

Psychometric Development and Validation of Bystander Effect Scale in Pakistani University Students

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Abstract

Background: The bystander effect, the reduction in helping behavior in the presence of other people, has been explained predominantly by situational influences on decision making. There is a lack of a scale quantifying the possibility of an individual intervening upon noticing peoples. The purpose of the present study was to develop and establish the reliability and validity of bystander effect scale in Pakistani students' population.

Methods: The proposed instrument, the bystander effect scale for university students, is a 12-item self-reported questionnaire that was developed based on present and existing bystander theory. A cross-sectional research design and purposive sampling technique was used to perform this preliminary study. Five hundred university students (Male, $n = 250$; Female, $n = 250$) with age ranged between from 18 to 30 years ($M = 21.31$, $SD = 10.67$) were included from different public and private university of Rawalpindi and Islamabad from January 2021 to July 2021.

Results: Exploratory factor analysis was used to explore the underlying factor structure of bystander effect scale in Pakistani university students. Exploratory factor analysis was suggested three key factors for the proposed scale: (1) Fear of retaliation; (2) Emotional apathy; (3) Indecisiveness towards responsibility or Delegation of responsibility.

Conclusions: This study provided a preliminary scale to examine bystander effect in Pakistani university students. The results of present study also demonstrated that newly indigenous developed scale was reliable and valid scale for measurement of bystander behavior in university students.

Keywords: Bystander effect, scale development and validation, exploratory factor analysis

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Background

The bystander apathy/effect is well known as the phenomenon that people's probability of helping reduces once passive observer are present in a serious condition (Álvarez-García et al., 2021; Darley & Latané, 1968; Fischer et al., 2011; Griffith et al., 2021; Latané & Darley, 1968; Latané & Darley, 1970a, 1970b; Latané & Nida, 1981; Maulani et al., 2022; Ong et al., 2021; Rudnicki et al., 2022; Sjögren et al., 2021; Troop-Gordon et al., 2019). Several earlier sad real-life events demonstrated this important effect: In 1964, Kitty was murdered and raped in New York, whereas many of her friends and neighbors looked on. Nobody interfered till it was very late. A similar event was also occurred in 2009, Dominik was also raped and murdered at train station in German by two adolescents later he went to assist youngsters who have been attacked by criminal adolescents. Many bystander witnessed the rape and murder, but no one physically interfered in this matter. An experimental study conducted by Latané and Nida (1981) that provided strong empirical and theoretical support for the presence of the bystander effect in different experimental conditions such as educational and organizational (Latané & Nida, 1981; Ong et al., 2021; Troop-Gordon et al., 2019). In both a practical and a theoretical terms, the bystander effect has played a critical role in comprehending of helping attitude. It is also discussed in different books of social psychology. Many television shows and dramas constantly report the effect, and information of this effect is nowadays decisively anchored in public and private knowledge (Latané & Nida, 1981; Ng et al., 2022; Ong et al., 2021; Troop-Gordon et al., 2019).

Furthermore, there is exist a lot of theoretical and practical data for the inhibitory bystander effect, for example, most of time, the existence of bystanders could help moral courage's acts. For instance, an adolescent boy who belonged from Turkey, he helped a Greek person who was beaten by a criminal peoples in Munich, 2001. This young boy taken a risk his life to save life of Greek person whereas several other peoples were also watching and enjoying this situation (Maulani et al., 2022; Ng et al., 2022). A similar findings of earlier experimental study were revealed that bystander effect disappeared once the emergency was a mostly risky one (Maulani et al., 2022; Ng et al., 2022; Rudnicki et al., 2022). According to ground-breaking study of Latané and Darley (1968), they tried to explore and comprehend the diffusion of obligation in critical situations, many researchers have dedicated decades of work in order to comprehend the mechanisms that lead the dispersal of duty and eventually bystander intervention. Nowadays, bystander intervention was used to a different of problematic phenomena such as prejudice, and bullying (Chen et al., 2022; Hafsa et al., 2021; Latané & Darley, 1968; Ng et al., 2022; Palmer et al., 2022; Rudnicki et al., 2022).

