

“Secondary Gain” Revisited: Preliminary Psychometric Evaluation of a Reinforcement-Based Dimensional Assessment Framework for Psychiatric Disorders

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ABSTRACT

Secondary gain (SG) has traditionally been discussed within psychodynamic and psychosomatic frameworks, particularly in relation to conversion symptoms and somatic presentations. Despite its longstanding clinical relevance, SG has rarely been operationalized systematically, and no dimensional assessment framework currently exists. This study aimed to develop and preliminarily evaluate an exploratory framework for assessing SG-related reinforcement processes across psychiatric disorders and to examine their associations with symptom severity, somatosensory amplification, illness attributions, and perceived interpersonal attributional discrepancies. Altogether, 60 patients diagnosed with somatic symptom disorder (SSD), functional neurological symptom disorder (FND), panic disorder (PD), or major depressive disorder (MDD) were evaluated using an exploratory SG assessment survey developed through literature review and expert clinical consensus. The instrument assessed illness-related reinforcement events, anticipated relief expectations, and perceived attributional incongruence between patients and relatives. Participants also completed the Somatosensory Amplification Scale, Hospital Anxiety and Depression Scale, and Illness Perception Questionnaire. The instrument demonstrated acceptable preliminary internal consistency across the subdomains conceptually derived. The number of illness-related reinforcement events experienced differed across diagnostic groups and was higher in FND and lower in MDD ($\chi^2=8.795$, $p=0.032$). In contrast, the overall SG composite scores showed relatively similar distributions across diagnoses ($\chi^2=2.316$, $p=0.509$). Perceived attributional incongruence was higher in SSD ($\chi^2=15.709$, $p=0.001$) and lower in PD ($\chi^2=16.810$, $p=0.001$). SG-related variables were associated with anxiety symptoms, somatosensory amplification, and psychological illness attributions, providing preliminary evidence for construct coherence. These findings provide preliminary support for operationalizing SG-related reinforcement processes across psychiatric disorders. SG-related processes may reflect broader interpersonal and contextual reinforcement mechanisms rather than representing a diagnosis-specific phenomenon. Larger longitudinal studies are needed to establish the framework's psychometric validity and transdiagnostic relevance.

Keywords: Depressive disorders, functional neurological disorder, panic disorder, secondary gain, somatic symptom related disorders.



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ÖZ

“İkincil Kazanç” Kavramına Yeniden Bakış: Psikiyatrik Bozukluklarda Pekiştirme Temelli Boyutsal Bir Değerlendirme Çerçevesinin Ön Psikometrik İncelemesi

İkincil kazanç (İK), geleneksel olarak özellikle konversiyon belirtileri ve somatik yakınmalar bağlamında, psikodinamik ve psikosomatik kuramlar çerçevesinde ele alındı. Klinik açıdan önem taşımasına rağmen, İK bugüne kadar sistematik biçimde yapılandırılmış ve ölçülebilir boyutsal bir kavramsal çerçeve içinde ele alınmamıştır. Bu çalışma, psikiyatrik bozukluklarda İK ile ilişkili pekiştirme süreçlerini değerlendirmeye yönelik keşifsel nitelikte bir boyutsal çerçeve geliştirmeyi ve ön değerlendirmesini yapmayı, ayrıca bu süreçlerin semptom şiddeti, somatosensöriyel amplifikasyon, hastalık atıfları ve algılanan kişiler arası atıf uyumsuzluğu ile ilişkilerini incelemeyi amaçlamaktadır. Bedensel belirti bozukluğu (BBB), fonksiyonel nörolojik belirti bozukluğu (FNB), panik bozukluğu (PB) veya majör depresif bozukluk (MDB) tanısı almış toplam 60 hasta, literatür taraması ve uzmanların klinik görüş birliği doğrultusunda geliştirilen keşifsel bir İK değerlendirme anketi ile değerlendirildi. Ölçek; deneyimlenen hastalıkla ilişkili pekiştirme yaşantılarını, hastalıkla ilişkili rahatlatma beklentilerini ve hastalar ile yakınları arasında hastalığa dair atıflar arasında algılanan uyumsuzluğu değerlendirmektedir. Katılımcılar ayrıca somatosensöriyel amplifikasyon ölçeği, hastane anksiyete ve depresyon ölçeği ve hastalık algısı ölçeğini doldurdu. Ölçek, kavramsal olarak türetilmiş alt boyutlar arasında kabul edilebilir düzeyde iç tutarlılık gösterdi. Deneyimlenen hastalık ilişkili pekiştirme yaşantılarının sayısı tanı grupları arasında farklılık gösterdi; bu sayı FNB grubunda daha yüksek, MDB grubunda ise daha düşük bulundu ($\chi^2=8.795$, $p=0.032$). Buna karşın, toplam İK puanları tanılar arasında görece benzer dağılımlar göstermiştir ($\chi^2=2.316$, $p=0.509$). Algılanan atıf uyumsuzluğu BBB grubunda daha yüksek ($\chi^2=15.709$, $p=0.001$), PB grubunda ise daha düşük bulundu ($\chi^2=16.810$, $p=0.001$). İK ile ilişkili değişkenler; anksiyete belirtileri, somatosensöriyel amplifikasyon ve hastalığın psikolojik olduğuna dair atıflarla ilişkili bulundu; bu sonuçlar ölçeğin yapı geçerliliği açısından ön bulgular sağladı. Bulgular, İK ile ilişkili pekiştirme süreçlerinin psikiyatrik bozukluklarda boyutsal bir yapı içinde kavramsallaştırılıp değerlendirilebileceğine ilişkin ön düzeyde kanıt sunmaktadır. İK ile ilişkili süreçler, tanıya özgü olmaktan ziyade, daha geniş kişiler arası ve bağlamsal pekiştirme mekanizmalarını yansıtır olabilir. Bu çerçevenin psikometrik geçerliliğini ve tanılar üstü önemini ortaya koyabilmek için daha geniş örneklemli ve uzunlamasına çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Bedensel belirti ve ilişkili bozukluklar, depresif bozukluklar, fonksiyonel nörolojik bozukluk, ikincil kazanç, panik bozukluğu.

INTRODUCTION

Secondary gain (SG) has traditionally been discussed within psychodynamic and psychosomatic frameworks, particularly in relation to conversion symptoms and somatic presentations. Originally conceptualized by Freud as the interpersonal or environmental advantages indirectly associated with illness symptoms, SG was later incorporated into broader discussions of illness behavior, chronicity, and symptom maintenance (Fishbain et al., 1995). Over time, the concept expanded beyond its psychoanalytic origins and began to encompass a wider range of contextual processes, including reductions in interpersonal demands, changes in social expectations, increased relational attention, and avoidance of aversive situations associated with illness states. Within psychosomatic medicine and behavioral models, such processes have increasingly been understood as reinforcement-related mechanisms that may contribute to symptom persistence and illness behavior (Van Egmond & Kummeling, 2002; Kwan & Friel, 2002).

