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Gendered Help: Effects of Gender and Realm of Achievement on Autonomy-Versus Dependency-Oriented Help Giving

Lily Chernyak-Hai^{*a}, Samer Halabi^b, Arie Nadler^c

[a] School of Behavioral Sciences, Netanya Academic College, Netanya, Israel. [b] School of Behavioral Sciences, Tel-Aviv - Yaffo Academic College, Tel-Aviv, Israel. [c] The School of Psychological Sciences, Tel-Aviv University, Tel-Aviv, Israel.

Abstract

Building on research on helping relations and gender stereotypes, the present research explored the effects of gender-stereotypical perceptions on willingness to offer dependency- and autonomy-oriented help to women and men. Two studies were conducted in a 2 (Gender of the person in need) × 2 (Domain of achievement) between-participants design. Study 1 examined future success expectations of male versus female students needing help in performing either a stereotypically masculine or a stereotypically feminine academic task, and the kind of help participants preferred to offer them. Study 2 further explored perceptions of male versus female students who exhibited long-term failure in a gender-stereotypical versus non-stereotypical academic task, perceptions of their intellectual and social abilities, feelings toward them, attributions of their need, and the preferred way of helping. Our findings indicate that women failing in a stereotypically masculine domain may expect others to give them dependency- rather than autonomy-oriented help, and judge their traits and abilities in an unflattering manner. In other words, gender achievement stereotypes create a social context where helping interactions reproduce power and status discrepancies.

Keywords: gender stereotypes, achievement domain, autonomy/dependency-oriented help, power relations

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*Corresponding author at: School of Behavioral Sciences, Netanya Academic College, Netanya 4223587, P. O. Box 120, Israel. E-mail: lilycher@netanya.ac.il



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Giving a helping hand has been at the center of past social psychological research. This research addresses various psychological factors and mechanisms that may explain help seeking, giving, and receiving, as well as their implications for both helper and recipient (see Dovidio, Piliavin, Schroeder, & Penner, 2006). Recent research has continued to explore helping behavior while focusing on how intergroup phenomena (group status, security and/or legitimacy of status hierarchy) may explain the consequences of giving and receiving help for *both* recipient *and* helper (e.g. Chernyak-Hai, Halabi, & Nadler, 2014; Halabi, Dovidio, & Nadler, 2008; Halabi, Dovidio, & Nadler, 2016; Nadler, Harpaz-Gorodeisky, & Ben-David, 2009). Further, recent research has demonstrated the importance of taking a step forward from a dichotomous focus on “giving vs. not giving” to explore the psychological processes

that may explain why helpers respond differentially to requests for help by providing specific types of help (Nadler & Chernyak-Hai, 2014).

The present work builds upon two previous research directions. First, it extends research on help-giving behavior by examining how gender stereotypes affect the type of help offered to a male vs. female recipient, assuming that the recipient's social characteristics play a crucial role in understanding help seeking, giving, and receiving. Second, it builds upon sexism research by highlighting a novel form of sexism – dependency-oriented helping behavior – that may contribute to women's underrepresentation in stereotypically masculine domains.

Helping Relations as Power Relations

Research on helping relations indicates that helping enables individuals and groups to maintain, assert or challenge existing power relations. Consistent with this perspective, Nadler and Halabi (2006) presented the model of Inter-group Helping as Status Relations (IHSR), according to which intergroup helping can be a benign way of asserting status differences. Moreover, and centrally for the present study, the model distinguished between two types of helping, autonomy- and dependency-oriented help. Whereas the former involves providing the means to solve a problem, rather than the solution itself, the latter represents providing that solution (Nadler, 1997, 1998, 2002).

Different ways of helping have important implications for both persons in need and helpers. In particular, the IHSR model states that dependency-oriented help implies that the former have inherent difficulties in coping and are therefore habitually dependent on others. Their perceived inferiority is amplified when they receive dependency-oriented help, which addresses their immediate needs and therefore highlights the helpers' superior skills and knowledge, while leaving the recipients in their inferior, dependent position (Nadler, 2015; van Leeuwen & Täuber, 2010). By contrast, autonomy-oriented assistance reflects the belief that persons in need have an active approach to coping with difficulties, that the need for help is transient, and that given appropriate tools they would manage on their own (see Nadler, 2012; Nadler & Chernyak-Hai, 2014; Nadler & Halabi, 2015).

In other words, help-giving preferences are influenced by potential helpers' expectations and judgments, such as attributions of others' predicament. Weiner's (2006) attributional analysis of help giving showed the impact of causal attributions on the very willingness to help. It was found that when the other's problem/need was attributed to controllable causes (e.g. lack of effort), the potential helper judged that person as responsible, felt anger, and avoided helping him. If, however, the state of need was attributed to causes beyond the needy person's control (e.g. lack of ability or situational constraints), the potential helper felt sympathetic and tended to help.

Attributional research also produced several findings relevant to gender and causal attributions. For example, gender differences in success and failure attributions were found, such that despite the lack of difference in *actual* achievements, girls attributed theirs to effort more than boys, whereas boys made more attributions to ability and luck. Specifically, girls were found to make higher attributions to effort in math and science when attributing *success* rather than failure (Ryckman & Peckham, 1987). These interesting early findings supported Weiner's (1980, 1985) differentiation between internal attributions according to the stability dimension, and also implied that attributions varied with gender. Ryckman and Peckham (1987) concluded that girls' tendency to attribute success in math and science to unstable, and failure to stable causes reflected a learned helplessness orientation. This pattern of results was not found in language and arts, where both girls and boys tended to attribute failure – more than success – to effort.

A subsequent meta-analysis accounted for similar attributions that others made about the successes and failure of male and female targets. It was found that people tended to attribute men's success in "masculine" tasks (e.g. engineering) to ability (stable cause), and women's successes to effort (unstable cause). In contrast, when attributing failure, people attributed women's failures to lack of ability (stable) and men's failures to low effort and bad luck (unstable) (Swim & Sanna, 1996).

Gendered Help-Giving Behavior

Overall, past research indicated the tendency to give more help to women (see Eagly & Crowley, 1986; Liebler & Sandefur, 2002) and pointed to the potential of helping behaviors in reproducing gender roles (Lee, 2002). It was argued that men act protectively toward women as the latter are categorized as "weak and oppressed", regarded as more dependent on others' assistance, and expected to inspire men's courageousness (Eagly & Crowley, 1986). One explanation for the higher prevalence of help giving to women lies in the different inferences and feelings aroused in the potential helper by women and men in need, as a consequence of internalized gender roles. While men are stereotyped as cold, competitive, self-relying and authoritative, women are traditionally believed to be warm, nurturing, caring and dependent (Fiske, Cuddy, Glick, & Xu, 2002; Kawakami, White, & Langer, 2000). Consequently, women in need may trigger different judgments and feelings.

Gender stereotypes were further conceptualized by the Stereotype Content Model (SCM; Fiske et al., 2002). According to SCM, stereotyped perceptions of group members vary on two central dimensions: warmth and competence. These perceptions trigger different types of stereotypes. Specifically, individuals judged as low on competence but high on warmth are said to evoke a so-called "paternalistic stereotype", reflected in disrespect mixed with compassion and sympathy. This has important implications for social inequality, as it justifies women's low social status while encouraging their compliance. Applied to the gender context, as long as women are perceived as warm and dependent they may be expected to evoke paternalistic stereotypes. We may therefore predict that when in need, women will receive more help than men (under equivalent circumstances), and that this will be paternalistic help in the sense of providing complete solutions rather than explanations and guidance – dependency-oriented help in our terms.