Several earlier studies constantly illustrated that the existence of inhibitory bystanders decreases the probability that peoples will interfere or assist a victim in an emergency condition (Álvarez-García et al., 2021; Darley & Latané, 1968; Fischer et al., 2011; Griffith et al., 2021; Latané & Darley, 1968; Latané & Darley, 1970a, 1970b;

Latané & Nida, 1981; Maulani et al., 2022). To explanation for the passive bystander's effect, In this regard a five-step psychological process model was proposed by Latané and Darley (1970). They explained that for intervention to happen, the bystanders required to (1) observe an emergency conditions, (2) interpret and declare the condition as a critical, (3) create a feeling and thought of personal accountability, (4) think it is mandatory skills to succeed, as well as (5) take a positive decision to assist other person (Jaffri et al., 2021; Latané & Darley, 1970b, 1970a; Toqeer et al., 2021).

There is a lot of theoretical work on bystander effect in all over the world. According to Ettekal et al. (2015) proposed an inclusive conceptual framework to comprehend the individual or personal level and association mechanism related to underlie behavior of youngsters in bullying condition. Many advance conceptual frameworks of bystanders effect including integrating social information processing theories, social cognitive theory of moral agency, and theory of reasoned action explained that bystander effect is the peak of moral, emotional, and cognitive processes in combination with views of group attitudes and norms (Aqeel & Akhtar, 2017; Aqeel & Rehna, 2020; Arsenio & Lemerise, 2004; Bussey & Bandura, 1999; Crick & Dodge, 1994; Crumly et al., 2022; Ettekal et al., 2015; Gini et al., 2022; Naeem et al., 2021; Rashid et al., 2021; Saif et al., 2021; Sarfraz et al., 2021; Tahira & Jami, 2021).

More specially, as per perspective of social cognitive theory of moral agency, bystander effect is occurred from a clash of cognitive procedures such as coding and understanding social signs, selecting aims, creating response decisions, and enacting and selecting a chosen best behavioral strategy to take an emergency situation (Crick & Dodge, 1994). Moreover, Ettekal et al. (2015) explain the role of empathy, moral disengagement, and relational experiences in the growth of bystander effect. Empathy. Once we explored real life experience of observing bullying, empathy could be a mainly effective emotional factor of behavior. Empathic behavior could directly attention to the victim people (Crumly et al., 2022; Troop-Gordon et al., 2019). It provokes aims of defensive (Meter & Card, 2015; Shahzad et al., 2021). Without empathic behavior, youngsters could focus on the enjoyment communicated through the bully individuals (Ahmed et al., 2021; Aqeel et al., 2015; Muhammad Aqeel et al., 2019, 2021; Hall, 2003; Levine et al., 2020; Nisar et al., 2020; Troop-Gordon et al., 2019). Additionally, those youngsters who have low empathy, they could not be sensitive or shy to any harm caused through their pro-bullying behaviors of other (Aqeel et al., 2022). Thus, they could involve in more pro-bullying bystander behavior over time. Nowadays, there is a lot of conducted on this topic but it still open for further debate in educational settings. However, this study was planned to develop bystander effect scale for Pakistani student's population.

Method

Objective

The purpose of the present study was to develop and establish the reliability and validity of bystander effect scale

in Pakistani student's population.

Research design

This study was approved by Research Ethics Committee of the Department of Psychology, Foundation University Rawalpindi Campus, Pakistan. The proposed indigenous scale, bystander effect scale was developed based on the emerging themes of focus groups discussion, inputs from mental health professionals, and earlier bystander approaches (Latané & Darley, 1970a, 1970b). The bystander effect is characterized that peoples are less chances to provide support to a victim individuals once there are present other peoples. This scale was devised based on the five steps which was proposed by Latané and Darley in bystander intervention model (Latané & Darley, 1970b). Exploratory sequential design was used to carry this present study. It was comprised of two phases (1) Qualitative phase and (2) Quantitative phase. Qualitative phase was divided into 2 parts as discussed below.

