

# Social Norms and Concussion Disclosure Behavior: Clarification of Terms and Measurement Recommendations

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Nondisclosed sport-related concussion symptoms pose a significant risk to athletes' health and well-being. Many researchers have focused on understanding the factors affecting athletes' concussion disclosure behaviors. One of the most robust predictors of the likelihood that an athlete will disclose concussion symptoms to their coaches, athletic trainers, parents, or peers is what researchers term *social norms*. The extant literature regarding social norms influencing concussion disclosure behaviors is inconsistent on how the construct should be defined, conceptualized, or measured, often failing

to distinguish between descriptive and injunctive social norms and their sources (direct and indirect). In this technical note, we provide an overview of these critical distinctions, their importance in assessments, and examples from the literature in which scholars have correctly operationalized these constructs in athletic populations. We conclude with a brief set of suggestions for researchers seeking to measure social norms in future research.

**Key Words:** injunctive social norms, descriptive social norms, sport-related concussions, scale development

Due to the prevalence of sport-related concussions (SRCs) in athletics, the injury has been described as an epidemic despite state legislation for secondary schools and conference mandates for collegiate athletes regarding education on the dangers of playing with an SRC.<sup>1–3</sup> Although concussion educational interventions have been proven effective in increasing knowledge, rates of nondisclosure among athletes remain high.<sup>4</sup> To find ways to improve athletes' willingness and ability to report potential SRC symptoms, researchers continue to identify factors that could potentially be altered to improve athletes' reporting behavior.<sup>5</sup> Well-known health behavior theories postulate various models regarding the factors influencing an athlete's intention to report concussion symptoms.<sup>6</sup> These models all have in common the hypothesized influence of social norms (sometimes called subjective norms or perceived social norms) influencing athletes' intentions to report.<sup>7,8</sup> However, the findings are mixed regarding the importance of social norms on SRC disclosure. One reason for the inconsistent pattern in the literature may be how social norms have been defined and operationalized.

## SOCIAL NORMS

The term *social norms* generally refers to prevailing (and unwritten) socially learned codes of conduct regarding the acceptability and unacceptability of specific behaviors and is used to broadly describe perceived and actual social influences on an individual's behavior.<sup>9</sup> Two specific types of social norms have been identified

in the literature: *injunctive social norms* (also called prescriptive norms) and *descriptive social norms* (also called subjective norms).<sup>10</sup> Injunctive norms refer to behaviors that individuals think others expect them to do ("ought to do"). They are considered powerful influences on behavior because of the potential social rewards (or social sanctions) that people important to them expect them to respond. Descriptive social norms are not associated with perceived rewards or sanctions and instead are beliefs tied to what an individual thinks other people really do.<sup>11</sup> These beliefs are essentially about the prevalence of a specific behavior. For the athlete, an overlap could exist in the content of their perception of injunctive and descriptive norms if they believed that what is commonly done by athletes (descriptive norm) is also what they ought to do (injunctive norm). Social norms theory posits that injunctive social norms are more influential on behavior than descriptive social norms because of the potential of social sanctions and social rewards.<sup>8,11</sup> However, descriptive social norms are believed to exert influence due to the likely advantages of imitating others' actions.<sup>12</sup> Thus, these 2 types of social norms, injunctive and descriptive, may be considered important to understand in contexts in which social pressures may influence athletes' decisions to disclose SRC symptoms. An identified problem in the social norm literature is that the terminology, operationalization, and measurement of injunctive and descriptive norms are often blurred, leading to ambiguity in the interpretation of results.<sup>10</sup> In the next section, we describe the features present to measure injunctive and descriptive social norms in SRC disclosure.

	Injunctive Norms	Descriptive Norms
	An athlete's beliefs about others' expectations for their own concussion-reporting behavior	An athlete's beliefs about the concussion-reporting behavior of other athletes
Direct ("Most" People)	"People who are important to me think I should report a concussion."	"Most athletes do not report concussion symptoms."
Indirect (Referent Groups)	"My coach expects me to report a concussion."	"My teammates report a concussion."