This dovetails with the argument that different forms of stereotypes have direct behavioral implications. Cuddy, Fiske, and Glick (2007) presented the Behaviors from Intergroup Affect and Stereotypes (BIAS) map, outlining the way stereotypes and emotions shape behavioral tendencies. Specifically relevant for the present work are the implications for help-giving behavior. The BIAS map suggests that combining the competence and warmth dimensions results in four patterns of behaviors toward the stereotyped person: active facilitation (e.g. helping), active harm (e.g. attacking), passive facilitation (e.g. association), and passive harm (e.g. neglecting). Group members high on perceived warmth will elicit reactions ranging from pity to admiration, through an intention to give help as a form of active facilitation. Accordingly, addressing this model as a theoretical framework of stereotypes in the context of help-giving decisions, we may conceptualize dependency- vs. autonomy-oriented helping as behavioral intentions characterized by high warmth stereotypes. In the present research, we predicted that since women are associated with high warmth and low competence (e.g. Fiske et al., 2002; Kawakami et al., 2000), they would be the target of different help-giving behaviors than men. Consistent with gender stereotyping, we assumed that compared to men, women would receive more dependency-oriented help.

These predictions reflect the premise of the present work, that a-priori gender stereotypes prime the decision to give male and female targets specific types of help, influencing attributions of their predicament and feelings toward

them. In a recent study, [Nadler and Chernyak-Hai \(2014\)](#) found that help seeking behavior reinforces a-priori expectations from the help seeker and generates helping responses consistent with these expectations. Specifically, low expectations caused potential help givers to attribute the help seeker's difficulty to lack of competence and low motivation, and elicited feelings of pity and a tendency to offer the needy more dependency- than autonomy-oriented help. Conversely, high expectations caused potential helpers to attribute the help seeker's difficulty to high competence and motivation, increased identification with the needy, and a tendency to offer more autonomy-oriented help.

Help may be needed in a variety of situations, the differences between which may have specific implications for the general predictions outlined so far. In the present work, we chose to focus on predicaments reflecting levels of personal achievement. Specifically, given the fact there are domains of achievement which are still perceived as "feminine" or "masculine", women's underrepresentation in certain jobs, and resulting gender inequality (e.g. [Eagly & Karau, 2002](#); [Hareli, Klang, & Hess, 2008](#); [Heilman et al., 2004](#)), we sought to understand the role played by help-giving preferences in this state of affairs. Our assumption was that stereotypical attributions of males' versus females' predicament and feelings toward them would be affected by the gender-stereotypical nature of the task at hand.

Gender-Stereotyped Domains of Achievement

Research on gender stereotypes indicates that stereotypical female traits include emotionality, subjectivity, softness and propensity for "the arts", while stereotypical male traits include rationality, objectivity, toughness and propensity for "the sciences" ([Whitehead, 1996](#)). A large-scale international study found that people associated science with males more than with females. Stereotypical associations were found between items representing maleness and science, and between items representing femaleness and liberal arts ([Nosek et al., 2009](#)). Following a study conducted in Israel, [Kark \(2007\)](#) argued that direct and subtle messages were conveyed to female students by their parents and teachers suggesting that mathematics, physics and computer science were "for boys". Similarly, [Gunderson et al. \(2011\)](#) described how negative stereotypes about women's math abilities were conveyed to girls by their parents and teachers, how they shaped girls' attitudes toward math, and ultimately undermined their interest in STEM (science, technology, engineering, and math). These findings are especially important because of the social prestige associated with STEM. Moreover, the "masculinity" or "femininity" of a given profession is said to contribute to gender discrimination in hiring decisions, predicting negative consequences for women who apply for stereotypically male jobs (see [Hareli et al., 2008](#)). On the other hand, women who actually succeed in "masculine" jobs tend to be evaluated more negatively than men are, as well as to receive lower wages ([Heilman et al., 2004](#)).

Finally, gender stereotypes may also negatively affect *actual* women's performance in "masculine" fields. [Spencer, Steele, and Quinn \(1999\)](#) suggested that stereotype threat¹ impairs women's actual performance even if they have high success potential. Vulnerability to gender stereotype threat was demonstrated in several subsequent studies. [Davies, Spencer, and Steele \(2005\)](#) found that stereotype threat could cause women to avoid leadership roles ([Eagly & Karau, 2002](#); [Eagly & Sczesny, 2009](#)). [McGlone and Aronson \(2006\)](#) showed that women primed to contemplate their identity as students performed better on a standardized test of spatial reasoning than those primed to contemplate their gender. Finally, negative stereotypes about women's math abilities are said to impair girls' performance in STEM ([Gunderson, Ramirez, Levine, & Beilock, 2012](#)). Overall, there is consistent evidence that STEM fields are perceived as masculine by women as well, and that these perceptions ultimately affect both

genders' actual performance (e.g. Else-Quest, Hyde, & Linn, 2010; Gunderson et al., 2011, 2012; Major & O'Brien, 2005; Schmader, Johns, & Forbes, 2008; Spencer, Steele, & Quinn, 1999; Steele, Spencer, & Aronson, 2002). This is so despite extensive evidence to the fact that men and women actually have similar potential in these fields (Hyde, 2005; Hyde et al., 2008; Spelke, 2005). Such beliefs have clear career implications, particularly in economics and politics, where most top positions are still held by men (Eagly & Karau, 2002; Heilman, 2001; Kawakami, White, & Langer, 2000).

Applied to the present research rationale, women encountering difficulty in a scholastic task may elicit judgments, feelings and causal inferences consistent with the stereotypical perception of achievement domains as "masculine" or "feminine". The present research was conducted in Israel. According to Nosek et al. (2009), similarly to participants from other countries, Israelis tend to associate science with males. Moreover, education and the humanities (stereotypically "feminine" fields) are considered less prestigious (Dar & Getz, 2007). Burke and Mattis (2007) discuss the limited representation of Israeli women in STEM, and attribute it to the Israeli school system and mandatory military service, as well as to an ideology favoring family and motherhood.

The Present Research

Despite past research on benevolent sexism and differential tendencies to help men and women, we lack an understanding of the mechanisms underlying these behaviors. A recent study has found that benevolent sexism is associated with helping relations that perpetuate traditional gender roles. Specifically, it predicts men's preference to provide women with dependency-oriented help (Shnabel et al., 2016). Building on research on autonomy-versus dependency-oriented help (e.g. Chernyak-Hai, Halabi, & Nadler, 2014; Nadler & Chernyak-Hai, 2014), as well as on conceptualizations of stereotypes and gender stereotypes (Cuddy, Fiske, & Glick, 2007; Dasgupta & Aigari, 2004; Fiske et al., 2002; Glick & Fiske, 2001; Heilman, 2001; Prentice & Carranza, 2002), the present work explores the effects of gender and domains of achievement on observers' readiness to offer specific help to a person in need.

In the present work, two studies were conducted to investigate whether there would be a tendency to provide more help that reinforces hierarchical relations between helper and recipient (i.e. dependency-oriented help) to women than to men in mathematics as opposed to history or education. Our main premise was that given clear failure in stereotypically male and female domains, the two genders will yield different future success expectations, and that women will be helped differently than men (Study 1). In addition, we examined whether the domain where failure was induced would affect perceptions of male versus female targets' intellectual and social traits, attributions of their neediness, and feelings toward them (Study 2). We should emphasize that given the implications for the help recipient, more dependency-oriented helping is not equivalent to less autonomy-oriented helping. In other words, giving a person *less* tools for independent coping is not the same as increased willingness to give him/her *more* dependent help. Therefore, our predictions related first and foremost to the differences in dependency-oriented helping.

