

LETTER TO THE EDITOR**Training and Recruitment of Volunteer Junior Medical Researchers: the Experiences of an Innovative Fast-Track Internship Program****Dear Editor**

Research depends on talented people with bright ideas more than anything else. Preserving the turnover of skilled and fresh researchers can help a research center move toward its goals more strongly. We conceptualized a model for recruiting junior volunteer researchers and organized an innovative event titled “Proposal School” to address this issue. It was an incubator and accelerator for students and post-graduates interested in orthopedic research. This first-coming two-month program included high-standard theoretical education, practical tutoring to help create an actual proposal, faculty supervision, and blinded faculty reviews. During this program, we hosted 94 junior researchers from 25 universities across the country. Twenty-two hours of educational content were provided to 88 people. Forty-five junior researchers developed 18 proposals, 11 of which were accepted and recruited for grants. In this article, we will share our experiences with our colleagues as a source of inspiration for their future plans.

Medical research requires skilled and dedicated researchers who can produce innovative ideas.¹ One of the often-neglected resources is volunteer junior medical researchers (VJMRs).² They can act as cost-effective part-time staff, but only if the organization can provide well-defined programs to identify and nurture their talent.

Doshi et al. have previously proposed a five-stage model for recruiting volunteer researchers, which included discovering, selecting, digging in, validating, and volunteering.^{3,4} This model helped individuals gradually become more involved in the recruitment process.

Inspired by this model, the Center for Orthopedic Trans-Disciplinary Applied Research (COTAR) recently organized an innovative program called “Proposal School”. The objective of this event was to nurture the talents of students and post-graduates who were interested in orthopedic research. The goal was to bring together a network of junior researchers who were both educated and proficient.

We formed a focused group discussion with the participation of faculty members, senior researchers, and

junior researchers. A six-stage model was designed, which included discovery, enrollment, education, application, selection, and implementation stages [Figure 1]. The event was advertised on popular social networks, and everyone could sign up for it. The program consisted of three modules, including Theoretical, Practical, and Competition [Figure 2].

The Theoretical module was a five-week educational course providing participants with a theoretical background. It consisted of six sessions on general topics and six sessions on how to design and develop a standard research proposal. The sessions were hybrid, and their recordings were uploaded for later use. Feedback was collected through online satisfaction forms, and any issues were addressed promptly.

The Practical module involved participants in the actual research design. Participants chose an idea, formed teams, and linked with their faculty idea owner and mentor. The teams worked on designing and creating a research proposal for five weeks. Every week, they had to write a section of the standard proposal format and submit their assignments over the weekend. Feedback was collected through online satisfaction forms, and any issues were addressed promptly. All activities of this module were handled virtually via Telegram groups.

The Competition module incentivized high-quality work. All participants could enter their proposals into a competition, and the best three were awarded prizes and certification. In addition, proposals recognized as “qualified” received COTAR’s grant and were submitted for starting the project.

In the Theoretical module, nine faculty members instructed 88 VJMRs, and 22 hours were spent on education, with a mean satisfaction score of 8.8/10. In the Practical module, 21 teams of 44 VJMRs were supervised by nine mentors. In the Competition module, 11 out of 18 proposals (with a mean score of 215/264) were recognized as “qualified” and received grants. The detailed satisfaction assessment results can be found in [Table 1].

Corresponding Author: Mohammad Hossein Nabian, Center for Orthopedic Trans-Disciplinary Applied Research, Tehran University of Medical Sciences, Tehran, Iran

