médiateurs de l'anxiété (performance et intergroupe) et de l'empathie (cognitive, également appelée la prise de perspective, et affective) dans le lien entre la menace, les contacts, et la performance.

Nos études préliminaires montrent que les PA en France et en Indonésie ont été plutôt perçues négativement, en particulier dans les domaines physiques et cognitifs (tels qu'oublieux, maladif, et sénile). Nous avons également trouvé que les sous-catégories de stéréotype des PA dans les deux pays étaient similaires, y compris celles qui sont positives (par exemple, grand-parent parfait) et négatives (par exemple, le ralentissement). Ce résultat est conforme aux autres études sur les stéréotypes liés au vieillissement (Hummert et al., 1994; Liu et al., 2003). De plus, nos résultats ont révélé une sous-catégorie liée au respect parmi les indonésiennes, mais pas chez les françaises. Cela suggère que la valeur culturelle de respect envers les PA (*filial piety*) existe encore en Indonésie, comme dans d'autres pays d'Asie (Liu et al., 2003). Toutefois, seulement 20% de nos participants indonésiens mentionnent le mot « respect » lorsqu'ils pensent à des PA. Il est probable que cette valeur a diminué ou changé en raison de la modernisation récente et de l'influence de la culture étrangère, en particulier de la culture occidentale.

Basés sur les résultats préliminaires, nous avons utilisé le stéréotype négatif associé au vieillissement mnésique pour induire la menace du stéréotype chez les PA en France et en Indonésie. Au travers de quatre études, nos résultats montrent que la menace du stéréotype diminue la performance mnésique des PA dans ces deux pays. En effet, la simple mention d'une différence de performance mnésique entre les PA et les jeunes a suffit à provoquer une diminution des performances des PA. Ces résultats indiquent que les PA en Indonésie sont également sensibles à la menace du stéréotype, tout comme les PA des pays occidentaux. En effet, les recherches antérieures ont été réalisées pour la plupart chez les PA dans des pays occidentaux, tel que le Royaume Uni et les USA.

Nos résultats montrent en outre que les contacts intergénérationnels peuvent diminuer les effets négatifs de la menace du stéréotype sur la performance des PA en France et en Indonésie. En situation de menace du stéréotype, les PA de ces deux pays qui ont plus des contacts positifs avec des jeunes n'appartenant pas à leur famille ont une meilleure performance au le test de mémoire, en comparaison avec celles qui ont moins de contacts. Les contacts avec les jeunes de leur famille, à savoir les petits enfants, entraînent également des meilleures performances chez les PA. Toutefois, ce résultat ne s'observe qu'en France. Comme attendu, les contacts avec les petits enfants ne peuvent pas modérer ou diminuer l'effet de la menace sur la performance des PA indonésiennes, car la plupart d'entre elles ont des contacts fréquents et de bonne qualité avec leurs petits enfants.

Par ailleurs, nous retrouvons que l'effet modérateur de contacts avec les jeunes ne faisant pas partie de la famille a été médiatisé par l'anxiété, et non par l'empathie. Spécifiquement, dans la condition menace, les PA qui avaient moins de

contacts avec des jeunes ressentaient plus d'anxiété que celles qui avaient plus des contacts positifs avec des jeunes. Cette angoisse conduisait ensuite à une diminution de la performance. Cependant, il y avait deux types d'anxiété différents qui jouaient un rôle médiateur dans l'impact de la menace du stéréotype sur la performance des PA en France et en Indonésie. Il s'agissait de l'anxiété liée à la performance chez les PA françaises *versus* l'anxiété intergroupe chez les PA indonésiennes.

Ces résultats peuvent s'expliquer en partie par les différences culturelles au niveau de la construction de soi (*self-construal*). Comme nous l'avons mentionné en introduction, les PA françaises ont tendance à avoir un soi plus indépendant qui correspond à la valorisation de l'individualité. Alors que les PA indonésiennes auront un soi plus interdépendant qui correspond à la tendance à relier des valeurs propres aux groupes auxquels elles appartiennent. Il est donc raisonnable de supposer qu'en France, les PA perçoivent la menace comme une menace pour le soi (i.e., la peur que le stéréotype soit vrai pour soi), alors que les PA indonésiennes peuvent la percevoir comme une menace pour le groupe (i.e., la peur de confirmer le stéréotype pour le groupe, d'en être un mauvais représentant, voir Wout et al., 2008). Par conséquent, parmi les PA françaises, la menace du stéréotype pourrait entraîner l'apparition de l'anxiété liée à la performance. Elles ont peur d'avoir de mauvaises performances et de se voir comme possédant le trait négatif stéréotypé. Parmi les PA indonésiennes, en revanche, la menace du stéréotype peut entraîner de l'anxiété intergroupe plutôt que de l'anxiété de performance.

Ces recherches offrent une contribution à l'extension et à la généralisation du phénomène de la menace du stéréotype. De plus, nos résultats suggèrent que les contacts intergénérationnels avec les jeunes ne faisant pas partie de la famille

pourraient réduire les effets néfastes de la menace du stéréotype sur les performances des PA en France et en Indonésie. Ces résultats apportent donc des informations potentiellement utiles pour le bien-être des PA au sein de la société. Malgré la similitude apparente, nos résultats ont également révélé des variations entre les cultures, en particulier en ce qui concerne l'anxiété qui médiatise le lien entre la menace, les contacts, et la performance. Il s'agissait de l'anxiété de performance pour les PA françaises *versus* l'anxiété intergroupe pour les PA indonésiennes. En effet, cela nous conduit à une meilleure compréhension des effets de la menace du stéréotype et des contacts intergénérationnels sur la performance des PA appartenant aux deux cultures différentes. Enfin, nos résultats supportent les études antérieures qui promeuvent l'intégration de la littérature sur la menace du stéréotype et de celle sur le contact intergroupe dans un même champ de recherche (Abrams et al., 2006, 2008 ; voir Crisp & Abrams, 2008). Les études sur le contact intergroupe ont surtout mis l'accent sur les effets des contacts pour améliorer l'harmonie intergroupe, réduire les préjugés, et augmenter des attitudes intergroupes positives. Avec cette recherche, nous avons en outre montré que l'augmentation de contacts intergroupes, autrement dit le contact intergénérationnel, a un autre effet bénéfique : celui de diminuer les effets néfastes de la menace du stéréotype.

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CHAPTER 1
INTRODUCTION

Population aging is one of the most important challenges facing the world now or in the near future. The United Nations predicts that by 2050, the number of people aged 60 years and over will increase by nearly 2 billions making up 21.5% of the world population, almost double the current level of 12.2%. These rapid demographic changes are estimated to take place in both developed and developing countries, such as France and Indonesia, respectively. Those over 60 in France currently make up 25.2% of the total population and are projected to rise to 31.7% in 2050. In Indonesia, for the same age group, the growth of this population is even more rapid. It is expected to soar from 8.2% today to 19.2% by 2050 (UN, DESA, 2015). The two countries will also be in the top 10 countries in the world with the largest population aged 80 years, in 2050. Aging population is set thus to become an important question in French and Indonesian societies, as in many others; and how the elderly are perceived or *stereotyped* in these societies, merit investigations. This will have implications on, among others, whether the elderly are seen as a burden or an asset to the societies, which may have implications on the well-being of the elderly themselves.

In this thesis, our main goal is to investigate the effects that stereotypes of the elderly may have on the elderly's performance and factors that may modulate these effects. Specifically, we will investigate the phenomenon of stereotype threat and a factor, namely, intergenerational contacts that may influence the performance of the elderly in threat situations, in both France and Indonesia. *Stereotype threat*—the fear

of confirming a negative stereotype of one's group (Steele & Aronson, 1995)—has been shown to have negative consequences on the performance of the group members, including the elderly group (Hess, Auman, Colcombe, & Rahhal, 2003; Joanisse, Gagnon, & Voloaca, 2013; Swift, Lamont, & Abrams, 2012). In the present research, we examined whether intergenerational contacts attenuate the effects of stereotype threat on the performance of the elderly in France and in Indonesia, and if so, what factors underlie the link between stereotype threat and contacts effects.

Stereotypes refer to the representations that people in a given society have concerning the characteristics and typical behaviors of the members of a group (e.g., that Blacks are good at sport and music; that Asians are good at math; that Germans are hard-working, see Schneider, 2004). Previous research has shown that stereotypes of the elderly in Western as well as in Asian societies tend to be mixed, though with negative characteristics predominant compared to positive (Cuddy et al., 2009; Harwood et al., 1996). For example, although the elderly may be perceived as wise and warmth, they are often perceived as being intellectually impaired, dependent, and forgetful.

There is emerging evidence that negative stereotypes can harm mental as well as physical health of the elderly. It has been shown that these stereotypes can cause the elderly to have low self-efficacy (Levy, 1996), a high level of stress (Levy et al., 2008; Levy, Hausdorff, Hencke, & Wei, 2000), serious illnesses, and even early death (Levy, Slade, Kunkel, & Kasl, 2002). In the last two decades, the presence of negative stereotypes has also been found to have a detrimental effect on the elderly's performance in domains linked to the elderly stereotypes, notably cognitive and memory domains. For example, when confronted with information emphasizing a

decline in memory ability (a negative stereotype), the performance of the elderly on memory tasks declines appreciably compared to when such information is absent (Chasteen, Bhattacharyya, Horhota, Tam, & Hasher, 2005; Eich, Murayama, Castel, & Knowlton, 2014; Hess, Hinson, & Hodges, 2009). In line with these results, Rahhal, Hasher, and Colcombe (2001) and Desrichard and Köpetz (2005) showed that the elderly had significantly lower performance than young people when the task instruction mentioned memory ability. In contrast, when the task instruction did not mention memory ability, the difference in performance between the elderly and young people on the task was reduced. This phenomenon, as mentioned previously, is called stereotype threat.

Stereotype threat is a situational threat that can be experienced by anyone because we all belong to one or more groups that are negatively stereotyped (e.g., women are stereotyped to be less competent in math than men, Blacks are stereotyped to be less intelligent than Whites, the elderly are stereotyped less capable than the young). When members of these groups find themselves in a situation in which the negatively stereotyped domains (e.g., math performance, intelligence) are assessed, they may feel apprehension of confirming the negative stereotypes of their group. These apprehensions, in turn, can increase stress, anxiety, and cognitive overload ultimately leading individuals to have lower performance.

Once the negative effects of stereotype threat are identified, it is important to find means to buffer against these effects. Among the elderly, one possible buffer is intergroup contacts or "intergenerational contacts" that refers to the contacts between the elderly and young people. Previous research has shown that the elderly who have more positive contacts with young people showed relatively less impact of stereotype

threat on their performance (Abrams et al., 2008; Abrams, Eller, & Bryant, 2006; Crisp & Abrams, 2008). More specifically, Abrams et al. (2006) found that the elderly with more positive intergenerational contacts felt less anxious than those with less positive contacts during cognitive abilities test, despite having received the information that cognitive performance declines with age and that their performances would be compared with young people. Those with more positive intergenerational contacts subsequently showed better performance than those who had less positive contacts.

To the best of our knowledge, only a few studies (Abrams et al., 2008, 2006) have examined intergenerational contacts as a factor that can modulate the effects of stereotype threat. Once identified, it represents a possible means by which stereotype threat effects can be reduced. To this end, it is imperative that we uncover the mechanisms underlying the effects of stereotype threat and intergenerational contacts on performance. Thus, in this present thesis we attempted to extend previous work by examining some possible mediators, i.e., performance anxiety, intergroup anxiety, perspective taking, and affective empathy. We conducted the studies in France and in Indonesia. We did this for two reasons. First, as previously explained, both countries are dealing with the challenges of aging population. Secondly, the comparative study between the two countries should yield a comprehensive understanding of stereotype threat phenomenon since most of stereotype threat studies with the elderly have so far been mainly confined to Western countries or cultures (i.e., the US and European countries). The two countries, France and Indonesia, also represent what has been termed as individualistic and collectivistic cultures, respectively (Triandis, 1995). Given that stereotype threat involves intergroup contexts (a group such as the elderly

is compared to another group such as young people), the individualistic/collectivistic distinction is relevant. This distinction implies different importance of groups in one's self-perception. It is also possible that different mechanisms are engaged in the reactions of people in different cultures in response to stereotype threat.

STEREOTYPES OF THE ELDERLY

Stereotypes of the elderly in West

Most early research on the stereotypes of the elderly has been conducted in western societies such as the US, the UK, and European countries. Studies have revealed that, as with other groups, stereotypes of the elderly are complex and multidimensional, involving both positive and negative components. Brewer, Dull, and Lui (1981) conducted the first study on the structure of elderly stereotypes. They selected photographs of the elderly and then asked young people to sort them into piles. The results revealed three distinct subcategories into which the photos of elderly were sorted: grandmother, senior citizen, and elder statement. The grandmother subcategory consists of positive traits (e.g., helpful, trustworthy, accepting, kind), the senior citizen subcategory consists of negative traits (e.g., lonely, worried, vulnerable, weak), and the elder statement subcategory consists of mixed positive and negative traits (e.g., competent, intelligent, competitive, intolerant).

A number of studies have been conducted to replicate and extend the findings of Brewer et al. (Hummert, Garstka, Shaner, & Strahm, 1994; Hummert, 1990; Schmidt & Boland, 1986). These studies revealed that young people had multiple

subcategories of the elderly, further completing the three found by Brewer et al. For example, Hummert's (1990) findings demonstrated that young people hold the following categories about the elderly: three positive subcategories (perfect grandparent, John Wayne conservative, liberal matriarch/patriarch) and seven negative subcategories (shrew/curmudgeon, despondent, vulnerable, severely impaired, recluse, self-centered, inflexible senior citizen).

Research also indicates that stereotypes of the elderly are shared by people of all ages, including the elderly themselves (Brewer et al., 1981; Hummert et al., 1994). In a study with young, middle, and older adults, Hummert et al. (1994) reported that all age groups had similar stereotypes about the elderly except that the elderly had more of both positive and negative stereotypes than young and middle-aged adults. The elderly included one additional negative subcategory, namely elitist (e.g., demanding, snobbish), and two more positive subcategories: activist (e.g., health conscious, liberal) and small-town neighbor (e.g., tough, quiet). These results have been explained as follows: First, the elderly have more complex representations or views of their own group than do out-groups (Brewer & Lui, 1984). As people age, their schemas of aging may expand because they have more experiences in dealing with and of being an elderly (Baltes, 1987; Heckhausen, Dixon, & Baltes, 1989). Second, this may reflect the need to attain and maintain a positive self-image among the elderly that can be somewhat satisfied by perceiving their in-group relatively positively, as proposed by social identity theory (Tajfel & Turner, 1979).

In spite of the fact that positive stereotypes of the elderly do exist, the existing body of evidence suggests that people generally have or think more of the negative stereotypes about aging and the elderly. The elderly are more likely to be

presumed to be senile and slow (Levy, 1996), patronizing (Ryan, Hamilton, & See, 1994), forgetful (Dijksterhuis, Aarts, Bargh, & van Knippenberg, 2000; Lineweaver, Berger, & Hertzog, 2009), dependent (Adams-Price & Morse, 2009), less adaptable to new technology (Henkens, 2005; McGregor & Gray, 2002), and are a heavy burden for the family, community, or society (see Nelson, 2002).

Stereotypes of the elderly in Asia

A small but growing number of studies on the stereotypes of the elderly have been conducted in Asian countries such as Singapore (Ward, 1988), China (Zhang, Hummert, & Garstka, 2002), Taiwan (Lin, Zhang, & Harwood, 2004), and Korea (Kim & Mo, 2014). Most studies were carried out with the idea that the traditional values of filial piety, which emphasize respect and caring for the elderly that are common in Asian countries, should result in more positive views of the elderly. However, empirical evidence has shown that this assumption does not always hold true; indeed, there was considerable variability across Asian countries concerning stereotypes of the elderly. For example, Zhang, Hummert, and Garstka (2002) reported that Chinese young, middle-aged, and older participants attributed more positive than negative characteristics to the elderly. In contrast, Ward (1988) found that the stereotype of the elderly in Singapore was mainly negative (e.g., intellectually impaired, cantankerous, and old fashioned), outnumbering the positive characteristics such as serene and peaceful.

To account for the divergent findings in studies among Asians, one explanation that has been advanced suggests that the traditional values of filial piety characteristic of these cultures have decreased in recent years. This, in turn, may influence how people perceive and behave toward the elderly (North & Fiske, 2015).

Most studies comparing Easterners/Asians and Westerners on the stereotypes the elderly have also supported such view (Boduroglu, Yoon, Luo, & Park, 2006; Harwood et al., 1996; McCann, Cargile, Giles, & Bui, 2004; Ryan, Jin, & Anas, 2009). Indeed, a number of comparative studies have even found that people from Asian countries generated more negative stereotypes than their Western counterparts, contrary to the so-called Asian traditional values. For instance, young people in Japan showed less positive stereotypes of the elderly compared to young Australians (Ota, Giles, & Gallois, 2002); a study among Chinese students showed that they perceived the elderly more negatively than did American students (Zhou, 2007); young people in Korea have also been shown to have more negative stereotype of elderly people and to have greater fears of growing old than did their American counterparts (Yun & Lachman, 2006).

Two factors have been proposed to explain the phenomena of decreasing traditional Asian values that may elicit more negative stereotypes of the elderly among Asians than Westerners (Ng, 1998; North & Fiske, 2015). First, "westernization", industrialization, and modernization may have contributed significantly to lowering the power and the status of the elderly in the society. For example, rapid change in technology may result in the devaluation of skills acquired with old age and experience. As the elderly became devalued, they could be perceived as incompetent, outdated, and useless (Williams & Nussbaum, 2001). Second, aging population in Asia, which is occurring more rapidly than in Europe and the US, has already imposed pressures on societies (Westley & Mason, 2002; NIH & WHO, 2011). Ready or not, the government has to act quickly to strengthen social (i.e., pension funds) and health care systems, and all members of the society

have to adapt to the aging population that involved negative consequences such as more expensive health costs and taxes. These conditions may render the elderly appear as a potential burden on society.

Given the prevalence of the negative stereotypes of the elderly, its impacts inevitably get played out in the elderly's lives. One of the most immediate impacts could be in their performance, as shown in stereotype threat studies. Below we discussed stereotype threat in general and in the context of aging.

STEREOTYPE THREAT

Principal study of stereotype threat

Stereotype threat refers to situations that induce or activate the fear of confirming the negative stereotypes of a group to which an individual belongs (Steele & Aronson, 1995), for oneself or for the group. It was first introduced by Steele and Aronson (1995) who examined the performance gaps between White and Black students on an intelligence test—a domain in which Blacks are stereotyped as less capable than whites. They argued that the underperformance observed among Blacks under certain circumstances could be due to stereotype threat instead of differences in innate ability levels (a prevailing view at the time). That is, Black students may be aware of stereotypes picturing them as intellectually inferior to Whites, and the fear of confirming these stereotypes leads to real poor academic performance.

To test their hypothesis, Steele and Aronson conducted a number of seminal experiments. In a series of studies, the authors examined the effects of stereotype threat on students' performance on the standardized test, the verbal Graduate Record

Examination (GRE). The participants were Black and White undergraduates enrolled at Stanford University. All participants were well above average in academic ability, given that Stanford's admission is highly selective. In other words, it can be assumed that the participants had roughly equal academic ability and it further ruled out the possibility that stereotype based on skin color (e.g., that Blacks have lower IQ than Whites) are the cause of poor academic performance of Blacks.

In Study 1, the participants were randomly assigned to one of three conditions: In the "diagnostic" (threat) condition, the participants were told that the test was diagnostic of one's intellectual ability. In the "non-diagnostic-only" (non-threat) condition, the test was presented as a problem-solving task, which was assumed to make irrelevant the stereotype concerning Blacks. Finally, in the "non-diagnostic-challenge" (threat-challenging) condition, the test was also described as a problem-solving task but the participants were urged to regard the test as a challenge. The results showed strong evidence of stereotype threat: Blacks performed significantly worse than Whites in the diagnostic condition, but performed as well as Whites in the non-diagnostic-only condition. There was a difference, though not significant, between Whites and Blacks' performance in the non-diagnostic-challenge condition. However, the authors failed to find a significant Ethnicity x Condition interaction. They argued that this might happen because Whites slightly outperformed Blacks in the non-diagnostic challenge condition.