Contemporary dimensional and transdiagnostic approaches to psychopathology, including the Research Domain Criteria, Hierarchical Taxonomy of Psychopathology, and network models, emphasize cross-diagnostic mechanisms underlying psychiatric symptoms rather than strictly diagnosis-specific categories (Borsboom, 2017; Insel et al., 2010; Kotov et al., 2017). Despite the growing emphasis on dimensional psychopathology, constructs related to SG and illness-related reinforcement processes have received relatively limited systematic attention within these frameworks. Nevertheless, rather than being restricted to a single diagnostic category, reinforcement-related interpersonal and environmental contingencies may influence symptom expression, illness behavior, chronicity, and treatment engagement across multiple psychiatric disorders.

Although SG has long been considered clinically relevant, the construct remains poorly operationalized in empirical research. Existing approaches largely rely on clinician

judgment, psychodynamic interpretation, or indirect clinical inference rather than structured dimensional assessment. SG has frequently been discussed as a diagnosis-specific phenomenon, particularly in relation to conversion disorder or functional neurological symptom disorder (FND), despite evidence suggesting that illness-related interpersonal and contextual reinforcement processes occur across a broader range of psychiatric conditions (Craig et al., 1994; Kwan & Friel, 2002). Consequently, a systematic dimensional framework capable of evaluating SG-related processes across different psychiatric disorders is currently lacking.

Another important limitation of the literature is that SG has often been conceptualized narrowly as a hidden motivational construct, whereas illness-related reinforcement processes may involve multiple observable psychosocial domains (von dem Knesebeck et al., 2020). Illness may alter interpersonal expectations, reduce responsibilities, increase relational attention and care, modify family dynamics, or facilitate the avoidance of distressing social situations. These changes may occur regardless of the patient pursuing them and may contribute to symptom persistence through both positive and negative reinforcement mechanisms. Accordingly, SG may be better conceptualized as a multidimensional contextual process involving interpersonal, behavioral, and environmental contingencies associated with illness rather than as a unitary psychodynamic phenomenon.

From a cognitive-behavioral perspective, reinforcement processes are considered central to the maintenance of illness behavior and symptom persistence. Symptoms may become inadvertently reinforced when they result in reductions in aversive demands (negative reinforcement) or increases in interpersonal support, care, or environmental accommodations (positive reinforcement). Contemporary cognitive-behavioral models of somatic and functional symptoms also emphasize maladaptive symptom-focused attention, avoidance behaviors, dysfunctional illness beliefs, and interpersonal contingencies that contribute to the persistence of symptom–distress cycles (Orzechowska et al., 2021). Examining SG-related processes within this framework may help clarify how contextual and interpersonal factors interact with symptom expression across psychiatric disorders.

Illness attributions and interpersonal explanatory models may also influence SG-related processes. Patients and their relatives may differ substantially in their interpretation of symptoms, particularly regarding whether symptoms are perceived as primarily physical or psychological in origin. Such attributional incongruence may influence illness behavior, family interactions, treatment engagement, perceived stigmatization, and reinforcement contingencies within

the patient's social environment (Van Egmond et al., 2005). However, few studies have systematically examined the relationship between SG-related processes and attributional discrepancies between patients and their relatives.

Previous studies investigating SG have primarily focused on conversion disorder, somatization, or neurological symptoms. Stressful life events and SG-related factors have been associated with chronicity in somatization disorder (Craig et al., 1994), whereas studies on functional neurological presentations have highlighted the role of illness-related “escape” events and sick-role processes (Kwan & Friel, 2002; Nicholson et al., 2016). However, these studies generally evaluated the limited categories of reinforcement-related events and did not attempt to dimensionally operationalize SG across multiple psychiatric disorders. Furthermore, structured assessment instruments for SG-related processes are currently lacking.

This study was designed as a preliminary attempt to operationalize SG-related reinforcement processes using a structured dimensional framework. Rather than conceptualizing SG as a diagnosis-specific phenomenon, we examined whether illness-related reinforcement experiences, anticipated relief expectations, and perceived attributional incongruence could be systematically assessed across different psychiatric disorders. To achieve this, we developed an exploratory SG assessment survey informed by psychodynamic formulations of SG, literature on illness behavior, interpersonal reinforcement models, and cognitive-behavioral conceptualizations of symptom maintenance.

The study focused on four psychiatric diagnostic groups: somatic symptom disorder (SSD), FND, panic disorder (PD), and major depressive disorder (MDD). These groups were selected to represent varying degrees of focus on bodily symptoms, illness attribution patterns, and interpersonal illness-related dynamics. SSD and FND were included because SG has historically been the most extensively discussed condition. PD was included because of its prominent bodily symptoms and heightened symptom-focused attention, whereas MDD was included as a comparison condition characterized by relatively greater psychological attribution styles and different patterns of interpersonal and somatic symptom expression (Wiener et al., 2012; Raguram et al., 1996; Heredia Montesinos et al., 2012). Additionally, anxiety is associated with heightened symptom monitoring, bodily vigilance, reassurance-seeking, and sensitivity to interpersonal and environmental contingencies, whereas depressive symptoms primarily reflect affective, motivational, and cognitive disturbances (Wiener et al., 2012). Therefore, it may be hypothesized that SG-related reinforcement processes are more strongly associated with anxiety symptoms than with depressive symptom severity.

Although SG has traditionally been conceptualized primarily in relation to diagnostic categories, sex may also influence interpersonal reinforcement processes. Evidence specifically associated with the relationship between sex and SG remains limited. However, previous research suggests that men and women may differ in social support, caregiving expectations, and illness-related interpersonal responses (Göttgens et al., 2023).

This study primarily aimed to develop and evaluate an exploratory dimensional framework for assessing SG-related reinforcement processes across psychiatric disorders. Specifically, we aimed to (1) operationalize illness-related reinforcement experiences using a structured event-based assessment framework; (2) examine the preliminary construct coherence and internal consistency of this framework; (3) investigate associations between SG-related variables and symptom severity, somatosensory amplification, illness attributions, and illness course; and (4) explore the cross-diagnostic distribution of SG-related processes across SSD, FND, PD, and MDD. We also examined whether the theoretically related dimensions of the framework demonstrated coherent associations with one another as an additional indicator of construct validity. Additionally, although evidence specifically related to SG is limited, exploratory gender comparisons were included to examine whether SG-related processes demonstrate differential interpersonal reinforcement patterns between men and women. We hypothesized that SG-related variables would be positively associated with somatosensory amplification, anxiety scores, and illness-related attributional processes, but not with depression scores, and that somatic symptoms and related disorders (SSD and FND) would be associated with higher levels of perceived attributional incongruence and illness-related reinforcement experiences.

METHOD

Study Design and Participants

This cross-sectional exploratory study was conducted at a single psychiatry outpatient clinic at a university hospital between April 2023 and March 2024. This study aimed to preliminarily evaluate a dimensional assessment framework designed to operationalize SG-related reinforcement processes across psychiatric disorders.

Patients aged 18 years or over diagnosed with SSD, FND, PD, or MDD according to the Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 criteria were eligible for inclusion. Participants with comorbid psychotic disorders, intellectual disability, or dementia were excluded from the study. Patients who agreed to participate were referred by the

evaluating psychiatrist to the research team. One participant was excluded because of substantial missing data related to difficulties in cooperation, and another was excluded because the diagnosis of FND could not be reliably confirmed.