Note that while predicting more dependency-oriented helping preferences for women failing in math (a stereotypically "masculine" domain), we did not expect parallel preference for dependency-oriented help giving to men in (the "feminine" domains of) history or education. The reason for that was our premise that since STEM fields are perceived as more prestigious, the difference in help-giving orientation toward men and women would be more prominent in mathematics. In other words, according to the concept of helping relations as power and status relations (Chernyak-Hai, Halabi, & Nadler, 2014; Halabi, Dovidio, & Nadler, 2008; Halabi, Dovidio, & Nadler, 2016), repro-

ducing status discrepancies between men and women via help giving would be reflected in the socially prestigious domain.

Note also that based on past research on gender stereotypes and achievement domains, we have not formulated any specific hypotheses on participants' gender influences, but rather expected that following socially internalized gender stereotypes, both male and female participants would show similar help-giving preferences toward men or women failing in either a stereotyped or non-stereotyped domain. The main point here is that men and women adhere to the same stereotypes. An extensive literature supports this assumption, for example with reference to women's self- and literal objectification (see Heflick & Goldenberg, 2014). Another example is the finding that an objectified woman is perceived by both men and women as one who suffered less in a case of a sexual assault (Loughnan, Pina, Vasquez, & Puvia, 2013).ⁱⁱ

Study 1

This study examined the kind of assistance participants would prefer to offer a male versus female student performing either a stereotypically masculine or a stereotypically feminine academic task (a short mathematics or history test, respectively). The hypotheses were that in the case of a *female* target who experienced failure participants would show a higher tendency to offer more dependency-oriented help in *math* than in history, while there would be no significant differences in preferences of dependency-oriented help in the case of a male target experiencing the same predicament. Also, we predicted that a *female* target would be perceived as less competent and as having less likelihood to succeed in the future when poor performance was exhibited in *math* rather than in history, while there would be no significant differences in future success expectations in the case of a male target.

Method

Design and Participants

The experiment consisted of a 2 (Gender of the person in need: male/female) × 2 (Domain of achievement: math/history) between-participants design. Participants were 120 (60 females and 60 males) undergraduate students from the Israeli Open University (mean age: 29.03, *SD* = 7.92, range = 23-59), who received course credit for their participation. Most participants (88.3 percent) were native Hebrew speakers, 5.8 percent were native Russian speakers, 3.3 percent were native Arabic speakers, and 2.5 percent indicated "other language".

Procedure

All instructions and questions were administrated to the participants individually on a single questionnaire form. Participants completed the self-administrated questionnaire in a psychology lab. They were told they would be taking part in educational psychology research examining behavior in situations that teachers encounter on a daily basis, in order to formulate concrete recommendations for the Israeli education system. Next, they were informed they would be presented with a real-life situation secondary school teachers routinely have to deal with, and that they would be asked questions about it. In fact, the presented case was a scenario designed to manipulate the independent variables – the character's gender and the academic field where difficulty was encountered:

Imagine you are a 12th-grade math [or history] teacher. It is very important to you that your students will succeed in final exams, and you have worked hard to prepare them for the final exam in math [or history].

Imagine that you are working with a small group of five of your students on math [or history] questions in

preparation for the final exam. As students proceed to solve the questions, you are passing between the tables in order to answer questions and follow their progress. Fifteen minutes before the exam ends, you notice that Danny [Daniela] – one of your good students – is grappling with a very difficult math [or history] question without any apparent success.

At this point, participants were told that they could choose to respond in several ways to the fictional student's predicament. In fact, these items were intended to assess the main dependent variables (giving a direct answer or a clear hint – dependency-oriented help – vs. suggesting relevant concepts or a similar question previously solved in class by the teacher – autonomy-oriented help). Additional items were included to assess the effectiveness of the manipulation and measure participants' evaluations of students' future success in similar tasks and their likelihood to be admitted to a prestigious university department. After answering all questions, participants were fully debriefed.

Measures

Manipulation checks — Participants were asked to indicate the student's domain of achievement (i.e. whether the exam was in math or history), and gender.

Dependent measures — *Future success expectations.* Participants were asked to answer three questions indicating their expectations (plausibility assessments) of students' future success on a 7-point scale (from 1 = "very high" to 7 = "very low"): "success in a preliminary exam which will take place in two weeks"; "likelihood to be admitted to a prestigious university department"; "likelihood to be among the top 10 percent of successful employees in any profession chosen in the future".

Preference of autonomy versus dependency-oriented help giving. After reading the scenario, participants were administered four items describing different options of help giving. As gender stereotypes may be either descriptive or prescriptive, we chose to focus on prescriptive stereotyping, since it is supposed to be indicative of gender bias rather than merely stereotypical beliefs (Gill, 2004; Prentice & Carranza, 2002). Therefore, participants were offered prescriptive assessments, i.e. what type of help should be given to the male or female character, and were asked to rate help-giving items: two indicative of dependency-oriented help ("Danny [Daniela] should be given the answer to the question" and "Danny [Daniela] should be given a clear hint for the answer"; $r = .51, p < .01$); and two indicative of autonomy-oriented help ("Danny [Daniela] should be offered to think about relevant concepts" and "Danny [Daniela] should be offered to recall a similar question previously solved in class by the teacher"; $r = .64, p < .01$).ⁱⁱⁱ Participants indicated their degree of agreement with each behavior on a 7-point scale (from 1 = "very low" to 7 = "very high").

Results

Manipulation Checks

All participants correctly identified the domain of achievement and the character's gender.

Dependent Measures

Prior to testing the hypotheses, an inter-correlation analysis was performed to assess the relations between the dependent variables (see Table 1). The analysis indicated positive significant correlations between judgments of characters' future success and of the likelihood to be admitted to a prestigious university department, and preferences to give autonomy-oriented help. On the other hand, judgments of likelihood to be admitted to a prestigious

department were negatively and significantly correlated with preferences to give dependency-oriented help. In addition, judgments of characters' future success were positively and significantly correlated with judgments of the likelihood to be admitted to a prestigious department and to be among the top 10 percent of successful workers.

Table 1

Inter-Correlation Matrix (Dependent Variables) in Study 1

Dependent Variable	2	3	4	5
1. Preferences of autonomy-oriented help	.089	.247***	.223*	.130
2. Preferences of dependency-oriented help		-.179	-.219*	-.104
3. Judgments of character's future success			.311***	.558***
4. Judgments of chances to be admitted to a prestigious department				.411***
5. Judgments of chances to be among the top 10 percent of successful workers				

* $p < .05$. ** $p < .01$. *** $p < .001$.

Future success expectations — Three 2 (Gender: male/female) \times 2 (Domain: math/history) Analyses of Variance (ANOVAs) were performed separately for assessing success in a future exam, likelihood to be admitted to a prestigious university department, and likelihood to be among the top 10 percent of successful workers. The main effects of gender and domain in assessing success in a future exam were non-significant, $F(1, 116) = 1.8, p = .18$ and $F(1, 116) = 1.6, p = 1.16$, respectively. The Gender \times Domain interaction was marginally significant, $F(1, 116) = 3.62, p = .06, \eta^2 = .21$. Simple effects analysis indicated that for the male target, the participants predicted greater success in math than in history, $F(1, 116) = 4.82, p = .03, d = .70$ ($M = 5.82, SD = .91$ and $M = 5.20, SD = .87$, respectively), while for the female target there were no significant differences between the two domains, $F(1, 116) = .06, p = .81, d = .41$ ($M = 5.22, SD = 1.10$ and $M = 5.67, SD = 1.09$, respectively). There was a marginal main effect of character's gender on participants' assessments of their likelihood to be admitted to a prestigious university department, $F(1, 116) = 3.33, p = .07, \eta^2 = .04$, showing that participants tended to predict higher success for the male than for the female student ($M = 5.50, SD = .93$ and $M = 5.04, SD = 1.24$, respectively). The results indicated a non-significant effect of domain, $F(1, 116) = .89, p = .35$, and a non-significant Gender \times Domain interaction $F(1, 116) = 2.1, p = .15$. Finally, there was a main effect of character's gender in estimating their likelihood to be among the top 10 percent of successful workers, $F(1, 116) = 4.64, p = .03, \eta^2 = .03$, indicating that participants expected greater success for the male than the female student ($M = 5.62, SD = .85$ and $M = 4.91, SD = 1.34$, respectively). The results indicated a non-significant effect of domain $F(1, 116) = .06, p = .80$ and a non-significant Gender \times Domain interaction $F(1, 116) = 2.4, p = .12$.