In Study 2, the authors attempted to further extend the result by exploring the mediating role of anxiety on the link between threat and performance. Additionally, they measured the amount of time spent on each test item. The same procedure was employed as in Study 1 except that the non-diagnostic-challenge condition was

eliminated. The results supported previous findings and revealed a significant Ethnicity x Condition interaction. Blacks in diagnostic condition significantly underperformed, completed fewer items, and worked more slowly relative to Blacks in the non-diagnostic condition and relative to Whites in either the diagnostic condition or in the non-diagnostic condition. However, there was no evidence of increased anxiety for Blacks in the diagnostic condition compared to Whites in any condition and Blacks in the non-diagnostic condition.

To verify that stereotype activation was taking place in stereotype threat condition, Steele and Aronson (1995, Study 3) investigated the implicit activation of the stereotype using a word completion task. There were three experimental conditions: diagnostic, non-diagnostic, and control. The diagnostic and non-diagnostic conditions were the same as in Study 2, in the control condition participants were simply told to complete the word completion task and no mention was made of the task being an ability test. In this study, all participants were asked to fill in 80 incomplete words, which some of them had the possibility to be completed as words stereotypically associated with Blacks (e.g., "_ _ A C K" which could be completed as "BLACK" vs. "SLACK, "_ _ C E" which could be completed as "RACE" vs. "FACE"). There were also some word fragments that could be completed with self-doubts words (e.g., "L O _ _ _" as "LOSER", "W _ _ K" as "WEAK"). After finishing the task, the participants completed stereotype avoidance measure, brief demographic questionnaire (asking their ethnicity), and a self-handicapping measure. The authors hypothesized that Black students in the diagnostic condition would be more likely to generate more words reflecting self-doubts, more likely to distance themselves from stereotypes of their group, less likely

to indicate their ethnicity, and more likely to show fear as indicated by endorsing self-handicapping excuses to justify their poor performance. The authors found that Blacks in the diagnostic condition were generated significantly more ethnicity-related and more self-doubts related word completions, and more likely to avoid stereotypically Blacks preferences (e.g., playing basketball, listening rap music) than Blacks in the non-diagnostic condition and participants in any of the other conditions. Finally, they found that Black participants in the diagnostic condition showed a lower likelihood of indicating their ethnicity and a greater likelihood of engaging in self-handicapping (e.g., getting less sleep the night before the test) compared to participants in any other conditions.

Finally, in Study 4, Steele and Aronson (1995) examined conditions that would be necessary to observe the effects of stereotype threat. In this study, participants were assigned to "ethnic prime" or "no ethnic prime" condition. Participants in the ethnic prime condition were asked to indicate their ethnicity before taking the test. The results revealed that Black students who reported their ethnicity before the test had lower performance than White students and Black students in the no ethnic prime condition. These results suggest that stereotypes can be primed in subtle ways—such as, by asking participants to indicate their ethnicity—and that such priming was sufficient to undermine performance. Thus, the presence of either explicit (i.e., when the stereotyped domain is obviously presented) or implicit stereotype (i.e., when the stereotyped domain is not mentioned but group membership is made salient) can induce stereotype threat.

Conditions for the occurrence of stereotype threat

Although stereotype threat can happen to anyone who is aware of a negative stereotype about his or her group in any given situation, there are several necessary conditions for stereotype threat effects to be observed. First, the tasks have to be relevant to the stereotypes (Roberson & Kulik, 2007; Steele, Spencer, & Aronson, 2002). For instance, to create a stereotype relevant task, researchers have used cognitive ability tests for Blacks (Steele & Aronson, 1995), math tests for women (Steinberg, Okun, & Aiken, 2012), and memory tests for the elderly (Eich et al., 2014). Second, the task must be sufficiently difficult (Roberson & Kulik, 2007; Steele & Aronson, 1995). Cognitive resources may be reduced when people ruminate on stereotypes and thus affecting performance on difficult tasks that necessitate more cognitive resources. Supporting this view, Spencer, Steele, and Quinn (1999) demonstrated that women and men had equivalent performances on math when the test was relatively easy, but women underperformed relative to men when the test was difficult. In another study, O`Brien and Crandall (2003) found that women in the threat condition (i.e., informing gender differences in math ability) performed better on the easy test, but worse on the difficult test than women in the control condition. The performance of men was unaffected by the stereotype threat manipulation. Lastly, the participants have to believe the task and their performance are important for their image and self-esteem.

Generalization of stereotype threat effects

Since first identified by Steele and Aronson (1995), stereotype threat effects have been established for different social groups (crossing gender, ethnicity, culture, socioeconomic status, sexual preferences, and age) and domains (e.g., math, sports,

memory ability). For example, these effects have been examined with regard to women and girls in mathematics (Ben-Zeev, Fein, & Inzlicht, 2005; Cvencek, Meltzoff, & Greenwald, 2011; Flore & Wicherts, 2015; Franceschini, Galli, Chiesi, & Primi, 2014; Spencer et al., 1999; Steinberg et al., 2012) and computer and science (Koch, Müller, & Sieverding, 2008), Latinos on math test (Armenta, 2010), children from low socioeconomic background in academic situations (Croizet & Claire, 1998), homosexual men on childcare abilities (Bosson, Haymovitz, & Pinel, 2004), and the elderly with respect to memory abilities (Chasteen et al., 2005; Hess et al., 2003).

The present studies investigated stereotype threat effects on the last group, the elderly, related to their performance on memory task. We conducted the studies in two different cultures: Western (France) and Asian (Indonesia) since studies of stereotype threat have been predominantly conducted in cultural contexts that could be categorized as Western, such as the US, the UK, and European countries. This fact then raises the question of the generalizability of stereotype threat effects to other cultural contexts. Toward this end, it is pertinent to take culture into account as a factor that may influence how stereotype threat affects one's performance. In the section below, we explain further the possibility of cultural influences on stereotype threat.

Stereotype threat and culture

People from different cultural contexts may differ in numerous dimensions, one of which is their self-construal. Social psychological literature has identified self-construal as an important factor that may explain cultural differences. Self-construal refers to how people define themselves: primarily in terms of unique

personal attributes (*independent self-construal*) or in terms of their relationships with other people or groups (*interdependent self-construal*, see Markus & Kitayama, 1991). In general, people in individualistic/Western cultures (such as France) have more independent self-construal: They perceive themselves as unique and separate from others, their own thoughts and feelings are important in guiding emotion and behavior, and are motivated to maintain a positive self-perception. In contrast, people in collectivistic/Eastern cultures (such as Indonesia) have more interdependent self-construal: They perceive themselves as interconnected with others, the thoughts and feelings of others are important guides for their behavior, and are motivated to maintain harmony and be a good member of their group. Moreover, they define themselves in terms of social categories to a greater extent than people in individualistic cultures and emphasize characteristics that they share with others (Triandis, McCusker, & Hui, 1990). One consequence that has been observed is that they also pay more attention to stereotypes of their group (Triandis & Trafimow, 2003).

It seems probable that self-construal is relevant to stereotype threat because stereotype threat involves both the notions of the self and the group. Wout, Danso, Jackson, and Spencer (2008) have proposed the stereotype threat can lead people to fear that the stereotype would apply to them personally (*self-threat*) or be true for the group they belong to (*group-threat*). People tend to perceive the threat as self-threat if they are more concerned about the image of the self. They are afraid that their performance or behavior will confirm a negative stereotype as being true for the self. In contrast, those who are more concerned about the image of the group are likely to

perceive the threat as group-threat. In this situation, they are likely to afraid of contributing to the stereotype of their group, via their performance.

With regard to these distinct types of threats—self and group threats (Wout et al., 2008), people with interdependent self-construal may be likely to perceive the threat as the group threat. In such case, they are afraid that their performance or behavior will confirm a negative stereotype as being true for their group. People with independent self-construal, in contrast, may tend to perceive the threat as the self-threat. They are more likely to be afraid of confirming a negative stereotype as being true for the self. Related to this, the mechanism underlying stereotype threat effects may differ between people with independent and with interdependent self-construal. When a group comparison or stereotype threat is induced (i.e., by stating that the elderly are less cognitively capable than the young), people with independent self-construal may be more concerned about their own performance, of failing or not doing well (i.e., test or performance anxiety). On the contrary, for people with interdependent self-construal, stereotype threat may tend to increase their anxiety about intergroup interactions (i.e., anxiety when interacting with, or anticipating/imagining an interaction with, out-group members). Past studies have documented the role of performance anxiety in the stereotype threat effects (primarily among people in the Western cultures, such as the US, the UK; Osborne, 2001, Abrams et al. 2008, 2006), but studies showing the role of intergroup anxiety are still scarce.

Furthermore, we can further expect that different types of self-esteems moderate the link between stereotype threat and performance. There are two types of self-esteem: individual/personal self-esteem (i.e., the overall feelings of self-worth

and personal value, Rosenberg, 1965, 1979) and collective self-esteem (i.e., the feeling of worth derived from a social group to which one belongs, Crocker & Luhtanen, 1990; Luhtanen & Crocker, 1992). Studies have shown that people with higher individual self-esteem (as opposed to those with lower individual self-esteem) have positive self-evaluation (Brown, Dutton, & Cook, 2001) and tend to distance themselves from the negative self-relevant stereotypes (Mussweiler, Gabriel, & Bodenhausen, 2000). These positive feelings of self-esteem then could help protect the self from stereotype threat and underperformance (Rydell & Boucher, 2010).

Individual self-esteem, however, is more likely to be relevant to performance of people in individualistic culture, such as France. As explained above, people in individualistic culture—with independent self-construal—tend to focus on their own personal value and performance. Thus, if they feel good about themselves and highly evaluate their ability, they may be less affected by stereotype threat. For people in collectivistic culture who have more interdependent self-construal, such as Indonesian people, collective self- esteem may be more relevant to performance. They perceive the group as an essential part of the self, and therefore the extent to which they evaluate their group may affect their performance under the threat. We may expect that high collective self-esteem people to be relatively unaffected by stereotype threat because they have strong positive beliefs about their group, knowing that their group has many positive aspects. Conversely, low collective self-esteem people may suffer from stereotype threat because they tend to be more concerned with the threat or negative stereotype about their group, as they have negative evaluation of their group. Taken together, collective self-esteem may serve

as a buffer for stereotype threat among people with interdependent self-construal, same as the role of individual self-esteem for independent self-people.

Stereotype threat and aging

We will now look at the influences of the factors that have been shown to impact the performance of the elderly so far. A growing body of literature has demonstrated the consequences of stereotype threat among the elderly in diverse domains, including memory (e.g., Hess, Emery, & Queen, 2009; Thomas & Dubois, 2011), cognitive (e.g., Abrams et al., 2006; Swift, Abrams, & Marques, 2013), physical/motor (e.g., Horton, Baker, Pearce, & Deakin, 2010; Swift, Lamont, & Abrams, 2012), and driving skills (mixed of both physical and cognitive abilities, Joanisse, Gagnon, & Voloaca, 2013). Among those domains, two domains that have been studied extensively and shown to be central to the elderly stereotypes are decreasing cognitive and memory abilities. A recent meta-analysis of age-based stereotype threat among the elderly by Lamont, Swift, and Abrams (2015) suggests that the elderly are more affected by stereotype threats when their performance is measured using cognitive and memory tasks. Typically, the results on cognitive-or memory-related stereotype threat among the elderly are consistent with Steele and Aronson's (1995) notion: when the elderly were put in a threatening situation in which the negative stereotypes about cognitive/memory aging became salient, their cognitive/memory performance diminished compared to when the stereotype is not salient.

Threats related to age-associated cognitive or memory abilities could be induced in a number of ways. In some studies, for instance, researchers induced threat by informing that the purpose of the study is to investigate age differences in

memory ability (Hess, Emery, et al., 2009; Hess, Hinson, et al., 2009) or simply to examine memory ability (e.g., Desrichard & Köpetz, 2005). In other studies, negative stereotype about aging was made salient by asking the elderly to read fictional research articles confirming age-related declines in memory (Barber & Mather, 2013; Hess et al., 2003). However, there was also evidence that threat can be induced without mentioning cognitive/memory decline at all. Kang and Chasteen (2009), for example, showed that simply asking the elderly to report their age before doing the task could undermine their memory performance. Thus, similar to stereotype threat research among other groups (e.g., among Black students, Steele & Aronson, 1995), research on stereotype threat among the elderly has also shown that either explicit (e.g., by informing that the elderly would be taking a memory test) or implicit (e.g., by asking the elderly to complete a list of word reflecting negative stereotypes about aging) stereotype activation can impair the memory or cognitive performance of the elderly.

Researchers examining stereotype threat in the elderly have also investigated a number of variables as moderators of age-based stereotype threat effects. They demonstrated that stereotype threat effects could be moderated, as with other stereotyped groups, by identification with the stereotyped domain (Joanisse et al., 2013), identification with their group (in this case, the elderly, Kang & Chasteen, 2009), perceived self-efficacy (Desrichard & Köpetz, 2005), and, specific to the aged or the elderly, intergenerational contacts or contacts with young people (Abrams et al., 2008, 2006). The present research focuses on the last factor, namely intergenerational contacts, which has not been extensively studied and is pertinent to the group of interest here: the elderly.

REDUCING STEREOTYPE THREAT EFFECTS VIA INTERGENERATIONAL CONTACTS

Intergroup contact: Definition and types

Intergroup contact can be defined as an interaction between members of different social groups. In 1954, Allport introduced the contact hypothesis which states that interaction between out-group members, under the right conditions, could reduce prejudice, improve intergroup attitudes, and foster social inclusion. If people have regular intergroup contacts with out-group members, they will gain direct information and learn about the values, behaviors, and experiences of other groups. This first-hand information and learning process may then lead to a better understanding of other group members which result in an increase in positive perception and attitudes and a decrease in stereotypes and prejudice (Ellison & Powers, 1994; Pettigrew, 1998).

The concept of intergroup contact introduced by Allport (1954) was developed on the basis of face-to-face or direct interaction. However, people may not always have the opportunity to engage in direct contacts due to factors such as geographic distance, time, and social constraints. Given the obstacles to direct intergroup contacts, recent approaches have investigated the effectiveness of indirect contacts (i.e., non face-to-face or physical contacts). Dovidio, Eller, and Hewstone (2011) suggested that indirect contacts could be distinguished into three types: extended, vicarious, and imagined.

Extended contact. Extended contact theory, originally proposed by Wright, Aron, Mclaughlin-volpe, and Ropp (1997), refers to the idea that merely knowing that a member of the in-group has close relations with an out-group member can

reduce intergroup bias and ameliorate intergroup attitudes. Christ et al. (2010) suggest that extended contact is likely to be most effective when people live in segregated areas and have lack of opportunities for direct contacts. Many studies have found support for the extended contact effects. For instance, it has been found to predict less prejudice toward Muslims (Pettigrew, Christ, Wagner, & Stellmacher, 2007), promote more positive attitudes towards immigrants (Gomez, Tropp, & Fernandez, 2011) and the elderly (Drury, Hutchison, & Abrams, 2016). Importantly for the present research, extended contacts have also been shown to reduce the effects of stereotype threat on the elderly's performance (Abrams et al., 2006).

Vicarious contact. The main difference between extended and vicarious contact is that vicarious contact involves directly observing the action of another person. This type of indirect contact follows the general principles of Bandura's social learning theory (1986) explaining how people acquire their own values, emotions, and behavioral propensity by observing others (for a review see Dovidio et al., 2011). As do the extended contacts, vicarious contact also have positive effects on intergroup attitudes. Having observed in-group members engaging successfully in intergroup interactions, people learn from the in-group models how to have such successful interactions themselves. Cameron, Rutland, Brown, and Douch (2006), for instance, reported that reading stories featuring disabled and non-disabled children in friendship contexts led the participants (5-10 year old children) to have more positive attitudes toward disabled children. In others studies, Schiappa, Gregg, and Hewes (2006) found that the viewing of a television program with a prominent gay character was associated with lower levels of prejudice toward gays. The results also revealed that the more frequently people view the program, the lower their prejudice.

Imagined contact. Unlike extended and vicarious contacts that involve knowledge and observation of other people, the imagined contact involves only the self (Dovidio et al., 2011). Crisp and Turner (2009) explained that imaged contact is the mental imagery of social interactions involving the self and an out-group. Furthermore, they argued that imagined contact is actually more similar to direct than to extended contacts. Research on mental imagery has shown that *imagining* a particular situation could evoke similar cognitive, emotional, and behavioral effects as the real experience (Dadds, Bovbjerg, Redd, & Cutmore, 1997).

Similar to other forms of contacts, imagined contacts produce positive effects in a variety of contexts. Studies have found that imagined contacts improve positive attitudes (Turner & Crisp, 2010), promote projection of positive traits to out-group members (Stathi & Crisp, 2008), increase the intention to engage in actual intergroup contacts (Husnu & Crisp, 2010), create more positive intergroup feelings and behavior (Turner & West, 2011), promote positive stereotype changes (Brambilla, Ravenna, & Hewstone, 2012). This type of contact has been shown to reduce the effects of stereotype threat in the elderly (Study 2, Abrams et al., 2008).

Intergenerational contacts and stereotype threat on the elderly

The positive effects of intergroup contact have been observed in a variety of social groups, including the elderly and young people, which is the main interest in the present research. Research in intergenerational contacts has shown that increasing the quantity and the quality of contact has advantages for both groups of individuals and society at large. Intergenerational contacts have been shown to promote more positive stereotypes that the elderly and the young have of each other (Meshel & McGlynn, 2004), increase positive attitudes of young people toward the

elderly (Aday, Sims, & Evans, 1991; Bousfield & Hutchison, 2010; Harwood, Hewstone, Paolini, & Voci, 2005; Schwartz & Simmons, 2001), reduce intergroup anxiety and increase more willingness to engage in future contacts (Hutchison, Fox, Laas, Matharu, & Urzi, 2010). Importantly, contacts improve the well-being of the elderly (Hernandez & Gonzalez, 2008) and reduce stereotype threat effects among the elderly (Abrams et al., 2008, 2006).

Research has shown that the different types of intergenerational contacts (i.e., direct/face to face, extended, and imagined) alleviate the effects of stereotype threat among the elderly. In a study, Abrams et al. (2006) conducted an experiment to test the effects of threat and intergenerational contacts (direct and extended) on the cognitive performance of the elderly. Two experimental conditions were created: high-threat and low-threat. In the high-threat condition, participants were told that the purpose of the study was to compare intellectual performance of the elderly to young people. In the low-threat condition, participants were informed that the purpose of the study was to see individual differences in responses to different tasks. Next, participants were asked to perform cognitive ability tests.

After finishing the tests, participants completed questionnaires, including intergroup contacts (i.e., direct and extended contacts). Intergroup contact was assessed using a series of items based on the participants' self-reports. The items included recent quality of contacts with young people (i.e., by subtracting the number of unpleasant contacts from the number of pleasant contacts), the number of young friends, children and grandchildren, contacts with children and grandchildren, and extended contact (the number of elderly friends whose young close friends).

The results revealed that the effect of threat on performance was significantly less for the elderly with more positive contacts, compared to those with more negative contacts. Put another way, intergenerational contacts (i.e., direct and extended contacts) moderate the effects of stereotype threat on the performance of the elderly. Thus, not only direct (face-to-face contacts with young people) but also extended contacts (knowing a same-age friend maintains friendships with young people) could serve as a buffer against stereotype threat.

Abrams et al. (2008) next conducted follow-up studies in an attempt to (1) replicate the effect of direct intergenerational contacts and (2) extend the buffering effects to imagined (vs. real and measured) intergenerational contacts. In Study 1, the authors examined the impact of contacts with grandchildren on the math's performance of the elderly under stereotype threat. The authors used the same stereotype threat manipulation as Abrams et al. (2006): In the high-threat condition, participants were told about the cognitive decline in aging, whereas in the low-threat condition, the instruction did not mention cognitive ability at all. After receiving the manipulation, participants were asked to complete a math test. Once the test was completed, participants indicated the frequency and the quality of contact they had with their grandchildren. The results replicated past studies and revealed that the direct positive contacts with grandchildren reduced stereotype threat effect among the elderly. For those who had less positive contacts with grandchildren, stereotype threat led to poorer performance in the math test. However, for those who had more positive contacts with grandchildren, no stereotype threat effect emerged.