All participants provided written informed consent before participation. Diagnostic evaluations were independently conducted by two psychiatrists (EE and AB), and diagnoses were confirmed according to DSM-5 criteria. The final sample consisted of 60 participants: 21 with SSD, 12 with FND, 15 with PD, and 12 with MDD. The Başkent University Institutional Review Board approved the study protocol (project no: KA22/131).

Clinical and Sociodemographic Assessment

Sociodemographic characteristics—including age, sex, educational attainment, psychiatric treatment status, duration of illness, and accompanying medical or psychiatric conditions—were recorded. Clinical severity was assessed using the Clinical Global Impression Scale–Severity form (Busner & Targum, 2007).

Participants completed the following self-report scales to evaluate symptom severity, illness perception, and somatosensory amplification:

Somatosensory Amplification Scale (SAS)

The SAS is a self-report measure that assesses the tendency to perceive normal bodily sensations as intense, disturbing, or pathological (Barsky et al., 1990). A Turkish validity and reliability study was conducted by Güleç et al. (2007).

Hospital Anxiety and Depression Scale (HADS)

The HADS is a 14-item self-report instrument that assesses anxiety and depressive symptom severity (Zigmond & Snaith, 1983). A Turkish validity and reliability study was conducted by Aydemir (1997).

Illness Perception Questionnaire (IPQ)

The IPQ evaluates cognitive and emotional representations of illness, including illness-related attributions, perceived consequences, emotional responses, and perceived causes of illness (Moss-Morris et al., 2002). A Turkish validity and reliability study was conducted by Kocaman et al. (2007).

SG Assessment Framework

Because no standardized dimensional instrument currently exists for assessing SG-related reinforcement processes, an exploratory SG assessment survey was developed by the research team for this study. Candidate items were developed through an iterative process combining literature review and expert clinical consensus. Relevant

Table 1. Conceptual structure and domains of the secondary gain assessment framework

Domain	Operational definition	Theoretical construct	Example item	Derived variables
1. Experienced Illness-Related Reinforcement Events	Assessment of interpersonal and environmental changes experienced following symptom onset and perceived as having a positive, negative, or neutral impact	Illness-related reinforcement experiences and associated contextual modification	“Did you receive increased support from family members?”/“Did you stop attending unwanted social gatherings?”	Experienced reinforcement event count, net impact score, and experienced SG composite score
1a. Financial Reinforcement	Illness-related material or economic benefits associated with the presence of symptoms	Positive reinforcement through financial gain	Financial support, disability compensation, and retirement due to illness	Financial reinforcement subscore
1b. Burden Reduction	Reduction or redistribution of responsibilities following the onset of illness	Negative reinforcement through aversive demand reduction	Sick leave, childcare support, or household responsibilities	Burden reduction subscore
1c. Interpersonal Avoidance/Redirection	Illness-related avoidance of distressing interpersonal situations or redirection of social expectations	Interpersonal avoidance, negative reinforcement, and illness-related contextual restructuring	Avoiding unwanted social interactions, postponing marriage/divorce, and discontinuing conflictual relationships	Interpersonal avoidance/redirection subscore
1d. Relational Reinforcement	Increased interpersonal attention, care, support, or relational closeness associated with illness	Positive interpersonal reinforcement and illness-related relational gain	Increased family attention, reduced family conflict, and increased partner involvement	Relational reinforcement subscore
2. Anticipated Illness-Related Relief Expectations	Assessment of anticipated relief if hypothetical illness-related events occur	Expected reinforcement value and perceived symptom-event linkage	“How relieved would it be if your responsibilities were reduced because of your illness?”	Anticipated secondary gain score and subscores
3. Perceived Attributional Incongruence	Difference between patients’ own illness attributions and their perceptions of relatives’ attributions	Attributional mismatch and interpersonal explanatory incongruence	Difference between “purely physical” and “purely psychological” attribution ratings	Perceived attribution gap

theoretical and empirical literature on SG, illness behavior, interpersonal reinforcement, and symptom maintenance was reviewed to identify relevant domains. Item generation was informed by multiple theoretical perspectives, including psychodynamic formulations of SG, literature on illness behavior, interpersonal reinforcement models, and cognitive-behavioral conceptualizations of symptom maintenance. No existing dimensional instrument assessing SG-related reinforcement processes was available; therefore, items were not adapted from any previously published scale. Instead, item content was generated specifically for the present framework and subsequently refined, modified,

and supplemented on the basis of the research team’s clinical experience. The examples of item lists are provided in Supplementary Material (Supplementary Table). The framework comprised three sections evaluating distinct but theoretically related domains:

1. Experienced illness-related reinforcement events
2. Anticipated illness-related relief expectations
3. Perceived attributional incongruence

Table 1 summarizes the conceptual structure and domains of the SG assessment framework.

Table 2. Definitions and interpretations of derived variables in the secondary gain assessment framework

Variable	Operational definition	Scoring method	Interpretation	Theoretical meaning
Experienced Reinforcement Event Count	Total number of illness-related reinforcement events reported as present	Sum of the endorsed reinforcement-related events	Greater exposure to illness-related interpersonal/ environmental changes	Exposure burden related to illness-associated contextual modification
Net Impact Score	Sum of the event impact ratings ranging from –2 (very negative) to +2 (very positive)	Sum of the impact ratings (–2 to +2)	Overall perceived impact of experienced events	Subjective appraisal of illness-related contextual consequences
Experienced Secondary Gain Composite Score	Sum of the positively rated reinforcement-related events	Sum of the positively rated reinforcement events	Greater perceived illness-related reinforcement burden	Experienced interpersonal and environmental reinforcement associated with illness
Financial Reinforcement Subscore	Composite score derived from financial-related reinforcement items	Sum of the financial reinforcement items	Greater financial gain associated with illness	Positive reinforcement through material or economic benefits
Burden Reduction Subscore	Composite score derived from responsibility-reduction items	Sum of the burden reduction items	Greater reduction in aversive demands or obligations	Negative reinforcement through avoidance of burdens
Interpersonal Avoidance/Redirection Subscore	Composite score derived from avoidance/redirection-related items	Sum of the avoidance/redirection items	Greater illness-related modification of interpersonal expectations or interactions	Interpersonal avoidance and contextual restructuring processes
Relational Reinforcement Subscore	Composite score derived from increased care/support items	Sum of relational reinforcement items	Greater illness-related interpersonal attention or support	Positive interpersonal reinforcement and relational gain
Anticipated Secondary Gain Score	Total anticipated relief score for hypothetical illness-related events	Sum of the anticipated relief ratings	Greater expected contextual or interpersonal illness-associated relief	Anticipated reinforcement value and perceived symptom-event linkage
Perceived Attribution Gap	Absolute difference between patients' illness and perceived relatives' attributions	Absolute difference between self and perceived family attribution ratings	Greater attributional incongruence between patients and their relatives	Interpersonal explanatory mismatch surrounding illness

Experienced Illness-Related Reinforcement Events

The first section evaluated whether the participants had experienced specific interpersonal or environmental changes following symptom onset. Participants were asked whether each event had occurred during the course of their illness and, if present, to rate the overall impact of the event on their lives using a 5-point scale ranging from –2 (“very negative”) to +2 (“very positive”).