Preference of autonomy versus dependency-oriented help giving — First, a 2 \times 2 \times 2 mixed between-within ANOVA with two between-participant factors (Character's gender and Domain of achievement) and one within-participant factor (Participant's gender) was performed to examine interactive effects of participants' help-giving preferences for female and male characters across the domains (for descriptives, see Table 2). The results supported a Gender \times Domain \times Help interaction, $F(1, 116) = 3.53, p = .06, \eta^2 = .03$. A paired-samples test showed that preferences to give dependency-oriented tended to be higher than the preferences to give autonomy-oriented help when the character was a woman experiencing failure in math $t(30) = 1.98, p = .06, d = .72$. On the other hand, when the character was a woman experiencing failure in history, participants tended to prefer more auton-

omy- than dependency-oriented help $t(30) = 1.73, p = .09, d = .63$. In addition, we found significantly higher readiness to give autonomy- rather than dependency-oriented help to men failing in math $t(30) = 2.52, p = .02, d = .92$.

Table 2

Means and Standard Deviations for Dependency vs. Autonomy-Oriented Help Giving Preferences by Gender of the Person in Need and Domain of Achievement in Study 1

Gender	N	Domain of Achievement	Kind of Help				Total	
			Dependency-Oriented		Autonomy-Oriented		M	SD
			M	SD	M	SD		
Female	30	Math	3.15	1.42	2.87	1.73	3.01	1.61
	30	History	2.52	1.64	2.93	1.20	2.72	1.47
Total			2.83	1.57	2.90	1.51	2.86	1.55
Male	30	Math	2.03	1.52	3.01	1.03	2.52	1.32
	30	History	2.92	1.62	2.85	1.54	2.88	1.60
Total			2.47	1.59	2.93	1.31	2.70	1.51

To resolve the three-way interaction found above differently, two 2 (Gender: male/female) \times 2 (Domain: math/history) ANOVAs were performed for each type of help giving separately. The analysis did not reveal significant main effects of either gender, $F(1, 116) = .01, p = .90$, or domain, $F(1, 116) = .73, p = .39$, nor a significant interaction, $F(1, 116) = .54, p = .46$ in preferences for autonomy-oriented help-giving. The mean ratings of a female student in math were close to those in history and so were the ratings of a male student. Yet, a significant Gender \times Domain interaction was found in preference for dependency-oriented help giving, $F(1, 116) = 7.83, p = .01, \eta^2 = .30$. Accordingly, simple effects analysis indicated that when the student was female, participants preferred to give more dependency-oriented help in math rather than in history, $F(1, 116) = 5.16, p = .03, d = .90$. On the other hand, when the student was male, the participants tended to prefer giving more dependency-oriented help in history rather than in math, $F(1, 116) = 3.17, p = .08, d = .48$. There were non-significant effects of gender, $F(1, 116) = .37, p = .54$, and domain $F(1, 116) = 1.17, p = .28$.

Discussion

Study 1 explored the effects of gender and domain of achievement on participants' preferences for autonomy-versus dependency-oriented help giving and future expectations of a character in need. The participants showed bias in that they predicted higher success in exact sciences for the male rather than for the female student. Moreover, they estimated higher probability for the male student to be among the top 10 percent of successful employees in the future. Specifically, it was found that participants thought that giving the solution to the problem or a clear hint (dependency-oriented help) was more suitable for a female target encountering difficulty in a "masculine" field, but also for a male target encountering difficulty in a "feminine" field.

While the differences in preferences of dependency-oriented help to a female character supported our hypothesis, the comparable finding in the case of a male character trying to succeed in a "feminine" field was unexpected. It may be that in certain achievement contexts, dependency-oriented helping may emerge also for men. The latter means that participants thought that dependency-oriented help would be more suitable for a male character in an atypical masculine domain. Yet, it is important to note that given the high *social prestige* of sciences compared

to humanities, dependency-oriented help giving to women in math is of special importance for maintaining gender inequality (see Dar & Getz, 2007; Francis, 2000), and therefore has a different social meaning compared to dependency-oriented helping to men in stereotypically feminine but non-prestigious domains. In addition, the non-significant results in autonomy-oriented help giving support the present research's rationale that social inequality is maintained via dependency-oriented help. When asked to respond to items indicative of autonomy-oriented help, participants did not indicate differential suitability of giving such help to a male or a female target either in math or history.

In sum, Study 1 indicated that the gender stereotypicality of the achievement task affected the kind of help perceived as suitable for female vs. male recipients, as well as perceptions of their future success. Within-participant analyses showed that participants preferred more dependency- than autonomy-oriented helping for women, but more autonomy- than dependency-oriented helping for men when the failure in question was in math. Yet, in the case of a woman encountering failure in history, the participants indicated higher preferences for autonomy- than dependency-oriented help. Overall, participants' answers indicated that we may expect failing women to be helped differently than failing men, and that these helping decisions are influenced by the domain of failure. However, this study did not assess the participants' perceptions of targets' abilities, attributions of their state of need, or feelings toward them that can reflect gender stereotypic expectations and accompany help-giving preferences. In addition, the described state of need was a one-time failure, an operationalization that may have a different meaning compared to repeated lack of success. Supposing that one-time failures are less pronounced than repeated failures, the effects of male vs. female failure on judgments, attributions to stable causes, and help-giving preferences may be stronger when the failure is repeated. Study 2 was designed to meet these gaps, as well as replicate Study 1's findings in another stereotypically feminine domain – education.

Study 2

This study explored participants' perceptions of the male vs. female student who failed to complete a gender-stereotypical versus non-stereotypical academic task, perceptions of their intellectual and social abilities, feelings toward them, and attributions of their state of need. Furthermore, in order to broaden the validity of Study 1's findings, we operationalized "education" instead of "history" as the stereotypically feminine realm of achievement. Again, we examined participants' readiness to give the fictional students autonomy- or dependency-oriented help, while the presented vignettes reflected a long-term pattern of failure.

Similarly to Study 1, we predicted that in the case of a *female* target, participants would show greater tendency to offer more dependency-oriented help in *math* (stereotypically masculine domain) than in *education* (stereotypically feminine domain), while there would be no significant differences in preferences of dependency-oriented help in case of a male target experiencing the same predicament. Moreover, based on previous research on helping relations between groups of unequal status (Nadler, 2015; Nadler & Chernyak-Hai, 2014), we hypothesized that gender-stereotypical perception of the domain where failure was encountered would determine judgments of intellectual and social abilities of the female vs. male target, feelings aroused by the target, failure attributions, and the preferable kind of help. On the one hand, it could be predicted that given that people expect women to fail more often in math (a masculine domain) than in education (ostensibly feminine domain), their judgments would be harsher for the latter. Stated differently, if a woman is failing in math, a domain in which she is not likely to excel, this may be less indicative of her intellect than if she is failing in education. However, following past re-

search that showed the crucial role of a-priori expectations from the person in need on judgments and help giving (Nadler & Chernyak-Hai, 2014), we hypothesized that when presented with a female target who struggles to succeed in a masculine domain but repeatedly fails to do so, participants would *reaffirm their stereotypic expectations* of her as incompetent, and exhibit negative feelings toward her, higher attributions of the failure to lack of capacity and motivation, and higher preferences of dependency-oriented vs. autonomy-oriented help giving.