In Study 2, the authors extended the results by showing that *imagined* contact with young people could alleviate stereotype threat effects. In this study, participants

were randomly assigned to one of three conditions: Imagined contact (meeting a young person), Imagined nature scene (no contact), and Control (no threat). In the two imagined conditions, stereotype threat was induced as in Study 1. In the control condition, participants received the same instruction as those given to the participants in the low-threat condition in Study 1. After receiving the instruction, participants completed a set of math questions. The results showed that the effects of stereotype threat were reduced in the elderly who imagined having an interaction with a young person, compared to those who imagined a nature scene. There were no differences in math performance among the elderly in the imagined contact condition and the control condition.

Taken together, the results of Abrams et al. (2006, 2008) suggest that both direct and indirect contacts (i.e., extended and imagined) are effective in eliminating the negative effects of stereotype threat among the elderly. In the section below, we present some possible mechanisms by which intergenerational contacts and stereotype threat may affect performance.

Mediators of the link between intergenerational contacts and stereotype threat

Performance anxiety. Performance anxiety is the fear arises from expectation of a negative outcome resulting from other people's evaluation ("evaluation apprehension"; Crisp & Abrams, 2008). Since the notion of stereotype threat was introduced, performance anxiety has been considered an important variable on the link between threat and performance. It was predicted that the effect of threat on performance is mediated by apprehension or the anxiety of confirming the negative group stereotype (Steele & Aronson, 1995). Within the broader stereotype threat literature across domains and groups, some studies have indeed found the

involvement of performance anxiety in stereotype threat. They showed that individuals under stereotype threat experience greater anxiety and this increased anxiety mediates the relationship between stereotype threat and performance (e.g., Osborne, 2001; Spencer et al., 1999)

Among the elderly, performance anxiety has also been found to mediate the effects of stereotype threat on performance (Abrams et al., 2008, 2006; Swift et al., 2013). Furthermore, related to intergenerational contacts, research showed that performance anxiety mediate the effects of stereotype threat and contacts on performance of the elderly (Abrams et al., 2008, 2006). Specifically, among participants with relatively less positive contacts, stereotype threat increased their performance anxiety, which in turn led to decreased performance. Among participants with relatively more positive contacts, on the other hand, threat had no effect at all. In other words, the elderly who had positive intergenerational contacts felt less anxious about their performance on the test, which in turn resulted in better performance.

Thus, performance anxiety appears to be a good explanation for how stereotype threat and intergenerational contacts affect the elderly's performance. Of course, aside from reducing performance anxiety, intergenerational contacts may also reduce stereotype threat effect through other alternative pathways. It is possible that some of the same mechanisms that have been shown in intergroup literature on the positive effects of contacts on prejudice and out-group attitudes may also play a role in stereotype threat. These include:

Intergroup anxiety. Intergroup anxiety is a feeling of apprehension when anticipating or experiencing an interaction with individuals belonging to out-groups

(Stephan & Stephan, 1985). Research has demonstrated that intergroup contact is associated with reduced intergroup anxiety, which in turn will reduce prejudice and increase positive attitudes. A meta-analysis of more than 500 studies on the relationship between intergroup contact and prejudice revealed that this relationship was significantly mediated by intergroup anxiety. That is, positive contacts between members of the in-group and an out-group would reduce the anxious feeling about (future) interactions with the out-group, which could in turn reduce prejudice.

Intergroup anxiety arises from concerns that the out-group will reject the person in the interaction, form negative evaluation, and behave in an offensive manner toward the person. It can lead people to avoid or break off intergroup interactions (Plant & Devine, 2003; Shelton & Richeson, 2005) and has also been known to be linked with decreased perceived out-group variability (Islam & Hewstone, 1993). When the group is viewed as homogenous, people tend to generalize from a single individual to the group and from the group stereotypes to individual members (Linville & Fischer, 1998). Thus, increased intergroup anxiety promotes reliance on stereotyping (Wilder, 1993), but in contrast, decreased intergroup anxiety leads to reduced stereotyping and improved attitudes toward others (Aberson & Haag, 2007).

Stephan and Stephan (1985) explained that people are more likely to experience intergroup anxiety when there are minimal previous intergroup contacts. By contrast, if people have had previous successful intergroup contacts, their level of intergroup anxiety is probably decreased because they feel more comfortable and relaxed during the interactions.

It is thus probable that intergroup anxiety mediates the effect of stereotype threat and contact on performance. In potentially threatening situations, the elderly who have positive contacts with out-group members do not think about in-group versus out-group, which diminishes thoughts related to group stereotypes. That is to say that intergroup contacts may make people less likely to bring to mind negative stereotypic expectations about each other (in-group and out-group, Crisp & Abrams, 2008; Cuddy, Norton, & Fiske, 2005). For this reason, when an intergroup comparison (i.e., stereotype threat) is implied, those with more positive intergroup contacts would feel less anxious or less fearful about the threat. As a result, threat may not harm their performance and they can have better results than those with less positive contacts.

As well as reducing intergroup anxiety, intergroup contacts can also lead to other consequences, one of which is increased empathy. Empathy is an important variable that is considered to play a significant role in intergroup contact. Although research has yielded a number of different definitions, empathy can be broadly defined as the capacity to understand and respond to other's mental and affective states (Eisenberg, Shea, Carlo, & Knight, 1991). There are two types of empathy: cognitive empathy, also called *perspective taking*, and affective empathy, simply called *empathy* (see, e.g., Smith, 2006).

Perspective taking and empathy. Perspective taking is the ability to take or understand the perspective of someone else. For example, before judging why their children refuse to go to school, the parents imagine the day of their children and make cognitive sense of their children being overwhelmed with many extracurricular activities. Affective empathy, or simply called empathy, is an affective response that

is congruent with other people's emotional condition and drives people to react appropriately to them. For example, when knowing that a friend has lost a loved one, a woman gives her friend a hug because she can feel the same sadness as her friend.

Related to intergroup contact theory, a cross group interaction may enable people to take the point of view of out-group members and empathize with their feelings. Galinsky, Ku, and Wang (2005) suggest that perspective taking and affective empathy follow from the sense of intergroup similarity and a cognitive merging of self and other. During perspective taking process, people apply their self or in-group attributes to out-group members (Aron, Aron, & Smollan, 1992). This in-group-out-group overlap may lead to increased willingness to engage in future contact with out-group members.

A growing body of research has documented the benefits of perspective taking and affective empathy, including reduced stereotyping (Aberson & Haag, 2007; Galinsky & Ku, 2004; Galinsky & Moskowitz, 2000) as well as reduced prejudice and intergroup bias toward out-group members (Shih, Stotzer, & Gutiérrez, 2013; Vescio, Sechrist, & Paolucci, 2003). Perspective taking also increases positive attitudes toward out-group members (Batson, Chang, Orr, & Rowland, 2002) and the satisfaction derived from contacts with out-group members (Blatt, LeLacheur, Galinsky, Simmens, & Greenberg, 2010). It also promotes closer physical contacts (e.g., sit more closely) with a stereotyped (out)group member (Study 4, Todd, Bodenhausen, Richeson, & Galinsky, 2011; Study 1, Wang, Tai, Ku, & Galinsky, 2014).

Both perspective taking and affective empathy may play a role as mediators of the link between threat, contact, and performance. However, perspective taking

might be more relevant than affective empathy in stereotype threat situations. Vorauer and Quesnel (2016) suggest that targets of empathy are typically people with lower power conditions (e.g., the minority group, in this case, the elderly), while targets of perspective taking can be those with higher power conditions (e.g., the majority group, or in our present studies, young people). Previous research has shown that perspective taking can lead people to include stereotypes of others in the self and behave consistently with those stereotypes. Galinsky, Wang, and Ku (2008, Study 2A and 2B) found that people who took the perspective of a professor performed relatively better on an analytic task, but those who took the perspective of a cheerleader performed worse on the same task. Given these results, we predicted that when a group comparison is made on a stereotyped domain (e.g., memory ability), the elderly who have positive contacts with young people might easily take the perspective of the young. That is, they can imagine and put themselves in young people's shoes for a moment and adopt the high self-efficacy beliefs of young people in this situation. Thus, it may consequently protect them from the negative effects of stereotype threat.

OVERVIEW OF THE PRESENT RESEARCH

The main purpose of the present research was to further investigate the role of intergenerational contacts in reducing stereotype threat effects on the performance of the elderly. We investigated this in two different countries or cultures (France and Indonesia). This extends previous research in two ways: First, the present research contributes to existing literature examining the impact of intergenerational contacts on stereotype threat effect that is still in its early stages; Secondly, most of stereotype threat studies on the elderly, or indeed simply studies about stereotypes of the

elderly, have been conducted in Western countries or cultures. Thus, it is still unclear whether the effects of stereotype threat (and intergenerational contacts) on the performance of the elderly extend and generalize to other cultures.

Another goal of the present research was to examine *how* intergenerational contacts (direct and extended) buffer against stereotype threat. In this research, we focused on the mediating roles of anxiety (i.e., performance and intergroup anxieties) and empathy (i.e., perspective taking and affective empathy). Performance anxiety was chosen because it is theoretically still considered a major factor that could account for stereotype threat effect. The other three variables (i.e., intergroup anxiety, perspective taking, empathy) were included as they are considered to be most effective mediators of intergroup contact effects on prejudice (Pettigrew & Tropp, 2008; Swart, Hewstone, Christ, & Voci, 2011). We expected that the role of these three variables in prejudice reduction could be generalized to the domain of stereotype threat.

Thus, we proposed that intergenerational contacts reduce the negative impact of stereotype threats by decreasing anxiety (either intergroup anxiety or performance anxiety) and increasing empathy (perspective taking and/or affective empathy) (see Figure 1). Support for the involvement of performance anxiety in the link between threat, contact and performance has come from previous studies (Abrams et al., 2008, 2006), but studies on the mediating roles of intergroup anxiety, perspective taking, and affective empathy are still lacking.

Moreover, we predicted that culture, in particular related to 'self-construal', might influence the mechanism underlying the effects of threat and contact. People in individualistic culture such as France may have more independent self-construal,

while people in collectivistic culture such as Indonesia may have more interdependent self-construal (see Markus & Kitayama, 1991). The former emphasize the importance of personal characteristic in defining the self, whereas the later the importance of the groups in the self. The distinction in self-construal may influence the way people perceive the threat and the factors that may play a role in stereotype threat effects. For example, elderly people in Indonesia may likely perceive the threat as a threat to the group (i.e., fear of confirming the stereotype for the group, to be a poor representative of their group), whereas the elderly in France may perceive the threat as threat to the self (i.e., fear of confirming the stereotype for him/herself). Consequently, among the elderly in Indonesia, their level of intergroup anxiety might be higher than performance anxiety, whereas among the elderly in France, their level of performance anxiety might be higher than intergroup anxiety. Given these assumptions, the strength of the mediating effects of performance and intergroup anxieties might also differ across the two cultures. Among French elderly, the effects of stereotype threat and contacts on performance are more likely to be mediated by performance anxiety. On the other hand, among Indonesian elderly, it is intergroup anxiety that plays a relatively more important mediating role.

A series of studies were conducted to respond to the questions above. We first looked at the stereotypes of the elderly in Indonesia and in France by asking young Indonesians and French to describe their perception of the elderly (Studies 1A and 1B). The goal was to identify age-related stereotypes in the two cultures before examining stereotype threat effects.

Next, we focused on investigating the effects of stereotype threat and intergenerational contacts on the performance of the elderly, again, in France and in

Indonesia. Specifically, we conducted experiments to test the idea that intergenerational contacts, both inside and outside the family, would reduce vulnerability to stereotype threat through two mechanisms (anxiety reduction and increased empathy). In the first experiments (Studies 2A and 2B) we examined the role of anxiety; and in the second (Studies 3A and 3B), we examined the involvement of empathy in the link between threat, contact, and performance on a memory task. The idea was that more positive contacts should lead to a lower level of anxiety and a higher level of empathy in the elderly, under stereotype-threat situations. Furthermore, as anxiety decreases and empathy increases, performance should improve. Thus, it was predicted that contact would moderate the effects of threat on anxiety and empathy; and anxiety and empathy would mediate the relationship of contact and threat to performance.

In addition, we assessed the moderating role of self-esteem (collective and personal) in performance. High self-esteem (or the positive feelings of self-worth) may be related to better performance and could help mitigate the negative effects that stereotype threat has on performance of the elderly. Past studies have shown that personal-self-esteem could moderate the effects of stereotype threat (e.g., Rydell & Boucher, 2010), but the evidence for collective self-esteem is still lacking. With regard to the culture and self-construal, we proposed that the effects of threat on performance among French and Indonesians may be moderated by different types of self-esteem: It is individual self-esteem (i.e., the feelings of self-worth based on personal value) for the French and collective self-esteem (i.e., the feelings of self-worth based on group membership) for the Indonesians.

Finally, as many countries are concerned about the well-being of the elderly, we also measured the quality of life (one's sense of general well-being, including emotional, social, and physical aspects of his/her life) in the elderly in both countries. Past research has reported that the elderly's well-being affects physical (Collins, Goldman, & Rodríguez, 2008) and cognitive functions (Gerstorf, Lövdén, Röcke, Smith, & Lindenberger, 2007; Llewellyn, Lang, Langa, & Huppert, 2008). Thus, well-being can be considered not only an outcome of but also a source for successful aging. Related to this, we thought that quality of life or general well-being may also help buffer against the influence of stereotype threat. The elderly who have positive feelings about themselves and their lives may be less susceptible to threats associated with negative age stereotypes. In contrast, the elderly who have a lower level of quality of life may tend to be affected by negative stereotypes. Consequently, when exposed with stereotype threat, the elderly with a lower quality of life may perform more poorly than do those with a higher quality of life.

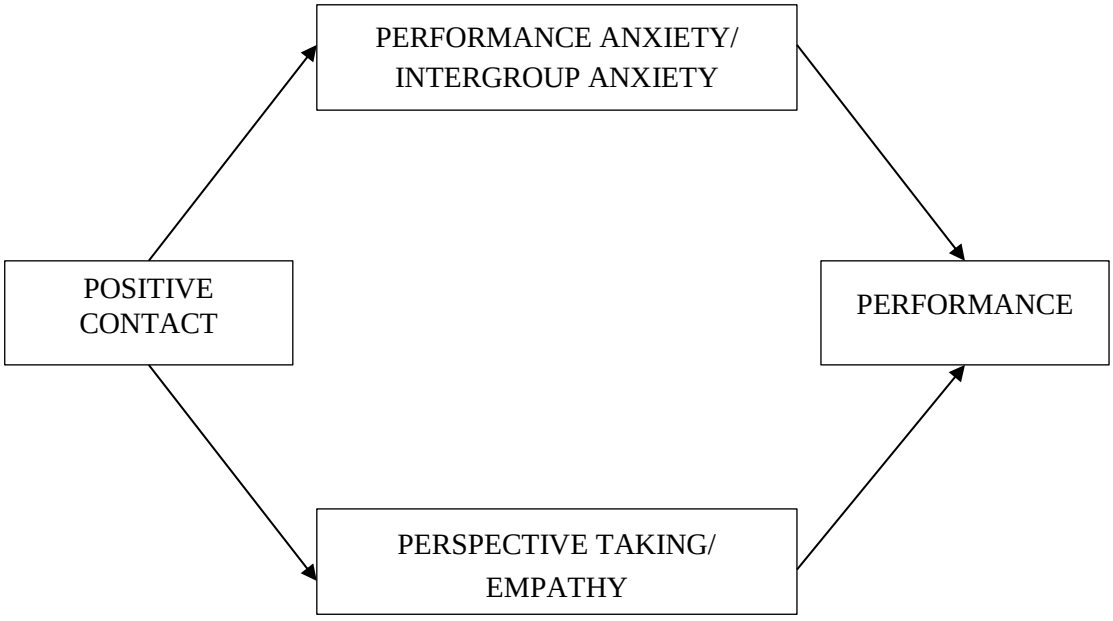

Figure 1. The proposed model of intergenerational contact of stereotype threat effects.

CHAPTER 2

STUDIES 1A AND IB

Exploring stereotypes of the elderly in France and in Indonesia

To investigate the effects of stereotype threat among the elderly in France and in Indonesia, it is necessary to first identify stereotypes associated with the elderly in these two countries. As mentioned in previous chapter (Chapter 1), most studies of stereotypes of the elderly have been conducted in 'western' societies such as the US, Australia, and European countries (e.g., Hummert et al., 1995; Kornadt & Rothermund, 2011). These studies have generally found similar stereotypes of the elderly, containing both positive and negative characteristics. The positive characteristics were mainly related to social/emotional domains, whereas negative stereotypes were mentioned frequently related to physical/mental domains.

Cultural similarities between Western countries suggest that stereotypes of the elderly in France are likely to be similar to those found in other Western countries. In a study about ageism in Europe, Abrams, Russell, Vauclair, and Swift (2011) found that the elderly in France were viewed as less competent but more friendly, supporting the Stereotype Content Model by Fiske, Cuddy, Glick, and Xu (2002). In other study by Macia, Lahmam, Baali, Boëtsch, and Chapuis-Lucciani (2009), French elderly reported that they more often perceived negative stereotypes than positive stereotypes (vs. Moroccan elderly). The majority of those who perceived mainly negative stereotypes, emphasized the feeling of being neglected

(i.e., "People and society do not care about old people) and of lack of respect (i.e., "The young do not respect the old"). Taken together, these studies suggest that stereotypes of the elderly in France are multifaceted with both positive and negative components, but that negative stereotypes may predominate.

In Indonesia, research on stereotypes of the elderly has not been studied, except for a study that we conducted among the Javanese—the largest ethnic group in Indonesia (Febriani & Sanitioso, 2016). We found that adolescents, adults, and Javanese elderly hold both positive and negative beliefs/stereotypes of the elderly, organized in subcategories such as Perfect grandparents, Severely impaired, etc. In contrast to western samples, our results showed that a percentage of adolescent and adult participants spontaneously mentioned "respect" for the elderly in their description. These participants generated more positive statements about the elderly than those who did not mention respect. These findings are similar to those found in studies with participants from cultures that share similar respect values with the Javanese Indonesians (e.g., Chinese with filial piety, see Liu, Ng, Loong, Gee, & Weatherall, 2003), reflecting that although the elderly tend to be stereotyped negatively, respect for the elderly still remains part of the culture and may influence the way people perceive or stereotype the elderly.

In an attempt to add to a growing body of research on elderly stereotypes in Western-Asian cultures, we assessed the stereotypes of the elderly, held by young people in France and in Indonesia. We looked at: (1) the valence of the elderly stereotypes, (2) the subcategories of the elderly stereotype in both countries, and (3) the most frequent descriptions or statements about the elderly. We investigate whether there were any cultural differences in stereotypes of the elderly in French

and Indonesian cultures, in particular related to the cultural value of respecting the elderly.

Method

Participants

Study 1A (FRANCE). Participants were undergraduate students at Université Paris Descartes, France, consisted of 10 male and 56 female students (*Mage* = 22.29, *SD* = 2.42).

Study 1B (INDONESIA). Participants were undergraduate students at Universitas Gadjah Mada, Indonesia, consisted of 27 male and 51 female students (*Mage* = 21.81, *SD* = 2.14)[1].

Studies 1A & 1B Procedure

The same procedure was employed for the two studies in France and in Indonesia. Participants were asked to write words or phrases that come to mind *spontaneously* when they think about, hear, or read about "the elderly". They responded in writing on the provided sheet. There was no limit on the number of responses that participants could give or on the time they take to respond. Furthermore, participants were asked to indicate the age they thought old age to begin ("In your opinion, old age starts at ____?"). Upon completion of the task, the participants were debriefed and thanked for their participation.