The event list included 36 illness-related life events grouped into four conceptually derived psychosocial domains:

1. Financial reinforcement
2. Burden reduction
3. Interpersonal avoidance/redirection
4. Relational reinforcement

Table 2 presents the definitions and interpretations of the derived variables from the instrument.

Anticipated Illness-Related Relief Expectations

The second section assessed anticipated relief expectations associated with hypothetical illness-related events. Participants rated how relieving each event would be if it occurred during their illness process using a 5-point Likert-type scale ranging from 0 (“not at all”) to 4 (“completely”).

This section evaluated the value of anticipated reinforcement, perceived symptom-event linkage, and expected interpersonal or contextual relief. The four psychosocial domains used in Section 1 were retained for conceptual consistency. The cumulative score derived from this section was referred to as the anticipated SG score (Table 2).

Perceived Attributional Incongruence

The final section assessed the patients’ perceptions of illness-related attributional differences between participants and their relatives. Participants rated the following using a 7-point continuum ranging from “purely physical” to “purely psychological”:

1. Interpretation of their illness
2. Perception of how relatives interpreted the illness

The absolute difference between these two ratings was calculated and termed the perceived attribute gap (Table 2). This variable was conceptualized as a proxy indicator of the perceived attributional incongruence within the interpersonal environment surrounding the experience of illness.

Statistical Analysis

All statistical analyses were conducted using IBM SPSS Statistics Version 23.0. Nonparametric statistical methods were preferred given the modest sample size, subgroup distributions, and non-normal distribution characteristics of several primary outcome variables. Preliminary distributional evaluations revealed deviations from normality for several SG-related variables. Therefore, the Kruskal–Wallis test was used for comparisons across the four diagnostic groups, and the Mann–Whitney U test was used for binary group comparisons. Spearman’s rho correlation analyses were performed to evaluate the associations between the study variables.

Where overall Kruskal–Wallis tests demonstrated significant differences, post hoc pairwise comparisons were examined using the Mann–Whitney U test with Bonferroni-adjusted significance thresholds.

The participants in the secondary analyses were grouped according to the DSM-5 classification structure and illness course characteristics.

For DSM-5 classification analyses, SSD and FND were grouped as somatic symptoms and related disorders (SSRDs), whereas PD and MDD were grouped together as comparison conditions. This grouping was based on the phenomenological emphasis on bodily symptoms and illness-related behaviors in patients with SSD/FND compared with those with PD/MDD. Given the modest sample size, combining PD and MDD improved the statistical power for higher order exploratory comparisons. In addition, the illness course was categorized as episodic or continuous based on clinical history.

Spearman correlation analyses were used to examine associations between SG-related variables and illness duration, symptom severity, somatosensory amplification, anxiety and depressive symptom severity, illness attribution variables, and illness perception domains.

RESULTS

Sample Characteristics and Descriptive Results

Table 3 presents the sociodemographic and clinical characteristics of the final sample. No significant differences in age, illness duration, overall symptom severity, educational attainment, or psychotropic medication use were observed across diagnostic groups.

Table 4 presents the descriptive results. Somatosensory amplification significantly differed across diagnoses ($\chi^2=10.528$, $df=3$, $p=0.015$), with lower somatosensory amplification scores observed in the MDD group.

Preliminary Reliability of the SG Assessment Framework

The SG assessment framework demonstrated acceptable preliminary internal consistency across conceptually derived psychosocial domains. The first section, which assessed experienced illness-related reinforcement events, demonstrated acceptable internal consistency (Cronbach’s $\alpha=0.71$), whereas the second section, which assessed anticipated illness-related relief expectations, demonstrated good internal consistency (Cronbach’s $\alpha=0.83$).

Overall, subdomain reliability analyses for the anticipated reinforcement section demonstrated acceptable psychometric coherence (Table 5). Cronbach’s α coefficients ranged from 0.63 to 0.77 across subdomains. Interpersonal avoidance/redirection demonstrated the highest internal consistency ($\alpha=0.77$), followed by financial reinforcement ($\alpha=0.74$) and relational reinforcement ($\alpha=0.74$). Burden reduction demonstrated relatively lower but still acceptable internal consistency ($\alpha=0.63$). Item-total and inter-item correlation ranges also supported the preliminary construct coherence across subdomains.

Table 3. Comparisons of sociodemographic and clinical variables

	Diagnoses			DSM-5 classification				Course of disease			
	Mean (SD) ^a			Mean (SD) ^b				Mean (SD) ^b			
	SSD (n=21)	FND (n=12)	PD (n=15)	MDD (n=12)	χ^2	SSRD (n=33)	Others (n=27)	U	Episodic (n=27)	Continuous (n=33)	U
Age	44.43 (15.689)	39.75 (17.205)	40.20 (18.222)	35.83 (15.248)	1.977	42.73 (16.150)	38.26 (16.794)	374.000	40.00 (17.438)	41.30 (15.856)	426.500
Duration of disease (years)	4.90 (8.227)	8.67 (11.696)	3.40 (5.539)	2.50 (2.876)	2.640	6.27 (9.628)	3.00 (4.498)	361.500	5.74 (9.028)	4.03 (6.821)	436.500
Severity of disease (CGI-5)	2.24 (0.768)	3.00 (1.537)	2.00 (0.926)	2.42 (0.669)	5.962	2.52 (1.149)	2.19 (0.834)	400.500	2.44 (1.311)	2.30 (0.728)	442.500
	n (%)^c				χ^2		n (%)^c			n (%)^c	χ^2
Sex					0.732			0.034			0.636
Women	15 (71.4)	10 (83.3)	12 (80.0)	9 (75.0)		25 (75.8)	21 (77.8)		22 (81.5)	24 (72.7)	
Men	6 (28.6)	2 (16.7)	3 (20.0)	3 (25.0)		8 (24.2)	6 (22.2)		5 (18.5)	9 (27.3)	
Educational attainment					3.205			1.587			0.260
Primary or middle school	2 (9.5)	2 (16.7)	1 (6.7)	2 (16.7)		4 (12.1)	3 (11.1)		3 (11.1)	4 (12.1)	
High school	7 (33.3)	5 (41.7)	4 (26.7)	2 (16.7)		12 (36.4)	6 (22.2)		9 (33.3)	9 (27.3)	
University or higher	12 (57.7)	5 (41.7)	10 (66.7)	8 (66.7)		17 (51.5)	18 (66.7)		15 (55.6)	20 (60.6)	
Psychotropic drug use					2.068			0.825			0.067
None	6 (28.6)	2 (16.7)	3 (20.0)	1 (8.3)		8 (24.2)	4 (14.8)		5 (18.5)	7 (21.2)	
At least one	15 (71.4)	10 (83.3)	12 (80.0)	11 (91.7)		25 (75.8)	23 (85.2)		22 (81.5)	26 (78.8)	

*: P<0.05; **: P<0.01; ***: P<0.001; a: Kruskal–Wallis test; b: Mann–Whitney U test; c: Chi-Square test. SD: Standard deviation; CGI-5: Clinical global impression scale–severity; SSD: Somatic symptom disorder; FND: Functional neurological symptom disorder; PD: Panic disorder; MDD: Major depressive disorder; SSRD: Somatic symptom and related disorders.