Part 1: In first phase, five focus groups were carried out with participants who had experience of bystander effects that was conducted at Department of Psychology, Foundation University Rawalpindi Campus, and Pakistan. 25 voluntary victimized university students were included in five focus group discussion. The researcher explained briefly concept related to the bystander effect. He asked the questions related to bystander effect by all participants during focus group discussion. Later, a thematic analysis was carried out to emerge relevant themes as per objectives of the present study. The results of thematic analysis demonstrated that eight global themes were emerged such as (1) strangers in society, (2) gender issues, (3) refusal from victim, (4) diffusion of responsibility, (5) Dangerous situation for self and family, (6) personal safety, (7) fear of being a new target of the bullies, and (8) Fear of getting entrapped in future problems.

Item selection pool. 20 items were made based on the emerging themes of focus groups discussion, inputs from mental health professionals, and earlier bystander approaches. The initial statements of items were written in both Urdu and English languages. Three professional subject experts were requested to choose relevant items and modify and generate new items related to bystander effect. Construct validity was established based on their expert opinions related to bystander effect. They evaluated the 20 items individually and discarded those irrelevant, unclear and confusing items from this scale. Finally, 12 items were selected and retained for the final draft of the bystander apathy scale. It was considered suitable items for Pakistani culture of bystander apathy scale based on SME's opinion. All items responses were rated on a five-point Likert-type scale and denoted from 1 (*strongly disagree*) to 5 (*strongly agree*).

Part 2: In the pilot study, the newly indigenous devised scale was primarily administered to a population of university students from different university (N = 20) with age ranged from 18 to 30 (M=20.5, SD=.09) years. All the participants were requested to examine the clarity or comprehensibility of the language's instruction and the response format of newly developed bystander apathy scale for Pakistani university student's population. Further, they were requested to recognize cognitive burden of respondents whereas comprehending and interpretation the item and help

to refine its comprehensibility and clarity. Our probing interviews with university students, they were satisfied about the clarity level and comprehension of the item's guidelines of the scale that was demonstrated informal construct validity.

In phase 2,

Main study: Validation of the bystander effect scale

This study was designed to examine the psychometric properties of the bystander effect scale for Pakistani university students. For this purpose exploratory factor analysis was applied to explore covert factor structure of the bystander effect scale. Further, EFA was employed to discard of redundant items for sample of university students. Moreover, item's internal consistency was examined through various reliability analyses. For example, Pearson correlation coefficient was used to check the relationship with over all scores of scale and its items and subscales for university students (Field, 2013b).

Sample and procedure

In main study, purposive sampling technique and correlational research design was used to carry out the main study. Five hundred university students (Male, n = 250; Female, n= 250) with age ranged between from 18 to 30 years (M = 21.31, SD = 10.67) were recruited from different public and private university of Rawalpindi and Islamabad from January 2021 to July 2021. The present study was approved by Research Ethics Committee of the Department of Psychology, Foundation University Rawalpindi Campus, Pakistan. Moreover, verbal and written inform consent was obtained from all volunteer participants to participate in present study. Approval to conduct this study was obtained from higher authorities of universities. All participants were ensured that the data of present study would be kept confidential and it would only be used for research purpose.

Data analysis plan

First of all, imputation method was used to deal missing values of present study on IBM SPSS Statistics software 25 (Field, 2013a, 2013b). Further, it was applied to analyze descriptive statistics, correlational matrix, exploratory factor analysis, independent samples t-test for university sample. Descriptive statistics including skewness, kurtosis, means, and standard deviations of all items were examine in present study. Moreover, content validity, construct validity, and reliability coefficients were established for present study sample. Psychometrics of the bystander effect scale were established through various statistical techniques such as correlational analysis, item-total correlations, Cronbach's alpha coefficients, Cronbach's alpha if item is deleted, exploratory factor analysis, independent samples t-test for present study sample (Field, 2013a, 2013b).