[1] We did not ask about the participants' ethnic group, but the campus data showed that almost 60% of students come from Java. In Indonesia, Javanese is the largest ethnic group that make up about 40% of the total population.

Results

Valence of the elderly stereotype (Studies 1A-France and 1B-Indonesia)

All responses were first translated from French and Indonesian to English by the author and two fluent bilingual French-English and Indonesian-English. After translating and computing the total responses, two independent coders coded each response according to valence (positive, negative, and neutral). Unlike some previous studies that removed physical traits from the analysis (e.g., white hair, wrinkled face, see Hummert et al., 1994; Zhang, Hummert, & Garstka, 2002), all responses/traits given by the participants were included in our analyses.

In total, all participants generated 893 statements about the elderly (M = 6.20, SD = 2.52). French participants significantly generated more statements (M = 6.65, SD = 2.26) than did Indonesian participants (M = 5.82, SD = 2.67), $F(1,142) = 3.98$, $p = .048$.

Next, we examined the valence of the elderly stereotypes among the different cultures by conducting a 2x3 ANOVA with culture (France vs. Indonesia) as between-group variable, and valence (positive vs. negative vs. neutral) as within-participant variable. Results yielded a significant main effect of valence, $F(2,284) = 10.71$, $p < .001$ and culture, $F(1,142) = 3.98$, $p = .048$. However, there was no significant interaction between culture and valence, $F(2,284) = .01$, $p = .98$. As can be seen in Figure 2, young people both in France and in Indonesia gave significantly greater number of negative statements (Ms = 2.74 and 2.44, for the French and Indonesians, respectively) than positive (Ms = 2.02 and 1.73, for the French and Indonesians, respectively; all $ps < .05$) and neutral statements about the elderly (Ms = 1.89 and 1.65, for the French and Indonesians, respectively; all $ps < .01$).

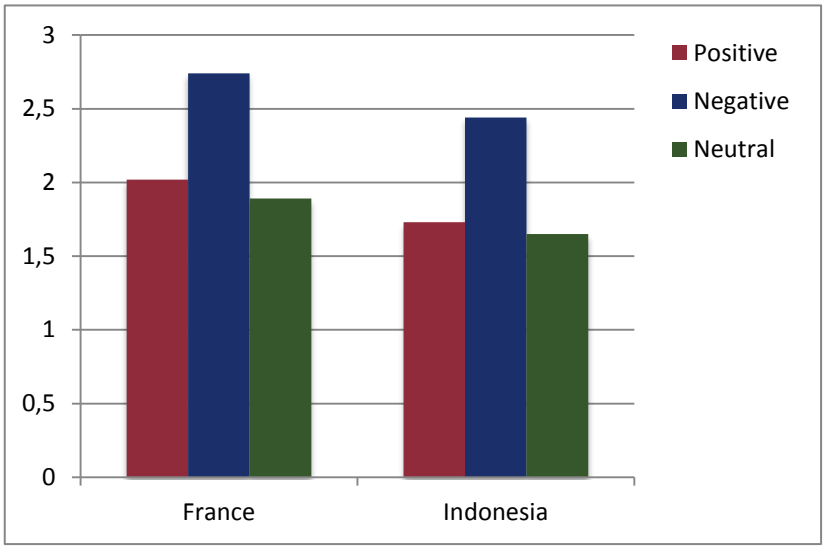

Figure 2. The valence of elderly stereotypes generated by young French and Indonesians.

Subcategories of elderly stereotype

Next, determined by the responses obtained and guided secondarily by past literature (see Schmidt & Boland 1986; Hummert et al., 1994), we created sub-categories based on the responses of the French participants and of the Indonesians, separately. The analysis revealed that there were seven stereotype sub-categories found across the two cultural groups: two negative (Impaired/Diminished states, Negative affective states), three positive (Golden Ager, Perfect Grandparent, Traditional conservative), and one neutral (Signs of aging). In addition, we created a sub-category Respect for Indonesians that included statements such as "Must be respected" and "Exemplary role model", thus, positively valenced. These statements were mentioned only by young Indonesians, but not by young French.

Table 1

Stereotype Subcategories and Their Associated Descriptions (Study 1A-France)

Valence	Subcategory	Traits/descriptions
Positive	Traditional Conservative	Nostalgic (i.e., liking to tell their amazing life experiences), *patriotic*
	Golden Ager	Active, courage, free, happy, healthy/health conscious, mature, *successful, wealth, well traveled*
	Perfect Grandparent	Being grandparent/having grandchildren, caring/loving, enjoy family time, good cooking, guiding, helpful, kind, wise, supportive, knowledgeable, experienced, patient, and self-accepting
Negative	Impaired/Diminished states	Severely impaired (i.e., senile/Alzheimer, forgetful, sick, tremor/Parkinson, *incoherent*, and close to death), mildly impaired (i.e., frail, tired, physical decline, slow, bent, mobility limitation, sexless, susceptible to maladies, hearing impaired), and dependent (i.e., need help and more attention)
	Negative affective states	Bad tempered, bitter, complaining, boredom, fear, lonely, sensitive, regret, sad, and withdrawal
Neutral	Signs of aging	Old, white hair, wrinkles, poor eyesight, toothless, *old/vintage fashion (i.e., beret, corduroy pants),* retired, *living in retirement home*

Note: Italicized statements were found only in France

Table 2

Stereotype Subcategories and Their Associated Descriptions (Study 1B-Indonesia)

Valence	Subcategory	Traits/descriptions
Positive	Traditional Conservative	Nostalgic, *religious* (i.e., praying more and doing many good deeds)
	Golden Ager	Active, courage, free, happy, healthy/health conscious, mature, *independent*
	Perfect Grandparent	Being grandparent/having grandchildren, caring/loving, enjoy family time, good cooking, guiding, helpful, kind, wise, supportive, knowledgeable, experienced, patient, and self-accepting
	Respect	*Must be respected* (whatever their condition), *charismatic*, and *exemplary role model for younger generation*
Negative	Impaired/Diminished states	Severely impaired (e.g., senile/Alzheimer, forgetful, sick, tremor/Parkinson, and close to death), mildly impaired (e.g., frail, tired, physical decline, slow, bent, mobility limitation, sexless, susceptible to maladies, hearing impaired), and dependent (e.g., need help and more attention)
	Negative affective states	Bad tempered, bitter, complaining, boredom, fear, lonely, sensitive, regret, sad, withdrawal, and *miserable (because they live in retirement home[2])*
Neutral	Signs of aging	Old, white hair, wrinkles, poor eyesight, toothless, and retired

Note: Italicized statements were found only in Indonesia

[2] Statement *living in retirement home* stated by young Indonesians is not put in the "Signs of aging" category (compared to French) because the Indonesian participants viewed retirement home as a bad and lonely place that makes the elderly feel miserable.

We then ranked the subcategory in each country in descending order according to the percentage of occurrences of cited information.

Table 3

The Rank of Subcategories of Elderly Stereotype (Study 1A-France)

Rank	Percentage	Subcategory	Valence
1	34.85	Impaired/Diminished states	Negative
2	26.88	Signs of aging	Neutral
3	20.96	Perfect grandparent	Positive
4	6.38	Negative affective states	Negative
5	6.60	Golden Ager	Positive
6	2.73	Conservative	Positive
7	1.59	Other	Neutral

Table 4

The rank of subcategories of elderly stereotype (Study 1B-Indonesia)

Rank	Percentage	Subcategory	Valence
1	35.68	Impaired/Diminished states	Negative
2	27.75	Signs of aging	Neutral
3	17.41	Perfect grandparent	Positive
4	6.17	Negative affective states	Negative
5	4.40	Respect	Positive
6	3.96	Conservative	Positive
6	3.96	Golden Ager	Positive
7	0.66	Other	Neutral

Most frequent descriptions about the elderly

In addition to the subcategories we have presented, we ranked the most frequent descriptions or statements about the elderly listed by young respondents in France and in Indonesia. We applied the same frequency standard used as for

previous studies (Hummert et al., 1994; Zhang, Hummert & Gartska, 2002), that at least 20% or more of the participants cited the description. This ranking did not take into account the ranking of the subcategories, but only the number of times the statement/information was cited. Therefore certain descriptions in subcategories whose number of occurrence was not high can be part of this ranking (e.g., must be respected).

Table 5

Frequently Stereotypical Statements of the Elderly Generated by French (Study 1A)

Rank	Statements	Percent	Valence
1	Old	48.48	Neutral
2	Sick	46.96	Negative
3	Being (lovely) grandparents/having grandchildren	42.42	Positive
4	Retired	30.30	Neutral
5	White hair	28.79	Neutral
6	Retirement home	25.76	Neutral
7	Mobility limitation	24.24	Negative
8	Close to death	22.73	Negative
9	Wrinkle	21.21	Neutral
10	Kind	19.70	Positive

Table 6

Frequently Stereotypical Statements of the Elderly Generated by Indonesians (Study 1B)

Rank	Statements	Percent	Valence
1	White hair	48.72	Neutral
2	Wrinkle	44.87	Neutral
3	Being (lovely) grandparents/having grandchildren	41.02	Positive
4	Cognitive decline/forgetful	26.92	Negative
5	Mobility limitation	24.36	Negative

6	Senile	23.08	Negative
7	Wise	23.08	Positive
8	Old	21.79	Neutral
9	Have to be respected	20.51	Positive
10	Sick	20.51	Negative

Finally, we measured young people's perception on the onset of old age. The results showed that old age was perceived to start at 69 years in France and at 61 in Indonesia.

Discussion

This study aimed to identify the stereotypes of the elderly in France and in Indonesia. We conducted an exploratory study by asking young French and young Indonesians to spontaneously generate stereotypical descriptions about the elderly. By using the answer format of open-ended questions, the participants were allowed to give any answer, as long as they came spontaneously to mind.

Our findings revealed that the stereotypes of the elderly in France and in Indonesia include both positive and negative components. The number of negative characteristics was significantly greater than positive, reflecting that the elderly in France and in Indonesia tend to be stereotyped negatively. When we took a closer look at the most frequent characteristics cited by participants in each country, the negative characteristics were found more often closely related to physical and cognitive traits (e.g., "sick" for the French and "cognitive decline/forgetful" for the Indonesians) than other traits. Somewhat similar findings were reported by Boduroglu et al. (2006) and Harwood et al. (1996, 2001). In their studies, they also

found that people in both Western and Asian countries perceived the elderly negatively on physical/mental descriptions.

Based on contents, traits or stereotypical statements could be grouped into six main subcategories: Diminished states/Impaired and Negative affective states (negative stereotypes); Perfect grandparent, Golden ager, and Conservative (positive stereotypes); and Signs of aging (neutral stereotype). These subcategories were shared by French and Indonesians and were similar to previous studies with participants from Western and/or Asian cultures (Hummert et al., 1994; Liu et al., 2003). In both countries, we found that the subcategory "Impaired/Diminished states" occupied the highest position in all subcategories (34.85% and 35.68% of the total statements, for French and Indonesians, respectively). Again, the results suggest that stereotypes of the elderly are mainly characterized by negative physical and cognitive traits, such as sick, limited mobility, forgetful, and senile. Among positive stereotype subcategories, the subcategory "Perfect grandparent" preponderated over the other (20.96% and 17.41% of the total statements, for French and Indonesians, respectively). The participants indeed viewed the elderly as having the qualities of a good grandparent, such as wise, kind, and loving. These findings are thus in line with Stereotype Content Model which depicts the elderly as being high in warmth but low in competence (Fiske et al., 2002).

We also created the subcategory "Respect" among young Indonesians, but not among the young French. A small percentage of the total number of Indonesian participants mentioned that the elderly are role models for younger generation and must be respected. These results thus supported our previous study reporting the tendencies of younger generations, namely adolescents and middle-aged adults, to

respect the elderly (Febriani & Sanitioso, 2016). The statement "must be respected" was among the ten most frequently cited statements by young Indonesians. Though it reflects that respecting the elderly is still regarded as a value in Indonesia, it is important to note that this value may be decreasing in the society: Only about 20% of our participants spontaneously mentioned respect when they thought of the elderly. There may be changes in, or less conformity to, cultural beliefs due to infusion of 'outside' cultural ideas. Rapid social and economic changes that occur with modernization in developing countries have been observed to lead to different lifestyles that can create intergenerational barriers and bring discredit to the elderly (Nelson, 2005). In the same vein, Do-Le and Raharjo (2002) remarked that modernization in Indonesia tended to alter the structure of the family—from extended to nuclear units—which may reduce face-to-face contacts between the elderly and younger family members. Yet, among the elderly, intergenerational contacts and perceived respect from young people have been shown to increase self-esteem and well-being as well (Cheng, 2009; Teater, 2016). The question related to perceived respect was examined in the next studies, i.e., whether it influences or acts as additional moderator the effects of threat and intergenerational contacts on the performance of the elderly.

In sum, Study 1 provided evidence that the elderly stereotypes in France and in Indonesia are predominantly negative. The elderly stereotypes also contain positive subcategories/characteristics, but negative subcategories or characteristics are more numerous and concern mainly their physical and cognitive abilities. This negative content of the stereotype is a necessary precondition for the examination of stereotype threat effects (Shapiro & Williams, 2012; Steele & Aronson, 1995). The

following studies investigated the effects of stereotype threat and intergenerational contacts on performance of the elderly and the mediating roles of performance anxiety and intergroup anxiety. It was proposed that intergenerational contacts would alleviate stereotype threat effects through reducing performance anxiety and/or intergroup anxiety. We would also include the measures of collective self-esteem, perceived respect, and quality of life (or general well-being) of the elderly. We predicted that these three variables may have a role in the threat-performance link, such that high levels of collective self-esteem, perceived respect, and quality of life may protect against stereotype threat effects.

CHAPTER 3

STUDIES 2A AND 2B

Impact of intergenerational contacts on the performance of the elderly under stereotype threat: The mediating roles of performance anxiety and intergroup anxiety

The second studies (Studies 2A and 2B) were designed to test the positive impact of intergenerational contacts on reducing stereotype threat effects on the performance of the elderly in France and in Indonesia. Furthermore, it was expected that the moderating effect of contacts would be mediated by performance anxiety (the fear of failing a test, arising from knowing that his/her performance is being evaluated) and/or intergroup anxiety (the fear arises from actual or anticipated/imagined interaction with out-group members). With regard to cultural differences (in particular related to self-construal of individuals), as explained in Chapter 1, it seems possible that the strength of mediating roles of performance and intergroup anxieties may differ in French and Indonesian elderly. Among French elderly who perceive the personal and unique characteristics as essential parts of the self (independent self-construal), the moderating effect of intergenerational contacts might be mediated by performance anxiety. Among Indonesian elderly, who perceive the group and relation with others as the essential parts of the self (interdependent self-construal), the effects of threat and contacts on performance might be mediated by intergroup anxiety.

In these studies, participants would be randomly assigned to “high-threat” or to “control/low-threat” condition. To induce stereotype threat, the participants in high-threat condition are told that they would participate in a memory test and that their performance would be compared with the performance of young people. The comparison between the young and the elderly should make the negative stereotype of decreasing memory with aging more salient. We used declining in memory performance to induce threat because a recent meta-analysis of stereotype threat effects on the elderly’s performance revealed that the elderly are more vulnerable to the threat when their performance is tested using memory or cognitive measures (Lamont et al., 2015). In addition, our previous studies (Studies 1A and 1B) also showed that the elderly in France and mainly in Indonesia are stereotyped as having cognitive impairements. For participants in the low-threat condition, the description of the study also made reference to cognitive ability. However, ‘the task’ was introduced as an exercise, not a test. There was also no mention of a performance comparison between the young and the elderly. Instead, we only indicated that we are interested in how each person has a different strategy in completing cognitive exercises. After completing the “memory” task, the participants were asked to complete a number of measures, including: performance anxiety, intergroup anxiety, intergenerational contacts (with young people outside the family and with those within the family such as grandchildren), as well as additional measures: collective self-esteem, perceived respect (the extent to which the participants perceive/feel young people respect the elderly), and the quality of life.

We proposed that stereotype threat would have greater impact on the performance of the elderly who have fewer positive intergenerational contacts, than

on those who have more positive contacts (Abrams et al., 2008, 2006). Therefore we predicted that intergenerational contacts would moderate the effects of threat on the performance of the elderly. Among French elderly, we predicted that contact with the young outside the family and with their grandchildren could moderate the effects of threat on performance. Among Indonesian elderly, in contrast, contact with grandchildren may not moderate the effects of stereotype threat: Only contact with young people outside the family would buffer against stereotype threat effects. Our predictions were made based on the quantity or frequency of contact with grandchildren. Compared to French elderly, the elderly in Indonesia tend to have a high-frequency contact with their grandchildren. In other words, there would be less variability in the amount of frequency of contact with grandchildren among Indonesians. As Niehof (1995) noted, elderly people in Indonesia tend to live with their families, especially their children. In central Java (among Javanese), for instance, most of the elderly live with at least one child or other kin or with at least one child living in the same city/village (Keasberry, 2001).

It was subsequently predicted that the moderating effect of contacts would be mediated by performance anxiety and/or intergroup anxiety. Among participants with relatively less positive contacts, stereotype threat would increase their performance anxiety and/or intergroup anxiety, which in turn lead to a decrease in performance. Among participants with relatively more positive contacts, on the other hand, threats should have no or little effect.

Related to cultural differences, however, we predicted that culture may influence the mediating factor of stereotype threat effects in France and in Indonesia. Given that people in individualistic culture, such as France, place a greater

emphasize on personal characteristics and goals, they might be more anxious about their performance than about their group (or intergroup interaction), when placed in a stereotype threat situation. Their level of performance anxiety, which has implications for the personal self, might be thus higher than their intergroup anxiety. On the other hand, among elderly Indonesians, who are likely to emphasize their groups and social interaction, stereotype threat may significantly increase their intergroup anxiety (the discomfort feeling of having or anticipating intergroup interactions) more than performance anxiety. Consequently, we predicted that different types of anxiety would mediate the effects of threat and contacts on the performance of the elderly in France and in Indonesia: performance anxiety for French elderly and intergroup anxiety for Indonesian elderly.

Furthermore, as mentioned above, we included additional measures, i.e., collective self-esteem, perceived respect, and quality of life. Past research has mostly focused on personal-self-esteem as a factor that moderates stereotype threat (e.g., Rydell & Boucher, 2010). Here, we focused on collective self-esteem or feelings of self-worth based on evaluations of groups one belongs to. It was proposed that, similar to individual self-esteem, collective self-esteem may have a role in mediating stereotype threat effects. People with high collective self-esteem tend to evaluate their group more positively (e.g., more competent) than people with low collective self-esteem (Luhtanen & Crocker, 1992). Thus, when faced with threats to their group, people with high collective self-esteem may be less likely to be affected by the threat and more likely to perform better than those with low collective self-esteem. Collective self-esteem is generally emphasized in collectivistic culture, so we predicted that the moderating role of collective self-esteem would mainly be

found among Indonesians elderly, but not or to a lesser degree among the French elderly.

Additionally, in these studies we measured perceived respect because our previous study (Study 1B, Chapter 2) showed that Indonesian young people think the elderly deserve to be respected. We were further interested in examining the extent to which the elderly, both in France and in Indonesia, perceive or feel they are respected by young people and whether this perception would modulate the effects of threat on performance. The perception or feeling of being respected has been shown to have a crucial role in the elderly's life and is associated with greater feeling of self-worth, well-being, and higher quality of life (Cheng, 2009; Hernandez & Gonzalez, 2008). Given these previous results, we expected that feeling respected by young people may be beneficial and reduce the negative effects of stereotype threat. The elderly who feel respected by young people may not suffer from stereotype threat or a negative stereotype that they are less capable than the young. Restated, perceived respect may moderate the effects of stereotype threat on the performance of the elderly.

Lastly, as well-being of the elderly has received renewed attention in many countries (especially among countries with rapid aging of their population), we measured quality of life, or general well-being, of the elderly. Well-being has been found to be associated with better cognitive functions (Llewellyn et al., 2008) and thus we are interested in examining whether quality of life also plays a role in the stereotype threat-performance relationship.