Owing to the modest sample size relative to the number of items, exploratory factor analysis was not conducted. Accordingly, the findings were interpreted as preliminary psychometric evidence to guide future validation studies.

Construct Validity

Table 6 presents the associations between experienced reinforcement and anticipated relief expectations. The total number of experienced reinforcement events was positively correlated with the anticipated SG scores ($\rho=0.518$, $p<0.001$). Similarly, the cumulative net impact of experienced events was positively associated with anticipated relief expectations ($\rho=0.519$, $p<0.001$). These findings suggest consistency between experienced illness-related reinforcement processes and anticipated contextual relief expectations. However, no significant correlations were identified between illness duration and either experienced reinforcement event counts ($\rho=0.016$, $p=0.906$) or cumulative net impact scores ($\rho=0.134$, $p=0.307$).

As an additional source of construct validity evidence, we examined the associations among the theoretically related dimensions of the SG framework to determine whether they demonstrated coherent patterns consistent with the proposed conceptual model. Participants who reported at least one illness-related reinforcement event demonstrated significantly higher anticipated SG scores than those who did not report any reinforcement-related events ($U=118.500$, $Z=-2.890$, $p=0.004$). Similar differences were observed for anticipated interpersonal avoidance/redirection ($U=179.000$, $Z=-2.004$, $p=0.045$) and anticipated financial reinforcement ($U=165.000$, $Z=-2.421$, $p=0.015$), whereas no significant differences were observed for other subscales ($U=203.000$, $Z=-1.354$, $p=0.176$; $U=193.500$, $Z=-1.460$, $p=0.144$).

Convergent Validity

Several SG-related variables were significantly associated with symptom severity, somatosensory amplification, and illness attribution measures, providing preliminary evidence for convergent validity (Table 7).

The overall experienced SG composite score demonstrated a moderate positive correlation with anxiety symptom severity as measured by the HADS-A ($\rho=0.449$, $p<0.01$). Additionally, SG composite scores were positively associated with psychological illness attributions on the IPQ ($\rho=0.273$, $p<0.05$).

Among the psychosocial subdomains, interpersonal avoidance/redirection scores were positively correlated with illness severity ($\rho=0.267$, $p<0.05$) and somatosensory amplification ($\rho=0.275$, $p<0.05$). Relational reinforcement scores were positively associated with somatosensory

Table 4. Descriptive results and known-groups validity analyses													
	Diagnoses				χ²	DSM-5 classification		Course of disease			Sex		
	SSD (n=21)	FND (n=12)	PD (n=15)	MDD (n=12)		SSRD (n=33)	Others (n=27)	U	Episodic (n=27)	Continuous (n=33)	U	Women (n=46)	Men (n=14)
	Mean (SD) ^b												
SAS score	32.19 (6.013)	32.33 (6.985)	30.47 (6.760)	24.67 (5.532)	10.528*	32.24 (6.275)	27.89 (6.796)	289.000*	31.30 (6.793)	29.45 (6.829)	375.500 (6.574)	31.26 (6.844)	27.07 (6.844)
HADS score	13.05 (5.390)	16.58 (9.317)	14.36 (6.392)	17.58 (5.838)	4.294	14.33 (7.140)	15.85 (6.240)	345.500	15.38 (7.793)	14.70 (5.897)	410.500 (6.478)	15.36 (6.478)	13.86 (7.685)
Experienced reinforcement	5.67 (3.469)	7.75 (3.194)	6.40 (4.171)	3.92 (2.429)	8.795*	6.42 (3.473)	5.30 (3.667)	356.500	7.00 (3.762)	5.03 (3.206)	288.500* (3.121)	6.11 (3.121)	5.29 (4.874)
Net impact score	2.14 (6.167)	3.58 (7.012)	5.0 (6.403)	5.33 (5.694)	2.175	2.67 (6.416)	5.15 (5.985)	351.000	4.37 (6.588)	3.30 (6.111)	440.000 (6.085)	4.33 (6.085)	2.00 (6.884)
SG composite score	4.48 (3.250)	7.17 (5.132)	6.20 (4.632)	5.17 (4.448)	2.316	5.45 (4.169)	5.74 (4.494)	422.000	6.63 (4.789)	4.73 (3.677)	349.000 (4.235)	5.98 (4.235)	4.29 (4.340)
Interpersonal avoidance/ redirection	1.05 (1.322)	1.58 (2.065)	1.13 (1.727)	0.75 (0.965)	0.816	1.24 (1.621)	0.96 (1.427)	401.000	1.33 (1.861)	0.94 (1.197)	425.500 (1.636)	1.24 (1.636)	0.71 (1.069)
Burden reduction	1.05 (1.465)	1.58 (2.151)	1.73 (1.944)	1.08 (1.165)	1.156	1.24 (1.733)	1.44 (1.649)	402.500	1.67 (2.000)	1.06 (1.345)	388.000 (1.689)	1.35 (1.689)	1.29 (1.729)
Relational reinforcement	1.86 (2.06)	3.17 (2.41)	3.27 (2.60)	2.75 (3.49)	3.763	2.33 (2.245)	3.04 (2.980)	402.500	3.22 (2.470)	2.18 (2.651)	322.500 (2.629)	3.02 (2.629)	1.43 (2.174)
Financial reinforcement	0.52 (1.365)	0.83 (1.115)	0.07 (0.258)	0.58 (1.240)	5.072	0.64 (1.270)	0.30 (0.869)	387.000	0.41 (0.844)	0.55 (1.301)	444.500 (0.974)	0.37 (0.974)	0.86 (1.460)
Anticipated SG score	10.90 (7.273)	23.67 (18.446)	15.80 (17.701)	13.67 (9.967)	3.244	15.55 (13.743)	14.85 (14.557)	412.000	19.30 (18.125)	11.91 (8.308)	382.000 (14.348)	16.33 (14.348)	11.64 (12.592)
Anticipated interpersonal avoidance/redirection	2.24 (3.872)	4.25 (6.196)	1.40 (2.530)	0.50 (1.732)	6.382	2.97 (4.851)	1.00 (2.219)	325.000*	2.67 (4.666)	1.61 (3.335)	387.500 (3.756)	2.02 (3.756)	2.29 (4.827)
Anticipated burden reduction	1.90 (2.448)	3.42 (3.450)	3.93 (6.745)	2.75 (2.864)	1.715	2.45 (2.895)	3.41 (5.322)	444.500	3.70 (5.441)	2.21 (2.595)	411.500 (4.464)	3.37 (4.464)	1.29 (2.400)
Anticipated relational reinforcement	5.71 (5.433)	12.50 (8.230)	8.07 (6.745)	8.75 (7.300)	6.552	8.18 (7.261)	8.37 (6.868)	426.500	10.04 (7.628)	6.82 (6.242)	325.500 (7.152)	9.00 (7.152)	5.86 (6.237)
Anticipated financial reinforcement	1.05 (2.085)	3.50 (4.189)	2.40 (5.865)	1.67 (2.674)	3.537	1.94 (3.191)	2.07 (4.657)	427.500	2.89 (5.124)	1.27 (2.295)	386.000 (4.197)	1.93 (4.197)	2.21 (2.723)
Perceived attribution gap	1.86 (1.195)	0.75 (0.622)	0.42 (0.915)	1.0 (0.953)	16.810**	1.45 (1.148)	0.70 (0.953)	256.500**	0.59 (0.797)	1.55 (1.175)	226.000** (1.092)	1.09 (1.092)	1.21 (1.251)

*, P<0.05; **, P<0.01; ***, P<0.001. a: Mann–Whitney U test; SD: Standard deviation; SAS: Somatosensory amplification scale; HADS: Hospital anxiety and depression scale; SG: Secondary gain; SSD: Somatic symptom disorder; FND: Functional neurological symptom disorder; PD: Panic disorder; MDD: Major depressive disorder; SSRD: Somatic symptom and related disorders.