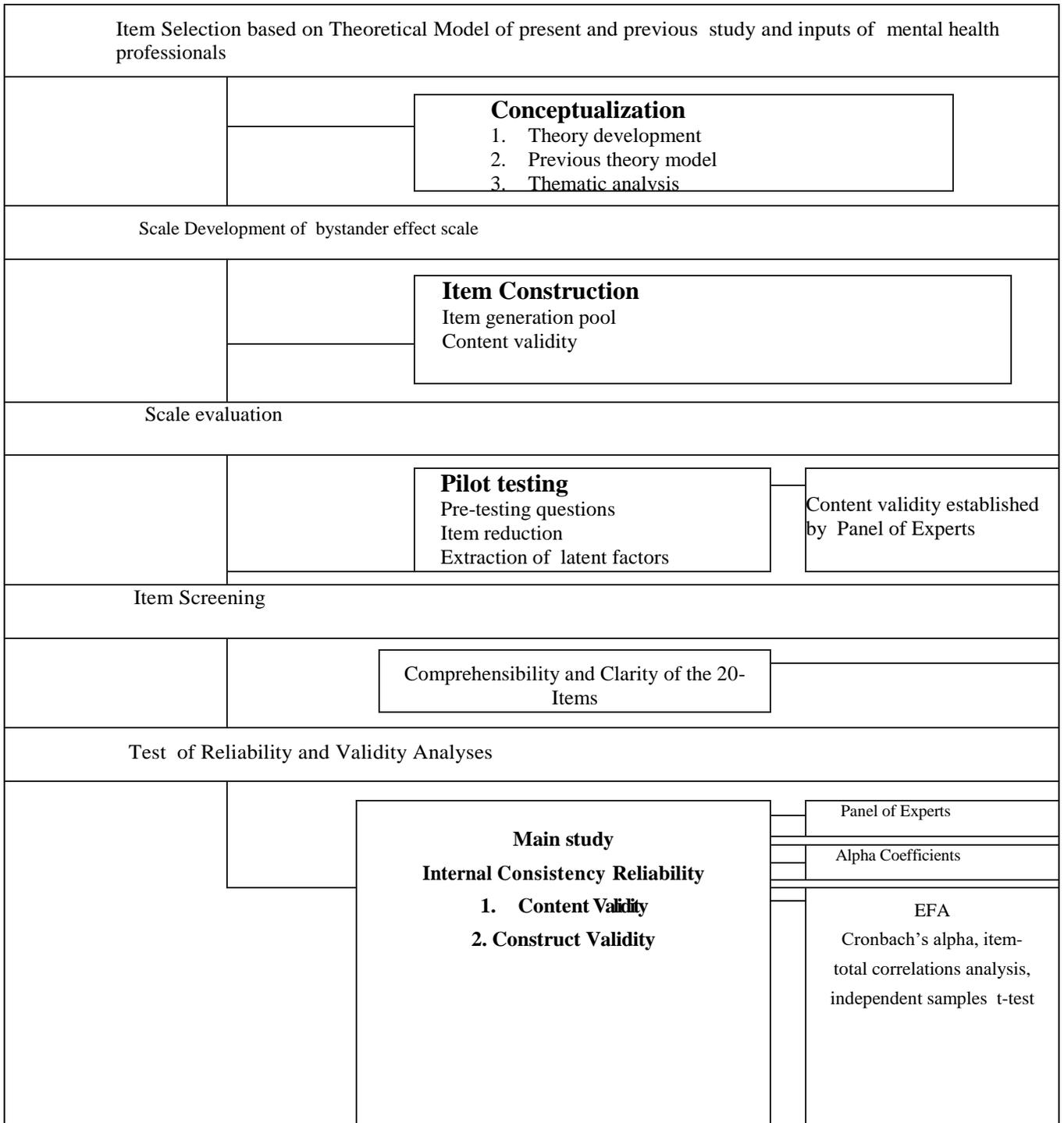


Figure. 1. Scale development procedure diagram

Results

Table 1

Factor Loadings of 12 items of bystander effect scale for university students through Principal Component Analysis by Using Varimax Method (N = 500)