Finally, based on the centrality of stereotypes in social perceptions and interactions, and in helping relations in particular, we hypothesized that internalized stereotypes would have a direct influence on help-giving decisions. This expectation also followed the reviewed literature's premise that internalized gender stereotypes prescribe not only perceptions and judgments, but also behavioral intentions towards men and women (e.g. Cuddy et al., 2007; Fiske et al., 2002). However, we also decided to examine whether perceptions of the person in need and attributions of his/her failure function as mediators in the relations between characters' gender and domains of achievement and the type of help participants preferred to give them.

Method

Design and Participants

The experiment followed a 2 (Character's gender: male vs. female) × 2 (Domain of achievement: math vs. education) between-participants design. Participants were 120 native Hebrew speaking Israelis (60 females and 60 males; mean age = 30.54 years, *SD* = 7.23, range = 23-60).

Procedure

Participants were recruited at the Open University of Israel and Tel-Aviv University. All instructions and questions were administrated individually on a single questionnaire form. Participants completed the self-administered questionnaire in their psychology classrooms after their studies. Participation was voluntary. The experimenter approached potential participants and asked them to take part in a psychological research on the "complexity of others' perceptions", and instructed them to return the completed form by inserting it into an opaque envelope. After indicating their gender and age, participants were asked to read one of four versions of a vignette describing a character facing recurring failure in a specific domain (each 30 participants read a single vignette describing a male/female target experiencing failure in math/education), as follows:

Daniel[le] is a 25 year-old male [female] undergraduate student at Ben-Gurion University. Both of his [her] parents have academic degrees in math [education], so that from a young age [s]he was expected to pursue academic studies in this discipline. Daniel[le] has two older brothers who, contrary to their parents' expectations, have not studied at a university, and are preoccupied with their family lives. During the first two semesters of his [her] studies, Daniel[le] devoted plenty of time to study for the final exams in math [education] but failed in most. Now, Daniel[le] wonders how [s]he should cope with his [her] recurring failure in math [education].

After reading the vignette, participants completed manipulation check items followed by questions measuring the dependent variables: ratings of the character's intellectual and social traits, feelings toward them, causal attributions of their failure, and help-giving preferences. After completing all the questions the participants were fully debriefed.

Measures

Manipulation checks — Participants were asked to indicate the character’s domain of achievement (i.e. whether the recurring failure was experienced in math or education), and gender.

Dependent measures — *Preference of autonomy versus dependency-oriented help giving*. Two help giving items were included – one for each type of help. This decision followed our willingness to include more parsimonious measurement of autonomy- vs. dependency-oriented helping (see Nadler & Chernyak-Hai, 2014). The participants were offered prescriptive assessments, i.e. asked to indicate the kind of help they perceived to be most suitable for Daniel[le] (“Daniel[le] should be given the solution to the exam questions” – dependency-oriented help; or “Daniel[le] should receive an explanation of the exam material” – autonomy-oriented help).

Trait judgments: Intellectual traits. Participants rated Daniel[le] on the following nine traits (Nadler & Chernyak-Hai, 2014): “intelligent”, “skilled”, “ambitious”, “capable”, “motivated”, “self-confident”, “efficient”, “independent”, and “able to succeed”, on a 1 (very little) to 5 (very much) scale. Responses to the nine items were highly inter-correlated (Cronbach’s alpha = .90) and summed to obtain a single index.

Social traits. Participants rated Daniel[le] on eight traits (Nadler & Chernyak-Hai, 2014): “warm”, “influential”, “nurturing”, “friendly”, “good tempered”, “sincere”, “patient”, and “well-intentioned”, on a 1 (very little) to 5 (very much) scale. Responses to the eight items were summed to obtain a single index (Cronbach’s alpha = .71).

Feelings. Participants indicated their feelings toward the character by rating four emotions on a 1 (very little) to 5 (very much) scale: “liking”, “affectivity”, and “identification”.^{iv} Following a factor analysis, the three items were found to load on the same factor and were thus combined into a single scale (factor loadings of .85, .70, and .80, respectively). As these three emotions are reminiscent of items of Batson’s empathic concern measure (Batson, 1987, 1991; Batson, Eklund, Chermok, Hoyt, & Ortiz, 2007),^v we referred to them as “empathetic feelings” and focused our report on a single feelings measure accordingly (Cronbach’s alpha = .92).

Failure attributions. Participants indicated their agreement with six attributions of failure on a 1 (completely disagree) to 7 (completely agree) scale: (a) “typical lack of motivation in the domain”, (b) “general lack of ability”, (c) “lack of ability in studying for the exam”, (d) “coldness – lack of cooperation with other students in preparing for the exam”, (e) “typical lack of ambition in the domain”, and (f) “passive approach to coping with problems”. These internal attributions were selected following previous research findings that indicated higher relevance of internal attributions of help seeking behavior for help-giving choices (Nadler & Chernyak-Hai, 2014). However, according to Weiner’s causal attribution theory, the six attributions vary along the dimensions of controllability and stability (Weiner, 1980, 2006). In the present context, the attributions may be categorized as shown in Table 3.

Table 3

Categorization of the Internal Attributions Examined by Dimensions of Stability and Controllability in Study 2

Stability	Controllable	Uncontrollable
Stable	(a) Typical lack of motivation in the domain; (e) Typical lack of ambition in the domain	(b) General lack of ability; (f) Passive approach to coping with problems
Unstable	(d) “Coldness” – lack of cooperation with other students in preparing for the exam	(c) Lack of ability in studying for the exam

While the two controllable-stable attributions were strongly correlated ($r = .71, p < .001$), the two uncontrollable-stable attributions were weakly correlated ($r = .27, p = .02$). Following factor analysis, the items were found to load on two factors: one for attributions “a” and “e” (factor loadings .62 and .84, respectively) and one for attributions “b”, “c”, and “d” (.56, .57, and .82, respectively). Although unexpected, given the controllability-stability dimensions, the latter factor indicates that the participants attributed failure to general and specific abilities along with “coldness” (lack of cooperation). It may be that “coldness” was perceived as another facet of personal ability – the ability to interact with others in order to solve problems. Accordingly, two separate measures were computed: “motivation-ambition attribution” (mean value of participant ratings of “a” and “e”; $r = .71, p < .001$), and “ability-sociability attribution” (mean value of ratings of “b”, “c” and “d”; Cronbach’s alpha = .68). The attribution to passive approach in coping with problems was analyzed separately.

Results

Manipulation Checks

All the participants correctly identified the character’s domain of achievement (math/education), and gender.

Dependent Measures

Prior to testing the hypotheses, an inter-correlation analysis was performed to assess the relations between the dependent variables (excluding categorical help giving items). The analysis indicated significant positive correlations between judgments of characters’ intellectual traits, social traits, empathetic feelings toward them, and most of the attributions (see Table 4).

Table 4

Inter-Correlation Matrix (Dependent Variables Except Categorical Help Giving Items) in Study 2

Dependent Variable	2	3	4	5	6	7
1. Intellectual traits	.323***	.428***	.658***	.459***	.496***	.141
2. Social traits		.233*	.227*	.156	.216*	.065
3. Empathetic feelings			.443***	.141	.194*	.045
4. Motivation & ambition attribution				.262***	.340***	.134
5. Ability & sociability attribution					.089	.646***
6. Passive approach attribution						.077
7. Lack of ability in studying for the exam attribution						

* $p < .05$. ** $p < .01$. *** $p < .001$.