*: P<0.05; **: P<0.01; ***: P<0.001. a: Kruskal–Wallis test; b: Mann–Whitney U test; SD: Standard deviation; SAS: Somatosensory amplification scale; HADS: Hospital anxiety and depression scale; SG: Secondary gain; SSD: Somatic symptom disorder; FND: Functional neurological symptom disorder; PD: Panic disorder; MDD: Major depressive disorder; SSRD: Somatic symptom and related disorders.

Table 5. Preliminary psychometric properties of the secondary gain assessment framework

Subdomain	Number of items	Cronbach's α	Item-total correlation range	Inter-item correlation range	Theoretical domain
Financial reinforcement	6	0.74	0.48–0.62	0.20–0.60	Positive material/environmental reinforcement
Burden reduction	6	0.63	0.26–0.52	0.08–0.56	Reduction of aversive demands and responsibilities
Interpersonal avoidance/redirection	8	0.77	0.42–0.66	0.14–0.60	Illness-related interpersonal avoidance and contextual restructuring
Relational reinforcement	7	0.74	0.28–0.62	0.12–0.59	Increased interpersonal attention, care, and support

Table 6. Intercorrelations among secondary gain framework dimensions (Spearman Correlation Analysis, n=60)

Variable	1	2	3	4	5	6	7	8	9
1. Experienced reinforcement event count	—	0.344**	0.721***	0.282*	0.100	0.310*	0.376**	0.518***	-0.042
2. Net impact score		—	0.833***	0.425**	0.502***	0.698***	0.704***	0.519***	-0.045
3. Experienced SG composite score			—	0.386**	0.383**	0.591***	0.676***	0.659***	-0.081
4. Financial reinforcement				—	0.141	0.327*	0.200	0.354**	0.104
5. Burden reduction					—	0.174	0.007	0.089	-0.087
6. Interpersonal avoidance/redirection						—	0.315*	0.356**	-0.046
7. Relational reinforcement							—	0.592***	-0.113
8. Anticipated SG score								—	-0.100
9. Perceived attribution gap									—

*: $P < 0.05$; **: $P < 0.01$; ***: $P < 0.001$; SG: Secondary gain.

amplification ($\rho = 0.321$, $p < 0.05$) and psychological illness attributions ($\rho = 0.332$, $p < 0.01$).

Anticipated SG scores were positively associated with psychological illness attributions ($\rho = 0.254$, $p < 0.05$). Similarly, the anticipated interpersonal avoidance/redirection and anticipated relationship reinforcement subdomains were positively correlated with somatosensory amplification ($\rho = 0.255$, $p < 0.05$; $\rho = 0.300$, $p < 0.05$).

As both patient and perceived family attributions shifted toward the somatic end of the attribution continuum, the perceived attribution gap scores increased ($\rho = -0.561$, $p < 0.001$; $\rho = -0.377$, $p = 0.003$). Psychological illness attributions were positively associated with emotional representation scores on the IPQ ($\rho = 0.316$, $p = 0.014$).

Divergent Validity

Table 7 presents the correlations among the framework dimensions and external measures. No significant associations

were observed between SG-related variables and depressive symptom severity measured by HADS-D. Likewise, perceived attribution gap scores were not significantly associated with overall anxiety or depressive symptom severity.

Known-Groups Validity

Diagnostic Group Comparisons

The number of experienced illness-related reinforcement events significantly differed across diagnostic groups ($\chi^2 = 8.795$, $df = 3$, $p = 0.032$), with higher event counts observed in FND and lower event counts in MDD. Patients in the PD group tended to attribute their symptoms more strongly to psychological causes, whereas SSD participants demonstrated more somatically oriented illness attributions ($\chi^2 = 14.274$, $p = 0.003$; $\chi^2 = 15.339$, $p = 0.002$, respectively). Perceived attribution gap scores significantly differed across the diagnostic groups ($\chi^2 = 16.810$, $p = 0.001$), with SSD having the highest scores and PD having the lowest scores. In contrast, the overall experienced SG composite scores demonstrated

Table 7. Correlations between secondary gain framework dimensions and external validation measures (Spearman Correlation Analysis, n=60)

	SG composite score	Interpersonal avoidance/redirection	Burden reduction	Relational rei.	Financial rei.	Anticipated SG score	Anticipated interpersonal avoidance/redirection	Anticipated burden reduction	Anticipated relational rei.	Anticipated financial rei.
Duration of illness	0.151	0.237	-0.035	0.010	0.110	0.235	0.129	0.191	0.158	0.119
Severity of symptoms (CGI-S)	0.103	0.267*	-0.023	0.018	-0.084	0.070	0.098	0.070	0.073	0.163
SAS scores	0.247	0.275*	0.018	0.321*	-0.066	0.216	0.255*	0.043	0.300*	0.068
HADS total scores	0.175	0.119	0.089	0.189	0.038	0.087	0.024	0.167	0.066	0.165
HADS-A	0.449**	0.144	0.298*	0.240	0.112	0.155	0.063	0.219	0.098	0.286*
HADS-D	-0.047	0.091	-0.147	0.024	-0.057	-0.018	-0.028	0.018	-0.032	0.007
IPQ perception-consequences	0.037	0.070	0.029	0.047	0.032	-0.068	0.133	0.050	-0.098	0.012
IPQ perception-meaning	-0.085	-0.122	-0.007	-0.078	-0.062	-0.120	-0.091	-0.185	-0.014	-0.069
IPQ perception-emotional expression	0.089	0.001	0.001	0.191	-0.047	-0.036	0.035	0.174	-0.001	0.077
IPQ causes-psychological	0.273*	-0.011	-0.037	0.332**	0.198	0.254*	0.192	0.043	0.294*	0.038
IPQ causes-risk factors	-0.063	-0.186	-0.007	-0.087	0.209	0.131	0.082	0.106	0.017	0.112
IPQ causes-immunity	-0.073	-0.239	-0.174	0.042	0.153	0.061	0.038	-0.181	0.063	0.051
IPQ causes-accident/chance	0.027	-0.094	-0.101	0.114	-0.013	-0.004	0.141	-0.081	0.013	-0.133

*: P<0.05; **: P<0.01; ***: P<0.001; SG: Secondary gain; CGI-S: Clinical global impression-severity; SAS: Somatosensory amplification scale; HADS-A: Hospital anxiety and depression scale-anxiety; HADS-D: Hospital anxiety and depression scale-depression; IPQ: Illness perception questionnaire; Rei: Reinforcement.

relatively similar distributions across the diagnostic groups and did not significantly differ ($\chi^2=2.316$, $p=0.509$). Similarly, the SG psychosocial subdomain scores did not significantly differ across diagnoses (Table 4).