Method

Participants

Study 2A (FRANCE). Participants consisted of 13 male and 27 female French elderly (M_{age} = 69.85, range = 61-79, *SD* = 5.31) recruited from various social groups and organizations for elderly people. Thirty-seven participants (92.5%) were retired and the remainder still worked or have returned to work after retirement. The average years of education was 13.45 years (*SD* = 1.58). Twenty-one participants (52.5%) lived alone and 19 (47.5%) lived with their spouse. None of them lived with their children and/or grandchildren. The number of grandchildren these participants had ranged from 0 to 9 (*M* = 1.60, *SD* = 2.02). There were 18 participants who had no grandchildren.

Study 2B (INDONESIA). Participants consisted of 15 male and 25 female Indonesian elderly (M_{age} = 69.30, range 61-79, *SD* = 5.31) recruited through the local regents (RT/RW) and from elderly care groups (Posyandu Lansia). Twenty-four participants (60%) were retired, 6 (15%) were still working, and 10 (25%) were housewives (had no prior working experience). The average years of education was 11.98 years (*SD* = 3.76). Thirty-four participants (85%) lived with their spouse or children-grandchildren and the remaining six lived alone. The number of grandchildren these participants had ranged from 0 to 28 (*M* = 6.18, *SD* = 6.24). Among these participants, only one had no grandchildren.

Studies 2A & 2B Procedures & materials

The same procedure was followed for the two studies in France and in Indonesia. Prior to the start of the experiment, participants were informed in writing that they would participate in a study allegedly on "social interaction". They were

further told that they would complete a test and be asked to respond to questionnaires.

Participants were randomly assigned to one of two conditions: high vs. low stereotype threat. Participants in high-threat condition were told that the purpose of the task was "to measure memory performance and to test whether elderly people perform more poorly compared to young people". Participants in low-threat condition were told that the purpose of the task was "to understand how people differ in their strategies on cognitive exercises". After receiving the instruction, participants performed a digit span task from the Wechsler Adult Intelligence Scale-Fourth Revised edition. Participants were asked to listen to sequences of digits and repeat them in forward, backward, and ascending order. There were 48 sequences, which increased in difficulty from 2 to 9 digits each. A score of 0 to 48 was given based on how many items the participants responded correctly.

Following the "test", participants completed questionnaires in the following order: performance anxiety, intergroup anxiety, intergroup contact, collective self-esteem, perceived respect, and quality of life.

Performance anxiety. Performance anxiety was measured using nine items from Osborne (2001). The participants rated how they felt while taking the test on the following items: under pressure, tense, nervous, confident, uneasy, calm, afraid of not doing well, and uncomfortable. All ratings were made on a 7-point rating scale (1 = *not at all*, 7 = *very much*).

Intergroup anxiety. The intergroup anxiety scale measures how the elderly feel while interacting with young people (adapted from Stephan & Stephan, 1985).

They were asked to imagine that they were the only senior citizen and that they had to work with a group of young people. Then, they indicated how they would feel compared to occasions when they were interacting with people from their own age group. Ratings were made on a 7-point rating scale (1 = *not at all*, 7 = *very much*) on the following items: awkward, self-conscious, happy, accepted, confident, irritated, impatient, defensive, suspicious, and careful.

Intergroup contact. To measure prior contacts with young people, we used a questionnaire adapted from Abrams et al. (2006). This questionnaire measures the quality and quantity of contacts with people aged 35 years or younger. We asked the participants to (1) indicate how many pleasant and unpleasant contacts with young people they have had during the previous week. An index of relative pleasantness was obtained by subtracting the number of unpleasant contacts from the number of pleasant contacts. Next, participants were asked to indicate (2) how many close young friends they had, (3) how many friends of their age group have younger friends (extended contact), (4) how many grandchildren they have and how often they see them and (5) how they rate the quality of their relationship with their grandchildren.

Collective self-esteem. A 16-item scale adapted from Luhtanen and Crocker (1992) was used as a measure of self-esteem associated with one's group, in this case, the elderly. All items were answered on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Examples of the items are "In general, older people are considered good by others" and "I frequently regret being an elderly person".

Perceived respect. Perceived respect was measured using a single item: "I think that young people respect the elderly." Participants responded on a 7-point rating scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Quality of life. The brief Older People's Quality of Life Questionnaire (OPQOL-brief, Bowling, Hankins, Windle, Bilotta, & Grant, 2013) measures how participants feel about themselves and their life in various domains, including health, live overall, social relationships and social activities, independence, home and neighborhood, psychological and emotional well-being, and financial circumstances. All ratings were made on 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Examples of items are "I enjoy my life overall" and "I take life as it comes and make the best of things".

All questionnaires were translated from English to French (for Study A) or to Indonesian (for Study B) and back to English (i.e., back translation process). They were also subject to pretesting among the elderly to identify words that were either unclear or incomprehensible. Based on suggestions or answers of the elderly, several items were slightly modified.

Once all questionnaires were completed, participants were asked to rate their health status using the question "In general, would you say your health is _____?" on a scale from 1 (*poor*) to 5 (*excellent*). Finally, participants were asked to state their age, sex, living status, marital status, total years of education, and occupation (retired or working). At the end of session, participants were fully debriefed regarding the purpose of the study, and any questions were answered thoroughly.

Results

Table 7 and 8 present the correlations among main variables and the means and standard deviations of each of these variables. Prior to running the analyses, the health condition and demographic variables were also checked to determine if they were related to threat conditions and performance. We found that health status among subjects in both countries (Studies 2A and 2B) was significantly related with performance. However, their inclusion in the analyses did not influence the effects of threat and contact on performance so they are omitted from the analyses.

Table 7

Correlations between Main Variables and the Means, and Standard Deviations for Each Variable (Study 2A-France)

Variable	2	3	4	5	6	7	8	9	M	SD
1 Health	.48**	-.26	-.15	.08	.32*	.03	-.05	.46**	3.15	.97
2 Performance	—	-.58***	-.23	.32*	.11	-.04	.06	.41**	22.33	4.74
3 Performance anxiety		—	.33*	-.25	-.16	.18	.09	-.35*	22.48	8.20
4 Intergroup anxiety			—	-.19	-.11	.36*	-.01	-.17	20.33	8.64
5 Contact with young outside family				—	-.15	-.08	.21	.37*	0.00	0.00
6 Contact with grandchildren					—	-.12	-.10	.30	1.11	1.16
7 Collective self-esteem						—	.30	.09	73.85	12.49
8 Perceived respect							—	.29	4.83	1.08
9 Quality of life								—	57.28	5.74

Note. Contact with young outside family is factor score
*p < .05. **p < .01. ***p < .001.

Table 8

Correlations between Main Variables and the Means, and Standard Deviations for Each Variable (Study 2B-Indonesia)

Variable	2	3	4	5	6	7	8	9	M	SD
1 Health	.39*	-.29	-.23	.06	-.04	.02	-.12	.39*	3.53	.82
2 Performance	—	-.11	-.53***	.38*	-.18	.34*	.15	.35*	19.73	3.89
3 Performance anxiety		—	.32*	.01	-.20	-.25	.09	-.25	14.15	5.21
4 Intergroup anxiety			—	-.37*	.02	-.31*	.09	-.38*	27.68	9.36
5 Contact with young outside family				—	-.05	.48**	.22	.35*	.00	.00
6 Contact with grandchildren					—	.02	-.02	.15	5.87	3.01
7 Collective self-esteem						—	.37*	.27	88.20	10.68
8 Perceived respect							—	.15	5.63	1.08
9 Quality of life								—	56.10	5.29

Note. Contact with young outside family is factor score
*p < .05. **p < .01. ***p < .001.

The first analysis examined whether there was a difference in performance of the elderly on the digit span task by stereotype threat conditions. One-way analysis of variance (ANOVA) was conducted for French and Indonesians participants, separately. For the French there was a significant difference between high and low-threat conditions, $F(1,38) = 4.86$, $p < .05$. Participants in low threat condition performed significantly better on the digit span task, compared to those in high-threat condition (see Table 9). The same difference was found among Indonesian participants, $F(1,38) = 7.11$, $p < .05$. Thus, in both countries, stereotype threat diminished the performance of the elderly.

Table 9

Performances Mean Score and Standard Deviations (Study 2A-France and 2B-Indonesia)

Performance	High-threat condition	Low-threat condition
French elderly	20.75 (*SD* = 4.76)	23.90 (*SD* = 4.27)
Indonesian elderly	18.20 (*SD* = 3.58)	21.25 (*SD* = 3.65)

Next, we wanted to examine whether intergenerational contacts with young people outside family and with grandchildren could moderate the effects of stereotype threat on performance. Contacts with young people outside the family were measured using three items, namely recent quality of contact (the number of relative pleasantness of contacts the elderly had during the past week), the number of young friends, and extended contact (the number of same-aged friends maintaining friendships with young people) measured the contact quality with young people outside the family. Factor analysis of these items revealed that all loaded on a single factor, which accounted for 63.92% of the variance for the French sample (Study 2A) and for 60.04% of the variance for the Indonesian sample (Study 2B). Consequently, the factor scores were used to determine an index of contact quality with young people outside the family for each participant (relatively less positive to relatively more positive).

For contacts with grandchildren, we used two items to measure the frequency and quality of contacts. Frequency contact were rated from 1 "*never*" to 8 "*every day*", whereas quality of contact were rated on a seven point rating scale, ranging from 1 "*very negative*" to 7 "*very positive*". We then followed the scoring method used by Abrams et al. (2008). For the elderly without grandchildren, we attributed a

score of 1 to point out that they had no positive contact with grandchildren. The decision to give a score of 1 ensured they had a lower score of contact quality than the elderly who had contacts with grandchildren. Aside from these participants, the frequency of contact score among French and Indonesian elderly averaged 1.55 (*SD* = 1.02) and 6.15 (*SD* = 2.93), respectively, representing less than once per week for the French and 5 times or days per week for the Indonesians. Further, the French participants rated the quality of contact at 5 or above (*M* = 6.68, *SD* = .57), while the Indonesian participants rated the quality of contact at 6 or above (*M* = 6.85, *SD* = .36). Next, in order to obtain a weighted index of contact, the frequency scores were multiplied by quality/positivity scores, and then divided by 7 so that the variable was scaled on the same 1-7 range. The weighted contact scores among the elderly with grandchildren averaged 1.91 for the French and 6.02 for Indonesians. The means across all participants were 1.11 (*SD* = 1.58) for the French and 5.87 (*SD* = 3.01) for Indonesians.

Testing Preconditions for the Moderator Analyses

In order to include intergenerational contacts as moderators, we first had to check that intergenerational contacts were not affected by stereotype condition manipulation. A one-way MANOVA was performed separately for the French and the Indonesians, with stereotype threat condition (high threat vs. low threat) as the factor and contact with young people outside the family and contact with grandchildren as the dependent variables. For the French (Study 2A), stereotype condition had no effect either on contact with young people outside the family, $F(1,38) = 1.22$, $p = .28$ (*Ms* = 2.52 and 3.87, for high-threat and for low-threat conditions, respectively), or contact with grandchildren, $F(1,38) = 1.79$, $p = .19$ (*Ms*

= 1.35 and .87, for high-threat and for low-threat conditions, respectively). For the Indonesians (Study 2B), the same results were obtained. There were no significant effects of stereotype condition on contact with young people outside the family, $F(1,38) = .02$, $p = .88$ (*Ms* = 2.08 and 1.94, for high-threat and for low-threat conditions, respectively), or contacts with grandchildren, $F(1,38) = .04$, $p = .85$ (*Ms* = 5.78 and 5.97, for high-threat and for low-threat conditions, respectively). Thus, intergenerational contacts both inside and outside the family could be included as moderator variables in the following analyses.

Moderator analyses

To determine whether intergenerational contacts moderated the relationship between stereotype threat and test performance, we used PROCESS of Preacher & Hayes (Hayes, 2013). Simple moderation was examined using "Model 1" in PROCESS. We did analyses separately for each country (i.e., France and Indonesia)[3] and also for each moderator (i.e., contact with young people outside family and contact with grandchildren).

[3] We also checked three way-interactions of stereotype condition, intergenerational contact, and culture to predict performance of the elderly by using PROCESS "Model 3". We did separate analyses for contact with young people outside family and contact with grandchildren.

For contact with young people outside family, the results showed there was no significant three way interactions of Threat x Contact x Culture. Only the main effect of threat ($b = -2.99$, $t(72) = -2.51$, $p < .05$) and two-way Threat x Contact interaction were significant ($b = 2.78$, $t(72) = 2.47$, $p < .05$). The conditional effect indicated that, in both countries, contact with young people outside the family moderated the link between threat and performance (*effect* = 2.78, $t(72) = 2.47$, $p < .05$, CI = .538 to 5.018 and *effect* = 3.02, $t(72) = 2.03$, $p < .05$, CI = .052 to 5.992, for French and Indonesians, respectively). The effect of threat on performance was significant for the elderly with less positive contact with young people outside the family, but not for the elderly with more positive contact.

For contact with grandchildren, the result showed that the main effects of threat, contact, and culture and all two-way and three way interaction were no significant (all *ps* > .05). Thus, contact with grandchildren did not moderate the link between stereotype threat and performance of the elderly both in France and in Indonesia.

Study 2A (FRANCE). For contact with young people outside the family, the results revealed a significant main effect of threat (b = -5.11, $t(36)$ = -2.94, $p < .01$), but not of contact (b = .06, $t(36)$ = .28, p = .77). Furthermore, the Threat x Contact interaction was significant, b = .82, $t(36)$ = 2.18, $p < .05$. The significant interaction indicated that contact with young people outside the family moderated the effect of threat on performance. The conditional effect showed that threat had a significant effect on performance among the elderly with less positive contact, *effect* = -5.67, $t(36)$ = -2.97, $p < .001$, CI = -9.554 to -1.795, but not among those with more positive contact, *effect* = .67, $t(36)$ = .32, p = .75, CI = -3.495 to 4.833 (see Figure 3). For contact with grandchildren, results revealed a significant main effect of threat (b = -4.18, $t(36)$ = -2.03, $p < .05$), but not of contact (b = .35, $t(36)$ = .32 , p = .75). The Threat x Contact interaction was also no significant, b = .63, $t(36)$ = .46, p = .64, indicating that such contact did not play a role as moderator of stereotype threat.

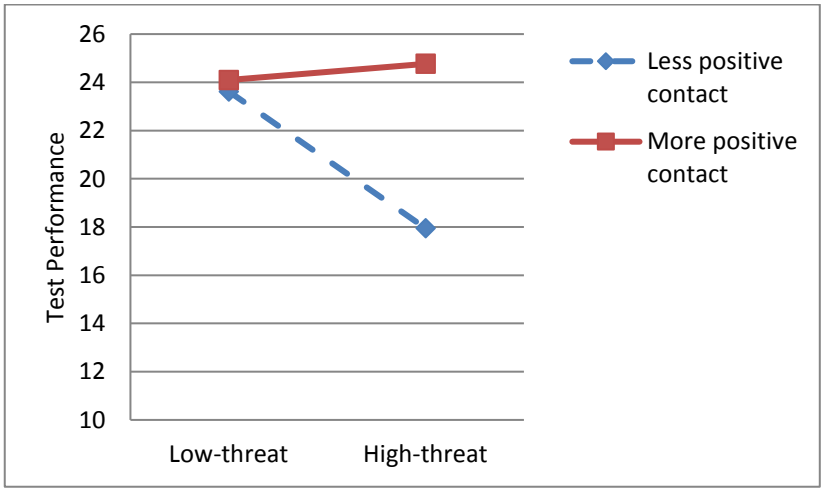

Figure 3. Test performance as a function of threat and amount of positive contact with young people outside the family among French participants.

Study 2B (INDONESIA). Among Indonesian participants, the same pattern emerged: Only contacts with young people outside the family mediated the effect of stereotype threat. For contact with grandchildren, there were no significant effects of

threat (b = -4.30, t(36) = -1.69, p = .09), contact (b = -.35, t(36) = -1.29, p = .20), as well as their interaction (b = .20, t(36) = .53, p = .60), indicating no moderation effect. For contact with young people outside the family, the analysis revealed a significant effect of threat (b = -3.11, t(36) = -3.15, p < .01) and Threat x Contact interaction (b = 2.44, t(36) = 2.40, p < .50). Contact had no significant effect (b = .08, t(36) = .11, p = .91). The conditional effect also indicated that threat had a significant effect on performance among the elderly with less positive contact, *effect* = -5.55, t(36) = -3.93, p < .001, CI = -8.421 to -2.685, but not among those with more positive contacts, *effect* = -.68, t(36) = -.48, p = .64, CI = -3.556 to 2.204, see Figure 4.

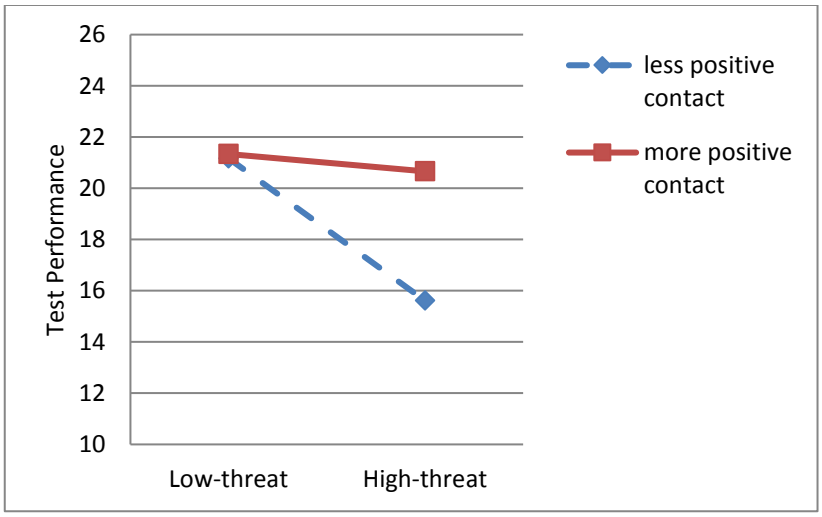

Figure 4. Test performance as a function of threat and amount of positive contact with young people outside the family among Indonesians participants.

Mediated moderation analyses

Following the above results, we tested a moderated mediation model of stereotype threat on performance. We examined if performance anxiety and intergroup anxiety mediate the relationship between threat, contact with young people outside family, and performance. Thus, in these analyses, we included

intergenerational contact outside the family as the moderator, and performance anxiety and intergroup anxiety as the mediator variables (using PROCESS "Model 7").

Study 2A (FRANCE). The results yielded that the interaction between stereotype threat and intergenerational contact was significant for *performance anxiety*, but not for intergroup anxiety (see Table 10). This implies that the indirect effect of the interaction between threat and contact on performance was mediated by performance anxiety. The conditional indirect effects indicated that mediation of performance anxiety was observed among elderly people with less positive contacts (*effect* = -3.28, CI = -6.531 to -.954), but not in those with more positive contacts (*effect* = -.08, CI = -2.251 to 2.772).

Table 10

Mediated Moderation Results for French Participants (Study 2A)

Variables	b	SE	p	LLCI	ULCI
Threat →Performance anxiety (*a1*)	9.96	3.00	<.01	3.871	16.056
Contact → Performance anxiety (*a2*)	.05	.36	.88	-.687	.796
Threat*Contact →Performance anxiety (*a3*)	-1.37	.64	<.05	-2.675	-.059
Performance anxiety →Performance (*b*)	-.30	.09	<.01	-.481	-.121
Threat →Performance (*c'*)	-1.16	1.36	.40	-3.931	1.607
Conditional effect	Effect	SE		LLCI	ULCI
For less positive contact	-3.28	1.44		-6.531	-.954
For more positive contact	-.08	1.35		-2.251	2.772
Index of moderated mediation	.41	.25		.068	1.019

Variables	b	SE	p	LLCI	ULCI
Threat → Intergroup anxiety (*a1*)	4.32	3.59	.24	-2.964	11.608
Contact → Intergroup anxiety (*a2*)	-.07	.44	.89	-.954	.819
Threat*Contact →Intergroup anxiety (*a3*)	-.90	.77	.25	-2.464	.664
Intergroup anxiety →Performance (*b*)	-.02	.08	.78	-.179	.136

Threat →Performance (*c'*)	-1.16	1.36	.40	-3.931	1.607
Conditional effect	Effect	SE		LLCI	ULCI
For less positive contact	-.10	.44		-1.518	.290
For less positive contact	.04	.31		-.334	1.053
Index of moderated mediation	.02	.08		-.069	.289

Study 2B (INDONESIA). In study 2B, the results showed that the interaction between stereotype threat and intergenerational contact was significant for *intergroup anxiety*, but not for performance anxiety (see Table 11). Thus, the indirect effect of the interaction between threat and contact on performance was mediated only by intergroup anxiety. The conditional indirect effects indicated that mediation of intergroup anxiety was observed among elderly people with less positive contacts (*effect* = -2.24, CI = -4.928 to -.439), but not in those with more positive contacts (*effect* = -.18, CI = -1.736 to 1.348).