Trait judgments — (1) Intellectual traits. A 2 (Gender: male/female) \times 2 (Domain: math/education) ANOVA revealed a marginal main effect of achievement domain, $F(1, 116) = 2.82, p = .10, \eta^2 = .02$ and a significant main effect of characters’ gender, $F(1, 116) = 5.43, p = .02, \eta^2 = .31$ qualified by marginally significant Gender \times Domain interaction, $F(1, 116) = 3.43, p = .07, \eta^2 = .03$. Simple effects analysis indicated that participants estimated the intellectual abilities of the female character as lower when she encountered recurring failure in math than in education, $F(1, 116) = 3.78, p = .05, d = .36$ ($M = 2.30, SD = .62$ and $M = 3.01, SD = .75$, respectively), whereas the intellectual abilities of the male character were judged higher when he failed in math compared to education, $F(1, 116) = 5.72, p = .02, d = .44$ ($M = 3.99; SD = .59$ and $M = 2.83; SD = .84$).

(2) *Social traits*. A 2 (Gender: male/female) \times 2 (Domain: math/education) ANOVA revealed a main effect of achievement domain, $F(1, 116) = 5.92, p = .02, \eta^2 = .06$ qualified by a Gender \times Domain interaction $F(1, 116) = 4.52, p = .04, \eta^2 = .03$, indicating that when the character was female, participants tended to rate her social traits lower when she encountered failure in math as opposed to education, $F(1, 116) = 4.09, p = .05, d = .37$ ($M = 2.32, SD = .34$ and $M = 2.84, SD = .41$, respectively). The parallel differences for a male character were non-significant $d = .05$ ($M = 2.67, SD = .80$ and $M = 2.71, SD = .65$, respectively). The main effect of gender was non-significant, $F(1, 116) = .01, p = .91$.

Feelings — A 2 (Gender: male/female) \times 2 (Domain: math/education) ANOVA did not reveal significant main effects for gender $F(1, 116) = 2.53, p = .11$ and domain $F(1, 116) = .33, p = .57$, nor significant interaction $F(1, 116) = .25, p = .62$. The mean ratings of empathetic feelings for a female student in math were similar to those in history $d = .01$ ($M = 2.93, SD = 1.20$ and $M = 2.94, SD = 1.16$, respectively), and so were the ratings for a male student $d = .03$ ($M = 3.09, SD = 1.15$ and $M = 3.25, SD = 1.18$, respectively).

Attributions of failure — A 2 (Gender: male/female) \times 2 (Domain: math/ education) ANOVA indicated the following: First, a significant main effect of achievement domain, $F(1, 116) = 16.03, p < .001, \eta^2 = .11$ for the *motivation-ambition* attribution, indicating that participants attributed the character's failure to typical lack of motivation and ambition when the character encountered failure in math more than in education ($M = 3.57, SD = 1.25$ and $M = 2.83, SD = 1.36$, respectively). The main effect of gender was non-significant, $F(1, 116) = .83, p = .36$. In addition, a significant Gender \times Domain interaction was found, $F(1, 116) = 5.43, p = .02, \eta^2 = .05$, indicating that when the character was female, participants attributed her failure to typical lack of motivation and ambition when she encountered failure in math more than in education, $F(1, 116) = 6.83, p = .01, d = .48$ ($M = 3.75, SD = 1.18$ and $M = 2.46, SD = 1.31$, respectively), whereas there was no significant difference between math and education for a male character, $F(1, 116) = .93, p = .34, d = .18$ ($M = 2.20, SD = 1.34$ and $M = 2.83, SD = 1.31$, respectively).

Second, there was a significant Gender \times Domain interaction, $F(1, 116) = 4.11, p = .04, \eta^2 = .06$, indicating that when the character was female, the participants attributed her failure to general *lack of ability and lack of cooperation* in math more than in education, $F(1, 116) = 5.23, p = .02, d = .65$ ($M = 3.48, SD = .92$ and $M = 2.9, SD = .87$, respectively). The parallel differences for a male character were non-significant, $F(1, 116) = 1.65, p = .20, d = .22$ ($M = 3.36, SD = .37$ and $M = 3.45, SD = .43$, respectively). The main effects of gender and domain were non-significant, $F(1, 116) = .16, p = .69$ and $F(1, 116) = .03, p = .86$, respectively.

Finally, a significant main effect of achievement domain was found for attribution of failure to *passivity*, $F(1, 116) = 6.36, p = .01, \eta^2 = .06$ indicating that participants attributed the character's failure to passivity in math more than in education ($M = 2.80, SD = .89$ and $M = 2.38, SD = .90$, respectively). The main effect of gender and Gender \times Domain interaction were non-significant, $F(1, 116) = .01, p = .92$ and $F(1, 116) = .50, p = .48$, respectively.

Preference of autonomy versus dependency-oriented help giving — Analysis of frequencies indicated that for a *female* target, 93% of participants preferred dependency-oriented help and only 7% preferred autonomy-oriented help in math, $\chi^2(1) = 22.55, p < .001$, while 73% suggested autonomy-oriented help and 27% indicated dependency-oriented help in education, $\chi^2(1) = 10.82, p = .001$. On the other hand, for a *male* target, 73% preferred autonomy-oriented help and 27% indicated dependency-oriented help in math, $\chi^2(1) = 6.54, p = .01$, while 80% suggested autonomy-oriented help and 20% preferred dependency-oriented help in education, $\chi^2(1) = 6.53, p = .01$.

Mediation analysis — To explore whether the influences of character's gender and domain of achievement (math vs. education) on help-giving preferences (autonomy- vs. dependency-oriented help) are mediated by the trait judgments and attributions of the failure, we tested a mediation model (Hayes, 2013; Model 4) using Hayes' (2016) PROCESS Macro within a logistic regression as required given the dichotomous dependent variable. A mediated moderation was performed where two independent variables and the term for interaction were analyzed as predictors; the mediators were intellectual and social trait judgments and attributions of failure (motivation-ambition, lack of ability and cooperation, and passivity); the dependent variable was help-giving preferences (autonomy-versus dependency-oriented help). The results did not support mediation. Since the results of the analyses of variances have pointed to significant interactions across the dependent variables (which are also of theoretical importance in the present context), we focus on reporting the interaction effects.

Specifically, the indirect paths between the Gender \times Domain interaction effect and help-giving preferences through trait judgments and attributions were non-significant, as follows: (a) intellectual traits: .0875, 95% CI [-0.03, 0.36]; (b) social traits: .0015, 95% CI [-0.08, 0.11]; (c) motivation-ambition attribution: -.0320, 95% CI [-0.36, 0.07]; (d) lack of ability and cooperation attribution: .1273, 95% CI [-0.03, 0.51]; (e) passivity attribution: -.0012, 95% CI [-0.13, 0.09].

Discussion

Participants rated targets' intellectual and social abilities as lower and attributed their failure more negatively when the achievement domain was stereotypically inconsistent with their gender, but only when the character was a *woman*. Relatedly, participants also tended to rate the intellectual and social abilities of the female character who experienced failure in math lower compared to the same failure in education. The intellectual abilities of a male character, on the other hand, were judged similarly in both cases. Overall, the findings support the predicted differences in attributions of the characters' failure.

First, the achievement domain main effect indicating higher attribution of failure to typical lack of motivation and ambition and passivity in math compared to education supports the assumption of math's higher social prestige.