Email: dr.nabian@gmail.com



THE ONLINE VERSION OF THIS ARTICLE
ABJS.MUMS.AC.IR

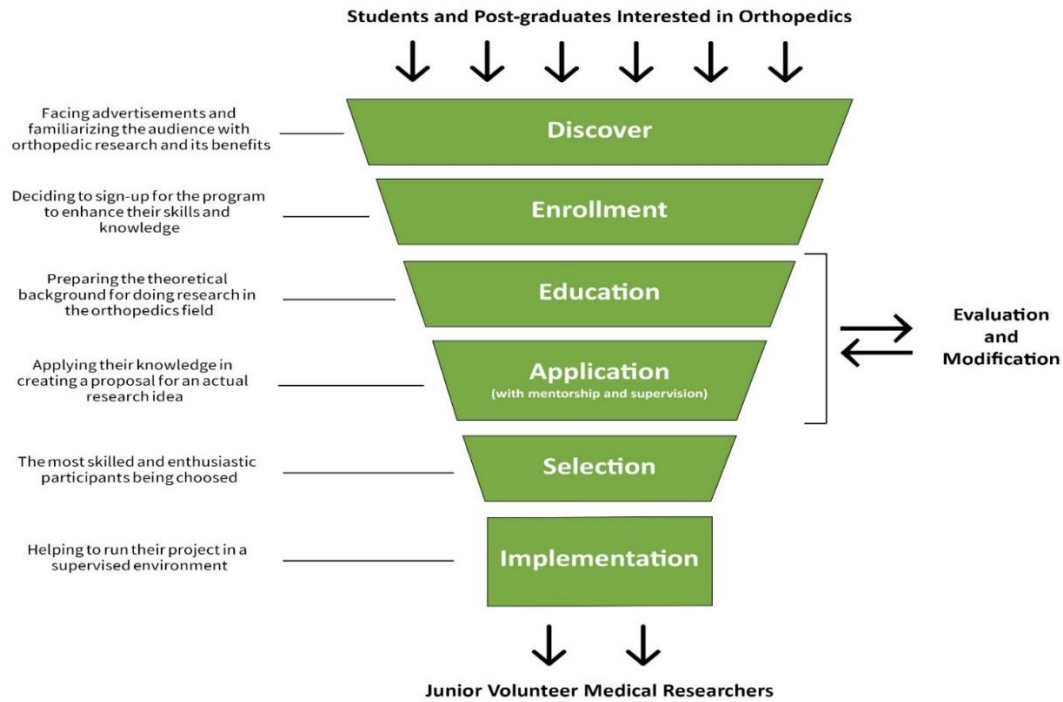


Figure 1. Volunteer junior medical researcher recruitment funnel model

2022	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday (Official Holiday in Iran)
August	6	7	8	9	10 Opening Webinar Explaining Event's Guidelines + Q&A (18-17 PM)	11 General Topics: 1- Research Necessity (9-10 AM) 2- Research Methods (10-12 AM)	12 Announcing the List of Faculties' Research Ideas and Starting Team-up
	13 General Topics: 3- Research Project Management (4-6 PM)	14 General Topics: 4- Article Reading Principles (4-6 PM)	15 General Topics: 5- Citation Searching (4-6 PM)	16 General Topics: 6- Citation Management Principles & Tools (4-6 PM)	17 Finalizing Teams and Allocating Mentors	18 Proposal Topics: 7- Title and Rationale (8-10 AM)	19 Assignment 1: Title + Rationale
	20	21	22	23	24 Deadline for Assignment 1	25 Proposal Topics: 8- Background, Hypotheses and Objectives (8-10 AM)	26 Assignment 2: Background + Hypotheses + Objectives
	27	28	29	30	31 Deadline for Assignment 2	1 9- Methods (8-10 AM) 10- Variables and Analysis (10 AM - 2 PM)	2 Assignment 3: Methods and Materials
	3	4 Proposal Topics: 11- Research Ethics (8-9 PM)	5	6	7 Deadline for Assignment 3	8 Proposal Topics: 12- Executive Tables (8-10 AM) 13- Meta-research (10 AM - 1 PM)	9 Assignment 4: Executive Tables
September	10	11	12	13	14 Deadline for Assignment 4	15	16
	17	18	19	20	21 Deadline for Submitting Final Proposals	22 Start Refereeing Proposals	23
	24	25	26	27	28 Deadline for Refereeing Proposals	29	30 Releasing the List of Winners and Grant Qualifiers + Sending Reports