	Score		M (SD)	S	K		Three factor		
	N	Range							
9	500	1-5	2.90(1.13)	.01	-	- You did not assist someone because you risk being held accountable for the circumstance (and it could affect you in the future).	.753		
8	500	1-5	2.93(1.12)	.18	-	- You refrained from assisting someone out of worry that the situation may deteriorate into something more dangerous.	.749		
7	500	1-5	2.58(1.01)	.28	-.74	You did not assist someone because you were fearful of being bullied or injured yourself (becoming a victim).	.684		
6	500	1-5	2.51(1.09)	.25	-.84	You choose not to assist someone out of concern for the personal or financial well-being of your family.	.662		
4	500	1-5	2.54(1.01)	.36	-.58	You chose not to assist someone because you were unfamiliar with the people and feared repercussions.	.534		
12	500	1-5	2.28(1.06)	.51	-.69	You did not assist because you were intrigued and curious about what would happen next in a certain situation.	.816		
10	500	1-5	2.43(1.01)	.36	-.56	You did not assist someone because you waited for the victim to directly request assistance.	.715		
11	500	1-5	2.83(1.07)	.07	-.94	You chose not to assist someone because you were indecisive about whether or not to assist them.	.668		
5	500	1-5	1.98(.92)	.85	.03	You were unable to assist someone because you were emotionally detached from them (not concerned emotionally about them).	.481		
2	500	1-5	2.69(1.07)	.03	-.94	You neglected to assist someone because you perceived the situation as non-emergency.	.758		
1	500	1-5	2.63(1.14)	.06	-1.15	You chose not to assist someone since there were others around who could.	.724		
3	500	1-5	2.51(1.15)	.25	-1.10	You neglected to assist someone just because the incident involved individuals of the opposing gender.	.719		
Eigen Values							4.43	1.23	1.184
% of Variance							36.88	10.21	9.86
Cumulative Variance							36.88	47.10	56.96

Note. Factor 1. Fear of retaliation, Factor 2. Emotional apathy. Factor 3. Indecisiveness towards responsibility or Delegation of responsibility.

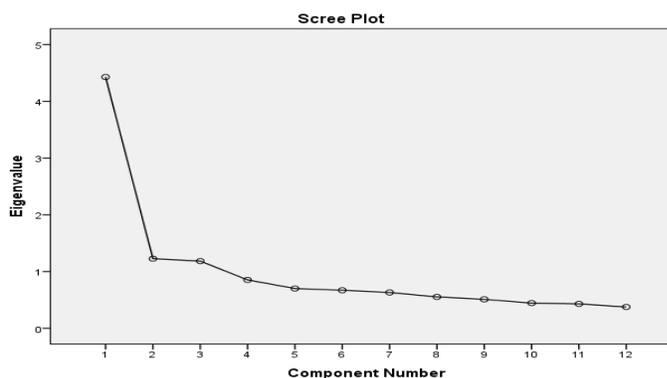


Figure 2. Scree plot of bystander effect

Table 2

Item-total and subscales correlations and Cronbach's alpha if item is deleted of bystander apathy scale for university students sample (N=500)

Item	Cronbach's Alpha if Item Deleted	Item-total correlations	F1	F2	F3
1	.83	.54**			.78**
2	.83	.58**			.80**
3	.83	.56**			.75**
4	.82	.67**	.68**		
5	.82	.60**		.67**	
6	.82	.67**	.73**		
7	.82	.66**	.71**		
8	.82	.61**	.72**		
9	.83	.60**	.74**		
10	.82	.60**		.76**	
11	.82	.60**		.74**	
12	.83	.52**		.75**	

Note. F1. Fear of retaliation, F2. Emotional apathy. F3. Indecisiveness towards responsibility or Delegation of responsibility, *p < .01, **p < .00, ***p < .000.

Table 3

Mean and standard deviation, correlation matrix, alpha coefficient of bystander effect scale and its subscales in Pakistani university students (N=500)

Variables	M	SD	α	1	2	3	4
1.tt	30.88	7.79	.84	-	.88**	.79**	.72**
2.f1	13.53	3.99	.79		-	.54**	.46**
3.f2	9.51	2.98	.71			-	.40**
4.f3	7.83	2.61	.67				-

Note.tt= overall scores of bystander effect scales, F1. Fear of retaliation, F2. Emotional apathy. F3. Indecisiveness towards responsibility or Delegation of responsibility, *p < .01, **p < .00, ***p < .000.