Table 11

Mediated Moderation Results for Indonesian Participants (Study 2B)

Variables	b	SE	p	LLCI	ULCI
Threat →Performance anxiety (*a1*)	-.31	1.68	.85	-3.723	3.098
Contact → Performance anxiety (*a2*)	1.29	1.32	.34	-1.397	3.980
Threat*Contact →Performance anxiety (*a3*)	-2.07	1.73	.24	-5.586	1.429
Performance anxiety →Performance (*b*)	.025	.108	.82	-.194	.244
Threat →Performance (*c'*)	-1.86	1.12	.10	-4.128	.402
Conditional effect	Effect	SE		LLCI	ULCI
For less positive contact	.04	.35		-.398	1.149
For more positive contact	-.06	.39		-1.368	.454
Index of moderated mediation	-.05	.30		-.845	.361

Variables	b	SE	p	LLCI	ULCI
Threat → Intergroup anxiety (*a1*)	6.30	2.52	<.05	1.196	11.409
Contact → Intergroup anxiety (*a2*)	-.40	1.98	.84	-4.425	3.627

Threat*Contact →Intergroup anxiety (*a3*)	-5.36	2.59	<.05	-10.612	-.108
Intergroup anxiety →Performance (*b*)	-.19	.06	<.01	-.321	-.063
Threat →Performance (*c'*)	-1.86	1.12	.10	-4.128	.402
Conditional effect	Effect	SE		LLCI	ULCI
For less positive contact	-2.24	1.14		-4.928	-.439
For less positive contact	-.18	.75		-1.736	1.348
Index of moderated mediation	1.03	.64		.037	2.590

Taken together, the proposed mediated moderation was supported in both two studies: Anxiety mediated the effect of threat and intergenerational contacts on performance. Most important, it was performance anxiety for French participants and intergroup anxiety for Indonesian participants. Thus, among participants with less positive contacts with young people outside the family, threat undermined performance via increased in performance anxiety for the French and intergroup anxiety for the Indonesians. Among participants with more positive contacts with young people outside the family, threat did not affect performance, nor anxiety.

Additional analyses

As explained previously, we had three additional measures, namely collective self-esteem, perceived respect, and quality of life. We attempted to examine whether these three variables moderate the effect of threat on performance of the elderly.

Among French participants (Study 2A), the results showed that none of the three variables acts as moderator of the relationship between threat and performance. Among Indonesian participants (Study 2B), we found that only collective self-esteem moderated the effect of threat on performance. The result yielded a significant

interaction between threat and collective self-esteem, b = .27, $t(36)$ = 2.74, p < .01. This interaction is shown in figure 5, which represents the conditional indirect effect. Threat had a significant effect on performance among participants with low collective self-esteem (*effect* = -5.75, $t(36)$ = -3.92, p < .001, CI = -8.714 to -2.777), whereas it had no significant effect on those with high collective self-esteem (*effect* = -.021, $t(36)$ = -.01, p = .98, CI = -2.938 to 2.895).

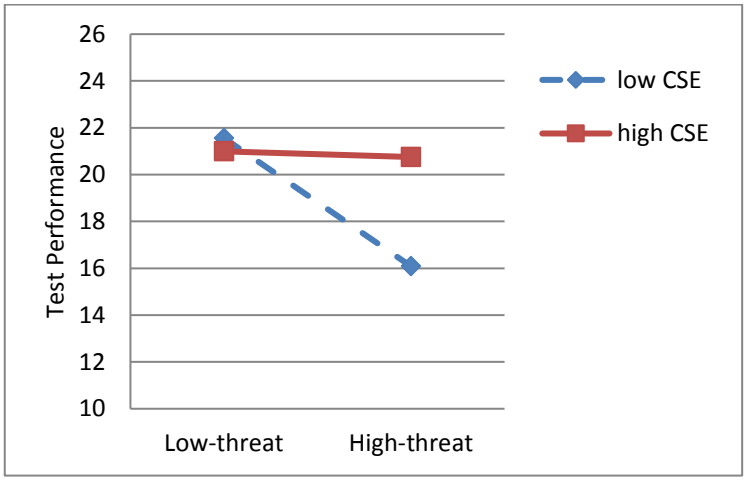

Figure 5. Test performance as a function of threat and collective self-esteem among Indonesians participants.

Discussion

The findings from the above studies primarily showed that stereotype threat diminished the memory performance of the elderly, both in France and in Indonesia. However, these effects were found to be reduced or eliminated with intergenerational contacts: The elderly with more positive intergenerational contacts were less affected by stereotype threats compared to those with less/little positive intergenerational contacts. Among Indonesian elderly, as predicted, the effect of threat on performance was moderated by contact with young people outside the family, but not by contact with grandchildren. Among French elderly, we expected that contacts with young people both outside and inside the family would moderate the effect of threat on

performance. Contrary to expectations, it was observed that while contact with young people outside the family was a moderator, contact with grandchildren did not moderate the effects of threat on performance.

It has been predicted that contacts with grandchildren among Indonesians would not have impact on threat because the majority of the elderly may have positive contacts with their grandchildren, given their cultural values/tradition. The data supported our prediction, showing that the majority of our participants (about 67.5%) saw their grandchildren every day and almost all participants rated their quality of contacts with grandchildren as very positive. The results for the French sample, in contrast, were surprising as previous studies suggest that contacts with grandchildren moderate the effect of threats on performance among the elderly in the UK (Abrams et al., 2008). As France and the UK are considered as individualistic cultures, we expected the results found in the UK to be replicated in France. An alternative explanation for this result may be that we applied a somewhat different measure of contact. In this study, we assessed actual contacts with grandchildren during the previous week, while Abrams et al. (2008) assessed actual contacts during the past year, ranging from never (1) to every day (8). Consequently, we had low scores on frequency of contact, less than once per week, which may be a floor effect. More than half of the participants reported they could not easily meet their grandchildren every week due to geographical distances or busy-ness.

The present results, furthermore, revealed that contacts with young people outside the family moderated the effects of threat on performance through anxiety. Specifically, for the elderly with less positive contacts with young people, threat led to increases in anxiety, which subsequently decreases memory performance. For the

elderly with more positive contacts with young people, threat did not affect anxiety and performance. Interestingly, among French and Indonesians, different types of anxiety mediated the moderating effects of contacts: performance anxiety in France and intergroup anxiety in Indonesia. In other words, when placed in test situations mentioning memory performance differences between the elderly and the young, French elderly felt more anxious about their performance on the test, while Indonesian elderly felt more anxious about their interaction with young people.

The findings in French participants are consistent with previous research showing that the effects of threat and contact on performance were mediated by performance-related anxiety (Abrams et al., 2006, 2008). Indeed, the awareness of negative stereotypes about the elderly could lead to anxiety of performing poorly and of confirming the negative stereotype for the self. However, it is important to note that while we (and few previous studies) have found evidence of the mediating role of performance anxiety, most research on stereotype threat among the elderly failed to find it (e.g., Chasteen et al., 2005; Hess et al., 2003; Hess & Hinson, 2006). The mixed results may be due to variations in the timing of the measurement of performance anxiety (e.g., before, during, and after a test), a factor that has to be taken into account in future studies.

There is suggestion from our data, however, that in both countries the elderly with a high level of intergroup anxiety tended to have a higher level of performance anxiety and vice versa. In other words, intergroup anxiety and performance anxiety were positively correlated (r = .33 and .32, for French and Indonesians, respectively). But, as mentioned above, we observed that these two forms of anxiety had different impacts on the performance of the elderly in France and in Indonesia. Correlational

analyses also demonstrated that, for the French participants, high levels of performance anxiety correlated with low performance (r = -.58, p < .001), but high levels of intergroup anxiety did not (r = -.23, p = .07). For Indonesians, by contrast, it was intergroup anxiety that was related with performance (r = -.53, p < .001), and not performance anxiety (r = -.11, p = .51).

One possible explanation of these findings may lie in the cultural differences related to, among others, self-construal. It seems possible that among French elderly who are likely to have an independent self-construal, stereotype threat situations may lead them to be concerned about confirming the negative stereotypes for the self (*self-threat*, see Wout et al., 2008). This concern might unconsciously increase their performance anxiety instead of intergroup anxiety. In the same situation, Indonesians elderly who are likely to have more interdependent self-construal, may be more concerned about confirming the negative stereotypes for their group (*group-threat*). Afraid that their group would be stereotyped negatively (or that their performance contribute to the negative reputation of their group) may render them anxious of having or anticipating interactions with young people.

In these studies, we did not directly measure self-construal (independent or interdependent) and perceived stereotype threat (i.e., whether the threat is perceived as a self- or group-threat), but the idea that the Indonesian elderly tend to have a high concern for their group is partially supported by collective self-esteem measure. We found that collective self-esteem moderated the effect of threat on performance among Indonesians, but again not among French. The elderly in the stereotype threat condition showed poorer memory performance compared to those in the control condition, but only if they had lower collective self-esteem. The elderly who felt

positive about their group performed equally well to the elderly in the control condition, despite the induction of stereotype threat. Again, we can speculate here that the elderly in Indonesia might perceive the threat as the group threat, so those with low collective self-esteem—who evaluate their group more negatively—tended to be more susceptible to stereotype threat. Among French elderly, we did not find the moderating effect of collective self-esteem. It could be case that the stereotype threat effects among French elderly are moderated by personal or individual self-esteem, as has been shown among female undergraduates in the US (Rydell & Boucher, 2010). Therefore the next studies would investigate whether individual self-esteem moderates the effects of stereotype threat on performance of French elderly.

Finally, in both countries, we did not find a significant effect of the moderating roles of perceived respect and quality of life. Perceived respect also did not related with performance of the elderly in both countries. However, for quality of life, we found that a high level quality of life was related with better performance of the elderly both in France and in Indonesia. These findings thus support previous research suggesting that quality of life or well-being may help to maintain cognitive function among the elderly (Gerstorf, 2007, Llewellyn et al., 2008).

To sum up, the studies 2A (France) and 2B (Indonesia) suggest that, in both countries/cultures, intergenerational contacts with young people outside the family, but not with grandchildren, can prevent performance decrements under stereotype threat conditions. Further, anxiety was observed to mediate the effects of threat and contact on performance. However, across countries, there were different types of anxiety that appear to be involved: It was performance anxiety among the French

elderly and intergroup anxiety among the Indonesians. These results suggest that culture influences the way people react to stereotype threat. The following studies again investigated the impact of intergenerational contacts, both outside and inside the family, on performance of the elderly under stereotype threat. We investigated the idea that the moderating effect of contacts may be mediated by other variables, namely perspective taking and empathy. In addition, we included the following measures: perceived respect and quality of life (for the participants in the two countries) and individual self-esteem (only for the French participants, given the absence of moderating effects of collective self-esteem).

CHAPTER 4

STUDIES 3A AND 3B

Impact of intergenerational contacts on the performance of the elderly under stereotype threat: The mediating roles of perspective taking and empathy

Studies 3A and 3B sought to replicate the results of studies 2A and 2B concerning the moderating effects of intergenerational contacts in the relationship between stereotype threat and performance of the elderly in two countries, i.e., France and Indonesia. At the same time, these studies also explored variables other than anxiety that may mediate the effects of stereotype threat. Based on a review on the intergroup contact literature (see Crisp & Abrams, 2008), it was proposed that empathy may potentially mediate the effects of threat and contacts on performance of the elderly.

In the literature, empathy is said to include cognitive as well as affective components. Cognitive empathy, or called perspective taking, is associated with cognitive capacity to take the perspective of someone else. Whereas affective empathy, or simply called empathy, is associated with the emotional capacity to understand and share the emotional state of another person. The intergroup contact literature has suggested that increased contact quantity and better contact quality lead to improvements in perspective taking and empathy. Moreover, increased perspective taking has also been shown to relate with lessened intergroup anxiety (Aberson & Haag, 2007). This type of anxiety has been found to mediate the moderating effect of

intergenerational contact on the threat-performance relationship in our previous study (Study 2B-Indonesia).

Given the association among contacts, perspective taking, and intergroup anxiety in existing literature (Aberson & Haag, 2007), perspective taking may indeed play a mediating role in the effects of threat and contacts on performance of the elderly. Perspective taking also seems to be more relevant than empathy on stereotype threat study. In contrast to perspective taking that focuses on cognitive processes, empathy focuses on how we feel toward others (e.g., compassionate, warm). Moreover, targets of empathy are generally those with lower power (e.g., minority group, disadvantaged people), whereas targets of perspective taking can be or typically those with higher power conditions (e.g., majority group, see Vorauer & Quesnel, 2016). Related to the present studies, it is possible that the elderly (as a minority and lower power group) who have more intergenerational contacts are able to take the perspective of young people (as the majority) when they are induced with stereotype threat (e.g., via intergroup comparison). In a stereotype threat situation, the elderly may espouse self-efficacy beliefs of young people and, as a result, protect themselves from the negative effects of stereotype threat. However, since perspective taking and affective empathy are often studied together, we measured the two variables in these studies.

In the present studies, the basic design of Studies 2A and 2B was replicated. The measurements used were also the same, except that the anxiety measure was replaced by empathy measures. Thus, after completing the "memory" task, the participants would be asked to complete the following measures: perspective taking, empathy, intergenerational contacts (with young people outside the family and with

grandchildren), as well as additional measures: perceived respect and quality of life (for French and Indonesians), and individual self-esteem (only for French[4]).

For French participants, we predicted, again, that intergenerational contacts both within and outside the family would moderate the effects of threat on performance of the elderly. Among Indonesian elderly, in contrast, only contact with young people outside the family would mitigate stereotype threat effects. Contact with grandchildren would not serve a moderating function because most of the elderly in Indonesia have a high-quantity and quality of contact with their grandchildren. Furthermore, it was predicted that the moderating effects of intergenerational contacts were likely to be moderated by perspective taking and empathy. Among the elderly in high-threat condition, higher positive contacts should increase perspective taking and empathy, which then might lead to a better performance. In contrast, less positive contacts would be related to lower perspective taking and empathy, which should in turn predict low performance.

In addition, we again examined whether these two variables moderated the effects of stereotype threat on performance of the elderly. Although we failed to find moderating effects of perceived respect and quality of life in our previous studies (2A and 2B), we still included these measures as they were related to performance and because of their importance as a cultural difference factor (respect was part of the elderly stereotype in Indonesia, but not in France) and a well-being factor (Cheng, 2009). It was predicted that the elderly who have a greater positive feelings

[4] In study 2A (France), we found that collective self-esteem did not moderate the effects of stereotype threat on performance of French elderly. Based on this result, we came up with the idea of measuring individual self-esteem and predicted that this type of self-esteem might be more likely to act as a moderator of stereotype threat among the French.

about themselves and their life and perceive being respected by young people may suffer less from stereotype threats.

Last, as mentioned above, we added one more additional measure for French participants, namely individual self-esteem. With regard to cultural differences, individual self-esteem is considered as an important factor in influencing behavior, performance, and well-being in individualistic culture (Triandis & Suh, 2002). People in individualistic culture, such as France, tend to evaluate themselves based on their performance and personal values. It has been shown that self-esteem leads to better performance (Kuster, Orth, & Meier, 2013). Related to stereotype threat, it seems possible that people who feel good about themselves and highly evaluate their ability may less affected by negative stereotypes or stereotype threat. In other words, individual self-esteem may moderate the effect of stereotype threat on performance of the elderly in France.

Method

Participants

Study 3A (FRANCE). Forty French elderly (15 male and 25 female) were recruited from various social groups and organizations for elderly people. Their age ranged from 61 to 79 years (M = 69.13, SD = 4.47). Thirty-seven participants (92.5%) were retired, one still worked, and two were housewives (had no prior working experience). The average years of education was 13.40 years (SD = 2.48). Twenty-three participants (57.5%) lived alone and 17 (42.5%) lived with their spouse. None of them lived with their children and grandchildren. The number of

grandchildren they had ranged from 0 to 4 (*M* = 1.38, *SD* = 1.49). There were 17 participants who had no grandchildren.

Study 3B (INDONESIA). Forty Indonesian elderly (12 male and 28 female) were recruited through the local regents (RT/RW) and from elderly care groups (Posyandu Lansia). Their age ranged from 61 to 79 years (*M* = 68.55, *SD* = 6.12). Fifteen participants (37.5%) were retired, 5 (12.5%) were still working, and 20 (50%) were housewives (had no prior working experience). The average years of education was 9.78 years (*SD* = 3.35). Thirty-six participants (90%) lived with their spouse and/or children/grandchildren and the remainder lived alone. The number of grandchildren they had ranged from 0 to 18 (*M* = 6.60, *SD* = 5.74). There were 5 participants who had no grandchildren.

Studies 3A & 3B Procedures & materials

The procedure for Studies 3A and 3B was identical to that for Studies 2A and 2B. Participants were randomly assigned to one of two conditions: high-threat (task was identified a memory test and their performance will be compared to that of the young) or low threat (the task was presented as a cognitive exercise). Furthermore, participants were asked to perform a digit span task from the Wechsler Adult Intelligence Scale-Fourth Revised edition. They listened to a sequence of digits and asked to repeat the sequences in forward, backward, and ascending order.

Following the "task", participants in both countries completed questionnaires in the following order: perspective taking, empathy, intergroup contact, perceived respect, and quality of life. For French participants, there was also one more additional questionnaire, namely individual/personal self-esteem.

Perspective taking. Intergroup perspective taking was measured using a 5 items scale adapted from Hodson, Choma, and Costello (2009). Participants were asked to indicate their perspective taking of young people's on items such as "I can think as most young people think", "I can easily imagine the daily lives of young people". All ratings were made on a 7-point rating scale (1 = *strongly disagree*, 7 = *strongly agree*).

Empathy. Affective empathy was measured using six items adapted from Batson et al. (1997). Participants indicate the extent to which they felt towards young people: sympathetic, compassionate, softhearted, warm, tender, and moved. All ratings were made on a 7-point rating scale (1 = *not at all*, 7 = *very much*).

Intergroup contact. To measure the quality and quantity of contact with people aged 35 years or younger, we used the same questionnaire as in the Studies 2A and 2B, adapted from Abrams et al. (2006). There are two types of intergenerational contact: contacts with people outside the family and contacts with grandchildren. We asked the participants to (1) indicate how many pleasant and unpleasant contacts with young people they have had during the previous week. An index of relative pleasantness was obtained by subtracting the number of unpleasant contacts from the number of pleasant contacts. Next, participants were asked to indicate (2) how many close young friends they had, (3) how many friends of their age group have younger friends (extended contact), (4) how many grandchildren they have and how often they see them and (5) how they rate the quality of their relationship with their grandchildren.

Perceived respect. As in Studies 2A and 2B, perceived respect was measured using a single item: "I think that young people respect the elderly." Participants responded on a 7-point rating scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Quality of life. This questionnaire was the same one as those in Studies 2A and 2B. The brief Older People's Quality of Life Questionnaire (OPQOL-brief, Bowling et al., 2013) measures how participants feel about themselves and their life in various domains, such as health, social relationships and social activities, and psychological and emotional well-being. All ratings were made on 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Examples of items are "I enjoy my life overall" and "I take life as it comes and make the best of things".