■ Module 1: Theoretical Educations (Hybrid)
 ■ Module 2: Practical Tutoring (Virtual)
 ■ Module 3: Proposals Competition

Figure 2. Event calendar including modules, topics, and assignments

Table 1. Results of satisfaction assessment

Title	Responder No.	Mean Age	Virtual Attendees No.	Mean Score (Out of 10)
Module 1: Theoretical Education				
Research Necessity	17	22.82	12	8.72
Research Methods	12	23.67	10	8.62
Research Project Management	9	22.44	5	9.17
Article Reading Principles	12	23.58	9	9.34
Citation Searching	5	24.80	3	8.93
Citation Management Principles and Tools	2	30.50	2	9.8
Title and Rationale	6	24.50	3	8.81
Background, Hypotheses, and Objectives	4	-	3	8.28
Methods	6	-	1	8.67
Variables and Analysis	5	-	5	8.72
Research Ethics	4	-	2	8.78
Executive Tables	2	-	2	6.95
Meta-research	10	-	3	8.72
Total	94	23.63	60	8.81
Ending Survey*	81	22.24	39 virtual, 15 in-person, 27 offline	8.73
Module 2: Practical Tutoring				
Week 1	23	-	23	8.46
Week 2	26	-	26	9.08
Week 3	24	-	24	9.32
Total	73	-	73	8.96

* Further analysis:

- In total, 94% of participants declared that if they go back in time, they will register again.
- Participants who also participated in the practical module were significantly more satisfied than those who merely attended the theoretical module (P-value=0.033).
- The satisfaction score was significantly higher in in-person attendees than in virtual (P-value=0.044) and offline (P-value=0.004) attendees. No difference was observed in the satisfaction score of virtual and offline participants.
- Participants declared that they had used nearly 74% of the contents. No significant relationship was seen between the participation rate and satisfaction scores.

In conclusion, COTAR has successfully piloted a model for recruiting VJMRs by running a three-module program called "Proposal School". This program can serve as a reference for similar research institutes looking for cost-effective and energetic human resources.

Acknowledgement

We take this opportunity to thank all who have supported and cooperated in running this event, including Mohammad

Nowrouzi, Nastarn Maghbouli, Shahram Rahimi-Dehgolan, Sahar Tavakoli, Hossein Nematian, Nesa Milan, Ali Ghasemi, Amirhossein Kheiri, Amirhossein Zolghadr, Saeed Reza Mehrpour, Ahmad Reza Shamshiri, Ali Akbari Sari, Akbar Shafiei, Payam Kabiri, Samaneh Akbarpour, Mojtaba Sedaghat, Ehsan Shamsi Gooshki and Hamidreza Namazi.

Conflict of interest: None

Funding: Most of the event's expenses were supplied by the

entrance fee of participants. In addition, Daroo Salamat Pharmed and Tiwan companies sponsored this event.

Sepehr Metanat MD ¹
Mohammad Hossein Nabian MD ¹

¹ Center for Orthopedic Trans-Disciplinary Applied Research, Tehran University of Medical Sciences, Tehran, Iran

References

1. Smith R. Medical researchers: training and straining. *Br Med J (Clin Res Ed)*. 1988; 296(6626):920-924. doi:10.1136/bmj.296.6626.920.
2. Bovijn J, Jacobs A, Boswell MT, du Bruyn E, Bovijn L, Berkowitz N. Junior medical researchers: a neglected community with great academic potential. *S Afr Med J*. 2015; 105(11):884-885. doi:10.7196/samj.2015.v105i11.10179.
3. Doshi A, Connally L, Spiroff M, Johnson A, Mashour GA. Adapting the buying funnel model of consumer behavior to the design of an online health research recruitment tool. *J Clin Transl Sci*. 2017; 1(4):240-245. doi:10.1017/cts.2017.17.
4. Margolis M. Google Ventures On How To Design A Killer Website. CoDesign. Available at: <https://www.fastcompany.com/3045197/google-ventures-on-how-to-design-a-killer-website>. Accessed January 31, 2023.