DSM-5 Classification Comparisons

The PD and MDD groups demonstrated more psychologically oriented attributions for themselves and perceived family attributions than the SSRD group ($U=254.000$, $Z=-2.922$, $p=0.003$; $U=244.500$, $Z=-3.127$, $p=0.002$, respectively). The SSRD group demonstrated significantly higher perceived attribute gap scores than the PD and MDD groups ($U=256.500$, $Z=-2.806$, $p=0.005$). The most anticipated SG subdomains demonstrated similar distributions across higher order diagnostic categories (Table 4). However, the anticipated interpersonal avoidance/redirection scores were significantly higher in the SSRD group than in the PD and MDD groups ($U=325.000$, $Z=-2.076$, $p=0.038$).

Illness Course Comparisons

Table 4 presents the illness course comparisons. Participants with continuous illness courses demonstrated significantly higher perceived attribute gap scores than those with episodic illness courses ($U=226.000$, $Z=-3.422$, $p=0.001$).

Sex Comparisons

Women demonstrated significantly higher relational reinforcement scores than men ($U=193.000$, $Z=-2.298$, $p=0.022$). The other variables did not significantly differ between men and women (Table 4).

DISCUSSION

This study aimed to develop and preliminarily evaluate an exploratory dimensional framework for assessing SG-related reinforcement processes across psychiatric disorders. Rather than conceptualizing SG as a diagnosis-specific phenomenon, this study operationalized illness-related reinforcement experiences, anticipated relief expectations, and attributional incongruence using a structured event-based assessment framework. Overall, the findings provide preliminary evidence that SG-related processes may be dimensionally conceptualized and systematically investigated across different psychiatric conditions. However, the results should be interpreted cautiously given the exploratory nature of the instrument and the modest sample size.

One of the principal contributions of the study is the preliminary operationalization of SG-related processes through identifiable interpersonal and environmental events rather than exclusively relying on clinician inference or

psychodynamic interpretation. Historically, SG has often been discussed as an implicit or hidden motivational construct, particularly within psychodynamic and psychosomatic traditions (Fishbain et al., 1995). In contrast, this framework conceptualized SG-related processes as observable contextual and interpersonal reinforcement experiences associated with illness. This broader conceptualization may allow the systematic examination of SG-related mechanisms within dimensional and behavioral models of psychopathology.

The psychometric findings provide preliminary support for the proposed framework's internal coherence. Overall, internal consistency coefficients for the experienced reinforcement and anticipated relief sections were acceptable, and subdomain analyses demonstrated reasonable coherence across conceptually derived psychosocial domains. Although the sample size was insufficient for factor analytic procedures, item-total and inter-item correlation patterns suggested that the instrument captured related but distinguishable reinforcement-related domains, including financial reinforcement, burden reduction, interpersonal avoidance/redirection, and relational reinforcement. These findings should be considered preliminary and hypothesis-generating rather than evidence of formal psychometric validation.

Several associations observed in the study also support the construct coherence of the framework. SG-related composite scores were positively associated with anxiety symptom severity, somatosensory amplification, and psychological illness attributions. This pattern is broadly consistent with cognitive-behavioral models emphasizing symptom monitoring, bodily vigilance, reassurance-seeking, and heightened sensitivity to illness-related contingencies in anxiety disorders (Orzechowska et al., 2021). Such mechanisms may increase the salience of interpersonal and contextual reinforcement processes surrounding the experiences of illness.

In particular, the interpersonal avoidance/redirection and relational reinforcement subdomains demonstrated consistent relationships with somatosensory amplification. These findings are also compatible with illness behavior models that emphasize the role of family responses, interpersonal support, and caregiving contingencies in shaping symptom expression and maintenance (Kwan & Friel, 2002; Van Egmond & Kummeling, 2002).

Consistent with our hypothesis, SG-related variables were not significantly associated with the severity of depressive symptoms. Although depression may influence illness behavior through reduced activity, social withdrawal, or functional impairment, heightened symptom monitoring or increased sensitivity to interpersonal reinforcement processes

do not necessarily characterize depressive symptoms (Raguram et al., 1996). Moreover, reinforcement-related mechanisms inherently involve the anticipation or experience of relief, reward, or motivational need fulfillment. Depression is frequently associated with diminished motivation, reduced reward responsiveness, anhedonia, and goal-directed behavior impairments. Individuals experiencing more severe depressive symptoms may be less likely to engage with or derive subjective reinforcement from interpersonal and contextual contingencies surrounding illness. Therefore, the absence of significant associations may provide preliminary support for the divergent validity of the framework and suggests that SG-related processes is more closely linked to illness-related attention, attributional styles, and interpersonal reinforcement mechanisms than to depressive symptom burden itself.

Importantly, this study distinguished between experienced reinforcement events and anticipated relief expectations. Participants who reported greater exposure to illness-related reinforcement events also reported stronger anticipated relief expectations regarding hypothetical events. This association may reflect the consistency between prior interpersonal or contextual experiences and future illness-related relief expectations. However, these findings should not be interpreted as the evidence of conscious symptom production or intentional pursuit of gain. Rather, they may reflect broader reinforcement-related learning processes through which illness becomes associated with environmental modification, relational responses, or reductions in aversive demands.

These findings are consistent with reinforcement-based models of illness behavior and symptom maintenance from a cognitive-behavioral perspective. Behavioral theories suggest that symptoms persist when they are associated with reductions in distressing responsibilities or increases in interpersonal attention and care (Orzechowska et al., 2021). Within this framework, negative reinforcement (e.g., avoidance of unwanted situations) and positive reinforcement (e.g., increased support or relational attention) may contribute to symptom persistence over time. The present findings support the possibility that SG-related processes involve multiple reinforcement pathways rather than a single unitary mechanism.

Another important contribution of the study concerns attributional incongruence between patients and their relatives. Perceived attribution gap scores substantially differed across the diagnostic groups and illness courses. Higher attributional incongruence was observed in SSD and continuous illness courses, whereas lower incongruence was observed in PD and episodic conditions. Previous studies have shown that patients

with somatic symptom presentations often demonstrate stronger somatic illness beliefs than their relatives or healthcare providers, potentially contributing to explanatory mismatches and treatment disagreements (von dem Knesebeck et al., 2020). Therefore, the elevated attributional incongruence observed in SSD may reflect broader discrepancies in illness representations within the patient's social environment. These findings indicate that discrepancies between the explanatory models of illness of patients and relatives are clinically relevant interpersonal variables associated with symptom presentation and illness chronicity.

Attributional incongruence may influence interpersonal stress, perceived stigmatization, treatment engagement, and family interactions surrounding illness. Perceived stigmatization and relational conflict contribute to psychological distress and may influence illness behavior across psychiatric conditions (Chen et al., 2025; Özdemir & Sağkal, 2021). Although perceived attributional incongruence does not directly measure stigma or family conflict, the observed differences suggest that patient-family attributional discrepancies may represent clinically meaningful interpersonal processes that merit further investigation. Future longitudinal studies may clarify the contribution of attributional incongruence to symptom persistence, treatment adherence, or chronic illness trajectories.