**Figure. Description and examples of injunctive and descriptive social norms with direct and indirect classifications.**

## MEASURING CONCUSSION REPORTING BEHAVIOR SOCIAL NORMS

In the SRC disclosure literature, athletes are typically asked to indicate their level of agreement with a set of statements that researchers use to assess social norms. Scale items assessing injunctive and descriptive norms are conceptualized and measured at 2 levels: direct and indirect (Figure). A direct measure of an injunctive social norm reflects the athlete's beliefs of what nonspecific persons think is socially acceptable behavior for them (eg, "People I know think I should/not report a concussion"). An indirect measure includes a specific referent group (eg, "My coach expects me to report a concussion"). Injunctive social norm items should also, by definition, include wording implying social consequences (eg, "My coach will be disappointed in me if I report a concussion," "Reporting a concussion will let my teammates down," "What my teammates think I should do matters"). Direct measures of the descriptive social norm are more general (eg, "Most athletes do not report concussions"), whereas indirect measures reflect specific individuals or groups of individuals (eg, "My teammates report concussions"). Our inspection of social norm measures used in the SRC disclosure literature shows that many items used injunctive and descriptive norm criteria; however, the terms injunctive and descriptive norms are not widely seen. Interventions based on research findings regarding the influence of social norms on an athlete's SRC disclosure behavior would benefit from understanding which source of social information is most strongly related to reporting intentions and behavior. For example, Rimal and Real recommend interventions that seek to change behavior with "normative restructuring strategies" that should consider the joint effect of injunctive and descriptive social norms, especially as moderated by group identity (implying the importance of indirect sources—specific referent groups in the measurement of injunctive social norms).<sup>10</sup>

## PUBLISHED SOCIAL NORM MEASURES

To illustrate the distinction between injunctive and descriptive social norms and provide recommendations for the researcher potentially interested in measuring social norms in the context of SRC disclosure behavior in athletes, we reviewed 3 social norm measures due to their recurring use in this field of inquiry. We identified the items used to measure the social norm construct. We classified each item as to whether it fits the description of injunctive or descriptive social norms and whether it is direct or indirect. In some cases, items were not measures of social norms as we have defined. If a clear assignment could not

be made, we describe the item either as the authors did or with the appropriate label. Our results are presented in Tables 1 through 3.

The first scale we reviewed was from Register-Mihalik et al.<sup>7</sup> In their study, they created direct and indirect measures of *subjective norm* and defined it as the "perception of important social referents' beliefs about concussion reporting" (see Table 1). Their measures mapped closely to the constructs identified in the theory of reasoned action and planned behavior.<sup>13</sup> The direct measure of injunctive social norms consisted of 4 items (items 1–4) labeled as "normative beliefs" with an acceptable level of reliability (Cronbach coefficient  $\alpha = 0.72$ ). They also created a measure of indirect subjective norms (items 5–8) defined as the product of the normative belief items reworded such that they referenced important social ties (coach, teammates, parents, and students at school) and the motivation to comply with these beliefs measured as the extent to which the athlete cared about what coaches, teammates, parents, or students think. No measure of reliability was reported for the indirect subjective norm scale or its correlation with direct subjective norms. These authors found that both direct and indirect subjective norms were associated with the intention to report concussion symptoms even though they found no evidence of intentions related to behavior.<sup>7</sup> No items measured descriptive social norms. With the future use of this tool, we would recommend clarifying for the reader that this measure of subjective norms is a measure of both direct and indirect injunctive social norms, that

**Table 1. Social Norm Categories (Injunctive and Descriptive Norms With Indirect and Direct Classifications) of Subjective Norms Scale Items<sup>7</sup>**

No.	Item	Social Norm Category
1	People I know think I should/not report.	Direct, injunctive
2	People who are important to me think I should/not report.	Direct, injunctive
3	It is expected of me to report.	Direct, injunctive
4	People who are important would approve of my reporting.	Direct, injunctive
5	My coaches think I should/not report.	Indirect, injunctive
6	My parents think I should/not report.	Indirect, injunctive
7	My teammates think I should/not report.	Indirect, injunctive
8	The students at my school think I should/not report.	Indirect, injunctive
9–12	Motivation to comply How much do you care what your _____ think? (coaches, teammates, parents, students at your school)	Used as a multiplier with indirect items 5–8

**Table 2. Social Norm Categories (Injunctive and Descriptive Norms With Indirect and Direct Classifications) of Perceived Reporting Norms/Subject Norms Scale Items<sup>a</sup>**