Table 4

Gender wise differences on bystander effect scale and its subscales in university students (N= 500)

Variables	Male (N=250)		Female(n=250)		95%CL			
	M	SD	M	SD	t(498)	p	LL	UL
tt	30.14	7.51	31.55	8.02	-1.1	.05	3.8	1.01
f1	13.31	3.98	13.74	4.02	-.68	.49	-1.67	.81
f2	9.40	2.94	9.61	3.02	-.44	.65	-1.13	.71
f3	7.42	2.61	8.20	2.57	-1.8	.05	1.57	.03

Note.tt= overall scores of bystander effect scales, F1. Fear of retaliation, F2. Emotional apathy. F3. Indecisiveness towards responsibility or Delegation of responsibility, *p < .01, **p < .00, ***p < .000

Exploratory Factor Analysis (EFA)

In table 1, exploratory factor analysis was carried out to established construct/factorial validity of bystander effect scale for Pakistani university student's population. EFA was suggested three factor solution of bystander effect scale in university student's sample. Moreover, the purpose of the present study was to explore covert structure of bystander effect scale for Pakistani university students (Field, 2013b). The sample of young adults was four times higher in comparison of the total number of items in present study (Fontan & Andronikof, 2021). Kaiser-Meyers-Olkin (KMO) value was used to evaluate sample adequacy as well as the Bartlett technique was also applied to differentiate unbiased factor which are associated with only its own factor (Tabachnick & Fidell, 2013). KMO=.85 value demonstrated that correlation was adequate to develop suitable factors with Bartlett test of Sphericity $\chi^2(66) = 534.45$ ($p < .000$) that illustrated sample is adequate to run EFA in present university students sample. Initially, 3 factors of bystander effect scale were suggested basis on eigen values more than 1 (Cattell, 1966).

Content validity.

Content validity was developed with the opinion of two subject experts on present study items, two subject expert were assistant professor at Department of Psychology, Foundation University Islamabad, Pakistan. They were requested to give name to three factors on the basis of relevant content to establish content validity of present scale. Moreover, they were also instructed to propose suitable names of newly developed three factors. After incorporate their recommendation, Factor I name was given as 'Fear of Retaliation (see items 4, 6, 7, 8, 9), Factor II was assigned as 'Emotional apathy (see items 5, 10, 11, 12), and Factor III was named as 'Indecisiveness Towards Responsibility or Delegation of Responsibility (see items 1, 2, 3).

Finally, bystander apathy scale is comprised on 12-item and its responses are rated from 1 (*strongly disagree*) to 5 (*strongly agree*). It has three subscales which Cronbach's alphas reliability is satisfactory for present sample. The overall alphas coefficient of bystander apathy scale is .84 which is also shown good reliability. High scores on subscales are demonstrated more bystander effect. Whereas, low scores on subscales are demonstrated low bystander effect.

Internal consistency

In Table 2, the internal consistency of bystander effect scale was determined by Cronbach's alpha if item is deleted method. Further, item-total and subscales correlation was also used to examine association between overall total scores and its relevant subscale. The findings of the present study illustrated correlation between overall total scores and its relevant items and subscale of bystander effect scale (item-total correlations range from .53 to .67) for present study sample. These findings illustrated higher internal consistency of bystander effect scale in Pakistani university students.

In Table 3, the findings of the present study demonstrated that alpha coefficients of bystander apathy scale and its subscales were shown satisfactory reliability for university student's population in Pakistan.

Construct validity

In Table 3, this study's finding also revealed that overall scores of bystander apathy scale was statically positively associated with its own three subscales in university student's population. Hence, it was provided evidence for construct validity.

In Table 4, the result of independent sample *t*-test revealed that there is exist statistically significant differences between male and female university students on bystander effect scale ($t = 1.1, p > .05$), Fear of retaliation ($t = -.68, p = n.s$), Emotional apathy ($t = -.44, p > .02$), Indecisiveness towards responsibility or Delegation of responsibility ($t = -1.8, p > .05$). The results of the present study also revealed that female university students ($n = 500, M = 31.55, SD = 8.02$) had more tendency of bystander effect in comparison of male university students ($n = 500, M = 30.14, SD = 7.51$). Moreover, the results of the present study also revealed that female university students ($n = 500, M = 8.20, SD = 2.57$) had more tendency of Indecisiveness towards responsibility or Delegation of responsibility in comparison of male university students ($n = 500, M = 7.42, SD = 2.61$).