Second, attributions of the failure to typical lack of motivation and ambition, general lack of ability, and coldness were the highest when the character was a female encountering failure in math. These findings are especially interesting as typical lack of motivation, lack of ambition and lack of ability are stable causes, and thus – despite the difference in controllability (motivation and ambition are controllable while ability is not) – they are consistent with previous research findings that show people's tendency to attribute women's failures to stable causes (see Swim & Sanna, 1996). However, in the present study participants also attributed female failure in math to an unstable (and controllable) cause – “coldness”, in the sense of lack of cooperation with others in preparing for the exam. Therefore, it seems that a general negative type of attribution was formed in the case of women who tried to succeed and experienced recurring failure in a stereotypically masculine domain.

The hypothesis of less positive feelings predicted by the character's gender and achievement domain was not supported. This finding may be due to an overall positive emotional reaction toward the character described, as all items consisted of positive emotions toward a person described as “struggling” to succeed in academic studies, while the participants themselves were mainly university students who could be reasonably expected to identify with such a predicament. Further analysis showed that the average scores on the empathetic feelings measure were medium-high (mean of 3.15 on a 1-5 scale). Future research may benefit from examining the participants'

feelings in a similar design using a measure that includes both positive and negative feelings and also different participant populations.

There was a significant relationship between the type of help giving preferred and the character's gender and domain of achievement. Help-giving preferences for women as opposed to men were differentially related to domain of achievement. Participants preferred giving women significantly more dependency-oriented vs. autonomy-oriented help in a stereotypically masculine domain (math). By contrast, there was higher preference for autonomy-oriented vs. dependency-oriented help for women in a stereotypically feminine domain (education). On the other hand, when the target was described as male, participants showed high preference for autonomy-oriented vs. dependency-oriented help in both math and education. According to the present research's rationale of helping relations as power and status relations, these findings may indicate that stereotypical inconsistency between gender and achievement domain is more pronounced in its effect on help-giving preferences when the failing character is a woman – help-giving behavior as a form of sexism. Moreover, male failure in a stereotypically inconsistent domain of achievement does not lead to higher preferences of dependency-oriented helping. On the other hand, participants' preferences of autonomy-oriented help for men, regardless of domain, are consistent with research that indicated that such help is preferable for high-status individuals (Nadler & Chernyak-Hai, 2014).

Finally, as predicted, the results did not indicate mediation. Non-significant indirect relations were found between the interaction effect of characters' gender and domain of achievement, on the one hand, and participants' help-giving preferences on the other through trait judgements and attributions of characters' failure.

General Discussion

Informed by recent research on helping relations (Chernyak-Hai, Halabi, & Nadler, 2014; Dasgupta & Asgari, 2004; Nadler & Chernyak-Hai, 2014; Nadler & Halabi, 2006) and gender stereotypes (e.g. Glick & Fiske, 2001; Heilman, 2001; Kray, Thompson, & Galinsky, 2001; Prentice & Carranza, 2002), the present research explored the effects of internalized gender stereotypes that may cause helpers, men and women, to offer differential kinds of help to a male or female target who exhibits poor performance in a specific domain. Further, we examined whether there would be a difference in the judgments of the potential help seekers' ability and social traits, feelings toward them, and failure attributions following manipulations of gender and domain of achievement.

Study 1 examined how low levels of success shown by a male versus female target in math versus history impacted perceptions of his/her future success and the kind of help that participants preferred to give him/her. The findings indicated that female targets were expected to be less successful in a math test and in their future work in whatever profession, and were likely to be given dependency-oriented help when struggling with a math question.

Study 2 examined how recurring failure in math versus education affected the kind of help deemed most suitable for the target, perceptions of his/her intellectual and social traits, attributions for his/her failure, and feelings toward him/her. The findings indicated that when the failing target was a woman, participants showed a strong preference for dependency-oriented help in math, perceived her intellectual and social abilities as low, and attributed her failure to low motivation, low ambition, low ability, and "coldness".

Thus, consistent with our hypotheses, both studies showed that the gender of a person in need and the domain where the need for help is implied affect the kind of help perceived as most suitable. In addition, the findings of

Study 2 supported the hypothesis regarding differential trait evaluations and causal attributions of failure. On the basis of these findings, it may be said that women's failure in a stereotypically inconsistent realm of achievement is double: (a) women experiencing failure in math would be given the kind of help that maintains the existing social hierarchy by reproducing women's social dependency; and (b) they would be judged in an unflattering manner, with their failure attributed to lack of ambition, passivity and low ability.

Implications for Gender Stereotypes and Helping Relations Research

The present findings may be explained on the basis of the gender stereotypes literature and recent helping relations research. Following Fiske et al. (2002), the tendency to attribute women's failure to low ability or motivation and to rate their social traits lower when they encounter failure in a stereotypically masculine domain can be seen as a form of *benevolent sexism*. Past research showed that women and men internalize different social expectations derived from typical gender roles, and that each gender is expected to perform socially allocated roles (Barbee et al., 1993; Derlega, Barbee, & Winstead, 1994). The present findings imply that gender stereotypes are still relevant, as women are expected to have lesser intellectual abilities in masculine than in feminine fields. Moreover, the social traits attributed to those women who try to succeed in a masculine field and fail are negative compared to those attributed to women failing in a feminine field.

Above all, the importance of the present findings lies in suggesting that even cursory information on a fictional character's gender and achievement domain tends to affect the specific kind of help deemed suitable for them. As dependency- and autonomy-oriented help have different social implications for the help receiver, these results are of immediate relevance for gender inequality. Following the notion of helping relations as power and status relations (Nadler, 2002; Nadler & Chernyak-Hai, 2014; Nadler & Halabi, 2006), participants' decision that women experiencing failure in a prestigious field require dependency-oriented help, while men experiencing similar failure require autonomy-oriented help, upholds the male advantage in this field. These findings also support the Stereotype Content Model (SCM; Fiske et al., 2002) in the sense of paternalistic stereotypes toward the female character. Finally, the behavioral reaction found is similar to "passive harm" (BIAS map; Cuddy et al., 2007) in that she would be held in low esteem following her failure but simultaneously evoke pity and compassion – both reflected in dependency-oriented helping.

Therefore, one implication of the present research is that potential help givers' interpretation of gender stereotypes may lead men to receive help that boosts their knowledge and skills and promotes independent coping, whereas women will receive help that perpetuates their dependence. In other words, gender achievement stereotypes create a context where helping relations in a socially prestigious domain (in this case, STEM) contribute to the reproduction of power and status discrepancies. In this sense, differential ways of helping serve as an indirect mean of maintaining the status quo of gender inequality. Consequently, a practical implication of the present studies is the need to reduce gender-domain stereotypes in situations where help is needed or where requesting help is socially costly for women. This is not just because help per se reinforces stereotypical perceptions of women as "weak" and "dependent" (Eagly & Crowley, 1986; Fiske, Cuddy, Glick, & Xu, 2002; Kawakami, White, & Langer, 2000), but also because of the type of help they may expect to receive.

As for the non-significant results in preferences for autonomy-oriented help, these are consistent with the present research rationale. Since dependency- but not autonomy-oriented help plays a key role in sustaining these differences (Chernyak-Hai, Halabi, & Nadler, 2014; Nadler, 2012; Nadler & Chernyak-Hai, 2014; Nadler & Halabi, 2006), it is reasonable to assume that participants would show similar preferences for giving a male or female

character guidance or a hint for solving the problem, but prefer to give more help that consists of a complete solution and implies the female target's dependency in stereotypically masculine field.

Limitations

An unexpected difference between the two studies was found, as in Study 1 greater willingness to offer dependency-oriented help was indicated also for a male target in a stereotypically feminine domain, while in Study 2 similar low preferences for dependency-oriented help were indicated for the male target in both domain types. One possible explanation for these differences may be the forced-choice measure of help-giving preferences used in Study 2: participants were asked to indicate the type of help they perceived to be most suitable for the character. Perhaps this has overemphasized the differences between the two types of helping, so that helping indicative of social dependence was underscored for men regardless of domain of achievement.