No.	Item	Social Norm Category
Scenario 1: Athlete M experienced a concussion during the first game of the season. Athlete O experienced a concussion of the same severity during the semifinal playoff game. Both athletes had persisting symptoms.		
1	My teammates would feel that Athlete M should have returned to play during the first game of the season.	Indirect, descriptive
2	Most athletes would feel that Athlete M should have returned to playing during the first game of the season.	Direct, descriptive
3	My teammates would feel that Athlete O should have returned to play during the semifinal playoff game.	Indirect, descriptive
4	Most athletes would feel that Athlete O should have returned to playing during the semifinal playoff game.	Direct, descriptive
Scenario 2: Player R experiences a concussion during a game. Coach A decides to keep Player R out of the game. Player R's team loses the game.		
5	My teammates would feel that Coach A made the right decision to keep Player R out of the game.	Indirect, descriptive
6	Most athletes would feel that Coach A made the right decision to keep Player R out of the game.	Direct, descriptive
Scenario 3: Athlete R experiences a concussion. Athlete R's team has an athletic trainer on the staff.		
7	My teammates would feel that the athletic trainer, rather than Athlete R, should make the decision about returning Athlete R to play.	Indirect, injunctive
8	Most athletes would feel that the athletic trainer, rather than Athlete R, should make the decision about returning Athlete R to play.	Direct, injunctive
Scenario 4: Athlete H experienced a concussion and has a game later in the day. He is still experiencing symptoms of concussion. However, Athlete H knows that if he tells his coach about the symptoms, his coach will keep him out of the game.		
9	My teammates would feel that Athlete H should tell his coach about the symptoms.	Indirect, injunctive
10	Most athletes would feel that Athlete H should tell his coach about the symptoms.	Direct, injunctive
Scenario 5: Athlete H experienced a concussion and has a game later in the day. He is still experiencing symptoms of concussion. However, Athlete H knows that if he tells his coach about the symptoms, his coach will keep him out of the game.		
11	My teammates would feel that Athlete H should tell his coach about the symptoms.	Indirect, injunctive
12	Most athletes would feel that Athlete H should tell his coach about the symptoms.	Direct, injunctive
13	My teammates would continue playing while also having a headache that resulted from a minor concussion.	Indirect, injunctive
14	Most athletes would continue playing while also having a headache that resulted from a minor concussion.	Direct, injunctive

companion items of direct and indirect descriptive norms be included, and that reliability estimates for each type of scale (eg, direct injunctive, indirect injunctive) be provided, as well as the intercorrelations among these 4 measures.

The second scale we reviewed is a widely cited measure called *perceived reporting norms* (and at times called subjective norms) published by Kroshus et al.<sup>8</sup> This 14-item concussion decision-making scenario-based scale is unique in the literature, while scored on a more traditional 7-point degree of agreement scale (see Table 2). The scenarios varied the context of when a concussion occurred (first game of the season, during a semifinal playoff game, a regular game, or before a game) and what happened (the coach removed the athlete from the game, let the athlete continue playing, or referred the decision to an athletic trainer). The scenarios reflected actions taken by a coach or player that were prescriptive in nature (“should tell the coach,” “should have returned to play”) reflecting injunctive norms that either supported concussion safety (+) or not (–). Respondents were asked to rate how “their teammates” (indirect) or “most athletes” (direct) would “feel” about the correctness of the decision by the player or coach, concussion safety affirming or not. To classify the items, we considered both the scenario (+, –) and the nature of the response. Two items (items 13[–] and 14[–]) appeared to be primarily indirect and direct descriptive social norms condoning risky concussion behavior (“my teammates” and “most athletes” would continue playing with a headache from a minor concussion), and 2 items (items 5[+] and 6[+]) were more safety affirming, with “my teammates” and “most athletes” agreeing with the coach’s decision to remove

the player. These 4 items were classified as descriptive (direct and indirect forms) because no prescription was detected; instead, they were statements about what the athletes thought other athletes really do. The remaining 10 items reflected direct and indirect injunctive norms either supporting concussion reporting behavior (items 7–12) or supporting risky behavior (items 1–4). Items were scored such that higher values reflected more negative normative beliefs about concussion reporting. The reported Cronbach coefficient  $\alpha$  for the measure was 0.74, which was significantly associated with both intentions to report and reporting behavior.

The third scale we reviewed was the *perceived social norms* scale reported by Register-Mihalik et al published recently in 2021.<sup>14</sup> The 7 items (each rated on a 7-point scale) are summed to create a score, with higher scores indicating more favorable perceived social norms around reporting concussion symptoms (see Table 3). The 7 items reflect a mix of 2 social norm types: direct injunctive (item 5) and direct descriptive (items 1 and 6). The remaining 4 items were not measures of social norms but instead institutional support for SRC care (items 2 and 3) or attitudes that reflect injunctive norms (item 4, “When I experience concussive symptoms, I am expected to report them to a medical professional or someone in authority,” and item 7, “I should report possible concussive symptoms when I experience them to a medical professional or someone in authority”).<sup>14</sup> Although the authors did not report the reliability of this measure, they found that this measure of perceived social norms was positively related to 2 of their 4 outcome measures (*intention to report* and *never participating with concussion symptoms*) but not