Individual self-esteem (only for the French-Study 3A). The French 10-item version of the Rosenberg self-esteem scale was completed as a measure of global self-esteem (Vallieres & Vallerand, 1990). All items were answered on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Examples of items are "On the whole, I am satisfied with myself" and "I certainly feel useless at times".

All questionnaires but individual self-esteem were translated from English to French (for Study 3A) or to Indonesian (for Study 3B) and back to English (i.e., back translation process). They were also subject to pretesting among the elderly to identify words that were either unclear or incomprehensible.

Finally, participants were asked to rate their health condition on a scale from 1 (*poor*) to 5 (*excellent*) and to provide background information (i.e., age, sex, living

status, marital status, total years of education, and occupation [retired or working]) before being thanked and fully debriefed.

Results

Prior to running the analyses, the health condition and demographic variables were checked to determine if they were related to threat condition and performance. We found that health status, among French and Indonesians, were significantly correlated with performance. In addition, as has been observed in previous studies (e.g., Pratt, Diessner, Pratt, Hunsberger, & Pancer, 1996), health was also significantly related with perspective taking. Therefore, health was used as a covariate in all further analyses. Table 12 and 13 present the correlations between main variables and the means, and standard deviations of each of these variables.

Table 12

Correlations between Main Variables and the Means, and Standard Deviations of Each of the Variable (Study 3A-France)

Variable	2	3	4	5	6	7	8	9	M	SD
1 Health	.42**	.34*	.24	.02	.15	.35*	.36*	.33*	3.45	.93
2 Performance	—	.41**	.50**	.21	.14	.49**	.35*	.48**	21.55	4.52
3 Perspective taking		—	.09	.28	.13	.09	.34*	.40*	22.38	5.54
4 Empathy			—	.19	.08	.46**	.17	.17	32.55	6.35
5 Contact with young outside family				—	.28	-.01	.33*	-.15	.00	.00
6 Contact with grandchildren					—	.15	.31	-.03	1.34	1.40
7 Perceived respect						—	.18	.30	4.83	1.45
8 Quality of life							—	.24	57.30	6.32
9 Individual self-esteem								—	32.90	3.56

Note. Contact with young outside family is factor score
*p < .05. **p < .01. ***p < .001.

Table 13

Correlations between Main Variables and the Means, and Standard Deviations of Each of the Variable (Study 3B-Indonesia)

Variable	2	3	4	5	6	7	8	M	SD
1 Health	.41**	.43**	.25	.26	.27	.05	.43**	3.70	.97
2 Performance	—	.45**	.40*	.50**	-.15	.09	.41**	19.75	4.95
3 Perspective taking		—	.43**	.62***	-.03	.22	.26	21.57	5.94
4 Empathy			—	.39*	-.02	.27	.38*	34.43	4.83
5 Contact with young outside family				—	-.01	.07	.50**	.00	.00
6 Contact with grandchildren					—	.20	.19	5.44	3.12
7 Perceived respect						—	.32*	5.13	1.36
8 Quality of life							—	56.13	5.75

Note. Contact with young outside family is factor score
*p < .05. **p < .01. ***p < .001.

The first analysis examined whether there was a difference in performance of the elderly across stereotype threat conditions. One-way analysis of variance (ANOVA) was conducted for French and Indonesians participants, separately. For the French there was a difference across conditions, $F(1,38) = 10.17$, $p < .01$. Those in high threat condition had lower performance compared to those in low threat condition (see Table 14). After controlling for health, the difference remained significant, $F(1,37) = 6.86$, $p < .05$. The same difference was found among Indonesian participants, $F(1,38) = 4.89$, $p < .05$. The difference also remained significant after controlling for the health, $F(1,37) = 6.78$, $p < .05$.

Table 14

Performance Mean Scores and Standard Deviations (Study 2A-France and 2B-Indonesia)

Performance	High-threat condition	Low-threat condition
French elderly (Study 3A)	19.50 (*SD* = 4.03)	23.60 (*SD* = 4.10)
Indonesian elderly (Study 3B)	18.10 (*SD* = 5.16)	21.40 (*SD* = 4.23)

Next, we aimed to examine whether intergenerational contacts with young people outside family and with grandchildren could moderate the effect of stereotype threat on performance. As in Studies 2A and 2B, contacts with young people were measured using three items (how many pleasant and unpleasant contacts with young people the elderly had had during the previous week, how many close young friends the elderly had, how many friends of their age group have younger friends). Factor analysis of these items revealed that all loaded on a single factor, which accounted for 70.52% of the variance (for the French-Study 3A) and for 52.25% of the variance (for Indonesians-Study 3B). The factor scores were used to determine an index of contact quality with young people outside the family for each participant.

For contacts with grandchildren, we used two items to measure the frequency and quality of contacts. Frequency contacts were rated from 1 "never" to 8 "every day", whereas the quality of contact was rated on a seven point rating scale, ranging from 1 "*very negative*" to "*very positive*". For the elderly without grandchildren, we attributed a score of 1 to point out that they had no positive contact with grandchildren. For the elderly without grandchildren, we attributed a score of 1 to point out that they had no positive contact with grandchildren. Aside from these participants, the frequency of contact score among French and Indonesian elderly averaged 2.52 (*SD* = 1.30) and 6.71 (*SD* = 2.47), respectively, representing about

once or twice per week for the French elderly and almost 6 times or days per week for Indonesians. Further, all but 1 French participant rated the contact quality at 4 or above (M = 6.04, SD = 1.11), while the Indonesian participants rated the quality of contact at 6 or above (M = 6.80, SD = .47). Next, in order to obtain a weighted index of contact, the frequency scores were multiplied by quality/positivity scores and divided by 7 so that the variable was scaled on the same 1-7 range. The mean contact scores were 1.33 (SD = 1.40) for the French/Study 3A and 5.44 (SD = 3.12) for Indonesians/Study 3B.

Testing Preconditions for Moderator Analyses

In order to include intergenerational contacts as moderators, we first checked that intergenerational contacts were not influenced by stereotype threat condition. A one-way MANOVA was performed separately for the French and the Indonesians, with stereotype threat condition (high threat vs. low threat) as the factor and contact with young people outside the family and contact with grandchildren as the dependent variables. For the French (Study 3A), results showed no significant effect of stereotype condition either on contact with young people outside the family, $F(1,37) = 1.95$, $p = .17$ (Ms = 5.54 and 8.45, for high-threat and for low-threat conditions, respectively), or contact with grandchildren, $F(1,37) = 1.65$, $p = .21$ (Ms = 1.01 and 1.66, for high-threat and for low-threat conditions, respectively). For the Indonesians, the same results were obtained. Stereotype condition had no effect either on contact with young people outside the family, $F(1,37) = .29$, $p = .59$ (Ms = 2.14 and 1.63, for high-threat and for low-threat conditions, respectively), or contact with grandchildren, $F(1,37) = 1.57$, $p = .22$ (Ms = 6.08 and 4.80, for high-threat and for low-threat conditions, respectively). Therefore, intergenerational contacts both

inside and outside the family could be included as moderator variables in the subsequent analyses.

Moderator analyses

Simple moderation was examined using "Model 1" in PROCESS (Hayes, 2013). We did analyses separately for each country (i.e., France and Indonesia)[5] and also for each moderator (i.e., contact with young people outside family and contact with grandchildren).

Study 3A (FRANCE). For contact with young people outside the family, the was a significant effect of threat (b = -2.70, t(35) = -2.21, p < .05), but not of contact (b = -.30, t(35) = -.44, p = .66). The interaction between threat and contact was significant, b = 3.52, t(35) = 2.38, p < .05, indicating the moderating effect of contact on performance. The conditional effect estimates showed that threat had a significant effect on performance among the elderly with less positive contacts, *effect* = -6.22, t(35) = -3.60, p < .01, CI = -9.723 to -2.716, but not among those with more positive contacts, *effect* = .83, t(35) = .43, p = .67, CI = -3.105 to 4.757 (see figure 6).

[5] We also checked three way-interactions of stereotype condition, intergenerational contacts, and culture to predict performance of the elderly by using PROCESS "Model 3". We did separate analyses for contact with young people outside family and contact with grandchildren.

For contact with young people outside family, the results showed there was no significant three way interactions of Threat x Contact x Culture. Only the main effect of threat (b = -2.69, t(71) = -2.30, p < .05) and two-way Threat x Contact interaction were significant (b = 3.52, t(71) = 2.64, p < .05). The conditional effect indicated that contact with young people outside the family moderated the link between threat and performance of the elderly both in France and Indonesia (*effect* = 3.52, t(71) = 2.64, p < .05, CI = .859 to 6.186 and *effect* = 2.97, t(71) = 2.24, p < .05, CI = .329 to 5.621, respectively). The effect of threat on performance was significant for the elderly with less positive contacts with young people outside the family, but not for the elderly with more positive contacts.

For contact with grandchildren, the result showed the same pattern: Only the main effect of threat (b = -5.84, t(71) = 2.21, p < .01) and two-way Threat x Contact interaction were significant (b = 2.13, t(71) = 2.21, p < .05). However, the conditional effect indicated that contact with young people outside the family moderated the link between threat and performance among French elderly (*effect* = 2.13, t(71) = 2.21, p < .05, CI = .208 to 4.046), but not among Indonesians elderly (*effect* = .22, t(71) = .52, p = .60, CI = -.628 to 1.072). Thus, contact with grandchildren only moderated the link between stereotype threat and performance of the elderly in France.

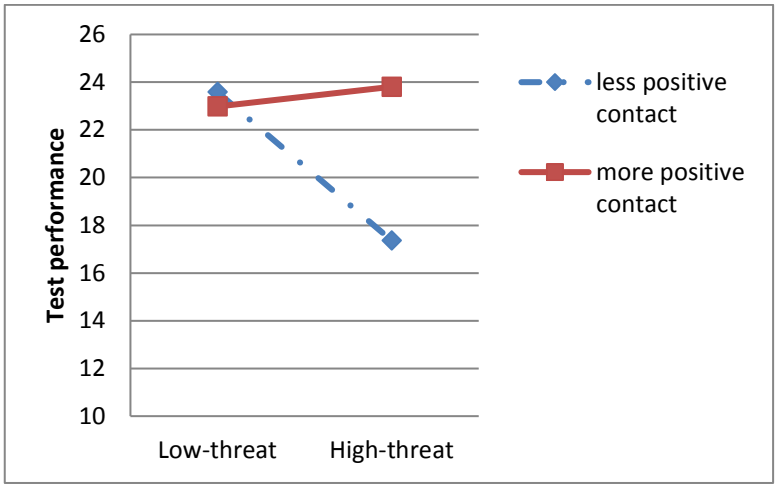

Figure 6. Test performance as a function of threat and amount of positive contact with young people outside the family among French participants.

For contact with grandchildren, the results revealed a significant effect of threat, b = -6.20, $t(35)$ = -3.67, $p < .01$. There was no significant effect of contact, b = -3.82, $t(35)$ = 1.50, p = .14. Moreover, the Threat x Contact interaction was significant, b = 2.22, $t(35)$ = 2.49, $p < .05$. The conditional effect estimates showed that the effect of threat on performance was significant for the elderly with less positive contacts, *effect* = -5.89, $t(35)$ = -3.66, $p < .001$, CI = -9.147 to -2.625, but not for those with more positive contacts, *effect* = -.13, $t(35)$ = -.07, p = .94, CI = -3.734 to 3.469 (see figure 7). Thus, among French elderly, both contacts with young people outside the family and contacts with grandchildren moderated the effects of threat on performance.

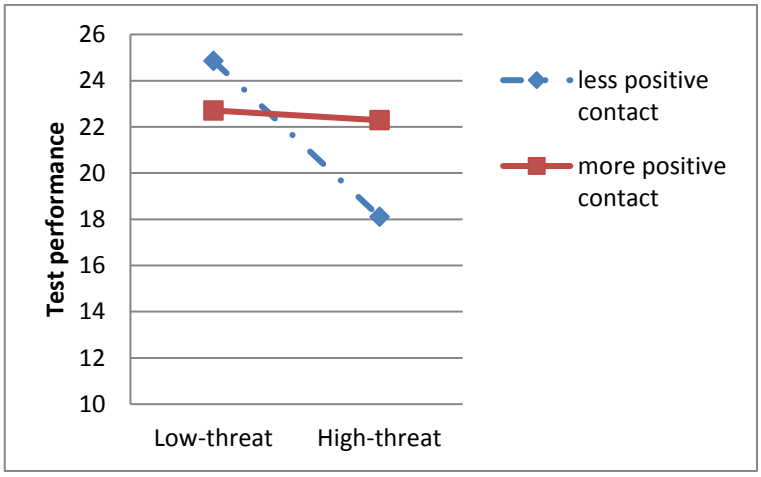

Figure 7. Test performance as a function of threat and amount of positive contact with grandchildren among French participants.

Study 3B (INDONESIA). For contact with young people outside the family, there were significant effect of threat (b = -3.74, $t(36)$ = -3.37, p < .01) and significant interaction between threat and contact (b = 2.97, $t(35)$ = 2.26, p < .50). Contact had no effect on performance (b = .15, $t(36)$ = .02, p = .99). Thus, contact with young people outside the family mediated the effects of threat on the performance. The conditional effect estimates indicated that threat had a significant effect on performance among the elderly with less positive contacts with young people outside the family, *effect* = -6.72, $t(35)$ = 1.67, p < .001, CI = -10.107 to -3.333, but not among those with more positive contacts, effect = -.77, t(35) = -.43, p = .66, CI = -4.368 to 2.824 (see figure 8).

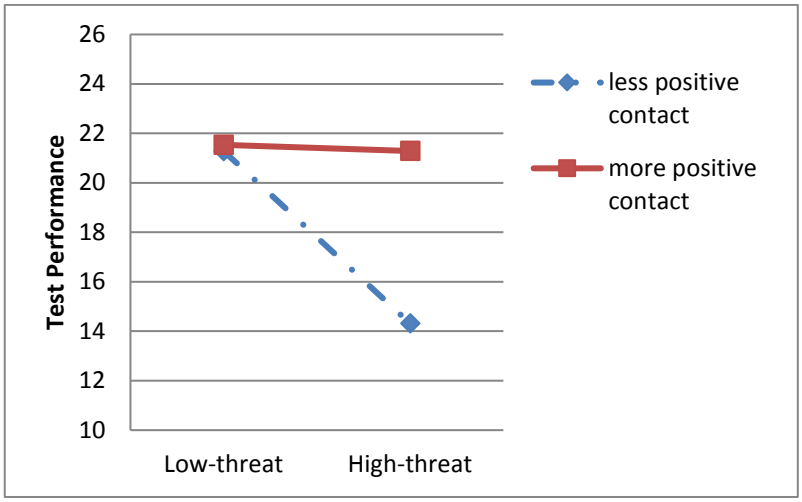

Figure 8. Test performance as a function of threat and amount of positive contact with young people outside the family among Indonesians participants.

For contact with grandchildren, there were no significant effects of threat (b = -3.89, $t(35)$ = -1.34, p = .19), contact (b = -.39, $t(35)$ = -1.29, p = .20), as well as their interaction (b = .14, $t(35)$ = .30, p = .76). Thus, as predicted, such contact did not moderate the effect of stereotype threat among Indonesians elderly.

Mediated moderation analyses

Following the above results, we tested a moderated mediation model of stereotype threat on performance. We used PROCESS "Model 7" to examine if perspective taking and affective empathy mediate the relationship between stereotype threat, intergenerational contacts, and performance. We included contact with young people outside family and contact with grandchildren as moderator variables in the analyses of Study 3A (France), but we only included contact with young people outside family as moderator variable in the analyses of study 3B (Indonesia).

Study 3A (FRANCE). For contact with young people outside the family, the results indicated that, after controlling for health, the interaction between stereotype threat and intergenerational contacts was significant for perspective taking. However,

there was no significant effect of perspective taking on performance (path *b*), suggesting that perspective taking did not mediate the moderating effect of intergenerational contact[6]. For empathy, we also found that it did not mediate the indirect effect of the interaction of threat and contact on performance. Therefore, the proposed mediated moderation was not supported, as can be seen in Table 15. For contact with grandchildren, there were also no mediating roles of perspective taking and empathy, see Table 16.

Table 15

Mediated Moderation Results for Contact with Young People Outside the Family among French (Study 3A)

Variables	B	SE	p	LLCI	ULCI
Threat→ Perspective taking *(a1)*	-1.20	1.52	.44	-4.288	1.891
Contact → Perspective taking *(a2)*	-.12	.85	.88	-1.848	1.605
Threat*Contact→ Perspective taking *(a3)*	5.80	1.70	<.05	2.343	9.255
Perspective taking → Performance *(b)*	.19	1.76	.09	-.030	.416
Threat→ Performance *(c')*	-2.22	1.20	.07	-4.643	.207
Health → Perspective taking	1.68	.80	<.05	.057	3.310
Health → Performance	.88	.66	.19	-.455	2.221
Conditional Effect	Effect	SE		LLCI	ULCI
For less positive contact	-.99	.82		-3.097	.232
For more positive contact	-.04	.96		-1.928	.528
Index of moderated mediation	1.12	.78		-.029	2.990

Variables	B	SE	p	LLCI	ULCI
Threat→ Empathy *(a1)*	-1.80	2.12	.40	-6.103	2.498
Contact → Empathy *(a2)*	.49	1.18	.68	-1.914	2.893

[6] Without controlling for health, the results showed that perspective taking partially mediated the effect of threat and contacts on performance. The interaction of threat and contacts was significant in predicting perspective taking (b = 5.89, SE = 1.78, p < .01) and perspective taking was significant in predicting performance (b = .24, SE = .12, p < .05). Results of the bootstrap method showed that the total model was significant, suggesting that the indirect path was significant. Besides, the direct effect of threat on performance was also significant (*effect* = -3.32, SE = 1.29, p < .05), which indicated that partial mediation exists, CI = .087 to 3.263.

Threat*Contact→ Empathy *(a3)*	1.95	2.37	.41	-2.856	6.764
Empathy→ Performance *(b)*	.26	.09	<.01	.076	.449
Threat→ Performance *(c')*	-2.45	1.19	<.05	-4.872	-.024
Health → Empathy	1.32	1.11	.24	-.947	3.581
Health → Performance	.88	.66	.19	-.455	2.221
Conditional Effect	Effect	SE		LLCI	ULCI
For less positive contact	-.99	.82		-3.097	.232
For more positive contact	.04	.96		-1.761	2.147
Index of moderated mediation	.51	.66		-4.485	2.198

Table 16

Mediated Moderation Results for Contact with Grandchildren among French (Study 3A)

Variables	b	SE	p	LLCI	ULCI
Threat→ Perspective taking *(a1)*	-2.01	2.47	.42	-7.023	2.998
Contact → Perspective taking *(a2)*	.22	.80	.78	-1.403	1.852
Threat*Contact→ Perspective taking *(a3)*	-.24	1.29	.85	-2.882	2.369
Perspective taking → Performance *(b)*	.19	1.76	.09	-.030	.416
Threat→ Performance *(c')*	-2.22	1.20	.07	-4.643	.207
Health → Perspective taking	1.69	.96	.08	-.268	2.396
Health → Performance	.88	.66	.19	-.455	2.221
Conditional Effect	Effect	SE		LLCI	ULCI
For less positive contact	-.39	.63		-2.389	.321
For more positive contact	-.52	.55		-2.173	.142
Index of moderated mediation	-.05	.25		-.576	.452

Variables	b	SE	p	LLCI	ULCI
Threat→ Empathy *(a1)*	-2.65	2.94	.37	-8.628	3.332
Contact → Empathy *(a2)*	-.01	.96	.99	-1.955	1.930
Threat*Contact→ Empathy *(a3)*	.17	1.55	.91	-2.976	3.323
Empathy→ Performance *(b)*	.26	.09	<.01	.076	.449
Threat→ Performance *(c')*	-2.22	1.19	.07	-4.643	.207
Health → Empathy	1.27	1.15	.28	-1.07	3.609
Health → Performance	.88	.66	.19	-.455	2.221

Conditional Effect	Effect	SE	LLCI	ULCI
For less positive contact	-.69	.89	-3.045	.545
For more positive contact	-.57	1.06	-2.785	1.173
Index of moderated mediation	.04	.53	-.721	1.329

Study 3B (INDONESIA). The results showed that the interaction between stereotype threat and contact with young people outside family was not significant for either affective empathy or perspective taking. Hence, the proposed mediated moderation was not supported, as shown in Table 17.