An alternative explanation, already mentioned in Study 1's Discussion, may lie in different operationalization of the "feminine" domain. In Study 1, the "feminine" domain was history, whereas in Study 2 it was education. It may be that in Israeli society at least, history is perceived as stereotypically more feminine than education. This reasoning stems from prevalent gender stereotypes, according to which men are more assertive and rational than women while women are thought to be more suitable for "the arts" (e.g. Uhlmann & Cohen, 2005; Whitehead, 1996). If that is the case, then similarly to a female target in math, a male character exhibiting poor performance in history would be perceived as requiring dependency-oriented help. And yet, relying on the notion of helping relations as power and status relations, the meaning of dependency-oriented help for women in math is not comparable to the meaning of such help for men in history as the endorsement of gender power and status differences is due to dependency-oriented help in a domain that is *socially prestigious*.

The latter is also important for future research. Despite extensive evidence that STEM fields are viewed as masculine at least in some countries (e.g. Else-Quest, Hyde, & Linn, 2010; Lynch & Nowosenetz, 2009; Major & O'Brien, 2005; Tenenbaum & Leaper, 2003), we should consider the possibility that the present findings may be explained not just by the gender stereotypicality of the achievement domains but also by their social prestige. In other words, it is reasonable to argue that at least in Western societies STEM fields are perceived as more prestigious than fields such as education or history. Future research may benefit from direct distinction between prestigious and non-prestigious stereotypically masculine fields of achievement or employment (e.g. finance versus construction) by examining whether the differences in preferred help-giving behavior toward female compared to male recipients are particularly prominent in prestigious domains.

In addition, although the present research supported the main hypotheses, the participants were not involved in *actual* helping relations and the salience of gender stereotypes following their priming was not assessed directly. Future research may create situations where male and female individuals actually give or receive help and report their perceptions during helping interactions. Contexts other than specific academic disciplines may also be explored in order to assess and extend the validity of the present findings.

Moreover, the character presented in Study 2 was described as experiencing long-term failure. The reason for this was our intent to expand the external validity of Study 1's findings beyond the context of one-time failure. It may be argued, however, that long-term failure initially suggests stable internal attribution. Therefore, although our findings supported the predicted differences in causal attributions following Gender \times Domain manipulations, future research may benefit from different manipulations of the independent variables and/or different social settings.

Different manipulations and social settings may also contribute to the examination of predicted less positive feelings toward individuals experiencing failure in a stereotypically inconsistent realm of achievement. This prediction was not supported in the present research. We have suggested that the latter may be explained in terms of a generally positive emotional reaction to the character described in the current research setting.

Another point is that it may be assumed that trait judgments and attributions of characters' failure function as mediators in the relation between the interaction between character's gender and domain of achievement and the type of help the participant prefers to give. However, we argued that given the centrality of stereotypes in behavioral intentions in general and in helping relations in particular, the internalized stereotypes would have a direct influence on help-giving decisions. Indeed, our mediation analyses did not support indirect relations. Yet, future research may benefit from mediation analyses if some additional variables assessing stereotypic perceptions are included. Specifically, mediation analyses could be informative if, in addition to the categorical scale of the independent variables, participants' ratings of independent variables are also be assessed; for example, participants' ratings of the domain along a femininity-masculinity continuum, which may provide information on the stereotypes' strength. In this case, femininity-masculinity perceptions will be assessed as an independent variable, the judgments of character's future success ratings as a mediator, and ratings of suitability of dependency- vs. autonomy-oriented help as an a dependent variable. Additional variables could also include participants' ratings of the degree to which they are confident in the suitability of the type of help chosen (i.e. continuous dependent variable in addition to a categorical dependency/autonomy helping variable as in Study 2).

Finally, the current findings may be unique to countries characterized by relatively high gender differences in occupations and domains of achievements. It could be that the described differences in help-giving preferences are inapplicable in a cultural context where gender equality is high. For example, Iceland is known for its openness toward male parenting, so that many Icelandic fathers take a fulltime parental leave (Lammi-Taskula, 2006). Icelandic women have a high employment rate (Mósesdóttir & Erlingsdóttir, 2005) and have been successful in promoting a "gender-inclusive model of citizenship" (Lister, 2009). More generally, a recent study found that 94 percent of Icelanders opposed gender inequality on the labor market (Tesch-Römer, Motel-Klingebiel, & Tomasik, 2008). Therefore, one may expect that differences between autonomy- and dependency-oriented help would be less pronounced (if any) in Iceland.

Conclusion

Beyond the contribution to the literature on the phenomenon of stereotype threat, benevolent sexism and helping, the present findings have immediate practical implications: even in a modern society, women intent on succeeding in STEM fields may expect assistance that would promote social dependence and relatively low social status compared to equally talented men. Previous studies have already indicated women's reluctance to seek help when they are aware of the tendency to provide them with dependency-oriented help, emphasizing the benevolent sexism implications of everyday interactions (Wakefield, Hopkins, & Greenwood, 2012). The present research expands this conclusion by pointing to the type of help women may expect when gender stereotypes are activated. Thus, to achieve gender equality, the Gordian knot between lingering stereotypes and help-giving preferences must be untied.

Notes

- i) [Spencer, Steele, and Quinn \(1999\)](#) define stereotype threat as “The experience of being in a situation where one faces judgment based on societal stereotypes about one’s group” (p. 5).
- ii) However, we decided to examine whether the gender interactions found in the present studies were qualified by the participants’ gender, by including it as a factor. As expected, the analyses did not indicate any significant results for effects involving participants’ gender across all dependent variables, as follows: Study 1: participant gender main effect $F_s \leq 15.3$, $ps \geq .31$; participant gender \times character gender $F_s \leq 7.1$, $ps \geq .10$; participant gender \times domain $F_s \leq 1.0$, $ps \geq .50$; participant gender \times character gender \times domain $F_s \leq 2.3$, $ps \geq .50$. Study 2: participant gender main effect $F_s \leq 4.02$, $ps \geq .29$; participant gender \times character gender $F_s \leq 3.38$, $ps \geq .30$; participant gender \times domain $F_s \leq 2.22$, $ps \geq .10$; participant gender \times character gender \times domain $F_s \leq 4.16$, $ps \geq .30$. For help giving preferences: participant gender main effect $\chi^2(1) = 1.86$, $p = .17$; participant gender \times helping male and female characters, $\chi^2(1) = .37$, $p > .50$ and $\chi^2(1) = 1.89$, $p > .10$, respectively; participant gender \times helping in math and education $\chi^2(1) = 1.19$, $p > .10$ and $\chi^2(1) = .37$, $p > .50$, respectively.
- iii) The descriptions used to rate help-giving behaviors were adapted from previous studies ([Chernyak-Hai, Halabi, & Nadler, 2014](#); [Halabi, Nadler, Dovidio, & Noor, 2010](#); [Nadler & Chernyak-Hai, 2014](#); [Nadler & Halabi 2006](#); [Nadler, Harpaz-Gorodeisky, & Ben-David, 2009](#)).
- iv) The item describing feeling of identification was similar to that used by [Nadler and Chernyak-Hai \(2014\)](#). “Affectivity” assessed participants’ ratings of the extent to which the participant was touched by the character’s predicament. “Identification” assessed participants’ ratings of the extent to which the participant was empathetic to the character’s predicament.
- v) Specifically, “liking of the person in need”, “a feeling of affectivity towards them”, and “identification with their predicament”, are closely related to the six items of Batson’s measure: sympathetic, softhearted, warm, compassionate, tender, and moved.

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Competing Interests

The authors have declared that no competing interests exist.

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