**Table 3. Social Norm Categories (Injunctive and Descriptive Norms With Indirect and Direct Classifications) of the Perceived Social Norms Scale<sup>14</sup>**

No.	Item	Social Norm Category
1	In my current activity or sporting environment, most people I know would report their possible concussive symptoms to a medical professional or someone in authority if they experience them.	Direct, descriptive
2	Schools like mine provide appropriate care for individuals with a concussion.	Organizational support
3	If I suffered a concussion, I would feel supported by my school.	Organizational support
4	When I experience concussive symptoms, I am expected to report them to a medical professional or someone in authority.	Injunctive norm attitude
5	When I experience possible concussive symptoms, people who are important to me would approve of me reporting them to a medical professional or someone in authority.	Direct, injunctive
6	When other athletes I know experience possible concussive symptoms, they report them to a medical professional or someone in authority.	Direct, descriptive
7	I should report possible concussive symptoms when I experience them to a medical professional or someone in authority.	Injunctive norm attitude

with *disclosing all concussions at the time of injury* or *disclosing all concussions at any point*. Without knowing the Cronbach coefficient  $\alpha$  metric for this scale, it is not possible to comment on whether mixing up 3 types of items may have limited their measure's utility in understanding important distinctions in social norm constructs on athletes' reporting intentions and behavior. We highlight this scale because we think using this measure of social norms may be common. Our research team has also used measures of social norms that did not consider the importance of distinguishing between descriptive and injunctive social norms and how to measure them.<sup>15</sup>

## RECOMMENDATIONS

We recommend that both injunctive and descriptive social norms be measured and that items be carefully worded to capture the important features of each. The wording of items should include both direct and indirect forms, and an adequate number of items for each type of norm should be given.<sup>16</sup> Distinct measures of injunctive and descriptive norms would help clarify how specific norms are related to SRC disclosure behaviors. We provide

examples in Table 4, highlighting the use of appropriately defined items relating to social norms. These 12 example items span the 4 types of social norms (injunctive and descriptive with both direct and indirect) with 3 items for each type. These items are currently for education purposes only, as they have not been pilot-tested or validated, but serve as clear examples for the reader.

Understanding the distinctions between social norms categories could provide vital information to design more effective interventions for student-athletes. Traditional education around SRC disclosure focuses on signs and symptoms of an SRC, but designing educational interventions that include information on changing these norms may positively affect disclosure rates. Specific examples would include discussion around athletes' beliefs regarding SRC disclosure, data to show how many teammates did disclose an SRC in the previous season, or having the coach mention their support and expectation of reporting a possible head trauma. With improved terminology accuracy in research and more tailored educational interventions on social norms surrounding SRC disclosure, we could help decrease the high rates of nondisclosure in athletics.

**Table 4. Examples of Direct and Indirect Injunctive and Descriptive Norm Items Supporting Concussion Disclosure<sup>a</sup>**

Item No.	Item	Social Norm Category
	How much do you agree or disagree with each statement (1 = strongly disagree; 2 = disagree; 3 = not sure; 4 = agree; 5 = strongly agree)?	
1	It is expected of me to report any concussion symptoms I might be experiencing.	Direct, injunctive
2	My coaches encourage me to report concussion symptoms.	Indirect, injunctive
3	Most athletes do not report concussion symptoms. <sup>b</sup>	Direct, descriptive
4	I know athletes on my team that have kept playing with concussion symptoms. <sup>b</sup>	Indirect, descriptive
5	People I know think I should report a concussion.	Direct, injunctive
6	My teammates think I should not report any concussion symptoms. <sup>b</sup>	Indirect, injunctive
7	Most athletes report their concussion symptoms to an athletic trainer.	Direct, descriptive
8	My teammates tend not to report concussion symptoms.	Indirect, descriptive
9	People who are important to me would approve if I did not report concussion symptoms right away. <sup>b</sup>	Direct, injunctive
10	My parents want me to report any concussion symptoms.	Indirect, injunctive
11	Athletes have good reasons for not reporting their concussion symptoms. <sup>b</sup>	Direct, descriptive
12	I am aware of specific athletes that have reported their concussion symptoms.	Indirect, descriptive

<sup>a</sup> These are example items for the reader and should not be used for research due to the lack of pilot testing and validation procedures.

<sup>b</sup> Reverse score before taking the average.



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