Table 17

Mediated Moderation Results for Contact with Young People outside the Family among Indonesians (Study 3B)

Variables	B	SE	p	LLCI	ULCI
Threat→ Perspective taking *(a1)*	-1.21	1.45	.41	-4.167	1.738
Contact → Perspective taking *(a2)*	3.94	1.51	<.05	.880	7.007
Threat*Contact→ Perspective taking *(a3)*	-.82	1.72	.63	-4.340	2.655
Perspective taking → Performance *(b)*	.20	.13	.13	-.060	.461
Threat→ Performance *(c')*	-3.20	1.28	<.05	-5.800	-.600
Health → Perspective taking	1.82	.78	<.05	.231	3.415
Health → Performance	1.39	.74	.07	-.113	2.903
Conditional Effect	Effect	SE		LLCI	ULCI
For less positive contact	-.07	.57		-1.797	.734
For more positive contact	-.41	.56		-2.102	.257
Index of moderated mediation	-.17	.39		-1.253	.392

Variables	B	SE	p	LLCI	ULCI
Threat→ Empathy *(a1)*	-1.28	1.46	.38	-4.244	1.673
Contact → Empathy *(a2)*	1.98	1.51	.20	-1.087	5.052
Threat*Contact→ Affective empathy *(a3)*	-.30	1.73	.86	-3.810	3.199
Empathy→ Performance *(b)*	.29	.12	<.05	.040	.540
Threat→ Performance *(c')*	-3.20	1.28	<.05	-5.800	-.600

Health → Empathy	.81	.78	.31	-.785	2.406
Health → Performance	1.39	.74	.07	-.113	2.903
Conditional Effect	Effect	SE		LLCI	ULCI
For less positive contact	-.19	.65		-2.302	.386
For more positive contact	-.32	.66		-2.668	.374
Index of moderated mediation	-.06	.44		-.873	.644

Additional analyses

Additional analyses were performed in an attempt to examine whether perceived respect and quality of life moderate the effect of threat on performance of the elderly in France and in Indonesia, and whether individual self-esteem also moderate stereotype threat effects among French. We again used PROCESS "Model 1" for testing moderation. Result showed that none of these three variables acts as the moderator of the relationship between stereotype threat and performance.

Discussion

The results offered consistent evidence that intergenerational contacts moderate, or mitigate, the effects of stereotype threat on performance of the elderly in the two countries, i.e., France and Indonesia. Among French elderly, contact with the young outside the family and with grandchildren played a buffering role against the negative effects of stereotype threat. Among Indonesian elderly, only contact with the young outside the family functions as a moderator. As expected, and consistent with the results of study 2B, contact with grandchildren among Indonesian elderly did not moderate the effects of threat because most of the participants had high levels of frequency and quality of contacts with their grandchildren.

We hypothesized further that the moderating effects of contacts on performance would be mediated by perspective taking and empathy. These mediating pathways would indicate that, under stereotype threat, people with more positive contacts may take the perspective of the young and being empathetic toward the young for that moment, which subsequently results in improved performance. However, our results did not support these ideas. In both countries, we found no mediating pathways through perspective taking and empathy.

For perspective taking, the threat of being compared with young people might not be powerful enough to lead the elderly to put themselves in the young's place, despite prior positive intergenerational contacts. An explanation for the lack of mediating effect of perspective taking may be the health conditions. Among participants in both countries, self-rated health was positively correlated with perspective taking. Furthermore, among elderly French, we found that perspective taking partially moderated stereotype threat effects. However, this moderating effect was no longer present after controlling for self-rated health.

Some studies in perspective taking have also shown that perspective taking declines in older people (Bailey, Henry, & Von Hippel, 2008; Bailey & Henry, 2008; Khanjani et al., 2015; Pratt et al., 1996) as cognitive capacities tend to decrease with age (Hendrie, Purnell, Wickland, & Weintraub, 2010). Indeed, perspective taking requires cognitive resources such as working memory and long term-memory. In the same vein, O'Brien, Konrath, Gruhn, and Hagen (2013) and Labouvie-Vief (2003) also remarked that the development of cognitive-affective representation displays an inverse U-shaped pattern across age, meaning that there is an incline in cognitive-

affective development from young to middle adults, but then a decline in older adults.

While perspective taking has been shown to decline with age, past research on affective empathy showed somewhat inconsistent results. Some studies reported lower affective empathy in the elderly compared to young or middle-aged adult (Grühn, Rebucal, Diehl, Lumley, & Labouvie-Vief, 2008; O'Brien et al., 2013). On the other hand, other studies reported no significant age-group differences (Bailey et al., 2008) or even increased affective empathy in the elderly, compared to young people (Khanjani et al., 2015; Sze, Gyurak, Goodkind, & Levenson, 2012; Ze, Thoma, & Suchan, 2014). In our studies, the data suggest that the participants in France and in Indonesia had a high level of affective empathy, indicating that their affective empathy ability may not decrease with age. However, this type of empathy did not find to moderate stereotype threat. It was observed that, among our participants both in high and low-threat conditions, positive contacts led to higher affective empathy. Contrary to the intergroup contact literature suggesting that people tend to feel empathy with disadvantaged people or the minorities, our studies suggest that the elderly could feel empathy toward the young or the majority. One possible explanation would be that the elderly have had the experience of being young themselves, and therefore they could know and share young people's emotion experiences. As Magai (2001) has suggested, a lifetime of accumulated interpersonal experiences could foster the development of the ability to understand and react to the emotional experiences of other people.

Apart from our failure to find the mediating roles of perspective taking and empathy, it is interesting to note that these two variables were significantly related to

contacts with young people outside the family among Indonesians, but not among the French. We speculate here that perspective taking and empathy are influenced by cultural contexts. People in collectivistic culture are said to focus their attention more on the other rather than on the self, compared to people in individualistic culture. Consequently, they may be better at taking others' perspective and easily feel empathy for others. Wu and Keysar (2007) who studied cultural variation in the use of perspective taking ability supported this notion. They found that, although Americans and Chinese were able, to a certain extent, to take the perspective of others, the Chinese were more aware of and paid closer attention to other's perspective than did the Americans.

Further, related to perceived respect and quality of life, we did not find evidence of the moderating roles of these two variables on threat-performance relationship. However, quality of life was related to memory performance. These results were consistent with those of Studies 2A and 2B. The more the elderly feel positive about their life, the better they perform on memory tasks.

Finally, we also found that individual self-esteem did not serve as a moderator of stereotype threat effect among French elderly. It seems that individual self-esteem did not have a direct association with threat in influencing the performance of the elderly, at least, for the present study. These results are incongruent with past stereotype threat research that has demonstrated the moderating role of self-esteem (Rydell & Boucher, 2010). However, it is important to note that individual self-esteem correlated significantly with memory performance (r = .48, p < .01). Past work also suggested that self-esteem influences cognitive performance among the elderly (Pruessner, Lord, Meaney, & Lupien, 2004). We can

speculate that self-esteem have indirect effects in stereotype threat situation: For example, high self-esteem may lead to reduction in anxiety levels in response to stereotype threat.

CHAPTER 5
GENERAL DISCUSSION

The present research examined the effects of stereotype threat on the performance of the elderly in two different countries or cultures, namely France and Indonesia. The two countries represent what have been called individualistic and collectivistic cultures, respectively (Triandis, 1995). We conducted our work with two major objectives. First, we aimed to replicate and extend previous findings indicating that intergenerational contacts reduce stereotype threat effects to another cultural context. And second, we wished to examine factors that may be implicated in understanding the effects of threats and contacts on the performance of the elderly. Specifically, we examined the mediating roles of anxiety (in two studies, one in Indonesia and the other in France) and empathy (also, in Indonesia and in France), in the relation between stereotype threats, contacts, and performance.

Our preliminary results revealed that, in both countries, negative stereotypes of the elderly (e.g., sick, forgetful, having mobility limitation) are more prevalent than positive stereotypes (e.g., lovely grandparents, wise, kind). This is consistent with past studies on the stereotypes of the elderly, showing that people hold mostly negative perceptions of aging, in particular related to physical and cognitive domains (Boduroglu et al., 2006; Harwood et al., 1996, 2001). We also found similar subcategories of the elderly stereotype across the two countries, including those that are positive (e.g., Perfect Grandparent) and negative (e.g., Diminished/Impaired). Additionally, our findings revealed a sub-category related to respect for the elderly

among the Indonesians but not among the French. This suggests that the cultural value of respect for the elderly still exists in Indonesia, as in other Asian countries (Liu et al., 2003). Somewhat surprisingly, however, only 20% of our Indonesian participants mentioned respect for the elderly. This may reflect a change or a decline in cultural beliefs that may happen due to the infusion of 'outside' cultural ideas and of recent modernization. Indeed, rapid social changes can create gaps between the elderly and the young, notably in the generations Y (born after 1981) and millennial (born after 2000) who were raised in advanced digital world (Heng & Yazdanifard, 2013). These generational gaps consequently may lead to a devaluation of the elderly who may be perceived as outdated, inadaptable, or incompetent.

Based on our preliminary results, we used the negative stereotype about age related memory decline to induce stereotype threat among elderly participants in the studies that followed. Across four experiments, stereotype threat was shown to diminish memory performance among our elderly participants both in France and in Indonesia. When the task was presented as a memory test to examine age-related memory decline, the elderly performed worse than when the task was presented as a cognitive exercise. The mere mention of memory and performance, or a social comparison with young people related to memory ability, was sufficient to activate stereotype threat that led to performance impairment among our participants. These results thus extend previous findings that have been found mostly with participants from western countries to participants from non-western, specifically Asian, countries. They suggest that, similar to the elderly in Western countries, the elderly in Indonesia are also susceptible to underperform when they are under stereotype threat. These findings are to be expected given that the elderly stereotypes are also predominantly negative in Indonesia.

In the follow up studies, we provide evidence that stereotype threat effects, among both French and Indonesians, can be reduced or even eliminated through positive intergenerational contacts. That is, the elderly with more positive contacts performed better on the memory tasks when under threat, than did those with less positive contacts. Positive contacts also nearly eliminated the performance gap between participants who experienced stereotype threat versus those who did not. Though similar moderating role of contacts with young people outside the family was found among French and Indonesian elderly, contacts with grandchildren also had similar function among our French participants, but not among Indonesians. This can be partly explained by the fact that most of elderly people in Indonesia have high frequency contacts with their grandchildren. The elderly in Indonesia mostly live with or near their (married) children and grandchildren. The adult children, especially women, are considered responsible to care for elderly parents at home: Putting the elderly parents in retirement home (*panti jompo*) is viewed as dishonorable (Suardiman, 2011). Our Indonesian participants also rated their contact with grandchildren as positive or very positive. They expressed that, though living together sometimes causes conflict between them and their children or children-in-law, their relations with grandchildren remain positive and strong.

Our findings also showed that the moderating effect of contacts with young people outside the family was mediated by anxiety, and not by cognitive or affective empathy. Specifically, for the elderly with less positive contacts, threat induced or increased anxiety, which then led to lowered memory performance. For those with more positive intergenerational contacts, threat had no significant effects on the anxiety felt and therefore performance. A noteworthy finding is that: though anxiety mediated the effects of threat on performance for both our French and Indonesian

elderly samples, different types of anxiety appeared to be involved. It was performance anxiety that mediated performance among French participants versus intergroup anxiety among Indonesians participants. In other words, when faced with threats related to the negative stereotype concerning their group, the French elderly felt more anxious about their own performance during the test, whereas the Indonesian elderly felt more anxious about their interaction with young people. These could be explained by considering that people may perceive to stereotype threat differently (Wout, et al., 2008). It is likely that French participants perceive the self as the target of the threat. They might think that their performance will confirm that the negative stereotype about the elderly is true of them or the self. Such concern furthermore may render them feeling afraid of having poor performance and of seeing themselves as possessing the negative stereotypic trait. By contrast, Indonesians participants may be more likely to perceive that the target of the threat is the group. They might fear that their group will be devalued because of their poor performance.

The differences between the French and the Indonesian elderly participants may partly be due to differences in self-construals. French people are likely to have a more independent self-construal meaning that their self-evaluation is attached to how well they themselves perform on a given task. It has been shown that people with independent self-construal tend to focus on performance goals, which emphasize doing better than others in order to validate their competence (Luo et al., 2014). Related to this, it is reasonable that, under stereotype threat, people with independent self-construal focus more on their own performance and feel afraid of failing the test (i.e., performance anxiety). Indonesians people, in contrast, attached more values to groups they belong to. A high concern about the group may render them anxious of

failing the group and of interacting with out-group members (i.e., intergroup anxiety).

Taken together, our findings suggest that stereotype threat diminished performance of the elderly in France and in Indonesia, but factors that mediated the effects of stereotype threat in both countries were different as a function of culture. It is also possible that culture may influence the ways people cope with stereotype threat. For example, after encountering a threatening situation, the elderly both in France and in Indonesia may use self-affirmation to restore or maintain their self-worth and self-integrity. However, given cultural differences in self-concept (independent vs. interdependent), the French elderly may attempt to affirm themselves by taking the opportunity to affirm their own personal attributes and characteristics in other domains (e.g., that they are good athlete or great musician). On the other hand, the Indonesian elderly may affirm themselves by engaging in interdependent activities to express themselves as, for example, a caring friend or a perfect grandmother (see Heine & Lehman, 1997).

To summarize, the first contribution of the present research is to extend the stereotype threat literature to cultural contexts other than western cultures. Our results suggest that intergenerational contacts with young people outside the family could reduce the effects of stereotype threat on performance of the elderly both in France and in Indonesia. This means that contacts with the young outside the family in the two countries or cultures performed a similar function. Despite apparent similarity, our findings also revealed variation across cultures, specifically in the type of anxiety likely to be experienced under threat. Among individuals in individualistic cultures, it is performance anxiety, whereas among individuals in collectivistic

cultures, it is intergroup anxiety. These findings should allow us to have a better understanding of the impact of stereotype threats on performance and how this can be countered. They also suggest that cultural differences should be taken into account despite apparent similarities.

Lastly, the present studies also add to previous research on promoting the integration of research on stereotype threat and on intergroup contact (Abrams et al., 2006, 2008; see Crisp & Abrams, 2008). Research on intergroup contact has mainly focused on the implication of contacts in improving intergroup harmony, reducing prejudice, and increasing positive intergroup attitudes. With this research, we outline that increasing intergroup contact, or intergenerational contact, has another beneficial effect, namely counteracting detrimental effects of negative stereotypes.

Implications

In a time of increasing population aging around the world, the present research brings potentially useful information for the well-being of the elderly and the society. Increasing intergenerational contacts has been shown to be effective to counteract the deleterious impact of stereotype threat on the performance of the elderly. However, it is important to note that the research to date suggest contacts could reduce stereotype threat effect only when contact conditions are positive or favorable. Negative intergenerational contacts have no effect or might even intensify the experience of stereotype threat.

Besides reducing stereotype threat effects, positive intergenerational contacts can be another promising route to improving health and well-being of the elderly. Among our French and Indonesian participants, we observed that contacts with

young people outside the family were related to greater quality of life. Past research has also demonstrated that intergenerational contacts can make the elderly feel happy and young, more connected with their family and communities, and ultimately lead to increased overall health and well-being (Gaggioli et al., 2014; Reisig & Fees, 2006; Teater, 2016). Intergenerational contacts or activities have also been promoted as a means to prevent social isolation and loneliness among the elderly, which could result in improved mental health (Murayama et al., 2014).

Increasing intergenerational contact in a wide variety of settings—schools, universities, the community, organizations, and industries—is thus one means to ensure that aging societies can cope with the negative effects that they thus may bring about. Proactive programs in different contexts can be designed to create opportunities for the generations to meet and interact. For example, in work settings, companies could offer mentoring programs that enable older or retired workers to share their experiences and professional wisdom with juniors. In the retirement homes or neighborhood communities, visits that involved intergenerational activities, such as games, storytelling, music, or just visiting, could also be created. Indeed, such programs or activities have begun to be implemented in a few homes for the elderly or in some communities in France (see examples at http://www.ehpadeo.org). However, these programs have yet to be implemented in Indonesia.

To successfully implement intergenerational programs, however, we also have to consider the needs and desires of the elderly. Programs should include activities that the elderly prefer and enjoy. Also, it is important to create a supportive environment that accommodates the elderly's needs, particularly related to physical and mobility limitations. It is possible that the reason the elderly have less

participation in intergenerational programs is not because they are uninterested in the activities, but because they require a more adapted environment (e.g., easy access to public transportation, wheelchair spaces, comfortable and safe spaces). These concerns were indeed evoked in the interviews conducted with the elderly by the experimenter, in both France and Indonesia.

Future directions

The present research, as did earlier research, found that stereotype threat affect the performance of the elderly by raising anxiety levels. However, as many previous studies, anxiety was still measured using self-reports. It will be useful to include physiological measures such as heart rate, skin conductance, blood pressure, or respiratory frequency to measure anxiety in future research. Future work should also assess the level of anxiety experienced prior to and/or during the test when studying stereotype threat among the elderly. In many studies including ours, both performance anxiety and intergroup anxiety were measured after the test was completed. Such procedures are sometimes criticized because it could be the case that, after taking the test, the participants feel emotions distinct to those they felt when taking the test (see Osborne, 2001). While performance anxiety tends to decrease after the test, intergroup anxiety may be still there for a longer time due to the interaction of the participants with a young (or out-group) experimenter. Thus, it is possible that performance anxiety may arise only during the test, whereas intergroup anxiety is present throughout the experiment.

Measures of contacts with young people outside the family in the present studies included personal (i.e., recent positive contacts with and the number of young

friends) and extended contacts (i.e., the number of same age friend who befriend young people). Therefore, not only personal but also extended contacts could have positive impacts on performance under stereotype threat. This is encouraging news in combating stereotype threat in the elderly, especially for those who have little opportunity to establish direct personal contacts with young people. Past studies have also demonstrated that imagined contact with the young is capable of counteracting the effects of stereotype threats among the elderly in the UK (Abrams et al., 2008). It would be valuable to examine if this last finding is also applicable to other countries or cultural contexts.

Other types of contacts (i.e., contacts via technological devices) than face-to-face contacts also should be taken into account, in particular in regard to changing communication means. Our studies with French participants revealed that contact with grandchildren moderated the effects of stereotype threat. However, we only found evidence of such a modulation in one of two experiments (Study 3A). The reason we failed to find moderating role of contact with grandchildren in Study 2A may be because our French participants have few direct interactions with their grandchildren. They explained that it was quite difficult sometimes to have face-to-face contacts with their grandchildren per week. Instead, they maintained the relationships by texting or calling their grandchildren on the phone, and/or enjoying virtual visits via Skype, at least twice a week. Previous research also demonstrated that communication between grandparent and grandchildren is occurring frequently through telephone instead of face-to-face contacts (Holladay & Seipke, 2007) and that this telephone communication predicted relationship quality (Harwood, 2000). These findings raise an interesting question for future research, namely whether such contacts also impact reactions to stereotype threat.

Related to quality of life or general well-being, our results did not provide evidence for the involvement of quality of life on the relationship between threat, contacts, and performance. However, across four studies our data showed that *contact with young people outside the family* was positively related with quality of life. With these results, it seems clear that close and frequent contacts with young people are an important source for the quality of life during old age. But one question still remains: Why was contact with young people *within* the family (e.g., the grandchildren) not related to quality of life? Whether this finding indeed represents a generalized tendency is to be further studied in the future. Perhaps contact with grandchildren is more related to a different concept of well-being, called subjective well-being rather than general well-being or quality of life. Subjective well-being is one's cognitive and affective evaluations of his or her life, whereas general well-being is one's evaluation of their life as a whole, including emotional, social, and physical aspects. Peng, Mao, and Lai (2015) have also suggested that intergenerational relation and support from family members, but not from young people outside the family, was positively correlated with subjective well-being.

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