Discussion

Although standardized clinical scales are needed to efficiently and rapidly identify perception of bystander effect in Pakistani university students, the reliable and valid scales to measure of a bystander effect have not yet been devised. However, the purpose of the present study was developed a bystander effect scale for Pakistani university students. Further, factorial validity and content validity of a bystander effect scale have been established to perform various statically analysis including correlational analysis and exploratory factor analysis for university student. Additionally, internal consistency of a bystander effect scale was developed through different statistical analysis including item-total correlations, Cronbach's alpha, Cronbach's alpha if item is deleted methods for university students. Moreover, independent sample *t*-test was used to examine gender difference on bystander effect scale for establishing known group validity.

Firstly, exploratory factor analysis was carried out to explore the covert structure of a bystander effect scale for university students. The results of exploratory factor analysis of the newly indigenous developed a bystander effect scale explored three important factors: (1) Fear of retaliation; (2) Emotional apathy; (3) Indecisiveness towards responsibility or Delegation of responsibility. The findings of same analysis revealed that a bystander effect scale comprised of 12 items and established factorial validity for university students. These findings of exploratory factor analysis provided sound psychometric evidence that it was a valid and suitable tools for measurement of a bystander effect in Pakistani university student's population. Furthermore, the internal consistency of a bystander effect scale were examined by item-total correlations, Cronbach's alpha, and Cronbach's alpha if item is deleted methods in university students. Further, the aforementioned results also provided psychometric evidence that a bystander effect scale had good internal consistency for present study sample. Many previous studies also described that the bystander effect is well known as the phenomenon that people's probability of helping reduces once passive

observer are present in a serious condition (Álvarez-García et al., 2021; Darley & Latané, 1968; Fischer et al., 2011; Griffith et al., 2021; Latane & Darley, 1968; Latané & Darley, 1970a, 1970b; Latané & Nida, 1981; Maulani et al., 2022; Ong et al., 2021; Rudnicki et al., 2022; Sjögren et al., 2021; Troop-Gordon et al., 2019).

Limitations

There are a lot of drawbacks of present research. First of all, it is a pilot study to devise a bystander scale in university students; thus, criterion validity and reliability have not yet been developed in present study. Secondly, confirmatory factor analysis was not carried out to approve the factor structure in present study. Although this study originally planned to divide the study's data into two parts for exploratory and confirmatory factor analysis, because of the small sample size, this was not possible to perform both analysis. Thus, with above mentioned drawbacks, there is a dire need to conduct more studies in future to approve the generalizability of present scale structure by performing a confirmatory factor analysis on different sample across different countries. Further, future studies may also examine a bystander effect scale and its factors in the different samples in Pakistan.

Conclusion

This present study provided a preliminary instrument of bystander effect to explore perception of bystander effect in Pakistani university students. This newly indigenous developed scale can be applied to examine perception of bystander effect in university students. The recognition of aforementioned factors could advise policy makers on the fields of focus once creating future educational-based preventive interventions. The results of present study also demonstrated that newly indigenous developed bystander effect scale is reliable and valid scale for measurement of bystander effect in Pakistani university students. Moreover, this study also revealed that female university students were shown more prevalence of bystander effect as compared to male university students.

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Ethical Consideration

The study was approved by the Foundation University Islamabad. Consent Form was taken before taking data and participants were asked to take voluntary participation.

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Availability of data and materials

The data sets used and analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions/Author details

Miss Maryam Farzand performed the main study under the supervision of Muhammad Aqeel. Ammara Safdar, Talha Ahmed Gill and Aimen Umair wrote the article under the guidelines of Nature-Nurture Journal of Psychology.

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Ethics declarations

Ethics approval and consent to participate

This study was approved by the Institutional Review Board (Department Of Psychology, Near East University, and Turkish Republic of Northern Cyprus). A written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Competing interests

The authors declare to have no competing interests.

Additional Information

Not applicable.

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