The known-groups analyses also yielded findings relevant to the construct validity of the framework. Participants with FND reported greater exposure to illness-related reinforcement events, whereas those with MDD reported fewer such events. This finding is broadly consistent with previous work highlighting the role of illness-related escape events, sick-role processes, and environmental contingencies in functional neurological presentations (Kwan & Friel, 2002; Nicholson et al., 2016). In contrast, the overall SG composite scores demonstrated relatively similar distributions across the diagnostic categories. This pattern suggests that although the types and frequency of illness-related reinforcement experiences vary across disorders, broader reinforcement-related SG processes may not be restricted to a single diagnostic category.

The present findings should not be interpreted as definitive evidence that SG represents a fully established transdiagnostic construct. The study did not include healthy controls or chronic medical illness groups, and the sample size was insufficient to formally evaluate dimensionality. Instead, the findings provide preliminary support for the possibility that SG-related reinforcement processes may operate across multiple psychiatric conditions and may therefore warrant further investigation within dimensional psychopathology frameworks.

Women demonstrated higher relational reinforcement scores than men. Although this finding should be interpreted cautiously given the limited number of male participants, it may reflect gender-related differences in caregiving expectations, social support processes, and interpersonal responses to illness. One possible explanation is that women may be more likely to experience or perceive illness-related interpersonal support and caregiving responses. Previous literature has suggested that women tend to rely more heavily on interpersonal coping resources and social support networks and may receive different relational responses during periods of illness or stress (Göttgens et al., 2023; Graves et al., 2021). However, given the exploratory nature of the analysis and the limited sample size, this finding should be considered preliminary and should be replicated in larger studies.

This study may also have implications for clinical formulation and treatment planning. Examining interpersonal contingencies, reinforcement patterns, and illness-related environmental modifications within cognitive-behavioral frameworks may help clinicians better understand symptom persistence and treatment resistance. The exploration of illness-related reinforcement processes does not imply that symptoms are fabricated or intentionally produced. Rather, it may help identify contextual factors that inadvertently maintain symptom-focused behaviors or illness-related interpersonal patterns. Similarly, assessing attributional incongruence between patients and relatives may contribute to psychoeducation, family interventions, and therapeutic alliance formation.

Notably, several diagnostic group differences observed on external validation measures were generally consistent with the expected clinical characteristics of the included disorders. For example, participants with MDD demonstrated lower levels of somatosensory amplification, whereas those with PD reported more psychologically oriented illness attributions. These findings broadly align with previous literature describing differences in symptom focus, bodily vigilance, and explanatory models across psychiatric disorders. Although these measures were not the primary focus of the present study, their consistency with expected diagnostic profiles may provide indirect support for the representativeness of the sample and strengthen confidence in the interpretation of the SG-related findings.

Several limitations should be considered when interpreting the study findings. First, the SG assessment framework was developed as an exploratory instrument and has not undergone formal psychometric validation. Owing to the modest sample size, exploratory or confirmatory factor analyses could not be reliably conducted. Second, the

study used a cross-sectional design, preventing conclusions regarding causality or temporal reinforcement processes. Third, subgroup sizes were relatively small, increasing the possibility of type II error and limiting statistical power for between-group comparisons. Fourth, no healthy control group or comparison group for chronic medical illness was included, limiting conclusions regarding broader transdiagnostic relevance. Fifth, reinforcement-related processes were indirectly inferred through self-report rather than longitudinal behavioral observation. The relatively small number of male participants also limited the interpretability of sex-based comparisons. Finally, although psychodynamic formulations informed the conceptual background of SG, psychodynamic variables such as defense mechanisms, unconscious conflict, or personality organization were not formally assessed.

CONCLUSION

This study represents a preliminary attempt to operationalize SG-related reinforcement processes across psychiatric disorders using a dimensional assessment framework. The findings suggest that illness-related reinforcement experiences, anticipated relief expectations, and attributional incongruence can be systematically assessed through structured interpersonal and contextual domains. Although the exposure to illness-related reinforcement events and attributional processes differed across diagnostic categories, the overall SG-related composite scores demonstrated relatively similar cross-diagnostic distributions. These findings indicate that SG-related reinforcement processes are not limited to a single psychiatric disorder and may reflect broader interpersonal and contextual mechanisms relevant across psychiatric conditions. The observed associations between SG-related variables, somatosensory amplification, anxiety symptoms, and illness attributions also provide preliminary support for the construct coherence of the proposed framework. In particular, interpersonal reinforcement and avoidance-related processes may be clinically meaningful contextual factors associated with symptom persistence and illness behavior.

The present findings should be interpreted cautiously given the exploratory nature of the assessment framework and the modest sample size. The current study does not establish SG as a fully validated transdiagnostic construct. Rather, it provides preliminary evidence that systematically investigating SG-related reinforcement processes within dimensional and interpersonal models of psychopathology is feasible. Future studies with larger and more diverse clinical samples, longitudinal designs, and formal psychometric validation procedures are needed to clarify the dimensional structure, clinical significance, and potential transdiagnostic relevance of SG-related reinforcement processes.

Ethics Committee Approval: The study was approved by the Başkent University Institutional Review Board (Decision No: KA22/131; Date: 09.03.2022).

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Supplementary Table. Item list and subdomain mapping of the secondary gain assessment framework*

Section	Item content	Psychosocial domain	Theoretical construct
Experienced events	Receiving disability-related financial support	Financial reinforcement	Positive material reinforcement
Experienced events	Receiving financial help from others	Financial reinforcement	Environmental/material gain
Experienced events	Retirement due to illness	Financial reinforcement	Illness-related contextual modification
Experienced events	Reduction in work/school attendance	Burden reduction	Negative reinforcement through demand reduction
Experienced events	Receiving support with childcare	Burden reduction	Redistribution of responsibilities
Experienced events	Receiving support with household duties	Burden reduction	Reduction in aversive obligations
Experienced events	Avoidance of unwanted family/social gatherings	Interpersonal avoidance/redirection	Interpersonal avoidance
Experienced events	Avoiding contact with unwanted individuals	Interpersonal avoidance/redirection	Illness-related contextual restructuring
Experienced events	Postponing relocation, marriage, or separation	Interpersonal avoidance/redirection	Avoidance of stressful interpersonal transitions
Experienced events	Increased care and attention from relatives	Relational reinforcement	Positive interpersonal reinforcement
Experienced events	Increased partner involvement	Relational reinforcement	Relational gain
Experienced events	Reduction in household conflict	Relational reinforcement	Illness-related interpersonal stabilization
Anticipated relief	Receiving financial support would be relieving	Financial reinforcement	Anticipated material reinforcement
Anticipated relief	Reduced responsibilities would be relieving	Burden reduction	Anticipated negative reinforcement
Anticipated relief	Avoiding unwanted social situations would be relieving	Interpersonal avoidance/redirection	Anticipated interpersonal avoidance
Anticipated relief	Receiving increased care/support would be relieving	Relational reinforcement	Anticipated relational reinforcement

*Only representative examples are shown here for conceptual clarity. The complete item list administered during the study is available upon request.